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**The Evolution of NATO:
2010 Strategic Concept and the Future Security Environment**

Dizertační práce

Olomouc 2016

Prohlašuji, že jsem tuto dizertační práci vypracoval samostatně na základě uvedených pramenů a literatury.

V Olomouce,2016

Na tomto místě bych rád poděkoval svému školiteli prof. PhDr. Jiří Lachovi, M.A., Ph.D., za rady a komentáře. Děkuji za jeho mimořádně vstřícný přístup.

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Introduction

“Change is the law of life. And those who look only to the past or present are certain to miss the future.”

~John F. Kennedy

If there is one certain truth about the world as known by humanity it is that the future is hardly predictable. This general lack of forward-looking knowledge creates a great deal of fear and stress for experts in many fields, especially those in security. One area that benefits greatly from any possible grasp on what may come in the future is that of international security. Looking back in recent history, being able to predict the actions of possible aggressors such as Adolf Hitler pre-World War II or al-Qaeda with the 9/11 terrorist attacks would have saved much hardship around the world if these threats could have been dealt with beforehand. Even with the foreboding knowledge that existed in these two cases: Hitler’s ramblings in his publication of *Mein Kampf* or security reports from back in the Clinton administration about al-Qaeda’s intentions up until the last days before the 9/11 attacks; for whatever reason the right people weren’t paying enough attention to the right information at the right time to make the right choices.

History shows that this is what happens due to many factors and with the increase in the amounts of information and intelligence out there, it can be easy to get lost in the fray. This however does not mean that it is unnecessary to even try, as a government has the responsibility to protect its people from any form of threat now or in the future. It would be irresponsible to neglect any possibilities in the future that are deemed possible. An example of a collective of states that has formed a security alliance and relatively successfully used this type of planning, the North Atlantic Treaty Organization (NATO), will be analysed as a case study to show how planning for future threats has proven a fruitful endeavour in international security based on their track record. The aim of this study is to look at the current view of the Future Security Environment (FSE) that security organizations, think tanks, education institutions and nations within the Alliance proclaim will be in the coming

decades and compare it to NATO's mechanism of planning, the Strategic Concept. The goal of this is to create a sort of consensus on the FSE and to determine if NATO is planning accordingly. The study will take a look if they will be the same force in the coming decades that it has been the previous six.

This study will embody the evolutionary style with which NATO has conducted itself with throughout its existence. The first part of the work will cover NATO since its inception, covering the periods which Secretary General Anders Fogh Rasmussen termed NATO Versions 1.0 and 2.0 at his speech to the German Marshall Fund in October of 2010. Each of these versions is respectively the Cold War period of 1949-1989 and the post-Cold War period of 1990-2010. These eras of planning during and after the Cold War will be looked at through the Strategic Concepts that were penned and the general effectiveness of the strategies that can be analysed in hindsight. Version 3.0 of NATO's evolution, and how it could look, will be discussed in a later part of this work and compared to the most likely threats that will be faced. NATO attempts to stay ahead of the curve and prepare for the global changes through the aforementioned Strategic Concept. The world changes so quickly that it is at times tough traditionally for empires or major organizations to adapt to these situations fast enough, and in turn they fade into the history books. Fortunately the Alliance does not have a set timeframe for the Strategic Concepts, so even if every ten years or so is the norm, it is possible to hold onto a set of guidelines that work for a longer period of time or formulate new ones more quickly. Also the Strategic Concept "is not binding and thus cannot prescribe NATO's future, but the revision offers an excellent opportunity to stimulate productive debate and thereby reenergize and refocus on the Alliance members' common problems and their possible solutions" (Chivvis 1).

There is the question of which embodiment of NATO will be analysed in this work. NATO can be looked at in different ways: a collection of 28 member states in a security Alliance with competing views, or as an Inter-Governmental Organization (IGO) with a semi-independent bureaucracy. The theoretical debate over which NATO exists is expansive and can have a dissertation of its own. This work however is focusing on NATO's planning apparatus, the Strategic Concept, and specifically its function in combating the threats of the FSE. This study will take the look at NATO being an IGO, based on the Alliance's Article 5

mandate of an attack on one member is an attack on all members being the superseding element, and not each nation's individual goals and standing within the Alliance. This was never more evident than during the Cold War, which Josef Joffe has termed a negative, in which he means:

It was “negative” in the sense that NATO was designed to *prevent* something: an attack on its members. It was “passive” in the sense that the Alliance – like Mount Everest – merely had to *be* there. The member-states had a simple and easily comprehended task at hand, to preserve the status quo, and the means was deterrence rather than compellence. The name of the game was *having* military power, not using it (Haglund 105)

This demonstrates the main goal of NATO as being Article 5 and the deterrence of an attack in general. The Alliance wasn't looking at being an offensive organization or to only serve the goals of one or two of its member states. After the end of the Cold War, NATO repositioned itself to attempt to become a more proactive instrument of peace for the region of the Alliance with operations in the Balkans, but with the core ideal of NATO as a whole epitomised in Article 5 was never moved away from. These operations on the borders of NATO were seen as protecting the security of the Alliance, as wars or collapsed states on the borders are seen as a big threat to regional security as a whole. This dedication to Article 5 is evident by the first, and so far only time, that it has been invoked after the 9/11 attacks on the United States. Even though the Alliance was also expanding membership to countries that had previously been on the other side of the Cold War landscape, and therefore adding more differentiating opinions on what NATO should do and be, the fact that these nations joined and became a part in the Article 5 measure in the war in Afghanistan proves this point. Above all else, NATO is an IGO that is committed to the group defence of the membership of the trans-Atlantic region in regards to this study.

The documentation that is being used as the core basis of the study from where the FSE will be formulated is as follows: The Canadian Chief of Force Development Report: *FSE 2008 – 2030*, US Joint Forces Command's (USJFCOM) *Joint Operating Environment 2007-2030* report, the Royal United Services Institute for Defence and Security Studies'

(RUSI) *Policy Paper - The Future Security Environment*, the United States' National Intelligence Council (NIC) entitled *Global Trends 2025: A Transformed World*, Sam J. Tangredi's *All Possible Wars? Toward a Consensus View of the Future Security Environment 2001–2025* for the National Defense University (NDU), and finally Libor Frank and Vlastomil Galatik's *Principy obrany České republiky „2030”* (*The Principles of the Defence of the Czech Republic to 2030*) for the Czech University of Defence. Also a prominent document in this study is NATO's own *Multiple Futures Project: Navigating Towards 2030* that was commissioned in preparation for the 2010 Strategic Concept that will shape the coming years of NATO strategic planning. An in-depth look into this document will demonstrate how a security organization such as NATO goes about a futures study and how NATO views future threats to the Alliance internally. Though this study spells out possible future scenarios that may or may not become humanity's future, that is not the goal of this work or many of the other studies examined. The goal here is to simply paint a picture of what the FSE may look like based on apparent threats as well as seeing how NATO fits into that picture. These documents were chosen for the esteem that the authors and organizations have within the international security field and their hands-on shaping of security policy in the West through their various endeavours; whether they be within a nation's military and security apparatus, in academia or a think-tank. These documents are produced within NATO nations and within a certain ending timeframe (2025-2030), are representative of various elements of security research (military/university/think tanks) as well as being published in languages the author of this work can comprehend (English/Czech) were the only prerequisites for inclusion.

Following this analysis, a final comparison will be made with the 2010 Strategic Concept to that of the compiled view of the FSE from the various FSE studies. Going through the study, the author has produced results using the basic question of: “what will the FSE look like between now and 2030?” Using NATO as a case study for this compiled future has also led to the question: “will the Alliance, as the premier security organization existing today, have the sufficient planning to match up with the emerging or changing threats that will make up the FSE?” Finally the question will be asked: “by looking at

NATO's past performance and current planning for the future, will NATO continue to succeed into the near future and deserve to continue to exist as a security organization?"

1. Theoretical Basis

“It is always wise to look ahead, but difficult to look further than you can see.”

~Sir Winston Churchill

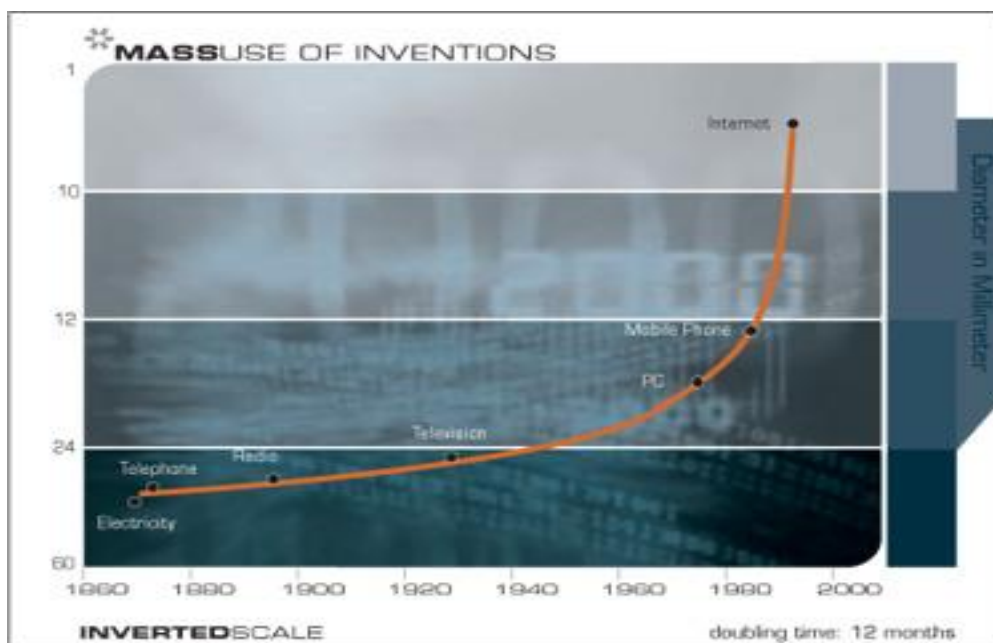
There are many issues and questions to be asked with this level of prediction, many of which will be addressed in the following chapter. Hopefully the importance of analysing trends and probabilities across many spectra of possible threats (for example climate change, terrorism and weapons development) to populations is understood to be important in trying to avert future global catastrophes. One such expected problem in this analysis could be: isn't it an issue that the studies analysed look at the FSE in the next 10 to 15 years, and not to a specific time? The answer is both yes and no. It can be a problem because of applying the results of the varying studies to that of NATO's Strategic Concept that spans from only 2010 to 2020 (unless deemed necessary to enact a new Strategic Concept earlier or extend it), so it's possible that specific threats (possibly of a technological nature, or an undiscovered biological element) will not yet be seen to challenge the global security. There is a nebulous sense to some of these predictions in the studies that are based off of historical precedence, linear trend analysis and a general statistical probability. Is it probable that humanity will cure all major communicable viruses in the next 10 years? Probably not, but anything is possible. The better bet would be the emergence of a new or adapted virus that greatly affects humanity on a large scale based on historical trends and the uncertainty of what other viruses exist, or will exist, out there in the wild. In the 1962 and 1973 versions of his book *Profiles of the Future*, Sir Arthur C. Clarke proposed the first three of his “Laws of Prediction”, and in the 1999 revision he added the fourth, which are as follows:

- When a distinguished but elderly scientist states that something is possible, he is almost certainly right. When he states that something is impossible, he is very probably wrong
- The only way of discovering the limits of the possible is to venture a little way past them into the impossible

- Any sufficiently advanced technology is indistinguishable from magic
- For every expert there is an equal and opposite expert (USAF)

Technology is perhaps less difficult to gauge, as scientists such as Ray Kurzweil have been studying trends in technological progression for years. Kurzweil, a renowned scientist, engineer and futurist, has made a career of not only predicting the paths our technological advancements would take us in, but also in taking us himself to the levels he predicted in some of his areas of expertise. Mr Kurzweil gives another medium into which predicting the future is possible in his book *The Age of Spiritual Machines* with his “Law of Accelerated Returns” which states that “...the rate of change in a wide variety of evolutionary systems (including but not limited to the growth of technologies) tends to increase exponentially” (Kurzweil II 30-32). One major stumbling block in looking at a study of possible futures is that human life has been changing at increasing rates in the past few hundred years because of innovation and technology.

Figure 1.1: Law of Accelerating Returns



(Kurzweil I)

Some things that exist that are integral parts of today's world were part of science fiction novels or unimaginable just decades before. Those living just a few decades down the road will in-turn look back and wonder how we lived the way we did. Ray Kurzweil, through his theory about this increasing advancement of human innovation the aforementioned "Law of Accelerated Returns", has stated that through a historical exponential view we can see technological progress growing at a near exponential rate as seen in Figure 1.1. To give a better understanding of this chart above, Kurzweil states:

The paradigm shift rate (i.e., the overall rate of technical progress) is currently doubling (approximately) every decade; that is, paradigm shift times are halving every decade (and the rate of acceleration is itself growing exponentially). So, the technological progress in the twenty-first century will be equivalent to what would require (in the linear view) on the order of 200 centuries. In contrast, the twentieth century saw only about 25 years of progress (again at today's rate of progress) since we have been speeding up to current rates. So the twenty-first century will see almost a thousand times greater technological change than its predecessor (Kurzweil I)

This theory has allowed Kurzweil to see where technology is now and plan for inventions and technology that may seem out of our reach at the moment. He plots out technological ideas that have the possibility to be created in a certain time frame due to current technologies as a starting point and accounting for their rate of change, miniaturization, etc. Of course not all experts believe in this exponential trend line for technology growth, but the same can be said when observing experts who are involved in the climate change debate and many others. Trend lines of various types are necessary for these future analyses; unfortunately it is unlikely every expert will perfectly agree on which trends graphs to look at. These types of trends are something that definitely helps future planners in the area of international security work with a little more assuredness in their projection, especially in the area of weapons development.

Of the selected works analysed in this study, they are looking only 20 or so odd years in the future because guessing much further than that does start to turn the corner into science fiction; so the studies are inherently limited in their abilities to project so far into the future.

Some areas are a little easier to look at, such as when dealing with limited resources like fossil fuels, as they are finite and will run out on this planet one day until other means of replication may be created. Even then one cannot be certain that all deposits of a specific resource like oil, gas, coal and valuable minerals have been discovered yet as our current technological advancements have not allowed us to discover all areas of the ocean or earth's layers. The most poignant part of this specifically would be for nations of the world to start planning ahead as if these materials will run out in order to avert possible economic and societal collapse. Predicting the decline in access to these materials and its effect is much easier than foreseeing the direction of social change, for example what way that the Arab Spring will go throughout the Muslim world after witnessing the volatility of its infancy.

Another issue could be with the FSE reports themselves, as some may seek to build alternative futures scenarios while others aim to set one main collection of threats that will have to be planned for accordingly. This is a valid argument; however all of the selected reports, in order to properly develop the future or futures they are trying to forecast, need to list what the main threats and catalysts for change are regardless. It is solely these main threats that are needed in order to make the comparison for what these organizations prescribe to and what NATO is officially planning for. Since studies and analyses such as these are imperfect in nature, it does not seem that the time gaps between some of the studies are pertinent when the main question of the state of the FSE is clear. When an organization like NATO looks to the Strategic Concept to plan its next 10 years, they are still going to discuss and plan for threats that may be seen as 15 to 20 or more years away, because to not do so would be insufficient.

The 2010 Strategic Concept is addressing most of the security trends that will be affecting the earth for years to come, not just the next 10 years. So whether a study is looking to 2020 or to 2030, the arbitrary dates are generally irrelevant because the timeframe is in the near future and should be planned for regardless. Within the next decade, NATO will come up with another Strategic Concept and most probably many of the same areas and trends will be addressed along with new ones that are emerging or can emerge at any moment. For NATO, in and around 10 years has become the standard rate to plan for future threats and scenarios in official doctrine, even if they are still looking much further into the

future. Of course once studies start going 50 to 100 years or more into the future, their effectiveness can be called into question as levels of predictability begin to become pure speculation and science fiction as mentioned earlier. So from this what can be seen is that there is a bit of a fantastical element to prediction, as it is what it is: guessing based on data trends. However, innovations that seemed like elaborate fantasy in the time of Jules Verne have become more of a reality to today's readership, so prediction based on possible human development cannot be dismissed out of hand in all cases.

There are many different futures methods that can be utilized in a study like this, and the truth of the matter is many aspects from different methods are present in this study. One of the most important in this analysis of studies is Scenario Planning, which is the methodology of NATO's MFP. The Futures Academy defines a scenario as:

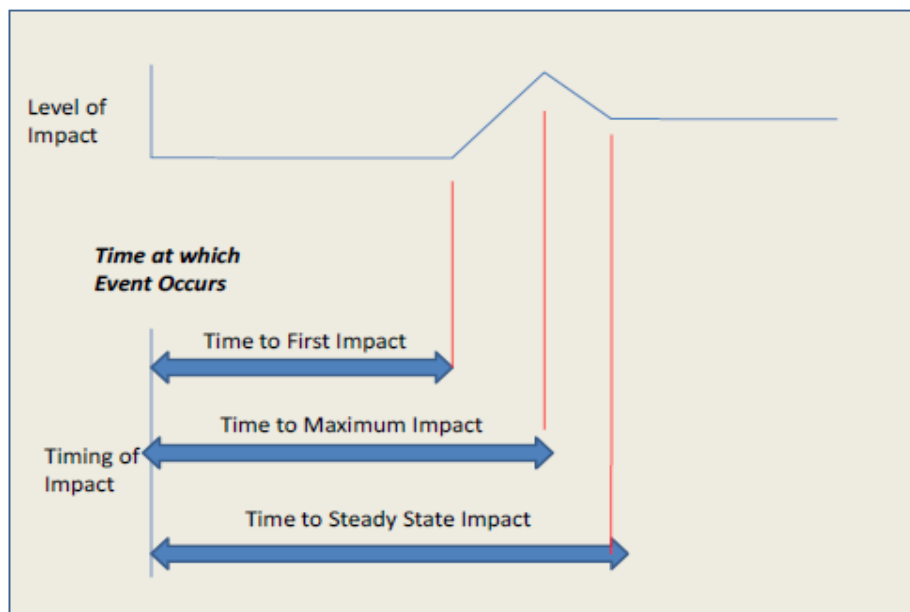
...not a specific forecast of the future, but a plausible description of what might happen. Scenarios are like stories built around carefully constructed plots based on trends and events. They assist in the selection of strategies, identification of possible futures, making people aware of uncertainties and opening up their imagination and initiating learning processes ("Futures Methods & Techniques")

The goal of this study is not to form specific scenarios that are plausible, which this methodology is based, but to create a list of threats that are deemed to have the biggest impact on the FSE and estimate NATO's effectiveness in combating them based on the areas of the Alliance's focus through the Strategic Concept, along with NATO's current and developing capabilities in these realms. Some of the other prevalent futures methods are: Trend Impact Analysis, Simulation and Modelling, Environmental Scanning, Cross Impact Analysis; and all of which have some involvement in the study either in the analysis or the documents chosen for analysis. There are of course many more futures methodologies and techniques, The United Nation's Millennium Project lists 38 alone, so it would be impossible to discuss all of them here. Trend Impact Analysis (TIA) is a very popular method to look at how past and current trends will affect the future landscape.

The Futures Academy states that "[I]t involves the analysis of two groups of trends: quantitative, mainly based on statistical data; and qualitative, these are largely concerned with

social, institutional, organisational and political patterns” (“Futures Methods & Techniques”). Early identification of trends is difficult within qualitative studies, and at times trends can have already played out their social significance before serious research can be done to extrapolate their importance into the futures. Also the relative unknowns of other major future events would have on this trend are another unidentified, but could presumably be addressed when combined with adapting future scenarios to the trend; much like is done in NATO’s Multiple Futures Project (MFP). An example of how to estimate the impacts of certain events or unknowns is presented on the next page in Figure 1.2.

Figure 1.2 Typical Event Impact Parameters

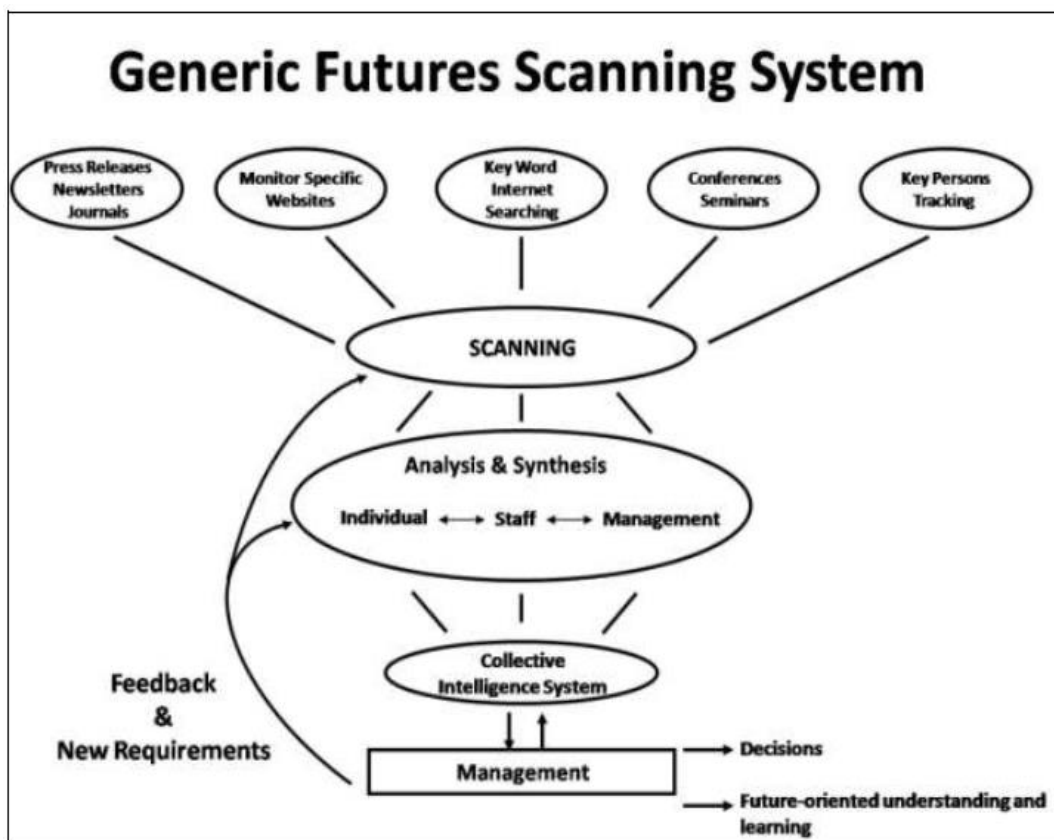


(Gordon II 2)

Simulation and Modelling, which also includes Scenarios and Games, is one of the very oldest human methods for preparing for the future. Any time an army has run war games, they have been practicing this technique. These types of simulations are still frequently done, but much of it has moved into the realm of computers, where the model is a representation of reality or a small piece of reality (such as an area of land or a population). The simulation is then the installation of some “action, development, or situation – past, present, or future, real or imagined”, the outcomes of which are what happened in the

recorded time frame (Rausch 3). The difference between simulations and games is that simulations can generally carry a wider range of ideas to be input into the simulation, whereas games are usually always consisting of people participating, so the ideas should be more grounded and take time constraints into consideration. Environmental Scanning is also widely used, and the Millennium Project states that “[A]ll futurists do environmental scanning—some are more organized and systematic, all try to distinguish among what is constant, what changes, and what constantly changes” (Gordon and Glenn 1). Environmental Scanning is useful at the beginning of a futures study. Normally this starts with broad exploration of all major trends, issues, advancements, events and ideas across a wide range of activities” when “[I]nformation is collected from many different sources, such as newspapers, magazines, Internet, television, conferences, reports, including science-fiction books” and the main point of emphasis for a study are then discovered (Futures Methods and Techniques).

Figure 1.3



(Gordon and Glenn 2)

Figure 1.3 is an example of generic futures scanning system created by the Millennium Project for the Kuwait Oil Company. The last method to be demonstrated here is Cross Impact Analysis. The World Future Society defines as:

A matrix method for identifying the effects that future developments may have on each other. This can be done by creating a matrix and identifying two sets of factors, listing one set of factors from top to bottom on the left side of the matrix and the other across the top (“Cross-Impact Analysis”)

The most important part of this methodology is the initial steps of lying out the initial events and to firmly define them. Any convolution from poorly defined or connected events can make the study more difficult and time consuming. These activities can take place in small group qualitative studies or on larger scale quantitative analyses; both of which can be very long and involved processes. This method is good for analyzing how major global movements will affect each other; say greater integration of human beings with their technology against the religious and purist movements against this further integration. All of these methods, as well as the ones not mentioned, all have their merits for use in any futurist studies. This study in particular is a comparative analysis of futures studies that resembles the end results of the Delphi method. The selected future security studies are compared to find their common results and build a Future Security Environment that looks into the next 20 years. These results are then compared to those of NATO’s 2010 Strategic Concept to see if NATO is effectively targeting their resources towards the consensus security threat predictions.

1.1 Methodology

The methodological approach used in reaching the accumulated results in this study is something akin to the final stages of the Delphi Method, where groups of experts are brought together (or contacted through electronic means) in order to reach a consensus on a prediction for some future situation which their profession is deemed necessary for the task. The goal is to find a coherent image of what the threats in the Future Security Environment (FSE) could

look like and while using NATO as a case study because of their status as a major player in the FSE. The end result will show the state of NATO's future through a comparative qualitative analysis of a combination of various FSE expert reports and NATO's 2010 Strategic Concept. The various security reports will be merged into one list of the top ranked threats within the FSE by averaging the results of the security reports' conclusions. These tabulated results will be taken through the 2010 Strategic Concept and checked for the points where they are similar or not. This evaluation would serve the purpose of showing the level of similarity that NATO, the premier security Alliance, has with the other security and think tank apparatuses within the nations that create the Alliance. Through greater collaboration of knowledge and skills a greater outcome in future security can be achieved, and this work plans to decipher not only the level of continuity between NATO and its members' expert strategic organizations, but lastly with that of the author as well.

The Delphi technique was developed at RAND Corporation, a California think tank, by Olaf Helmer, Nicholas Rescher, Norman Dalkey, and others in the 1960's to deal primarily with forecasting possible technological gains and their military and political potential. RAND decided that "experts, particularly when they agree, are more likely than non-experts to be correct about questions in their field" (Gordon I 1). They also came to the conclusion that keeping the experts separate during the study relieves the group of certain social pressures that face-to-face meeting can bring; such as the Groupthink model would suggest. In a Delphi study, a series of questionnaires (of varying type depending on the desires of those running the study) are handed out to the selected experts in the fields required, and the results are tabulated in order to refine the questioning. Theodore J. Gordon of the United Nation's think tank, The Millennium Project, states that questions in a Delphi study:

Relate to the value of independent variables that are used in quantitative simulation models. In this application, a consensus is not required; rather, if disagreement exists about the value of any variable, the extremes can be tested in quantitative models to determine whether or not the difference has any important significance (5)

Though this study is of a primarily quantitative model, it does have some qualitative qualities, as the results of the studies observed are essentially open-ended responses and not simply one word responses that they are eventually derived to. It is like the question of the possible threats is asked and the results of the studies are a long answer in an interview (figuratively of course) and the singular responses are taken from the context of the response and then tabulated in a numerical nature to reach a consensus.

Generally there are three rounds of this in order to clear any confusion with the questions, and on the fourth and final round the results are presented along with the evolving consensus of the members involved. When research was conducted to see what types of studies are done with the Delphi method, most were seen to be in health science. In actuality they have covered the gamut of topics such as space exploration, increasing reliability of weather forecasts, military technology or environments, and the future application of x-ray technology for example. This model of futurist prediction would lie in the post-positivist research paradigm, as the questionnaire aspect using experts (who focus on using the scientific method quite frequently in their everyday professional lives) from all the fields necessary to form a perspective at what the future might resemble. As Loraine Blaxter mentions in her book *How to Research*: “post-positivists argue that we can only know social reality imperfectly and probabilistically” (60); which fits in perfectly with studies of prediction such as this one.

For the sake of this study on NATO and the Future Security Environment, the general basis of the Delphi method is utilized. The questionnaire to the group of experts will not be used, as many studies on the topic of the FSE have been done by groups that are the upper echelon of their fields, such as the National Intelligence Council (NIC) in the United States, the Royal United Services Institute (RUSI) in the United Kingdom, the Chief of Force Development in Canada and NATO Supreme Allied Command Transformation (SACT). SACT's work with the *Multiple Futures Project* (MFP) will occupy a majority of the focus in the study as it was directly commissioned by NATO and for NATO. Since the documents analysed are all chosen for their respective organizations' expertise in the field of security, and the singular topic being the Future Security Environment in the next 10 to 30 years, the general question that can be asked is: what will be the main threats in the FSE? From here

the results of the seven selected research reports will be tabulated in order to show the most common responses overall to give a general consensus idea of where the main focus of assets in the future of security should be fixated. The data of the risks in the FSE will be collected from the conclusions of the seven main security reports. These results will form a more coherent list of the main threats that the reports have the most in common, creating a list of the main threats. From this point, a the research approach of a comparative analysis is done with the NATO 2010 Strategic Concept to see (as NATO is the case study for this analysis) if the premier security Alliance in modern human history is concentrating policy in the same areas as the other top security organizations would suggest.

This comparative analysis will look through the lens of future security studies and reports at NATO through the decades-old future planning process of the Strategic Concept. Security organizations such as those previously listed above have much in common with NATO: many of them work hand in hand with NATO on various projects or at the very least operate in the same realms of security on the same fighting side. The reason for the selection of the various amalgamation of FSE reports (including NATO's own Multiple Futures Project) is the reason mentioned above: they all, with NATO, aid in the security in one way or another with members of the Atlantic Alliance, and it is therefore important to see if major areas of disagreement exist between these fundamental partners on something as difficult to plan for as the FSE. It is through an open dialog of these similarities, differences, and non-mentioned topics that a better understanding of where the Atlantic Community needs to come together can be ascertained and weaknesses can be addressed.

Another area that will be looked at in-depth in the conclusions is the aforementioned topics that are not focused upon or missing from the reports. There could be areas that recent trends may show there is need for concern, however not mentioned at all in the analyses. If it is discovered that some areas are significantly neglected by the security elite, those citizens of the Atlantic Community should need to find out why, or at least bring them to NATO's attention. Following this analysis, a final comparison will be made with the 2010 Strategic Concept and the various FSE studies to that of the author's view of the probability of success that NATO will achieve in the various categories of the FSE mentioned. This type of study falls directly into the research family of deskwork, as previously done studies have been

collected and analysed without the use of any fieldwork such directly going out into the field and collecting results. It would have been possible to do a complete Delphi method study such as RAND does, but being able to have direct access to all the types of experts needed to complete a study like the ones compile here would have been difficult, time consuming, and narrow. It was deemed best to use an amalgamation of previous studies to find a consensus between them when forming the main threats that will exist in the FSE.

It comes to mind that an expected problem in this analysis would be: isn't it an issue that the studies analysed look at the FSE in the next 10 to 30 years, and not to a specific time? The answer is both yes and no. It can be a problem because of applying the results of the varying studies to that of NATO's Strategic Concept that spans from only 2010 to 2020 (unless deemed necessary to enact a new Strategic Concept earlier or extend it), so it's possible that specific threats (possibly of a technological nature, or an undiscovered biological element) will not yet be seen to challenge the global security. There is a nebulous sense to some of these predictions in the studies that are based off of historical precedence and a general statistical probability. Is it probable that humanity will cure all major communicable viruses in the next 10 years? Probably not, but anything is possible. The better bet would be the emergence of a new or adapted virus that greatly affects humanity on a large scale, based on historical trends and the uncertainty of what other viruses exist, or will exist, out there. Technology is perhaps less difficult to gauge, as many scientists such as Ray Kurzweil to give an example, have been studying trends in technological progression for years. Kurzweil has made a career of not only predicting the paths our technological advancements would take us in, but also in taking us himself to the levels he predicted in some of his areas of expertise. Ray Kurzweil gives another medium into which predicting the future is possible with his aforementioned "Law of Accelerated Returns".

Another issue could be with the FSE reports themselves, as some may seek to build alternative futures scenarios while others aim to set one main collection of threats that will have to be planned for accordingly. This is a valid argument; however all of the selected reports, in order to properly develop the future or futures they are trying to forecast, need to list what the main threats and catalysts for change are regardless. It is solely these main threats needed in order to make the comparison for what these organizations prescribe to and

what NATO is officially planning for. Since studies and analyses such as these are imperfect in nature, it does not seem that the time gaps between some of the studies are pertinent when the main question of the state of the Future Security Environment is clear. When an organization like NATO looks to the Strategic Concept to plan its next 10 years, they are still going to discuss and plan for threats that may be seen as 15 to 20 or more years away, because to not do so would be insufficient. The 2010 Strategic Concept is addressing most of the security trends that will be affecting the earth for years to come, not just the next 10 years. So whether a study is looking to 2015 or to 2036, the arbitrary dates are somewhat irrelevant because the timeframe is in the near future and should be planned for regardless. Within the next decade, NATO will come up with another Strategic Concept and most probably many of the same areas and trends will be addressed along with new ones that are emerging or can emerge at any moment. Of course once studies start going 50 to 100 years or more into the future, their effectiveness can be called into question as levels of predictability begin to become pure speculation and science fiction. It is the hope of the author that this research will allow for a better understanding of the FSE in the coming years and a look as to how NATO could perform based on its current planning and interaction with prediction models.

1.2 Review of Literature

The most pressing issue in this dissertation is to find a coherent map of what the Future Security Environment (FSE) will entail in the next two decades, and with this, analyse how NATO will endeavour through these decades by comparing the FSE with their future looking Strategic Concept. The reason for the selection of the topic is evident by the importance that humanity has put on attempting to understand phenomena before they occur to attempt to control outcomes. The areas of human security, survival and war have always been some of the biggest that humanity has attempted to assess the forthcoming threats of; or the FSE. The author of this dissertation makes the decision to map one possible FSE out of a collection of threat trends from existing literature such as instead of creating certain sets of future scenarios that may occur depending on certain “wild card” events that may push the FSE from one scenario to another. The reason for this selection is because a majority of the

secondary documents analysed used this manner instead of using scenarios like those in NATO's *Multiple Futures Project: Navigating Towards 2030* (MFP). However, from the scenario predictions it is possible to see the future threats involved and allow these studies to be involved in the final tabulations of the FSE. The author does not attempt to choose which option between a trend analysis of threats and multiple scenario production, only that the former works best with the Delphi model to create cohesion in threats and make a singular threat based future prediction. There is also benefit to looking at the older NATO Strategic Concepts to get a grasp of how NATO has planned for the future through past Concepts and their significant successes and failures. These documents were chosen through consultations with staff at NATO Allied Command Transformation (ACT) Headquarters while the author was working there. Individuals who had worked for years on the *Multiple Futures Project*, such as Canadian Naval Cmdr. Rick Perks directed the author on where to find the certain declassified documents that NATO could offer, as well as recommendations of other documents from member states and partner organizations that existed in English.

The primary sources used are from professional organizations involved in the military such as the aforementioned *Multiple Futures Project* from NATO, the Canadian Chief of Force Development Report: *FSE 2008 – 2030* and US Joint Forces Command's (USJFCOM) *Joint Operating Environment 2007-2030* report; from think tanks such as the Royal United Services Institute for Defence and Security Studies' (RUSI) *Policy Paper - The Future Security Environment* and the United States' National Intelligence Council (NIC) entitled *Global Trends 2025: A Transformed World*; to the ranks of institutes of higher education such as Sam J. Tangredi's *All Possible Wars? Toward a Consensus View of the Future Security Environment 2001–2025* for the National Defense University (NDU) as well as Libor Frank and Vlastomil Galatik's *Principy obrany České republiky „2030“* (*The Principles of the Defence of the Czech Republic to 2030*) for the Czech University of Defence. These will all be used with the goal of producing an objective vision of what the FSE might look like.

Nations, militaries, security organizations, think tanks and universities all have interest in predicting what the future environment will look like in a multitude of areas, and depending on the specific area of expertise they may have; it may be different lenses that they

are all viewing the world through. Though this is true, and it may cause some types of phenomena to be mentioned and brought to attention when it would otherwise not be in other studies, the studies used are all likewise looking at similar studies and statistics about current trends that have been conducted. Since the science of prediction is imperfect, where some might be right one time and wrong the next (and sometimes both in one study), it seems pointless to look back at all past FSE studies that these groups have done and fixate on accuracy of predictions. The past experience and merit based reputations of the organizations and individuals included in this study, with the reasoning for leaving out similarly qualified studies because of language or having too many studies already.

Other qualifications are the timeframe of the studies (2020 to 2030) and how recently the studies were completed; as a date focused too far into the future would be bordering on science fiction, and if the studies were completed too long ago (for example the 1990s) there would be too many new details and trends to take into account that had happened since then (like 9/11). The statistics that will be pulled from the secondary literature will be the results from the conclusions made of what the FSE will look like within the documents. These will then be tabulated and whittled down to the most common responses that will be taken to form an overall look at the threat scenario. This study will provide a fresh look at the FSE threat scenario by forming a consensus from the different studies involved. The inclusion of a case study looking at NATO within this FSE is an added benefit and will let the reader look at how a security organization would go about preparing for the threats to come. The other literature used to look at NATO as a case study is gathered mainly through NATO's own online library where all of their past classified and unclassified documents such as the previous Strategic Concepts. The 2010 Strategic Concept will be a main focus for the conclusions of this research.

The military documents in this study are *Multiple Futures Project* from NATO, the Canadian Chief of Force Development Report: *FSE 2008 – 2030* and US Joint Forces Command's (USJFCOM) *Joint Operating Environment 2007-2030* report. Even though NATO Allied Command Transformation (ACT) Headquarters operates like the Alliance's think tank, because of the military nature of this organization this document will be included as a military one. Since NATO is the choice for the case study in this threat scenario based

future, it is only appropriate to have a degree more focus on explaining how they accomplish predictive threat planning than the other studies. When discussing the MFP, US General J.N. Mattis mentioned in his foreword of the study that: “The project was never to become a modern ‘Oracle at Delphi’ for NATO. Rather it provides Alliance leaders with additional considerations for anticipating the shape of future challenges” (NATO MFP ii). The last military document used in this study is USJFCOM’s *Joint Operating Environment 2007-2030* report. This study has a stated knowledge that a combination of current trends and inevitable shocks will form the Joint Operating Environment (JOE) that US forces will have to traverse in the 8-30 years which the study covers. Though the report is US centric, the trends and threats mentioned resound with Europe (therefore NATO member states) as well when discussing USJFCOM’s view of the future: “The future trends portion of the JOE describes a world in which rich and prosperous states represent a smaller and smaller portion of humanity, while the poorest and least economically dynamic societies on earth grapple with rapid population growth, explosive mega-cities, and cultural and environmental change that stresses already-fragile social and political structures” (USJFCOM 4).

The study by the Royal United Services Institute for Defence and Security Studies’ (RUSI) *Policy Paper - The Future Security Environment* and the United States’ National Intelligence Council (NIC) entitled *Global Trends 2025: A Transformed World* are taken within the think-tank categorization. The RUSI paper directly addresses NATO in its considerations for an FSE that will be “marked by *considerable uncertainty, volatility and increasingly rapid change*” and that “it is against this context that NATO needs to determine its priorities for the coming decade... this will most likely encompass a re-writing of the Strategic Concept in 2009 for the sixtieth anniversary of the Alliance” (RUSI 3). It goes on to state the non-state actors will be the only real challenges for NATO member states in this future as traditional foes such as Russia will aim to weaken the European Union (EU) and NATO by dividing member states to further their geopolitical and financial interests. RUSI states that “given the well known maxim that we have to be lucky every time, the terrorists have to get lucky only once, the chances are high that in the next five to ten years NATO allies will suffer from terrorist attacks, the magnitude of which may meet or excel the standard set by 11 September 2001” (RUSI 4). The next major study used is from the NIC

entitled *Global Trends 2025: A Transformed World*. This study chairman C. Thomas Fingar made a point to not be United States centric when in the 3rd iteration (*Global Trends 2020*) of the study they “greatly expanded the participation of non-American specialists by convening six seminars on five continents... [T]hese sessions enhanced our understanding of both specific trends and drivers and the ways these factors were perceived by experts in different regions of the world” (NIC 2025). This international scope was furthered in the 4th iteration analysed in this study. The international aspect gives a great source to make comparisons in trends, drivers, and general analysis. These studies remind nations to remain vigilant on and off the battlefield, as the adversaries of the Alliance will certainly do so.

University studies that are used are Sam J. Tangredi’s *All Possible Wars? Toward a Consensus View of the Future Security Environment 2001–2025* for the National Defense University (NDU) and Libor Frank and Vlastomil Galatik’s *Principy obrany České republiky „2030”* (*The Principles of the Defence of the Czech Republic to 2030*) for the Czech University of Defence. Sam Tangredi’s research document takes the results from 36 other studies from organizations which are interested in national security and using a comparative analysis of the categories of threats outlined these documents, creates a FSE of his own (similar to what this study is doing). The breadth of documentation used in this study makes it a great primary source to be included into this study on the FSE. However, this document is also one of the oldest of the primary sources used in the study, but many of the same worries expressed in this document are the same that are trending currently and still seeing no evidence of declining greatly, so the document was accepted as it is looking to the year 2025 (in the acceptable ending timeframe).

The next university document, *Principy obrany České republiky „2030”*, was selected to add more to the well-roundedness of the study as it seemed important to not only look at results from studies within NATO nations that only reside in North America or Western Europe (also this study is being completed at a Czech university, hence another reason to include this document into the primary literature). This document states the importance of looking to the FSE to determine a prioritization of possible threats to create a basic frame of reference in order to make determinations in security policy. The authors believe that for the Czech Republic life’s national interests will remain generally the same by 2030; such as

“sovereignty, territorial integrity, protection of democratic rule of law, fundamental human rights and the freedoms of citizens” (Frank et al 7). However, the strategic national interests will change based on the expected security situation which will develop from the threats that are determined in the study (or the possible emergence of those yet unseen). This is probably no different an opinion that any of the other NATO nations would feel in this regard, and since other national studies are analysed and taken to encompass all NATO nations within its security framework, there is no reason the Czech Republic study should not be taken as so. A threat to one NATO member state is a threat to all of them; however one threat may be more serious and probable for one nation or group of nations than another state or groups depending on location, international presence, economic reach, etc.

Secondary documents used in this study are in many forms. Much of the historical NATO information dealing with the various Strategic Concepts comes from their online library of speeches and unclassified documentation. The declassification and publication of these documents allows for an intricate look into the history of the Also, this research included other information about the *Multiple Futures Report* and the processes behind it from articles and interviews that exist on the NATO Supreme Allied Command (SACT) website. Another study entitled *A More Secure World: Our Shared Responsibility* by the United Nations (UN) Secretary General’s High-level Panel on Threats, Challenges and Change, is used as more supplemental information. This study was included to expand the information base and to add another source outside of the study to bolster the results and comparisons. Secretary General Kofi Annan had this to say of the research he commissioned:

The purpose of this report is to suggest how nations *can* work together to meet this formidable challenge. It is the work of a panel of sixteen eminent and experienced people, drawn from different parts of the world, whom I asked a year ago to assess current threats to international peace and security; to evaluate how well our existing policies and institutions have done in addressing those threats; and to recommend ways of strengthening the United Nations to provide collective security for the twenty-first century (UN x).

This study demonstrates not only the future threats to global security, but ways in which nations can work together through the UN to meet the challenges ahead and so deserves to be utilized within the parameters of this research.

Another document cited within the study is the *Strategic Trends: 2007-2036* study by the Development, Concepts and Doctrine Centre (UK DCDC); a Directorate General within the UK's Ministry of Defence (MOD) to help for UK Defence Policy. This document was chosen to be a secondary source because it seemed necessary to limit the studies to the year 2030, however the document is still pertinent enough to use as a supplemental and comparative study. This document was used as a means of gathering more information to add to the integrity of the results when looking outside of the main documents in the study. The UK DCDC demonstrates it deserves to be included in this study in some capacity by stating its qualifications: "DCDC's *Strategic Trends* Programme should aim to provide a detailed analysis of the future strategic context for Defence out to 30 years" (UK DCDC i).

Another example of a document used for reference demonstrates the opinion of a security expert from the private sector with Michael Chertoff's speech to Chatham House entitled *Current and Future Security Threats Ten Years after 9/11*. This document utilized for this study is different than all the rest in some respects, as it is a speech to the independent analytical advisory think tank Chatham House. The reason this is taken into regard for this study is that Michael Chertoff is also the co-founder of his own risk management and security consulting firm that has undoubtedly done plenty of research into the topics discussed in the speech. Mr Chertoff is also a former Secretary of the US Department Homeland Security under the George W. Bush administration from 2005-09. It is safe to assume these same threats analysed in Chertoff's verbiage are the same that his company is advising his clients on in the public and private sectors, so the content of this speech bears merit for this study. The speech is broken down into a few areas, but he starts by explaining the type of security environment the world finds itself in today in which he states did not begin with the 9/11 terror attacks, but actually before. Previously with the Cold War and before the world had been in a situation where there were two different kinds of threats: those dealt with by the military and those by law enforcement. Examples he gives the war in Iraq/Kuwait as a sole military issue and dealing with transnational criminal groups as a law enforcement matter.

Figure 1.4: National intelligence Council Global Trends 2030

GLOBAL TRENDS 2030: AN OVERVIEW	
MEGATRENDS	
Individual Empowerment	Individual empowerment will accelerate owing to poverty reduction, growth of the global middle class, greater educational attainment, widespread use of new communications and manufacturing technologies, and health-care advances.
Diffusion of Power	There will not be any hegemonic power. Power will shift to networks and coalitions in a multipolar world.
Demographic Patterns	The demographic arc of instability will narrow. Economic growth might decline in "aging" countries. Sixty percent of the world's population will live in urbanized areas; migration will increase.
Food, Water, Energy Nexus	Demand for these resources will grow substantially owing to an increase in the global population. Tackling problems pertaining to one commodity will be linked to supply and demand for the others.
GAME-CHANGERS	
Crisis-Prone Global Economy	Will global volatility and imbalances among players with different economic interests result in collapse? Or will greater multipolarity lead to increased resiliency in the global economic order?
Governance Gap	Will governments and institutions be able to adapt fast enough to harness change instead of being overwhelmed by it?
Potential for Increased Conflict	Will rapid changes and shifts in power lead to more intrastate and interstate conflicts?
Wider Scope of Regional Instability	Will regional instability, especially in the Middle East and South Asia, spill over and create global insecurity?
Impact of New Technologies	Will technological breakthroughs be developed in time to boost economic productivity and solve the problems caused by a growing world population, rapid urbanization, and climate change?
Role of the United States	Will the US be able to work with new partners to reinvent the international system?
POTENTIAL WORLDS	
Stalled Engines	In the most plausible worst-case scenario, the risks of interstate conflict increase. The US draws inward and globalization stalls.
Fusion	In the most plausible best-case outcome, China and the US collaborate on a range of issues, leading to broader global cooperation.
Gini-Out-of-the-Bottle	Inequalities explode as some countries become big winners and others fail. Inequalities within countries increase social tensions. Without completely disengaging, the US is no longer the "global policeman."
Nonstate World	Driven by new technologies, nonstate actors take the lead in confronting global challenges.

(NIC 2030 ii)

These realms began to merge and become blurred as of the 1990's with militant terrorist groups like al-Qaeda asserting themselves; finally coming to a head with 9/11. Today confronting many of the security issues in the world, specifically with terrorism, needs a collaborative effort from both military and law enforcement authorities at all levels to be successful. The NIC once again makes an appearance with its update to its Global Trends 2025: A Transformed World with the Global Trends 2030: Alternative Worlds report. This study would have been used for the main collection of threats calculation, but the study is more of a complete structural change from the previous study and it focuses on the creation of future world and scenarios which is already demonstrated thoroughly in the section covering the NATO MFP. It was relegated to a secondary document for this reason. Figure 1.4 on the previous page relays the areas of focus for this study. Other secondary online publications such as *Wired Magazine*, *io9* and others of a similarly reputable nature are used to reinforce the research on developing technical and military trends and their impacts. Newspaper journal articles from publications such as *The New York Times*, *The International Business Times*, *The Guardian*, *The Washington Post*, *Foreign Affairs*, *VICE News*, *Foreign Policy* and others are utilized for data, interviews, graphs and backing information to reinforce or negate points made in the studies. This literature review gives a sample as to what has been used in this study as research documentation.

2. The Strategic Concept

Learn from the past, live in the present, plan for the future

~ Audrey Farrell

Throughout the decades the North Atlantic Treaty Organization (NATO) has adapted to the global situation and planned for the near future through the Strategic Concept. From the beginning of the Cold War to its completion, all the way into the 21st century, the world has changed a great deal and yet NATO still perseveres as the prominent defensive Alliance today. The major shift during this time for NATO is the alteration from a homeland defence and deterrence Alliance against a static foe in the Soviet Union, into a foundation of defence while adding an expeditionary force element aid at away from area missions. NATO sees that this lifecycle composes of three periods: the Cold War period, the immediate post-Cold War period and the security environment since 9/11, and lastly 2010 to the near future. NATO Secretary General Anders Fogh Rasmussen had this to say on the lifecycle of the Strategic Concept at a 2010 meeting of the German Marshall Fund of the United States in Brussels:

The new Strategic Concept will have to guide the next stage in NATO's evolution. The first stage was obviously the Cold War Alliance: purely defensive, big static armies, facing down one clear adversary. You might call that NATO Version 1.0. And it worked very well. NATO Version 2.0 was the post-Cold War NATO, from the fall of the Berlin Wall until today. It has also worked well. We helped consolidate peace and democracy across Europe. We managed crises from the Balkans to Afghanistan. And we engaged with new partners, with which we share common purpose. The time has now come for NATO 3.0. An Alliance which can defend the 900 million citizens of NATO countries against the threats we face today, and will face in the coming decade. The Strategic Concept is the blueprint for that new NATO (Rasmussen)

The Strategic Concept idea is such an important foundation for the Alliance, in fact the founding a strategic concept document from the US Department of Defence in 1948 is the basis for the military cooperation today. President Truman knew that the United States would be unable to keep such vast military forces in Europe for much longer, as the Senate would no longer approve, so this strategic concept also laid the groundwork for future military cooperation and aid to Europe. Previous wars where allies would fight separate wars against similar foes had been proven ineffective and had left many weak points that had been exploited and presented major risks of splintering Alliances. In order to have a more integral groundwork for collective defence, the document believed the nations should focus on pooling their resources and focus on joint training in order to fight against a common foe. Also in order to streamline these forces and prevent redundancy, the document “called for each member to be assigned those missions that it was best suited to perform, and for each member to refrain from creating armed forces that another member was better suited to provide” (Thies 100).

This remains a core principle of the Alliance today, with the one exception being that the United States has put its vast resources into just about every capability, even if it is something that can be done better by an ally. Some allies, such as England and France, have created greater cohesion between their military forces in order to share capabilities and save on defence spending. This historical shift has not been without its share of intense stresses and failures of course, but no organization can succeed without learning from their past mistakes and present situations, all-the-while planning for their reoccurrence to avoid or defeat them in the future. The chart below demonstrates the Strategic Concepts and the evolving aims of the Alliance throughout the decades. The next section will give a more in-depth look at the past Strategic Concepts that have lead NATO to where they are today the 2010 Strategic Concept, or NATO version 3.0.

2.1 1949 – 1957: Three Strategic Concepts that Built an Alliance

At the end of World War II, many in war ravaged Europe and war weary North America were searching for a means to avoid another catastrophic event that was previously

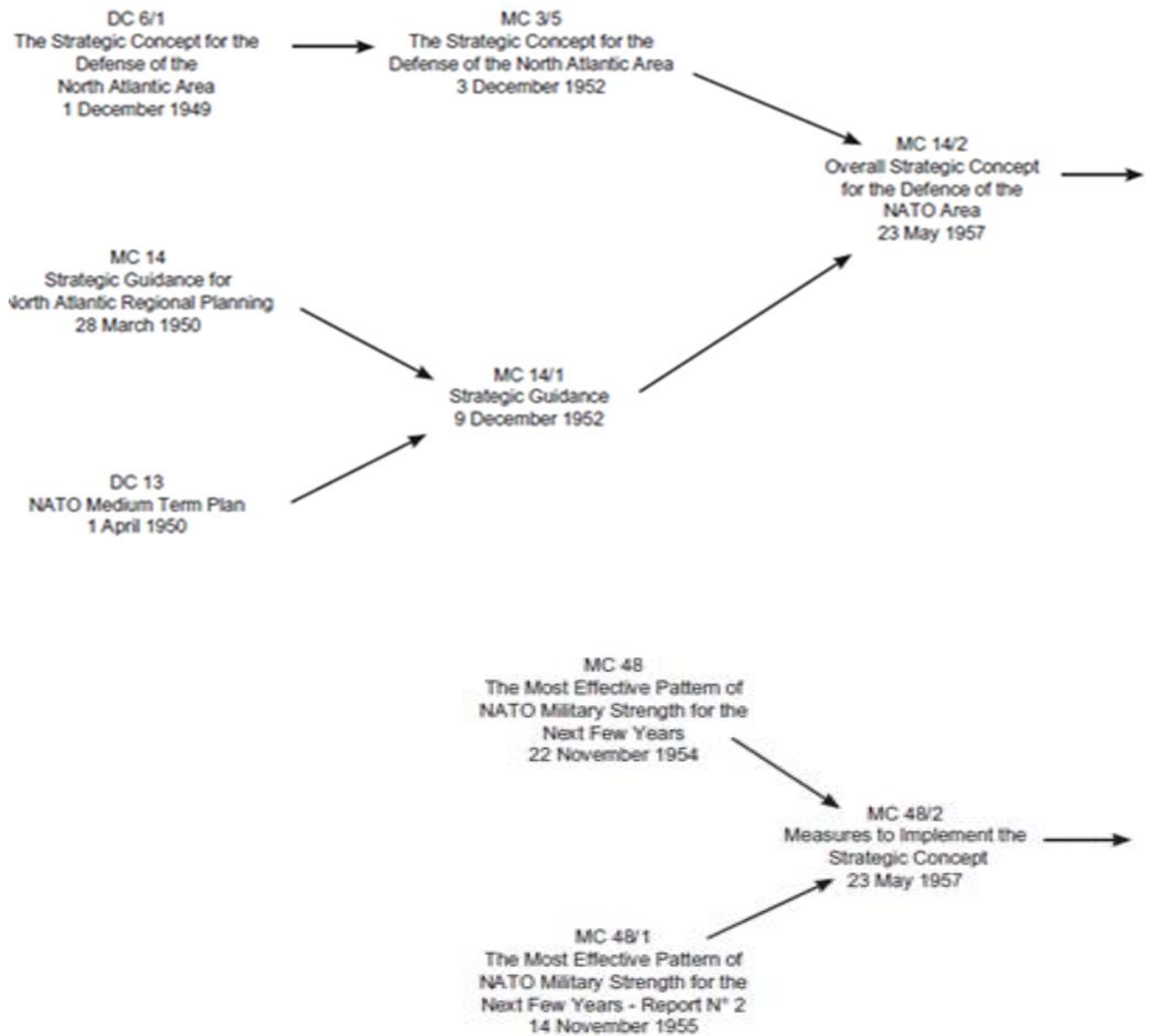
not dealt with well enough after the conclusion of the first World War. The North Atlantic Treaty was signed in 1949 in Washington D.C. that gave birth to NATO. The accession into the Alliance the five nations of the U.K., France, Belgium, Luxembourg and the Netherlands that had already signed the quite similar Treaty of Brussels in 1948 joined the roster of states that included the US, Canada, Italy, Denmark, Iceland, Norway and Portugal. The first Strategic Concept released that same year and signed by the North Atlantic Council (NAC) in 1950 was actually being drafted the year before the founding of NATO by the US Department of Defense (DoD) in collaboration with the United Kingdom. Both the US and U.K. had a desire to create a security apparatus that reflected the methods they had been successful with in defeating the Germans in World War II. These basic tenants outline in the first Strategic Concept, DC 6, are that such an Alliance should (1) an integrated defence of the North Atlantic area, (2) based on an international division of labor, (3) resulting in balanced collective forces for the Alliance as a whole (Thies 100). This strategic document, along with the documents MC 14 and DC 13 set the groundwork for what NATO had become in the Cold War; a static, reactionary, collective defence and deterrence Alliance.

The second Strategic Concept came in 1952 on the heels of the Korean War and focused on the strength and effectiveness of NATO forces. The Alliance wanted to press the idea of the defence of NATO territories from invasion as well as to destroy the will of the Soviet Union and their allies to do so through the passage of MC 3/5 and MC 14/1. As mentioned in MC 14/1 entitled *Strategic Guidance*, NATO's overall ability to destroy this will of the Soviets and their satellites was to "do this by initially conducting an air offensive and, in parallel, conducting air, ground and sea operations. The Allied air attacks would use 'all types of weapons'" ("Strategic Concepts"). At this point the nuclear arsenals of the NATO member states were not directly addressed, but the last comment can be seen as foreshadowing their inclusion into the fold.

Greece and Turkey were also admitted during this time to add a presence for NATO in southeast Europe and both the Black and Mediterranean Seas against Soviet influence. Important structural additions were made as well in order to improve NATO structure and centralize command with the creation of the Supreme Allied Commander Europe (SACEUR),

a position first filled by American General Dwight D. Eisenhower, as well as Supreme Headquarters Allied Powers Europe (SHAPE) near Mons, Belgium and Supreme Allied Commander Atlantic (SACLANT) in Norfolk, Virginia.

Figure 2.1: 1949-1957



(“Strategic Concepts”)

Also, the inclusion of the Federal Republic of Germany into the Alliance in 1955 now allowed NATO to place its weaponry as far east as possible to the Soviet Union and its satellites that the front lines were on their doorsteps.

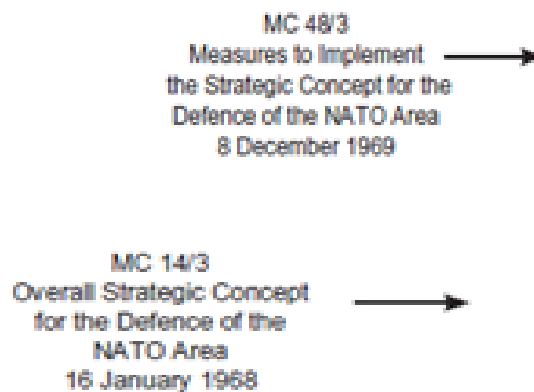
The third and final Strategic Concept in this formative period for NATO was completed on May 23rd, 1957 in the form of MC 14/2 and its implementation document of MC 48/2. The most important part of this new Strategic Concept was what was first mentioned a few years earlier in both MC 48 and MC 48/1, and that was the idea of “massive retaliation” with a nuclear arsenal. General Eisenhower and the US had been a major proponent of this idea as a means of lessening the costs on militaries as well as adding an element of flexibility. It was easier to place nuclear arsenals around Europe than to have a substantial military force requirement in those same areas in the eyes of many leaders. However, the idea of massive retaliation did not go over so well with some leaders, so the idea was expanded upon to allow for conventional warfare in small skirmishes that could occur. When dealing with the Soviet Union, NATO did not see this idea of limited warfare as a true possibility by stating: “If the Soviets were involved in a hostile local action and sought to broaden the scope of such an incident or prolong it, the situation would call for the utilization of all weapons and forces at NATO’s disposal, since in no case is there a concept of limited war with the Soviets” (Pedlow 327). At this time NATO also began to take into account the possible need for out-of-area missions due to events such as the Suez Crisis in 1956; as the Soviets’ influence was not confined to only the area of Europe, nor should NATO’s if need be.

2.2 1968: The 20 Year Strategic Concept

The final Strategic Concept of NATO version 1.0 was a result of reflection upon the idea of massive retaliation as a deterrent and defensive response. NATO searched for a more flexible response to conflict that allowed the Alliance to vary their responses depending on the perpetrator and degree of action, and re-announced so in the 1967 Harmel Report. The doctrine of Mutually Assured Destruction (MAD) was rearing its head more and more every year as the Cold War carried on, and the Strategic Concept of 1968 (MC 14/3) gave the

Alliance this flexibility it needed and the ability to escalate the threat of mass nuclear response in order to deter as much as possible through its three main points: Direct Defence- the aim was to defeat the aggression on the level at which the enemy chose to fight; Deliberate Escalation- this added a series of possible steps to defeat aggression by progressively raising the threat of using nuclear power as the crisis escalated; and General Nuclear Response- seen as the ultimate deterrent (Pedlow 358-9). One interesting result of the Cold War was that after this new Strategic Concept, it seems that both sides had become settled on boundaries of Europe and cut back on attempts at any land grabs and overtly aggressive moves; however this did nothing to quell the growth of weapons manufacturing. This interesting behaviour lead to by these political changes was the institutionalization of the military industrial complex by both sides, and this increasing level of competition was devoid of any overt political actions. This is odd because “[T]ypically in European history, arms races cause political tension, or alternatively, political tensions cause arms races” (Bracken 155).

Figure 2.2: 1968-1990



(“Strategic Concepts”)

It was starting in the 1970s that began the spending spree on the military that ended up contributing heavily to the downfall of the Soviet Union. This general strategy succeeded for the next two decades during a period that saw Spain join the Alliance in 1982, a growing global reluctance to use nuclear weapons and a thawing of relations between the Soviet

Union and the West. This Strategic Concept and other relevant documents such as MC 48/3 and complementary documents like the Helsinki Final Act signed at the Conference of Security and Cooperation in Europe (OSCE) in 1975 all attributed to a policy that led to the ending of the Cold War. NATO managed to weather many problems during this 24 year period, such as: The United States pulling out of the Vietnam War in 1973, the Yom Kippur War between the Israelis and Palestinians, the OPEC oil embargo, Turkey's invasion of Cyprus in 1974 and Greece's subsequent leaving the NATO integrated military structure from 1974-80 (much like France had done earlier) (Collins 85). This was all in the first years of the Strategic Concept, but it continued on as the prime planning document through the next decade. The political hardships of the Afghanistan War from 1980-88, Britain's war in the Falklands and the nuclear explosion at Chernobyl were all sustained by the Alliance, eventually ending the Cold War at the close of the decade. It can be seen that NATO's foresight and planning through the Strategic Concept model was a success during the Cold War era. Even with the share of close calls, what was believed to be possible global destruction was all averted. However, with the collapse of Soviet Union and the dissolution of the Warsaw Pact, it was back to the drawing board in order for the Alliance to stay relevant in the newly emerging security environment.

2.3 1991: Alliance Reborn

After the Cold War, organizations such as the United Nations (UN), the European Union (EU) and the Organization of Security and Cooperation in Europe (OSCE) commenced on a mission of dialog with neighbours and former adversaries to attempt to bring Europe together after decades of separation. NATO was no different in this pursuit, as the Alliance was looking for a reason to withstand the changing times, leave the Cold War ghosts in the past, and look forward towards defending a unified Europe in NATO version 2.0 all while restating the main tenants on which the Alliance rests. The first step was to bring a unified Germany into the Alliance after West Germany had joined back in 1955, as this represented the true unification of Europe. One way NATO could open up the Alliance to emerging democracies in Europe was to begin a campaign of declassification for all to see,

and the 1991 Strategic Concept was the first one signed as declassified in the Alliance's history. These ideas of positive outreach with former adversaries lead to accession talks for many states throughout the 1990s and brought much of Europe into the shared security fold. Another step was to change the Strategic Concept from a military document that expressed military strategy decided in the Military Committee into a NAC 'general strategy' document that is now decided by the Heads of State and Government of the NATO nations (Codner).

The new Strategic Concept was published in 1991 at the Rome Summit also reinforced the principles of NATO that persevered through the Cold War decades and "affirmed that the core purpose of the Alliance remained collective defense but declared that since the threat of a monolithic, massive military attack no longer existed, 'the risks to Allied security that remain are multi-faceted in nature and multi-directional, which makes them hard to predict and assess'" (Wallander 718). In order to help many nations' defence budgets, NATO also planned a cutback in active nuclear arsenal and slimming of forces in the period directly after the Cold War. The destabilization effect of the ending of the Cold War came to NATO's doorstep in the Balkans in the 1990s, which led to NATO going slightly out of area for the first time in its history. The Bosnia and Kosovo operations had basis in this Strategic Concept in articles 31-33 which focused on management of crisis and conflict prevention. In reality, NATO was not adequately prepared for these types of actions after solely maintaining itself as a static defensive organization for the previous 40 years. With the war in Bosnia, other organizations (such as the UN) and individual nations had failed to do enough to stop the conflict, so the attention of the European neighbourhood turned to NATO. However, this was still an uncertain area of functionality for the Alliance:

In both political and military circles of NATO member countries, there was a deep reluctance to shed NATO's collective defense capabilities, structures, and missions for the uncharted world of 'non-Article 5' missions. 'Every time the US walked up to really dealing with Bosnia' in 1992-93, it confronted these political and military obstacles to NATO peace operations. Although the new Strategic Concept changed the Alliance doctrine in principle, in practice real adaptation evolved, through Bosnia, more slowly. As the war escalated in 1992-93 and the UN proved unable to prevent

the fighting and particularly the assault on civilians of all ethnic groups, attention turned to NATO (Wallander 719)

These actions that followed in the Balkans, however difficult and troubling, did give NATO an improving resume in order to build a platform to become a premier peacekeeping and enforcing Alliance in the next Strategic Concept in 1999. The Alliance was on the way to becoming one that could use its military and political strengths to not only defend the territory of its members, but also help in the instability on its borders and beyond.

2.4 1999: A Golden Anniversary Concept

NATO decided to release its second Strategic Concept of the 1990s in Washington D.C., where it all began, to coincide with the approaching new millennium as well as the 50th anniversary of the Washington Treaty. NATO had survived the 1990's despite the constant questioning the continued need from political and military leaders, scholars and even the populations of the Alliance. The threat that NATO was formed for, the Soviet Union, had completely broken up and many of those former members were looking west to joining the Alliance or forming partnerships with it. Russia itself was in a state of disarray internally, had hit a severe economic crisis in 1998 and was dealing with separatist movements in its Caucus regions; so at the time they seemed to pose no threat to anyone. At this point NATO was transitioning by taking a comprehensive military and political approach into a defensive Alliance with expanding reach and influence with recent experience in peacekeeping and enforcement. The mission in Bosnia in the mid-1990s was the direction that NATO envisioned would become its primary calling card in the decade to come.

The Alliance had implemented partnership programs in the 1990s such as the Partnership for Peace (PfP), the Euro-Atlantic Partnership Council (EAPC), the Mediterranean Dialog and the NATO-Russia Council (NRC); and the first major reward of this outreach was the accession of the Czech Republic, Hungary and Poland into the Alliance. The five main tenants of the 1999 Strategic Concept that had taken root in the experiences of

the Cold War and the decade following which looked toward the new millennium of security are as follows:

- **Security:** To provide one of the indispensable foundations for a stable Euro-Atlantic security environment, based on the growth of democratic institutions and commitment to the peaceful resolution of disputes, in which no country would be able to intimidate or coerce any other through the threat or use of force.
- **Consultation:** To serve, as provided for in Article 4 of the Washington Treaty [that is, the North Atlantic Treaty], as an essential transatlantic forum for allied consultations on any issues that affect their vital interests, including possible developments posing risks for members' security, and for appropriate coordination of their efforts in fields of common concern.
- **Deterrence and Defence:** To deter and defend against any threat of aggression against any NATO member state as provided for in Articles 5 and 6 of the Washington Treaty.

And, in order to enhance the security and stability of the Euro-Atlantic area:

- **Crisis Management:** To stand ready, case-by-case and by consensus, in conformity with Article 7 of the Washington Treaty, to contribute to effective conflict prevention and to engage actively in crisis management, including crisis response operations.
- **Partnership:** To promote wide-ranging partnership, cooperation and dialogue with other countries in the Euro-Atlantic area, with the aim of increasing transparency, mutual confidence and the capacity for joint action with the Alliance (Yost 491)

Most of these ideas remain the same from the previous Strategic Concept except that, due to NATO's involvement in the Balkans directly after the passing of the previous Strategic Concept, the idea of crisis management is much more spelled out as a function of the Alliance. A similar situation happened after the passing of this agreement with the 9/11 attacks coming two years later. NATO responded using the Article 5 response for the first time, subsequently going into Afghanistan and initiating the idea of operations abroad. These events demonstrate that although NATO plans intently for the defence of the Alliance, no one truly knows what lies around the corner.

2.5 The 2010 Strategic Concept

Many major events had accumulated for NATO since the passing of the last Strategic Concept in 1999, such as: the Kosovo war, 9/11, the Global War on Terror (GWOT), the war in Afghanistan, the training mission in Iraq (and of course the Iraqi War itself which was comprised of many NATO members), the re-emergence of piracy, expansion from 18 to 27 nations, cyber war in Estonia, a global economic decline, the Russia-Georgia war and the conflict in Libya to name a few. The decade from 1999 to 2009 was one of the most difficult as the Alliance had desired to be able to handle up to two wars and six smaller conflicts simultaneously, they were beginning to realize just one war and a few smaller operations were becoming overbearing. NATO had focused previously on defence of its home territories during the Cold War, but in the 1990s with the Bosnia War and the eventual Kosovo War, the Alliance shifted to just outside its borders to the surrounding neighbourhood. Finally, after the tragic events of the aforementioned 9/11 terrorist attacks on the United States and the results of the GWOT, NATO has become a regional security organization with a global reach. When the Strategic Concept of 1999 was approved at the Washington Summit, few could have imagined what was waiting just around the corner. This Strategic Concept had the desire of making NATO into defence and crisis prevention organization, which could be seen as an alternative to the United Nations after such peacekeeping calamities of Somalia (UNOSOM), Bosnia (UNPROFOR), and Rwanda (UNAMIR) among others. The goal of the Strategic Concept for NATO is to be prepared for the threats of the near future, but in many ways it marked one of the biggest turning points in the history of the Alliance that rivals that of the ending of the Cold War.

After the very trying first decade of the new millennia that saw NATO becoming more spread thin due to the aforementioned conflicts and the global economic crisis, a new Strategic Concept was deemed absolutely necessary by the leaders of the NATO member states at the NATO Summit in Strasbourg-Kehl in the spring of 2009. Many had become concerned where the Alliance was going, such as former U.S Secretary of Defense Robert Gates who said in reference to NATO in 2008 that: “I worry a great deal about the Alliance evolving into a two-tiered Alliance in which you have some allies willing to fight and die to

protect peoples’ security, and others who are not. And I think that it puts a cloud over the future of the Alliance, if this is to endure and perhaps even get worse” (Gates). The Alliance had begun to splinter in many other areas as well; most notably in military funding, the wars in Afghanistan and Iraq, and even the necessity of the continued existence of the Alliance. These threats were very real, especially with the Alliance’s forces so spread out; the American forces in particular. In an address to the US Senate Foreign Relations Committee – European Subcommittee on May 6th, 2009 from Daniel S. Hamilton of the Center for Transatlantic Relations, he laid out a map for how NATO should be used in certain situations to counteract this current period of economic and force requirement weakness in Figure 2.3 below. These would require greater cooperation with civil and military authorities within NATO and others like the UN and EU. This could clarify and strengthen a modern Article V response for NATO as nations would have a better idea how much they would have to give/or not have to give depending on the action taken against the Alliance or its partners.

Figure 2.3: NATO Mission Outline

NATO: Leading Role, Supporting Actor, or Ensemble Player?	
<i>Home Missions</i>	<i>Role</i>
Deterrence and Defense	Lead
Transatlantic Resilience	Support/Selective Lead
Europe Whole, Free and at Peace	Support/Selective Lead
<i>Away Missions</i>	<i>Role</i>
Crisis Prevention and Response	Lead/Selective Support
Stability Operations	Support/Selective Lead
Working Effectively with Partners	Support/Ensemble Player

(Hamilton 3)

In a way, the new Strategic Concept would be a way to reaffirm the dedication to the Alliance for many members and begin a shift in a new, more effective direction. This was absolutely necessary for the survival of the Alliance as an early 2010 Council on Foreign Relations (CFR) report entitled *The Future of NATO* revealed, much like Robert Gates had, that:

Potential US disinterest is the greatest danger facing NATO going forward. To keep the United States engaged in the North Atlantic Alliance, the Europeans must signal that they understand the new threat environment and what it takes to meet that threat. It would be far better for both the United States and Europe if NATO succeeds. American reassurance is still valuable within Europe (Goldgeier 20)

Another major area of concern is that of adapting Article V, the basis of the Alliance, to the new threats that face the Alliance. NATO only invoked Article V for the first time ever following the 9/11 attacks, and an attack like this was not foreseen when the provision was agreed to in 1949. The collective military response envisioned in Article V was meant for a land/air invasion or missile strike from the Warsaw Pact and Soviet territories. The CFR report mentions that: “NATO must expand its traditional understanding of collective defense to confront the twenty-first-century threats of terrorism, proliferation of weapons of mass destruction (WMD) to both states and nonstate actors, and cyberwarfare” (Goldgeier 4).

In order to brainstorm for new ideas how NATO can address these problem spots for the future, the Alliance enlisted the help of the NATO Group of Experts (GoE) in order to draft a preliminary document that the Alliance would use as the basis for their strategic planning entitled *NATO 2020: Assured Security; Dynamic Engagement* released May 17th, 2010. The GoE was chaired by Madeline Albright, former Secretary of State of the United States during the Clinton era and vice-chaired by Jeroen van der Veer of The Netherlands, former CEO of Royal Dutch Shell. Through this report, the GoE made numerous suggestions of areas that NATO should strengthen as well as areas needing reaffirmation. The report states that the 2010 Strategic Concept should introduce a set of four renewed core tasks for the Alliance such as: the Alliance must maintain the ability to deter and defend member states against any threat of aggression, to contribute to the broader security of the entire Euro-Atlantic region, to serve as a transatlantic means for security consultations and crisis management along the entire continuum of issues facing the Alliance, and enhancing the scope and management of partnerships has grown sufficiently important that it should be categorized as NATO’s fourth core task (NATO GoE 19-21).

The most recent strategic document entitled *Strategic Concept 2010: Active Engagement, Modern Defence* was announced at the NATO Summit in Lisbon on November 19th, 2010. Article 2 of the Lisbon Summit Declaration proclaims:

We have adopted a new Strategic Concept that lays out our vision for the Alliance for the next decade: able to defend its members against the full range of threats; capable of managing even the most challenging crises; and better able to work with other organizations and nations to promote international stability. NATO will be more agile, more capable and more cost-effective, and it will continue to serve as an essential instrument for peace (“Lisbon Summit Declaration”)

The first part of the document lays out NATO’s core tasks and principles, which is technically restating the dedication to the Alliance’s foundation in the areas of collective defence (Article 5), collective security and crisis management. The document also emphasizes the use of the Alliance as a security forum for its members and allies through Article 4, as well as the dedication to constantly adapting and improving in all areas of operation. NATO is putting an emphasis on securing the Alliance through effective crisis management beyond its borders. Other areas that the Alliance is hoping to increase security through cooperation are in arms control, disarmament, non-proliferation and NATO’s open door policy for new applicants. Increasing the dialog and cooperation between NATO and other partners such as the UN, EU, Russia (through the NATO-Russia Council), the Euro-Atlantic Partnership Council, the Istanbul Cooperation Initiative and Partnership for Peace nations will enhance security in the Alliance.

Finally, in the 2010 Strategic Concept, NATO puts an emphasis on continual reform and transformation. The current driver for this ideal is NATO Headquarters Supreme Allied Command Transformation (SACT) in Norfolk, Virginia, and one of the most important undertakings for this new Strategic Concept was completed in this HQ. HQ SACT completed the *Multiple Futures Report* (MFR) in an attempt to make predictions for the future in the realm of the security environment while allowing the Alliance to prepare for these possible threat scenarios that lurk in the impending decade(s). This study abetted NATO in formulating its specific areas of focus, along with many other studies that will be

looked into in the next chapter. In the Strategic Concept, NATO outlines what the Alliance deems as threats that will shape the FSE.

- State conflict: conventional warfare and modern technology acquisition in Euro-Atlantic region
- Proliferation of weapons of mass destruction; specifically nuclear weapons
- Terrorists and other extremist groups
- Global instability outside of the Alliance borders
- Cyber-attacks on critical infrastructure
- Disruption of communications, trade routes, energy sources and natural resources
- The increase and proliferation of technology; specifically in the areas of warfare
- Constraints in resources and the environment; climate change will negatively affect health, increasing energy demand, water availability, etc. (NATO Strategic Concept 3-4)

These threats to the Alliance, and the world, will be the focus of security experts for the time being. These threats separately will stress the NATO nations to a degree, but if many of them together spiral out of control, the future of the Alliance could be in doubt. This is of course if NATO cannot plan and adapt for these pressures. Counteracting these threats is the main point of the Strategic Concept. The next chapter will look into other FSE studies from within the Alliance to see if NATO is pulling from and listening to its peers in security planning. If the results do not match up between these studies and the Strategic Concept, it would then be pertinent to discuss why this might be.

3. The Multiple Futures Project and the Future Security Environment Studies

“My interest is in the future because I am going to spend the rest of my life there”

~ Charles Kettering

The major adaptation NATO has made to retain and expand the transatlantic relationship politically and militarily have been engraved in the history books. If there is one thing that these processes of adaptations in policy, capabilities and cohesiveness show, it's that constant and in-depth analysis of global trends and organizational capabilities along with planning for the Future Security Environment (FSE) is a long and arduous process. Of course with any military organization a constant eye is always kept on the horizon, as is evidence of NATO's previous Strategic Concepts. In 2003 NATO decided to go a step further by restructuring the organization in order to have a less convoluted chain of command when planning for future coalition military operations. The result was the re-commissioning of Supreme Allied Command Atlantic (SACLANT) located in Norfolk, Virginia as Supreme Allied Commander Transformation (SACT) on June 19, 2003.

The previous function of SACLANT was to ensure the security of the transatlantic lines of communication during the Cold War, but after the fall of the Soviet Union, the command had been significantly diminished and was in need of a new *raison d'être* or it surely lose crucial organizational funding to remain in operation. The restructuring that gave way to HQ SACT put an emphasis on the transformation of the organization, as NATO had begun to see its operations reach beyond the transatlantic realm and become increasingly non-traditional in the way of military operations and opponents. HQ SACT functions, consistent with NAC (North Atlantic Council) priorities and objectives, are listed as follows:

- HQ SACT provides the conceptual framework for the conduct of future combined joint operations
- Defines how future operations will be conducted and the capabilities they will need

- Takes new operational concepts, from others or self-generated, assess their viability and value, and brings them to maturity through doctrine development, scientific research, experimentation and technological development
- Then implements them both through persuading nations individually or collectively to acquire the capability, and through providing the education and training, enables the concept to be implemented by NATO forces (HQ SACT)

Along with these responsibilities, HQ SACT directs ACT's (Allied Command Transformation) various subordinate commands including the Joint Warfare Centre (JWC), The Joint Forces Training Centre (JFTC), the NATO Undersea Research Centre (NURC), various NATO Schools, the Joint Analysis and Lessons Learned Centre (JALLC), and various Centres of Excellence (COE) (HQ SACT). The COEs are entities separate from NATO, but sponsored and hosted by the nations within the Alliance. These COEs focus on specific areas of need within the Alliance and avoid duplication in efforts within NATO in the areas of training/education and developing/testing concepts and doctrine. Currently NATO has 19 of these credited Centres of Excellence, along with three non-credited. Credited examples of which include The Civil – Military Cooperation (CIMIC) COE in Enschede, Netherlands, The Defence Against Terrorism COE in Ankara, Turkey and The Cooperative Cyber Defense COE in Tallinn, Estonia. ACT uses these organizations for collaborations on their projects.

During the commissioning of HQ ACT in 2003, former Secretary General Lord George Robertson stated of the new command that: "Allied Command Transformation will shape the future of combined and joint operations and will identify new concepts and bring them to maturity, and turn then these transformational concepts into reality - a reality shared by the whole NATO alliance" (Garamone). In essence, ACT is the think-tank for the Alliance, identifying gaps in capabilities within NATO and addressing them by creating and testing concepts that the organization will then use to fill these gaps in its capabilities. Though ACT, with the help of its subordinate commands throughout the Alliance, have pioneered many concepts and research documentation in order to guide the organization, the main undertaking that will be discussed here is the *Multiple Futures Project* (MFP).

3.1 The Multiple Futures Project – Development

Since the first days of ACT, the command has been focusing on the future. In August of 2004, SACT along with SACEUR (Supreme Allied Commander Europe) published a joint venture entitled *Strategic Vision: The Military Challenges*, whereabouts NATO looked out on the next 15 years to discuss the changes and transformation that will be necessary in order to face the changing threats of tomorrow. Some of these threats addressed pertained to the further globalization and interconnectedness of the world and the weaknesses created in information networks by this expansion, the increasing complexity of asymmetric warfare enabled by technological development, demographic differences caused by environmental strains and energy demands, failing states and groups founded on radical ideologies that fester in state conflicts (*Strategic Vision* 2-3). The document lays out for NATO a militaristic guideline of what shape their forces should be in to address the conflicts that have a high chance of occurrence based on the possible threat drivers listed above. Mainly NATO is concerned with making their forces technologically superior; adept at compiling, sharing and safely storing intelligence and information; rapidly available, easily deployable, flexible and all-terrain ready for the ever growing possibilities of Article 5 operations at near home and abroad; and most importantly able to deal with all facets of operations from the planning through to post-operational reconstruction and policing with international organizations and the local populace in order to discourage future conflicts.

In order to update the always evolving future threats and global trends, along with taking a further look into the future, SACT ordered the *Future Security Environment (FSE) 2025* study that was completed in March of 2007. The goal of the paper is to help inform and guide NATO transformation, and to be used by NATO defence planners in any types of policy or strategy debates. It is noted in the paper that: “ It is accepted that the military no longer operates in its own environment and increasingly shares the same space with diverse entities... [B]eing aware of these entities represents sound judgment and supports capabilities...” (FSE 2025 9). This document puts emphasis on NATO’s change from a Cold War organization that had been stuck for years in a static situation against the Soviet Union and Warsaw Pact into an organization dealing with new global threats coming from a much

less well defined set of enemies and scenarios. *FSE 2025* takes a look at these known and unknown threats (unknown meaning unsure of exact desires and future capabilities of groups) and their possible development over the next decades. Some of the general known points of interest are based in the nation states. Up and coming powers like China and India, along with Russia's re-emergence are discussed at length (military spending and development, population and consumption issues, political development, etc.). Also, nations seen as a direct threat to NATO such as North Korea, Iran, Syria and Iraq are given lip service for their known activities in the areas such as WMD proliferation. Failed or failing states like Somalia and their regional and global effects are also taken into account, but it's the general unknowns that are quite possibly the greatest threat to the Alliance. Some of these are rogue international terrorist and criminal organizations and their global activities in the vein of black market human and drug trafficking, WMD proliferation, and the threat posed by cyber threats on NATO and Member State information networks. Nation state cyber operations could also be thrown into this group, because of the general anonymity of countries, groups and individuals along with a general lack of attribution in the online world for potentially crippling cyber-attacks and information theft.

In order to deal with this current and future set of threats, NATO Secretary General Jaap de Hoop Scheffer introduced the Comprehensive Political Guidance (CPG) in February 2006; which was later ratified at the Riga Summit. The CPG places the organization in a Comprehensive Approach (CA) framework for dealing with future crises, making specific requirements for member states. Some of these capability requirements of nations over the next 10-15 years in order to fulfil a CA are to have the ability to: conduct multinational joint operations away from home, militarily adapt rapidly to unforeseen circumstances, defend the Alliance territories and populations against terrorism, protect information systems from cyber-attacks, defend against missile and WMD attacks in the theatre of operations, conduct operation in demanding environments, conduct operations with a variety of organizations present in the field, bring military support to stabilization and reconstruction efforts and to field forces with great flexibility and the greatest practicable interoperability and standardization amongst Allies ("Comprehensive Political Guidance" 6). At the 2008 Bucharest Summit, NATO made it a priority to develop a Comprehensive Approach Action

Plan, using the aforementioned capability requirements as a baseline. In order to build a successful CA, NATO has been reaching out to its partners and other nations, as well as civilian organizations such as the International Committee of the Red Cross (ICRC) and Amnesty International (AI) that operate in the field of conflict, local actors and international and non-governmental organizations in order to create closer relationships and to build on their strengths and experience in the areas of reconstruction such as policing and judiciary, institution building, development, etc. This cooperation is evident in Afghanistan with the plethora of organizations and nations operating there in order rebuild (and in some cases construct for the first time) institutions and necessary capabilities for the local people and authorities, although it has proven a most difficult task indeed.

On May 1st, 2008 HQ SACT initiated the *Multiple Futures Project* (MFP) kick-off meeting in Norfolk, Virginia to jump start collaboration with military and civilian experts from the NATO Member States and the ACT community to create an intellectual framework that builds off of the previous work done by the HQ; such as the previously mentioned *FSE 2025* as well as 19 national studies. The conference entitled *Multiple Futures – NATO Beyond ISAF* was the start of a process that would finish in the publication of a final paper in 2009 that would help NATO formulate a shared vision of the future for the Alliance. The conference was the first of many roundtable discussions and workshops over a two year period attended by Subject Matter Experts (SMEs) and Senior Concept Developers (SCDs) from North America and Europe with a stated budget of \$1.1 million (Sprenger). The stated goal of the MFP is not to predict the future, but to enable the Alliance to look at possible future scenarios (or multiple futures) in the next decades that could occur in order to plan for the types of military missions and operations needed to protect the Alliance population. “The MF project is more concerned about preparing for future than trying to predict it,” said Canadian Navy Cmdr. Rick Perks, a leader of the ACT Multiple Futures Team stated (“HQ SACT Think Tank”). The *Multiple Futures Project’s* main purpose is to lay the foundation for NATO’s 2010 Strategic Concept that will lay out the stated areas of focus for the Alliance over the next decade.

In the coming year NATO ran a series of workshops around North America and Europe in order to work through the framework of the study and to look at every possible

scenario that has been trending economically, ecologically, militaristically, socially, etc. Roundtable discussions such as the ones held in 2008 at the Royal United Services Institute (RUSI) in London on May 27th and during the Strategic Military Partnership Conference in Tirana on November 3rd-5th, along with the Multiple Futures Project Military Implications Workshop in Athens in January of 2009 had led to important interim reports that further refined the Multiple Futures Intellectual Framework. The Intellectual Framework (IF) brought together the expertise of the military and civilian sectors from up to 45 nations in 21 workshops and roundtables. The importance of getting this right was laid out by Royal Norwegian Navy Cmdr. Kenneth Nilsen, Acting Strategic Analysis Branch Head and Lead Analyst for the *Multiple Futures Project*: “The intellectual framework needs to be sophisticated enough to capture complexity yet simple enough for its primary purpose – to support the on-going military-strategic dialogue” (“On The Road”).

The *Multiple Futures Final Report* findings were revealed at a conference on May 8th, 2009 in La Hulpe, Belgium. The conference was attended by 250 military and political leaders from across the spectrum of NATO nations. The importance of the timing of completion of this report was pressed by Deputy Secretary General Claudio Bisogniero: “The timing of the project is very appropriate because it fits in perfectly with the work we are going to start on with the new Strategic Concept for the Alliance,” he said. “ACT could not have timed this project better. MFP does not pretend to be a crystal ball, but maps in a clear manner possible developments in order to broaden our understanding of what can happen in the world in terms of our collective security” (“Summary Conference”). NATO understands that it’s impossible to predict the future, but with the analysis of these future scenarios NATO has put itself into a more prepared place to train for certain general scenarios and their effects on the Alliance populations. The MFP was a main resource for the Alliance in their next Strategic Concept to guide them for the next decade.

3.2 Multiple Futures Project – Final Report

In the foreword of the *Multiple Futures Report* written by US Marine General James Mattis mentioned in the literature review, he stated that the study is not some sort of “Oracle

at Delphi” for NATO, but allows the Alliance leaders to be sufficiently prepared for the FSE and to have the fewest possible regrets about their level of preparations. This is one of the most important points that can be made about a study looking into an unknown future. For example studies had been done in the 1990’s and 2000-01 explaining the rise of terrorism and groups like al-Qaeda could not lead to the thwarting of the 9/11 terrorist attacks even when they predicted immanent threats. Examples of this can be found in the reports filed by former National Security Council counter-terrorism advisor for the Clinton and Bush Administrations, Richard Clarke. Studies like this can show their importance by preparing nations for attacks like what happened on 9/11, but it is extremely important for them to get the attention and publicity necessary for leaders to take action. If a nation or organizations put the effort into analysing the future, but doesn’t take recommendations from these types of experts or studies into account, the results can be as if they hadn’t bothered to try at all. To demonstrate the level of importance the NATO nations have placed on the MFP, General Mattis proclaimed that:

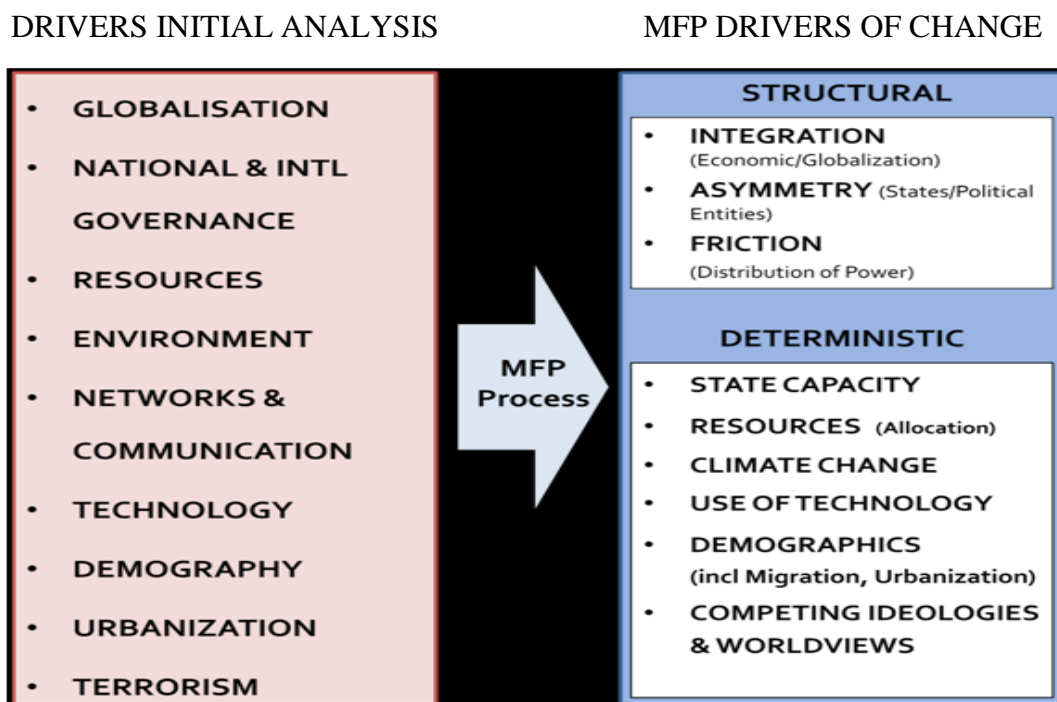
My aim is for this report to buttress the continuing strategic dialogue, serve as a catalyst to drive policy change, inform defence planning, and assist in prioritizing capability development. If used as intended, it may also be used to evaluate defence plans, update defence scenarios, influence concept and strategy development, and improve training and education curricula. Lastly, it will enhance our individual nations’ defence planning and threat analysis efforts (NATO MFP ii)

The MFP was made possible by the IF that was formulated from the analysis of materials produced at the workshops and roundtables conducted by SACT. The IF produced detailed implications, both in security and military in nature, which were reached by taking what was seen as the drivers of change in the world and building the possible future scenarios from them. Figure 3.1 below lists these drivers of change which were deduced by an analysis of national documentation with existing ACT documentation and placing those that were repeated at high volume in the conference discussions.

Those drivers on the left side represent these initial analyses, while those on the right represent the post MFP analysis breakdown into two areas: (1) Structural Drivers, or those

drivers that have remained historically constant and (2) Deterministic Drivers, or those that will have the most impact on the security situation in the coming decades. Depending on the direction and interactions of these groups of drivers, they will dictate which type of future could evolve.

Figure 3.1: Evolution of MFP Drivers



(NATO MFP 14)

3.2.1 The Multiple Futures

The four futures deduced by the study are not exactly how the world could look in the year 2030, as the future is not so easily predictable, but the Multiple Futures are considered a common ground on the threats posed to the Alliance population. These futures allow for Alliance decision-makers to plan for specific “Risk Conditions”, or vulnerabilities and characteristics that endanger people, territorial integrity, and/or values and ideas, and will help shape Alliance policy in these areas in the near future (NATO MFR 17). These parts of

society are what governments focus on the hardest to protect in order to preserve order, and NATO places an emphasis in this study on the need for governments to improve their abilities to protect these core objectives. A major part of the MFP is the threat of two types of strategic surprises, or “wild cards” that could immediately change the global scene: a global pandemic or a weapon of mass destruction/effect (WMD/E) attack on a critical node of North American or European society.

If a pandemic is introduced into these Futures, which the study indicates such a contagion could be along the lines of the 1918 Spanish influenza outbreak where somewhere between 50 and 100 million people died worldwide, the effects would be devastating. This type of pandemic would lead to state failures in underdeveloped regions, as developed states will focus on the protection of their populations and generally neglect the rest. The Alliance member states should be the best prepared to handle this type of dilemma, so the response to the pandemic solely shouldn't have ominous repercussions for the Alliance. In order to fill this gap for medications, criminal elements will step in and thrive. State conflict over vaccines will increase tension, but it will be the need for general medications as well as clean water and food that will generate the most need. Without these needs met, that chance for interstate war will increase substantially.

If a WMD/E is introduced into these Futures and destroy a critical node of the Alliance, such as a European city, the consequences would be disastrous for not only that region and state, but possibly for the Alliance. The destruction of a European city would have terrible economic and ecological affects, and a coordinated attack on multiple cities would multiply the affects and would take decades to recover from depending on the amount of international aid. These phenomena and their effects on the global scene will be analysed more in-depth when the Multiple Futures are discussed next. The result would quite possibly go two ways depending on the response: either the Alliance will come together stronger than before due to a strong disaster response for the victims or the Alliance will crumble if the response is lacklustre. Obviously the type of response depends on the level of readiness in crisis prevention/management and the financial state of the Alliance at the time of an attack.

The four possible futures that NATO has outlined that will test the guile of the Alliance in the decades to come are labelled as such: Future One – Dark Side of Exclusivity,

Future Two – Deceptive Stability, Future Three – Clash of Modernities, and Future Four – New Power Politics. Below is the set of Risk Conditions identified by the MFP that coincide with the possible futures.

Figure 3.2: Risk Conditions

<i>Dark Side of Exclusivity</i>	<i>Deceptive Stability</i>	<i>Clash of Modernities</i>	<i>New Power Politics</i>
Failed Governance	Inability to anticipate, sense and shape external security environment	Complex interdependent computer networks	Shifting spheres of influence
Proliferation of Radical Ideologies	Transnational criminal movements	Internal tension between technocratic efficiency and civil liberties	Competition for ideological supremacy
Potential spill-over of ethnic, religious, ideological conflict	Strategic inattention	High dependency on constant flow of vital resources	Competition for resources
Vulnerability of strategic chokepoints and infrastructures in ungoverned spaces	Potential spill-over of ethnic, religious, and ideological conflict	Extremism of marginalized groups	Proliferation of nuclear and other WME capabilities
Potential disputes over previously uninhabited and resource-rich territories	Systemic inability to respond quickly to external effects	Territorial and extra-territorial border disputes	Ungoverned spaces
Consequences from environmental catastrophes/changes	Uncontrolled migration	Technological exploitation by criminal/rogue elements	Inter-state rivalry
Proliferation WMD/E		Vulnerability of complex interdependent systems and infrastructures	Inability of the international system to handle large power fluctuations
Spread of radical ideologies		Conflict between incompatible belief systems	Shifting state Alliances
Challenges to state authority		Shifting loyalties (state vs. non-state actors)	

Uncontrolled migration		Alliances of authoritarian states	
Shifts in population mix		Potential spill-over of ethnic, religious, and ideological conflict	

(NATO MFP 19-22)

Future One - Dark Side of Exclusivity

The first of the Multiple Futures to be discussed is the Dark Side of Exclusivity. This future focuses on a world where climate change has a negative effect on the forces of globalization and state sovereignty due to a deteriorating environmental situation. Important natural resource rich areas will reach new levels of instability, and the resource needy first world nations will be struggling over resource misallocation. This instability will be driven by these failing or failed states, leaving the developed world scrambling with how to respond to the situations. This divide between the haves and have-nots will create great strife in the world, boosts in nationalism and radical cross border ideologies will spread further; muddying international relationships and sovereignty.

If a pandemic is introduced to this future, the amount of failed states would increase causing unrestrained migration into surrounding or first world states with superior health care systems. Most health care systems would not be able to handle the influx. The amount of migration will depend directly on the level of casualties and foreign aid. However in the Dark Side of Exclusivity well to do states will become preoccupied with the safety of their own populations and spending capital on vaccine discovery and production to worry about stabilizing third world nations. Where this stance will differ is when critical infrastructure of a first world state that is located in a resource rich or strategic area is heavily affected, security will be increased by said owner state. Criminal and extremist organizations will step

in to promise care for people and the numbers of profits and/or membership will thrive, causing greater international stress.

If a WMD/E attack is introduced to this Future “will destroy a major European logistical hub and surrounding area” (NATO MFP 26). The attack will do major harm to the particular state in multiple areas, but will be a major victory for the extremist organization that pulls off the attack. Recruitment for the organization will expand along with possible motivations to pull off a similar type of attack at a later date. The affected state will have major stresses on their healthcare services and with immigration internally, as the survivors will have to relocate to another area. As Europe as a whole will still be in the upper echelon of power and resource control worldwide the continent should recover from such an attack.

Future Two: Deceptive Stability

The second of the Futures is one that primarily views the world as generally calm in the first world nations with an influx of immigration due to the ageing of the native population in these nations. The main drivers for this future are “asymmetry, demographics, resource allocation, and competing ideologies and worldviews” (NATO MFP 20). In this future the resource rich areas will increase in global strength and prosperity, but the opposite will be the case of the resource poor regions. On the topic of the resource poor, first world nations will be occupied with domestic immigration, financial and security matters and will generally neglect aiding these nations. If this happens, the more advanced states will be less able to react promptly to the economic, security and geopolitical concerns that emerge from neglected areas.

In the Deceptive Stability a pandemic would increase international tensions due to probable lacks in vaccines. The prosperous nations that are already looking primarily inside at their own domestic issues will dive further away from the international community. Finances will be directed towards vaccines and health care and away from defence budgets, lessening states’ readiness for future conflict or disaster. Since states will be looking more to their interior and away from the periphery of underdeveloped states, organized crime will fill the void in vaccine supply and increase their standing in the world.

In this second Future the introduction of a WMD/E into Europe could possibly bring a call to further integration into NATO and bring attention back to the international issues in the world. An attack on this magnitude could give NATO expanded abilities to secure the continent and to be able to go out in the world and search for the perpetrators and other likeminded groups. This expansion of NATO and further integration of the Alliance would alleviate much of the economic losses from such an attack, as the Alliance would pull its resources to help the victim nation. Once again, one attack would be insufficient to bring down Europe from its pedestal.

Future Three: Clash of Modernities

The third Future focuses on the divide between technologically and rationally advanced regions and urban centres from the less developed and connected frontier regions of the globe. The drivers of this future are fixated on the gap created by the acceleration of globalization and interconnectedness of advanced regions which contain the majority of wealth, knowledge, rule of law and culture. The report states that “the disconnected, segregated, and disassociated frontier areas suffer the greatest tension. Further destabilising these regions are organised criminal elements that engage in human and black-market trafficking, intellectual and technological piracy, and illegal arms trading” (NATO MFP 21). Trying to bridge the gap between societies and managing the threat from these outlying areas will occupy the attention of future leaders.

Given the level of interconnectivity and technological development in certain world regions, the impact of a pandemic would be lessened due to the advancement of healthcare. Unfortunately this will be a different story in outlying disconnected regions, as they will suffer by not being pulled completely into the state health care apparatus. Non-state actors may seek to capitalize on this divide that is increased by the pandemic and begin to lure away people’s loyalties from the state. The loss of life and possible loss of resources that result from the situation will put a strain on the economy, further pushing some people away from state sympathies.

A WMD/E in the Clash of Modernities would be especially painful economically, as the attack would surely hit one of the major interconnected hubs and do damage not just regionally but globally. The response to the attack would be very similar to the magnitude of 9/11 as the nation will ask for help from its NATO allies in an Article 5 response to locate the responsible party abroad along with the reduction in civil liberties and increased police activities on the population while recovering. And much like 9/11, finding the leaders of the attack will be a long and difficult dilemma which the future of the Alliance may rest in the results.

Future Four: New Power Politics

The fourth and final Future is New Power Politics. This Future focuses on an evening of the global playing field by an emergence of other world powers that will compete for power and resources on the international scene. In this competition for power, the proliferation for WMD/E will increase to resemble Cold War levels in some cases and will focus on the powerful countries and the broadening of their spheres of influence. This competition will increase friction between states and decrease the level of economic integration between these states. Ungoverned, resource rich areas such as the Arctic and Antarctic will become the focal point of conflict for the great world powers as increased economic activity fuels the need for access to these resources.

With New Power Politics, powerful states will seek to leverage themselves against other nations in the fight for access to vaccines to ensure the safety of their populations. This struggle will increase interstate tensions between the major players, and international Alliances such as NATO could splinter because of it. This greater international divide will have states consuming resources at greater rates for the benefit of their populations and therefore demanding more access to them, which will begin new rivalries and the reoccurrence of old ones; leading to a greater chance of war.

In this future NATO addresses the WMD/E attack as if it was on a major seaport that would weaken Europe as a whole around the globe due to the economic implications and the stigma attached to being vulnerable to such an attack. Recovery will be slow and will

decrease Europe's standing globally, but in time the Alliance will be able to pull up those nations most affected and bring them together for the proper response to this type of attack. The Alliance can have a major factor in increasing Europe's standing in the world again by bringing the member states closer together and solidifying the region.

3.2.2 Top Security and Military Implications

Through the previous analysis of collected works and conference deliberations, NATO has formed their vision for 4 possible Futures. Previously the Risk Factors that could coincide with the possible Futures were discussed. The MFP then went to look at the main Sources of Threat to go along with the Risk Conditions that will exist in these Futures, and discovered 6 of them: super-empowered individuals, extremist non-state actors, organized crime, rogue states, confrontational powers and nature (NATO MFP 29). These Sources of Threat can lead to certain Threatening Actions/Events that, if they have the desire, can severely affect the main structures of the state and its population. Also natural disasters are included in this list, which can be viewed in Figure 3.3 on the below. These factors combined have various Security and Military Implications (lists of both can be found in the Attachments section in the rear of this study) for the Alliance to consider depending on which type of Future the world finds itself. Of these Security Implications, the MFP picked five main Implications from the deliberations at the workshops and roundtables by ranking them 1-4, giving a score of 4 to the Implications with the greatest risk, likelihood and difficulty of transformation for the Alliance. These five main Security Implications are as follows, from greatest threat to least: asymmetric security environment, disruptions of vital resource flows, negative impact on economy, exploitation of communication systems and the issue of right/obligation to intervene (NATO MFP 34).

The Military Implications for the Alliance are taken by examining both the Risk Conditions and Security Implications that were previously discussed. The same method that the top Security Implications were determined in the workshops and roundtables was also done for the Military Implications to discover these main five: protection against asymmetric threats, conduct military operations against non-state actors, protect C4 (command, control,

Figure 3.3: Aggregate Threatening Actions/Events

- | | |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| • DISRUPTION OF ACCESS TO CRITICAL RESOURCES | • RISE OF NEW AND UNKNOWN ADVERSARIES |
| • DISRUPTION OF FLOW OF VITAL RESOURCES | • UNDERMINING OF DEFENCE PREPAREDNESS |
| • HUMAN TRAFFICKING | • UNANTICIPATED LARGE SCALE TERRORIST ATTACKS |
| • HUMAN SECURITY, ETHNIC CLEANSING, GENOCIDE | • PIRACY |
| • VIOLATION OF PERSONAL LIBERTIES | • STRESS ON SOCIETAL STRUCTURES AND RULE OF LAW |
| • ATTACK ON COMPUTER NETWORKS | • ETHNIC TENSIONS |
| • ATTACK ON POPULATION OR INFRASTRUCTURE | • ABUSE OF PANOPTICAL SURVEILLANCE |
| • SUBVERSION | • ATTACK BY CIVIL LIBERTY GROUPS |
| • TERRORISM | • ESPIONAGE |
| • VIOLATION OF TERRITORIAL INTEGRITY | • ATTACK THROUGH ELECTROMAGNETIC SPECTRUM |
| • NATURAL DISASTERS | • TENSION AND INSTABILITY WITHIN AND BETWEEN DIFFERENT POLITICAL SYSTEMS FUELLED BY CHALLENGING BELIEF SYSTEMS |
| • ENVIRONMENTAL DEGRADATION | • INFORMATION OPERATIONS BY NETWORKS WITH STRONG NON-STATE IDENTITY |
| • ATTACK WITH WMD/WME | • INCREASED RELIANCE ON PRIVATE MILITARY COMPANIES (PMC) |
| • CIVIL UNREST | • PEOPLE OF THE STATE INTERESTED IN RETURNING TO PREVIOUS SPHERE OF INFLUENCE OVER STATE'S WISHES |
| • CONTESTED POLITICAL LEGITIMACY | • GLOBAL AND REGIONAL SECURITY INSTABILITY AND CHALLENGES TO STANDARDS OF INTERACTION |
| • STRESS ON SOCIETAL STRUCTURES AND RULE OF LAW | • NATION STATE SWITCHING ALLIANCE |
| • ETHNIC TENSIONS | |
| • MASS WELFARE AND HEALTH STRESS | |
| • CHALLENGING VALUES & WORLDVIEWS | |
| • UNASSIMILATED POPULATION | |
| • DRUG TRAFFICKING | |
| • SPILL-OVER FROM UNANTICIPATED HUMANITARIAN CATASTROPHES & REGIONAL WARS | |

(NATO MFP 30)

communications and computer) systems and military networks, prevent the disruption and flow of vital resources and enhance civil-military cooperation. The listing of implications for each of the four Futures can be found in Annex A at the end of this study. The main points arrived at from the Security and Military Implications with the guidance of SACT look at seven areas most concerning for the Alliance, they are: Adapting to the demands of hybrid threats, operating with others and building institutions, conflict prevention, resolution and consequence management, counter proliferation, expeditionary and combat capability in austere environments, strategic communications and winning the battle of the narrative and organizational and force development issues.

3.2.3 Findings and Recommendations

As has been noted earlier it is nearly impossible to perfectly plan for the future. For example there are many people who are told by financial experts to put money into a 401k for retirement benefits later in life and are informed it is one of the safest ways to invest in their future. Then when the international markets collapse as they did in 2008; many individuals, specifically those whom placed the greatest amount into these accounts had lost great sums of their retirement benefits. When investing, people know that there are risks involved and surely planning and preparation is done to try and minimize risk, but with the recent crisis many had no idea that the problem was as bad as it was until it was too late. Even now leaders say they didn't know how bad the problem really was until they looked back at it. Many countries are now attempting to put greater method in place to mitigate the threats posed in the future, much like was done for security following terrorist attacks such as 9/11. The findings and recommendations from the MFP are NATO's way of trying to not relive the past and to follow current negative trends to attempt to cut them off before they can harm the Alliance populations.

In the MFP report NATO has made pointed observations to develop dialog in the areas of concept and doctrine recommendations, as well as in the way of capability enhancement for the Alliance. These were made from thoroughly analysing the Security and Military Implications that may lie in store for NATO when looking at the possible futures up to 2030. From the Security Implications the MFP came up with four major insights that are believed to dominate the conversation for years to come and the capabilities that will be needed to deal with them. "From the insights", says the MFP, "we derive consequences, followed by recommendations for changes in concepts and doctrine as well as capability enhancements". The recommendations constitute SACT's military advice "which can be used to inform strategic dialogue, policy considerations, and subsequent guidance to Alliance planning disciplines" (NATO MFP 51). These four broad insights from the ever evolving Security Implications will now be address more in full.

- The evolving nature of risks and threats to vital interests will challenge the strategic unity, and solidarity within the Alliance as well as the common understanding of what constitutes an Article 5 attack (NATO MFP FR 4)

What constitutes an attack on the Alliance is in flux. With increases in global technology and ways for enemies to attack the Alliance, like the cyber-attack on Estonia in 2007, what constitutes an Article 5 response? Now that national interests are more global in nature, would an attack on a member state's vital economic interests abroad institute such a response? These are all types of questions that NATO will have to face as different members will have different responses to such questions as the situations evolve. Unity in understanding what constitutes a collective Article 5 response will be perhaps the most key factor for the coming future, as it is the foundation for which the Alliance is based from its inception. Any major splintering in this area could be the last straw for the existence of NATO, so it is important for member states to be aware of each other's interests and weaknesses and work together in multiple areas to ensure. Though it seems that the major threat to the Alliance will be from "the instability and weakness of others" (NATO MFP FR 5) than from the traditional military land invasion that the collective defence response of Article 5 was meant for, the collective understanding of the importance of the outside world will be of the utmost concern in the coming decades.

- Increased interaction with non-NATO nations and other international actors will create opportunities for the Alliance to extend its role in enhancing security and stability outside the traditional areas of engagement (NATO MFP FR 5)

With the emergence of up and coming world powers such as China, India and Brazil and the re-emergence of Russia, NATO will need to review and find its place within the governing structure internationally. "Doing so" the report states, "will ensure clarity concerning the roles of NATO, and its responsibilities related to defence/security, civil/military relations, and public/private partnerships, and relationships with other nations" (NATO MFP FR 5). For the Alliance the forming other Alliances and closer relationships with many of these states, also including the EU and UN, will be increasingly important when dealing with responses to international crises and conflicts. Also these relationships will be even more important when concerning the global commons (space, air, maritime and

cyberspace) and the preservation of these areas for all. Also a specifically because of the shared memberships in NATO and the EU, a closer partnership between the two could improve monetary and security concerns as they need to eliminate overlapping of resources.

- Determined adversaries, enabled by readily available technologies, will attack Alliance vulnerabilities in unexpected ways, requiring the Alliance to consider changes in the character of military operations and warfare (NATO MFP FR 6)

As has been discovered by the war in Afghanistan, the enemies of the Alliance will have the ability to operate from austere and difficult environments, making it harder on NATO to confront them. Future operations will focus on the Alliance's expeditionary capabilities and the ability to secure supply and commerce routes whether they be by land, air, sea and space. The focus will also have to go to regional conflicts and failed states around the globe, as possible adversaries thrive in these situations, much like the current iteration of Somalia. These groups will also be empowered by the increase in technology that is making weapons more powerful and smaller. These types of mobile weapons mixed with cyber-attacks and hybrid war tactics (regular, guerrilla, terrorist, criminal) with present a challenge for the Alliances capabilities, especially in an urban setting.

- Increased interaction with other international actors will provide NATO the opportunity to positively shape and influence ideas, values and events in a globalised world (NATO MFP FR 7)

NATO must win the battle of the narrative if it wants to secure its populations. Defending and promoting western values such as human rights, freedom of speech and freedom of religion are important in the globalized world. Promoting its ideals and values, NATO can confront the ideologies of the groups that cause the biggest threats to the NATO population, and also the populations abroad in which they operate. NATO must paint a picture between life in countries dominated by fear and radical ideologies and life within their own states; discouraging recruitment by radical ideologies or domination by totalitarianism. The narrative is also supremely important within the Alliance. The populations of NATO need to have access to all the necessary info to understand the threat posed and the Alliance's

role of protecting them. NATO cannot function, or even exist, without the support of its population.

3.3 Other Reports Analysed

The beginning of this chapter has analysed the process of NATO in formulating a future scenarios and risk management in the form of the Multiple Futures Project, as well as the results of this study. For the sake of the final analysis of this particular study, the results of six other future security studies have been analysed, all of which have many similarities as well as differences. Some of the studies have been done by national militaries, some by think tanks, and others by individual professionals and security contractors. Obviously NATO is yet another different type of entity as a regional military Alliance. Also many of these documents have a different scope of the range of date in the future which they intend to forecast to, for example the Canadian Chief of Force Development report is based in the range of 2008-2030 and the National Defence University report from 2001-2025; these differences are relatively miniscule when it comes to futuristic forecasts. The part that could lead to the biggest issues in these reports is actually their start date, as the understanding of the world and trends between 2001 and 2008 can make a difference. Despite these differences, one major similarity exists for all these organizations: they all function within NATO nations. These organizations whose reports are being analysed are also prominent members in the community of intelligence and defence around the Alliance and the globe, so this alone lends the necessity for these reports to be included in any sort of analysis such as this.

Furthermore, many of these organizations have worked with NATO in one way or another, including during the process of the MFP. The six reports to be analysed when forming a comprehensive look at the FSE, which will eventually be compared with NATO's 2010 Strategic Concept, are: The Canadian Chief of Force Development Report: *FSE 2008 – 2030*, US Joint Forces Command's (USJFCOM) *Joint Operating Environment 2007-2030* report, the Royal United Services Institute for Defence and Security Studies' (RUSI) *Policy Paper - The Future Security Environment*, Sam J. Tangredi's *All Possible Wars? Toward a*

Consensus View of the Future Security Environment 2001–2025 for the National Defense University (NDU), the United States’ National Intelligence Council (NIC) entitled *Global Trends 2025: A Transformed World*, and finally Libor Frank and Vlastomil Galatik’s *Principy obrany České republiky „2030”* (*The Principles of the Defence of the Czech Republic to 2030*) for the Czech University of Defence.

3.3.1 Canadian Chief of Force Development Report: FSE 2008 - 2030

For this Canadian military report on the FSE, a future of instability is seen to be increasingly likely, which in turn could lead to conceivable inter-state conflict, brought on by a future of “ever-evolving asymmetric threats, by non-state actors and rogue states, and by social, economic, environmental, and resource problems” (Canada 88). This instability has the potential to increase due to effects on the population such as climate change, resource scarcity and economic downturn (unemployment); which can lead to mass migrations in some impoverished regions and eventually “humanitarian, stabilization, and/or reconstruction missions to ameliorate the security situation” (Canada 88). There is less of a chance of this type of conflict being full-on traditional warfare due to the known deterrents to many powerful nations such as nuclear weapons, economics and international trade; however these could be less of a threat to less powerful nations or groups that view the benefits of conflict and eventual resource seizure outweigh those risks.

Many of these smaller nations or groups have had success in this realm by using asymmetric warfare methods. These techniques are increasing in effectiveness on military/civilian targets with improved access to technology, intellectuals, creativity and training. Failed or failing states such as Somalia, Afghanistan and Yemen have given many groups (specifically terrorist/criminal) better access to these tools along with a safe haven to plan, conduct and train for operations. Further global insecurity will lead to a bolstering of the ranks of failed states and lead to an increasingly difficult time in finding these operations across borders. The battlefield of the future is going to cover a wide variety of environments, often at the same time, and this will be especially true for NATO forces.

Just looking at the conflict in Afghanistan the forces have to be able to operate in a multitude of different physical terrains, and this should be no different in the coming decades particularly when it comes to some of the regions that may become battlefields for necessary natural resources. Tactics in these conflicts will contain both conventional and asymmetric warfare, and will become increasingly technological on all sides. The report's conclusions state that "...the defence team of the future can expect to be tasked across the full spectrum of operations on both domestic (routine, contingency, sovereignty) and expeditionary missions (humanitarian, stabilization, reconstruction, combat)" (Canada 88).

3.3.2 USJFCOM – Joint Operating Environment 2007 – 2030 Report

The United States Joint Forces Command (USJFCOM) was in charge of transformation for US military forces by proposing improvements in transformation and joint operations for the US military before its disestablishment in 2011. The command's mission closely resembles that of HQ SACT for NATO. The USJFCOM report on the FSE is broken down into three categories: Enduring Challenges, Emerging Challenges and National Security Shocks (or Wild Cards). The report is meant specifically for US security, as when JFCOM mentions attacks at home they do so with the phrase "attacks on US territory". However, since the US is a prominent member of the NATO Alliance and suffers the same threats as the Alliance on a whole (albeit to different degrees), this type of phrase will be modified to "attacks on NATO territory". Also since in this analysis Wild Cards are being taken as catalysts and drivers of change that can shape the FSE as global shocks and are not trends in themselves, they will be discussed only as such and will not be mapped into the FSE.

- **Enduring Challenges:** Attacks on US territory, conflict with great powers, collapse of functioning states, conflict with terrorist networks, conflicts with transnational criminals, prevention of conflict

- **Emerging Challenges:** Anti-access strategies and capabilities, emergence of new terrorist ideologies, fourth generation warfare models (asymmetric, irregular), disruption of global trade and finance, persistent cyber conflict/disruption of information networks, proliferation of weapons of mass destruction/effect, failing nuclear and energy states, failed mega city, global anti-American coalition (anti west)
- **National Security Shocks (Wild Cards):** energy disruption, technological surprise, nuclear attack, pandemic, global depression, loss of access to portions of global commons (USJFCOM 37-55)

USJFCOM comes up with four major problems (amalgamations of security threats) that will need to be addressed in the FSE, such as asymmetric warfare both home and abroad, emerging powers with conventional weapons that can mimic those of NATO forces and could then attack NATO vulnerabilities, regional nuclear powers that will use this power to dominate local countries and finally how to operate missions in failed mega cities with large urban populations such as those emerging in Africa. Finally, USJFCOM states what the most difficult part of future threats truly is: to develop capabilities to address these problems in an anticipatory manner – before they become threats (USJFCOM 70). In the long-term however, it is on the nation itself to form strategies that will overwhelm current and potential enemies to the point where they decide confronting said nation (or an Alliance of nations like NATO). In case an enemy or group of enemies decide on a confrontation, the nation must be able to quickly defeat the aggressor in all manners to ensure others will think twice in the future.

3.3.3 RUSI FSE Policy Paper

The UK Royal United Services Institute paper on the state of the FSE was prepared for NATO Allied Command Transformation (ACT) in 2008 for the then upcoming 2010 Strategic Concept. RUSI does not give a specific timeline in its analysis as it looks at studies of various security trends that range from 2035 up to 2050, but since this paper was for consideration for the 2010 Strategic Concept, it would at least be meant for an estimate of at least 2020. The paper breaks down its conclusions into both geopolitical and security

considerations when defining the FSE. The focus geopolitically is on the United States and their increasing loss of unipolar status that has increased the last decade and states that "...although the US will remain the superpower for the next 25 years, the world will become increasingly multi-polar. *The rise of Brazil, Russia, India and China (BRIC) will alter the regional dynamics within which the US must play*" (RUSI 3). RUSI envisions the US (being the top military contributor to NATO) as still not being directly challenged militarily by any of these states. However, the increasingly narrowing gap will be established by further testing of the US' limits when it comes to their military, economic and geopolitical influences internationally. This will help to form a more multipolar world which will shape a different security environment than has existed in the past decades.

When it comes to the specific threats in the FSE, or security considerations, RUSI sees large scale inter-state war continually declining. This does not necessarily mean that conflicts such as that of North and South Korea or India and Pakistan will be solved, but the emergence of newer conflicts in this mould are increasingly unlikely. However, asymmetric or unconventional conflicts of the intra-state variation are likely to embellish across the areas of South East Asia, the Middle East and Africa, which has the opportunity to be very trying for NATO and its allies. The greatest challenge to the Alliance will be non-state actors, specifically those of the Islamist or nihilistic variety like al-Qaeda has been, because of the strains they put on national and local security agencies. RUSI also believes that there will be another major terrorist attack of the 9/11 WMD/E typology within the next 5-10 years, presumably with many smaller scale attacks mixed in. RUSI does not believe that Russia will be as big of a threat as many predict, primarily because they have fully integrated their economy into the global market and rely on selling their products (primarily natural resources) to the West. However, this in no way means they will not be an irritant and competitor to the West, just not in the military realm. WMD proliferation however does remain a major threat, especially since the fall of the Soviet Union, but even more so when nuclear nations like Pakistan become increasingly destabilized. If nations such as Iran and North Korea further their weapons programs, other regional actors could become pushed into pursuing them as well in an attempt to balance the power. The last major warfare-based condition that will shape the FSE is cyber-warfare; yet RUSI does not see this newer form of

warfare comparing at all to that of nuclear weapons as it will be another asymmetric tactic used by all forces to varying levels of success.

The FSE will not only be mired by weapons or tactics, but by the earth itself. Global climate change will have serious effects not only on the levels of available resources, but on the global economy as a whole. Further strain on the globe is the ever expanding world population; a predicted 8.5 billion in 2035, as 95% of this will come in the more impoverished regions and 81% alone in Sub-Saharan Africa (RUSI 5-6). The opposite is true in the NATO nations, where there are declining birth rates and a lack of future generations to pay for the upcoming retired. This will also lead to mass immigration into NATO nations, which could lead to larger diaspora minority groups in which some may be radicalized (as well as within the decreasing majority group), and have a destabilizing effect. The spread of disease in many of the diaspora nations, specifically AIDS, will affect NATO nations in this increased immigration and will be advanced by the open borders. Nations left behind are also greatly affected, as more soldiers in these countries will contract AIDS and lead to a possible lack of security in an increasing amount of areas.

3.3.4 NDU: All Possible Wars? Toward a Consensus View of the FSE 2001 – 2025

The report out of the National Defense University's (NDU) Institute for National Strategic Study by Capt. Sam J. Tangredi, USN, is the oldest of the FSE reports analysed dating back to 2000. Though the report looks to 2025, there has already been 11 years' worth of data to see if the FSE is developing as predicted. Starting with the events that are judged to be unlikely, the NDU report believes that the chances for traditional large-scale warfare are dying out, specifically in the areas of direct aerial and naval combat. Similarly, the appearance of an Alliance of nations or an ideology that will be able to rival the US and the West militarily will not come to fruition.

Through the last decade there have been conflicts, such as the wars in Iraq and Afghanistan and conflicts such as Libya and Russia/Georgia, but in these conflicts the direct military combat was over quickly and was small scale compared to previous wars like Vietnam or Korea. The wars in Iraq and Afghanistan for example turned into counter-

insurgencies or counter-terrorism operations not long after the conflicts began; so these were asymmetric in nature. Though air and sea combat forces were used in all these operations, direct conflict of forces in these realms, especially in large quantities, has been non-existent. Finally, although it has been stated previously by former President George W. Bush in his January 29th, 2002 State of the Union address to Congress of the presence of the “axis of evil” containing the states of Iraq, Iran and North Korea, there has been little evidence to suggest these nations were allying against the US and the West in any way, so a true Alliance against NATO nations and their allies seems unlikely (Bush 2002).

The NDU report also mentions several scenarios that, as the report puts it, should be “hedged against”, which are as follows: Eventual military near-peer competitor, potential Alliance of regional competitors, attempts to leapfrog into space warfare, collapse of key ally or regional support and the trend toward a world of warriors (Tangredi 137). With the emergence of China militaristically as well as a re-emergence of Russia, some observers might say this statement is becoming untrue. Perhaps one day the gap will decrease somewhat, but these two nations respective of military spending and conventional capabilities (minus the nuclear arsenals) will not come close to that of the NATO Alliance, specifically because of the United States. The second, third and fifth options mentioned are seemingly obvious as of now and leading up to 2025, but the fourth scenario to hedge against (collapse of key ally or regional support) is starting to look like a possibility given the current financial climate after the Great Recession of 2008, as much of Europe’s financial future (and military) remains up in the air, so when it comes to NATO the odds are moving in the other direction at the moment.

The NDU report then maps out a series of threats that demonstrates what a FSE might look like and will need to be prepared to encounter, which are as follows:

- Military challenges by a regional competitor
- Attempts by a regional competitor to attack the US homeland utilizing asymmetric means
- Use of anti-access/area-denial strategies by regional competitors
- Use of WMD by regional competitors as part of anti-access operations

- Involvement in failed states and in response to non-state threats at the discretion of national command authorities, but *some* degree of involvement is inevitable
- Operations in urban terrain and under “chaotic” conditions, by *some*, but not *all* of the force
- Continual diffusion of military technology to potential competitors and non-state actors
- High level of information warfare (Tangredi 134)

The report states that a rise of a regional competitor to the US will lead to threats and attacks on US territory. Over the past decade this hasn't come to fruition, even when extrapolated out to NATO nations; however the re-emergence of Russia with their threats over the proposed missile shield, cyber conflict in Estonia, and brief war in Georgia may begin to show the emergence of this threat. Russia also comes close to fitting the bill with anti-access strategies in a way when it comes to the missile shield along with the threats of missiles in Kaliningrad, but no threat of WMDs has truly appeared aside from Iran and North Korea (whom are not regional competitors, but threats nonetheless). For the US specifically this does not appear to be the case either, as relations with most in the region are positive due to the intensity of economic ties. The next two scenarios have seen some brief light in the past decade with parts of the wars in Iraq and Afghanistan, but both countries have only approached failed state status due to the wars themselves. Other nations like Somalia, Yemen and Pakistan have avoided these types of western interventions over the decade, but due to the threat of operating in these failed/near-failed state urban environments, the US specifically has resorted to ever increasing drone bomber attacks in these nations. However, these types of conflicts do seem to be increasing in probability due to increasing economic hardships and activities of extremist movements.

The final two scenarios are the two most likely to define the future as they have had the biggest impact on the security environment to date. Cyber-attacks have increasingly become a problem with the intensification of clashes between nations, extremist groups, criminal organizations, corporations and rogue individuals/hacker groups. An example of

this in the United States has been demonstrated by a recent Government Accountability Office (GAO) report that demonstrates that “federal agencies reported 42,887 cybersecurity ‘incidents’ in 2011, compared with just 5,503 in 2006”, a rise of 680% (Sasso). This spike has been seen globally with increased funding for better cyber-attack and defence capabilities in many nations such as the US, UK, France, Russia, China, Israel, Iran, North Korea, Brazil and India. Combined with the threat that the ease of spreading or duplicating military technologies such as nuclear and biological weapons poses, the FSE will be full of these types of ever evolving technological hazards from state and non-state actors.

3.3.5 NIC: Global Trends 2025: A Transformed World

The futures studies by the National Intelligence Council (NIC) labelled *Global Trends* have been published every few years, the first of which was released in 1997. The NIC serves the United States Director of Intelligence and is used to bridge the gap between the intelligence and the policy sectors of the government. The organization looks outside government to analyse trends in factors that will affect the global situation in the future. The Chairman of the NIC, C. Thomas Fingar, states in the foreword that the key point of the study is “identifying key trends, the factors that drive them, where they seem to be headed, and how they might interact... [I]t uses scenarios to illustrate some of the many ways in which the drivers examined in the study (e.g., globalization, demography, the rise of new powers, the decay of international institutions, climate change, and the geopolitics of energy) may interact to generate challenges and opportunities for future decisionmakers” (NIC 2025). The NIC creates a set of four possible future scenarios that are a possibility as a result of the analysis in their study and are as follows:

- **In A World Without the West:** the new powers supplant the West as the leaders on the world stage.
- **October Surprise:** illustrates the impact of inattention to global climate change; unexpected major impacts narrow the world’s range of options.

- **BRICs' Bust-Up:** disputes over vital resources emerge as a source of conflict between major powers—in this case two emerging heavyweights—India and China.
- **Politics is Not Always Local:** nonstate networks emerge to set the international agenda on the environment, eclipsing governments (NIC 2025 xii-xiii)

The report states that things in the international system are going to greatly change from where they have been in the past decade due to the amount of countries rising in power. This change from unipolar world to a multipolar one will lead to greater instability, but with greater economic ties due to globalization there is hope this can hold the instability in check better than at previous times in history. These rising powers are developing their own forms of capitalism that is markedly different from the typically liberal Western economic system for one of “State Capitalism”. However, the NIC states that “[I]ronically, the major enhancement of the state role in Western economies now under way as a result of the current financial crisis may reinforce the emerging countries’ preference for greater state control and distrust of an unregulated marketplace” (NIC 2025 9).

This increasing of economic prosperity for more countries around the world will put an even bigger strain on resources that nations will need to produce products for domestic use and international distribution. This competition will cause greater strife in many areas around the globe due to income inequality and exploitation of people in areas rich in natural resources that do not have traditional protections such as exist in the West. These areas will become even harder to govern in the future; areas like the Carribean, Latin America, Sub-Saharan Africa and Southeast Asia will be heavily affected . Population growth in many of these areas will also be detrimental to these nations with little economic prospects and infrastructure. Food and energy shortages will contribute to even further instability, with middle and top economic players potentially fighting over the scraps and leaving poorer nations out in the cold. These countries will also be unable to adapt to the forces of climate change and will need even more aid from economic powers that may not be able or willing to help until the migration issues begin to have a major impact on their internal situations. Demographic issues such aging populations and migration issues, even in currently economically stable nations, could lead to stresses on states that they will be unable to

contain. Extremism and terrorism will flourish in these states greatest affected by all these changes, and due to the increased globalization and miniaturization of future weaponry will be able to cause more harm on a greater scale than ever before.

Technological advancements will also help many when it comes to food, water, energy and climate change; although these advancements could have equal negative aspects when in the hands of criminal or rogue elements looking to benefit from them. With nations possibly being unable to place enough attention on subverting these trends around the globe due to conflicts over resources and ideology, non-governmental organizations (NGOs) will step in to play a greater role in the world, becoming on par with the contributions of many nations and in some cases surpassing them. This report from the NIC believes that these stresses are able to be overcome, but the main worry is that events could happen (natural disasters, viral outbreaks, dirty bomb/nuclear attacks by non-state actors, etc) during moments of weakness and tension on the global scene and these catalyst events could spin the world out of control in moments of desperation without proper global leadership.

3.3.6 Principy obrany České republiky „2030“

This report from Libor Frank and his colleagues at the Czech Defence University in Brno is the only non-English source included in this study. Its importance lies not in the language difference from the other studies, but from the opinions on the topic of the FSE from a non-Western European state that is smaller in population, newer to the NATO Alliance, and a former Warsaw Pact state during the time of the Cold War. This report should share some voice and insight into the concerns of the Central, Eastern and Southern European states that have been recently or will be accessing into the Alliance (in some limited capability). The authors have stated, through translation, that: “The publication is based mainly on the principles of respecting the position of the Czech Republic, the community of democratic countries and international security organizations, and have taken into account the national interests of the Czech Republic, not only in terms of military defence, but also from the economic and cultural view” (Frank et al 5).

The outlook of the FSE and possible implications towards the Czech Republic do not significantly differ from those seen in the other reports out of North America and Europe. There are concerns in the coming decades for a high risk of: regional/national conflicts abroad, proliferation of WMD/E, terrorism, transnational organized crime, weak or failed states, population migrations/demographic shifts, lack of natural resources, environmental change (global warming), and the occurrence of epidemics or pandemics. When it comes to global large scale state conflict much like that of the past World Wars, the authors do see it as much of a possibility due to the ever closer economic ties and dependencies of the world's major powers. These reports will give an eclectic view of the FSE that will be compiled in the following chapter. Of course, this is not the widest reaching collection of reports, but with the selected timeframe, linguistic limitations of the author, and limiting the reports to organizations or nations within the NATO Alliance, these reports should give a very accurate view of the experts' opinion on the threats posing the Alliance currently and into the near future.

4. Findings

“War and warfare do not always change in an evolutionary or linear fashion. Surprise is not merely possible or even probable - it is certain.”

~Colin Gray

The purpose of this study is to determine a coherent look at the Future Security Environment (FSE) that the world is facing using a variant of the Delphi Method of prediction, while using the case study of NATO as an organization preparing to deal with these long-standing and emerging threats. This method shapes a view of the future and future scenarios by involving experts deemed necessary for the establishment of a future in certain sectors. In this case, the results of FSE reports from some of the world’s most established intellectual and security organizations were taken together to construct this future. The reason NATO has been chosen as a case study is simply because it is the longest lasting military Alliance in modern times. Another reason NATO is a good case study is because they have been challenged over the last decades by scholars and experts as to whether they should still be in existence or not.

As the world has changed around NATO from the end of the Cold War, the Alliance has had to demonstrate it can change to the world around them as they successfully did during the decades of the Cold War. NATO has had its share of ups and downs in the past two decades, from conflicts in the former Yugoslavia to successfully placing the building blocks for eastern and southern expansion and the Article 5 response that lead to over a decade of involvement in the Afghan war. The rise in international terrorist activity, global economic uncertainty, increasingly targeted cyber assets, near-abroad social and military conflicts and wars in the Middle East that have occupied many of its members have led to a struggle to persevere the Alliance even as membership and interoperability increases. These threats listed in Figure 4.1 below will be the next phase that the Alliance will be forced to adapt to. They will stress the Alliance membership and try to pull it apart, but only some of these threats experts believe can inflict the killing blow if NATO is unprepared.

Figure 4.1: Document Analysis Results

CANADA 2030	USJFCOM 2030	RUSI FSE	NDU FSE 2025	FSE CZE 2030	NIC 2025	NATO MFP 2030
State conflict	Attacks on home territory – CI	Rise of new powers - regional	Rise of new powers - regional	Climate Change	Terrorist organizations	Asymmetric threats
Asymmetric threats	State conflict	State conflict	Asymmetric warfare	Attacks on home territory - CI	Proliferation of WMD/E	Lack of natural resources
Rogue states	Failed states	Asymmetric warfare	Attacks on home territory - CI	Regional conflicts	Cyber conflict	Economic conflict
Failed states	Terrorist organizations	Terrorist organizations	Anti-access issues	Internal conflicts	Economic Conflict	Cyber conflict
Terrorist organizations	Transnational organized Crime	Attack on home territory - CI	Proliferation of WMD/E	Proliferation of WMD/E	Lack of natural resources	Western intervention
Transnational organized Crime	Anti-access issues	Cyber conflict	Failed states	Terrorist organizations	Climate change	State conflict
Poverty/un-employment	New terrorist ideologies	Proliferation of WMD/E	Military operations in urban terrain (asymmetric)	Transnational organized Crime	Non-state actors	Attacks on home territory - CI
Conflict in extreme terrains	Asymmetric warfare	Climate change	Gain in military tech by regional competitors	Weak and Failed States	Population growth/ migration/ demographics shift	Weak civil-military cooperation
Cyber conflict	Economic conflict	Global population increase	Cyber conflict	Population migration/demographic shift	Food shortages	Proliferation of WMD/E

Climate change	Cyber conflict	Large scale immigration		Lack of natural resources	State conflict	
Lack of natural resources	Proliferation of WMD/E					
Economic Conflict	Failed nuclear states					
Social Conflict	Failed mega city					
	Global anti-west movement					

Aggregate FSE threats by response > 2:

- State Conflict: 5
- Asymmetric threats: 5
- Failed states (nuclear or non): 3
- Terrorist organizations: 5
- Transnational organized crime: 3
- Cyber conflict: 6
- Climate change: 4
- Lack of natural resources: 4
- Economic conflict: 4
- Attacks on home territory – Critical infrastructure: 5
- Population and demographic shifts/migrations: 3
- Proliferation WMD/E: 6

2010 Strategic Concept:

- Interstate and Intrastate conflict
- Proliferation of weapons of mass destruction
- Terrorists and other extremist groups
- Global instability
- Cyber-attacks on critical infrastructure
- Disruption of communications, trade routes, energy sources and natural resources

- The increase and proliferation of technology; specifically in the areas of warfare
- Constraints in resources and the environment
- Climate change will negatively affect health, increasing energy demand, water availability, etc.

When doing a casual look at the comparisons of these two lists, the observer would see a lot in common between the perspective threats. Also it's worth noting that the results from the NATO 2010 Strategic Conflict are less than that which they are being compared to (11 to 9) so responses won't match up due to the results. It makes sense that perhaps there are some responses that were deemed lower in importance and were not listed in the official NATO documentation. Also, asymmetric threats describe multifaceted attacks on and off the battlefield, and many of them are listed independently within the aggregate responses and the NATO 2010 Strategic Concept; so it makes sense to not focus on the term directly but to acknowledge its concept. Another response that does not match up with the Strategic Concept is that of population and demographic shifts/migrations. This will be taken into account in the categories of global instability, interstate and intrastate conflict, terrorists and other extremist groups, resource constraints and climate change as an overall theme.

4.1 State Conflict

Instability or conflict beyond NATO borders can directly threaten Alliance security, including by fostering extremism, terrorism, and trans-national illegal activities such as trafficking in arms, narcotics and people (NATO Strategic Concept 3).

The idea of state conflict used to be a fear that engulfed the world, as was seen in the first half of the 20th century with the two World Wars. The world has gone on to change since 1945, as the Cold War put the world into the mind-set of the nuclear deterrent that had kept the two world powers, the United States and Soviet Union, from directly going to war with each other due to the ideal of Mutually Assured Destruction (MAD). The global scene was also changing during this period as global markets became increasingly intertwined due to the spreading globalization. This phenomenon ballooned in the 1990s with the collapse of

the Soviet Union and the ability of the Americans to push the capitalistic ideology into new areas of the world. Globalization has led to a decrease in the likelihood of war between nation states because of the possible economic ramifications of such an action on the standing of the involved states and/or their allies in the international marketplace. This point is drilled home in a translation of the text from *Principy obrany České republiky „2030“*:

The prevailing pragmatic powerful state actors in international relations have relations with each other, the growing (economic) coherence of states as a result of globalization, as well as intimidating potential of NATO, significantly eliminate possible profit stakeholders (aggressors) at the expense of real losses (12).

The possibility of a closing of shipping lanes, trade routes and the loss of flows of capital has dissuaded many nations to give up the idea that war between rivals is a way to solve issues. However, the threat of interstate conflict cannot be completely thrown out the window despite these discouraging factors, and by looking at the evolution in relationships over time with cases such as Israel-Iran, North Korea-Korea and India-Pakistan; one can see why the threat is constantly there no matter what the risk to the economy or the international community.

The incentives to start a war in the future will still exist to some types of states, such as between those states that might try to exert regional superiority or those that are currently ascending on the international scene that may attempt to challenge the balance of power that has been leaning towards the United States since the collapse of the Soviet Union. Russia has recently been falling into this category as their actions in its neighbouring countries of Georgia and Ukraine, as well as their stance in the Syrian war will attest. In this case it has been the rest of the international community that has been unwilling to start a conflict with Russia. In a different case, China has also been more aggressive in the South China Sea with the creation of islands on reefs which allows them to claim a greater control over the surrounding territory militaristically and economically (Glaser). They have made similar claims to islands in the East China Sea, which has soured relations even greater with Japan. Though neighbouring nations and the United States have called foul on these moves, no action has been proposed to confront them as they are a rising regional and global power.

Any disruption in China's economy could have global ramifications due how deep-rooted they have intertwined their economy into the globalized market.

Another type of conflict that may begin to emerge in time is those over lacking, or perceived lacking, of resources. Countries may deem it necessary to secure their energy future by using military strength to command access to certain resources. Some leaders that could have dwindling control over their countries could be relying on access to natural resources and energy supplies to keep from losing control. Southeast Asia is one area that could become embroiled in this type of regional conflict between India and China. The two most populated countries in the world are steadily rising economically and are slated to do so for some time. The economic progress for the countries is going to mean demands for increased standards of living for increasing percentages of the population, especially in the areas of energy, food and clean water.

Tensions between the two countries could increase because of the shared competition for the increasing access to natural resources, but it will be compounded by the build-up of naval forces to secure maritime shipping lanes. Also, Beijing is not thrilled by the cooperation between India and the US in the areas of military, regional security and nuclear energy. These initiatives "are of major concern to Beijing, despite China's increasingly confident and outward-looking foreign policy in the region and further afield. As part of their desire for a multi-polar international system, both New Delhi and Beijing are striving to develop comprehensive national power for the purpose of becoming a recognized regional power" (Canada 57). This competition for power and resources in the region, as well as border disputes, could lead to future aggressions that would be tragic globally and not just in Eastern and Southern Asia.

The Middle East is also another area that could be affected greatly by this type of state conflict, especially over access to clean water. Though some areas of the Middle East are likely to see some positive gains in economic stability like areas of eastern Asia have had, the threat of social unrest, civil war, insurgency, etc., due to the actions of authoritarian regimes against societies is too great. Iran remains a focal point in Middle Eastern stability depending on their determinations for their nuclear program, as well as intentions in states like Syria, Lebanon and Yemen. Much, if not all of the Middle East (which is mostly Sunni Muslim) is

currently worried about Iranian (Shiite Muslim) ambitions in the region. Countries like Saudi Arabia have been on a military spending spree to attempt to dissuade any possible future Iranian actions; however this regional arms race could go nuclear if Tehran gets its weapons program off the ground in the next decade; which would cause greater worry and instability. The historical Sunni and Shiite divide will be used to pit sides against each other for control over the Muslim world using traditional military forces, but it will mainly be done through the backing of non-state actors in conflicts, as evidence of the current conflict in Syria and Iraq. Proxy wars could engulf the region for years to come.

Another area of concern in the coming decades will be Africa. The drawing up of the maps in Africa by European colonialists when colonialism ended and they decided to leave the lands has created conflict hotspots across the continent. Since the 1960s, Africa has been wrought with intrastate conflict due to the fact that many countries have a majority of one ethnicity or religious group, with that minority having a large part of its fellow tribesmen just over the border in a neighbouring country or region. Rwanda was an example of this. In the case of the Sudan, the power has rested in the hands of the minority Arab population for quite some time, and unfavourable relations had led to a civil war and subsequent breakup of the nation. Some countries consist of many different recognized ethnicities “with militaries fragmented along ethnic or other divides, limited control of border areas, and insurgents and criminal groups preying on unarmed civilians in neighbouring countries”; such as Uganda, Chad, Nigeria, Kenya and the Democratic Republic of the Congo (NIC 2025 56). In many of these countries there truly seems to be no end in sight for on-going or possible conflicts. Adding to the future likelihood of conflict, the wealth of natural resources from oil to platinum to diamonds in many regions of the continent has the attention of many competing groups desiring possession of these areas.

Islamic extremism is also seeing a rise in many areas across the continent (North Africa with al-Qaeda in the Islamic Maghreb, Boko Haram in Nigeria and al-Shabaab in Somalia, and the Islamic State spreading across the continent) due to the ability to operate among the instability in the areas with Islamic populations. The Royal United Services Institute (RUSI) makes the comment on unconventional conflicts, overtaking direct state conflict:

Unconventional conflicts will continue to be the most common form of conflict in the international system. Such conflicts will continue to rage across parts of Africa, the Middle East and South Asia in the near and medium term as those regions continue to endure political and economic unrest. The presence of non-state actors that are able to exploit religion and promote a radical ideology will continue to make low-intensity conflicts a common occurrence. The amorphous nature of these actors will make them difficult to eliminate (RUSI 4)

Although Africa, through the African Union (AU) and other regional entities, has made a strident effort to push outside forces away from its own peacekeeping and security realm the past few years, the threat of conflict is simply too great in many regions for the continent to handle itself. Seeing as how these stresses can get worse and spread to new regions due to climate change, reduction in resources, disease, famine or the spread of religious extremism; other countries will still have to focus resources on the wellbeing of the continent through increased investment in infrastructure and possibly increased peacekeeping activity. Nonetheless, since the threat of state on state conflict is looking to be less likely in the coming years, that does not mean that there will be less conflict overall, as non-state actors will look to fill the void. Possible proliferation of intrastate conflict in regions of Africa, the Middle East as well as Central and Southeast Asia is also looking more likely if institutions cannot handle the social stresses. More on this aspect of conflict will be mentioned in section 4.3.

4.2 Proliferation of WMD/E

NATO seeks its security at the lowest possible level of forces. Arms control, disarmament and non-proliferation contribute to peace, security and stability, and should ensure undiminished security for all Alliance members. We will continue to play our part in reinforcing arms control and in promoting disarmament of both conventional weapons and weapons of mass destruction, as well as non-proliferation efforts (NATO Strategic Concept 7).

A number of significant technology-related trends – including the development of laser weapons, electronic warfare and technologies that impede access to space – appear poised to have major global effects that will impact on NATO military planning and operations (NATO Strategic Concept 4).

The traditional worries of the proliferation of weapons of mass destruction/effect (WMD/E) since the Cold War have been centred around a nation state creating a weapons program (nuclear, chemical or biological) in order to create a sense of security for itself as a deterrent against another nation making a move against them militarily. No one can completely be sure that the developments of these types of weapons are not for a more sinister offensive plot to be used at a later date, should they be successful. Examples of states that had recently fallen into this category (i.e. rogue states) are Libya, Iraq, North Korea and Iran. Everyone knows the destructive power all of these different types of weapons, but with increases in technology and decreases in prices for manufacturing, this will lead to a miniaturization of the warheads. New technologies will be developed to best the capabilities of the weapons of today as well as create new breeds of chemical/biological/technological WMD/Es in the coming decades.

This trend will cause a change in the relative stability of the proliferation of these types of weapons and allow it so non-state actors will be able to create or obtain these types of weapons for use however they like. Also with the increasing globalization of the planet, it will make it easier to transport these weapons to locations around the globe without detection. The now defunct US Joint Forces Command, whose document *Trends and Challenges for the Future Joint Force Through 2030* is one of the main sources of forming the FSE in this study, has listed a number of specific challenges within the area of WMD/E proliferation that include the following:

- **Dual-use technologies.** Future WMD/E technologies will have many similarities and synergies with legitimate and beneficial scientific, technical, and economic endeavors. Nuclear energy will be a more prominent feature as fossil fuels become rarer. Bio-engineering of vaccines, chemical fertilizers and pest control are all key parts of human social and economic well-being. Adversaries will have the ability to pursue small WMD/E research and development programs under cover of legitimate programs. Biological laboratories have especially small (and decreasing) footprints and their dual use nature makes detection and elimination of a weaponized program particularly challenging.
- **Uncontrolled WMD materials.** Potential weapons grade nuclear material is abundant, poorly controlled, and insufficiently secured. This material ranges from actual warheads in the former Soviet Union to spent nuclear fuel stored in multiple locations around the world. Some of this material may be at risk from criminals seeking to steal and sell it to potentially hostile states or (more likely) international terrorist groups. Though there are protocols attempting to control nuclear substances and technologies, no such conventions exist for much of the material necessary to develop and produce biological and/or chemical weapons and weapons of mass destruction/effect
- **Concealment/detection.** An adversary's ability to conceal WMD/E is outrunning our ability to detect them. Perhaps the greatest challenge to the detection of WMD/E is the sheer volume of space available to an adversary compared to the actual size of a WMD/E device. Small nuclear weapons are a current reality. The size of chemical or bio agents needed to produce a mass effect can be negligible, and both may be hidden among the vast community of international trade and travel. While technological efforts to detect these devices and substances and implementation of policies to deny their entry are underway, significant shortfalls are likely to persist over the next 25 years.
- **Constraints on use.** For nation-states, the anticipated retaliation and universal condemnation have served as a deterrent to indiscriminate first-use of WMD/E. Two emerging phenomena are loosening those constraints. One is the emergence of nihilistic non-state actors, such as Al Qaeda, who offer small, low-value targets for physical retaliation and have no reluctance to employ WMD/E against the United States and its Allies. A second phenomenon is the lack of a forensic signature for many types of WMD, enabling their use without a reliable, verifiable way to attribute their origin – the anthrax attacks against the US immediately following 9-11 is an example of this. Combine thesetwo and it is very possible to envision an adversary conducting a WMD/E attack with relative impunity and, to him, acceptable risk (48-9)

A major issue with many of the states that have more recently developed, or have been attempting to develop these types of weapons, are issues with their stability. Countries like those labelled as rogue states in the passage above have not been the beacons of national stability; whether it be Islamic extremism or the threat of conflict with India for Pakistan, the current civil war in Syria, the recent overthrow of tyrannical leaderships in Iraq and Libya, or the lack of foresight into North Korean and Iranian internal/external politics, the situations can be rife for the movement, creation or possible use of WMD/Es. This instability or possible irrational behaviour in the coming decades will quite possibly lead to greater regional WMD issues, specifically in the case of Iran as their actions could lead to an arms race in the Middle East in order to counteract the perceived threat. This possibility, added to potential instability from nuclear powered Pakistan and North Korea in Asia would not only be detrimental for international security, but “future acquisition of nuclear weapons by states with weak command and control procedures and safeguards increases the probability of accidental or unauthorized nuclear use” (NIC 2025 67). With greater proliferation will come the greater ease at which non-state actors across the globe will have the opportunity to gain access to these types of weapons.

The increasing technological development by nation states and private industry of weapons that will be increasingly effective and economical will change the international power structure in unforeseen ways. Weapons programs such as chemical, biological, radiological and nuclear (CBRN) and delivery systems, electromagnetic pulse weapons, intelligent and networked land and sea fields, laser guided munitions, sense weapons (heat, sound, air-burst), nanotech, Unmanned Aerial Vehicles (UAVs) and Unmanned Underwater Vehicles (UUVs) and space based satellite weaponry will grant nations and groups new capabilities militarily (Canada 83-5). Some of these, specifically space based technology, will remain in the hands well established state military powers for some time, but that amount of time is dwindling. Developing countries all over the world will be able to obtain much of this technology not long after their development and miniaturization, but also well-funded non-state actors as well.

The ease of use of many of these weapons will increase over time even if the technology goes greatly beyond average human understanding, and in the case of CBRN

weapons, “the variety of potential CBRN delivery systems *will* increase, to include delivery by advanced cruise missiles and unmanned aerial vehicles” and that “these *may* become available to well-resourced terrorist groups and could be deployed from improvised land or sea platforms” (UK DCDC 72). The increased amount of technology leakage that is sure to occur either through the hacking of government, military and private industrial systems or other espionage will allow state and non-state groups the possibility of developing these weapons on their own instead of using increasingly difficult black market means of purchase.

For the terrorist groups of the 2020s and 2030s this will mean a complete change in capabilities to be incorporated into their asymmetrical warfare models against enemy militaries and populations alike. These already successful asymmetric styles will become deadlier with the addition of “improved anti-tank guided missiles and other manportable weapon systems, thermobaric and other advanced explosives, and the spread of cheap sensors and robotics that could be used to create more capable improvised explosive devices illustrate this danger” (NIC 2025 70). It will be increasingly difficult to back non-state terrorist organizations into the proverbial corner on the battlefield when they may be able to use the threat of EMP or CBRN technologies directly against opposing forces, or send them inconspicuously to any corner of the world by ballistic missiles, UAVs or UUVs for use on civilian populations.

Compounding the possible futuristic battlefield and fight against terrorist groups in general will be the increasing interconnectedness of a nation and their military to the internet and communications technologies that can be exploited and turned into a deficiency by a small group of trained individuals in cyber warfare. The ability of a non-state actor such as a terrorist or insurgent group to be able to compete with state militaries on the battlefield and to attack their adversaries where they live with WMD/Es will muddy international security that much more. These groups and rogue states will be increasingly difficult to navigate by for nation states and organizations like NATO and the UN if they can’t keep weapons proliferation under control.

4.3 Terrorist, Extremist and other Criminal Groups

Terrorism poses a direct threat to the security of the citizens of NATO countries, and to international stability and prosperity more broadly. Extremist groups continue to spread to, and in, areas of strategic importance to the Alliance, and modern technology increases the threat and potential impact of terrorist attacks, in particular if terrorists were to acquire nuclear, chemical, biological or radiological capabilities (NATO Strategic Concept 3).

In the coming decades, terrorism and extremism in one form or another will still be one of the most destructive forces in the world. Due to the technological advancements in weaponry previously mentioned, as well as increasing globalization and media presence, these groups will be able to have a wider reach for their message. Bard O'Neill, author of *From Revolution to Apocalypse: Insurgency and Terrorism* defines terrorism as: “[T]he threat or use of physical coercion, primarily against noncombatants, especially civilians, to create fear in order to achieve various political objectives” (33). If global economic issues persist like they have in the early part of the 21st century and employment opportunities are worsened in many areas of the globe, along with political oppression that denies certain groups or entire nations a lack of political expression; radicalization will increase and large youth populations will become progressively disaffected. This could lead to an increase in recruitment for extremist groups such as Islamic radical and right-wing groups across the globe, especially among the younger generations. Radical leftist groups will also emerge in nations which have traditionally had a strong middle class if these societies are eroded by income inequality and economic disparity. In the document *Global Trends 2025: A Transformed World* by the US National Intelligence Council (NIC), it is stated that: “terrorist groups in 2025 will likely be a combination of descendants of long established groups—that inherit organizational structures, command and control processes, and training procedures necessary to conduct sophisticated attacks—and newly emergent collections of the angry and disenfranchised that become self-radicalized” (NIC 2025 ix).

The methods of these groups will evolve into a more menacing amalgamation of threats to national and international governance; moving on from only using physical assaults

like the 9/11 and 7/7 attacks or becoming entrenched in insurgencies within countries such as Afghanistan, Iraq and Syria. These groups will evolve their systems to taking on more economic, psychological and informational warfare properties. The 24 hour media news cycle will only get more intensive and widespread with the increasing development of the world and will become a new platform for these groups to get their message to a wider audience. The same can be said of groups already residing within the West and NATO nations, whether they are religious extremist, right-wing nationalist or the variety of left-wing organizations. With the reach of the internet only becoming wider by the year, these groups will have an opportunity to get their messages out to prospective members from all corners of the globe and expand into larger networks that will become increasingly difficult to deal with. This 24 hour media and internet cycle of heavily publicized news feeds what has been deemed the “outrage industry”, which has power in many countries and feeds off of each other’s hate speech and imagery for their own goals; furthering instability.

4.3.1 International Terrorist and Criminal Groups

The Global War on Terror (GWOT) was instituted following the 9/11 attacks in New York and Washington D.C., thrusting transnational terrorism into the crosshairs of national security agencies. Terrorism, particularly Islamic extremism, has dominated the conversation over the last decade and with growing global Islamic populations to recruit from as well as an increasingly larger media platform to get their message out. Terrorist organizations are reliant on funding as much as any other international organization, as “some terrorist organizations may receive support from states, (e.g., Iran) terrorist organizations normally guided by ideologies with a regional or global message and directed by core groups (the jihadist enterprise, guided by al Qaeda’s ideology and leadership are current examples) will remain the dominant terror threat for the foreseeable future” (USJFCOM 21-2). As long as international and intra-national conflicts rage on in or around the boundaries of areas where Islamic populations are involved (i.e. Southern Russia, Iraq, Afghanistan, Libya, Syria, Sudan, Mali, Nigeria, Somalia, Kenya, etc.), extremist Islamic organizations will have

constant training grounds which to pull battle hardened veterans from to use on enemies such as NATO nations.

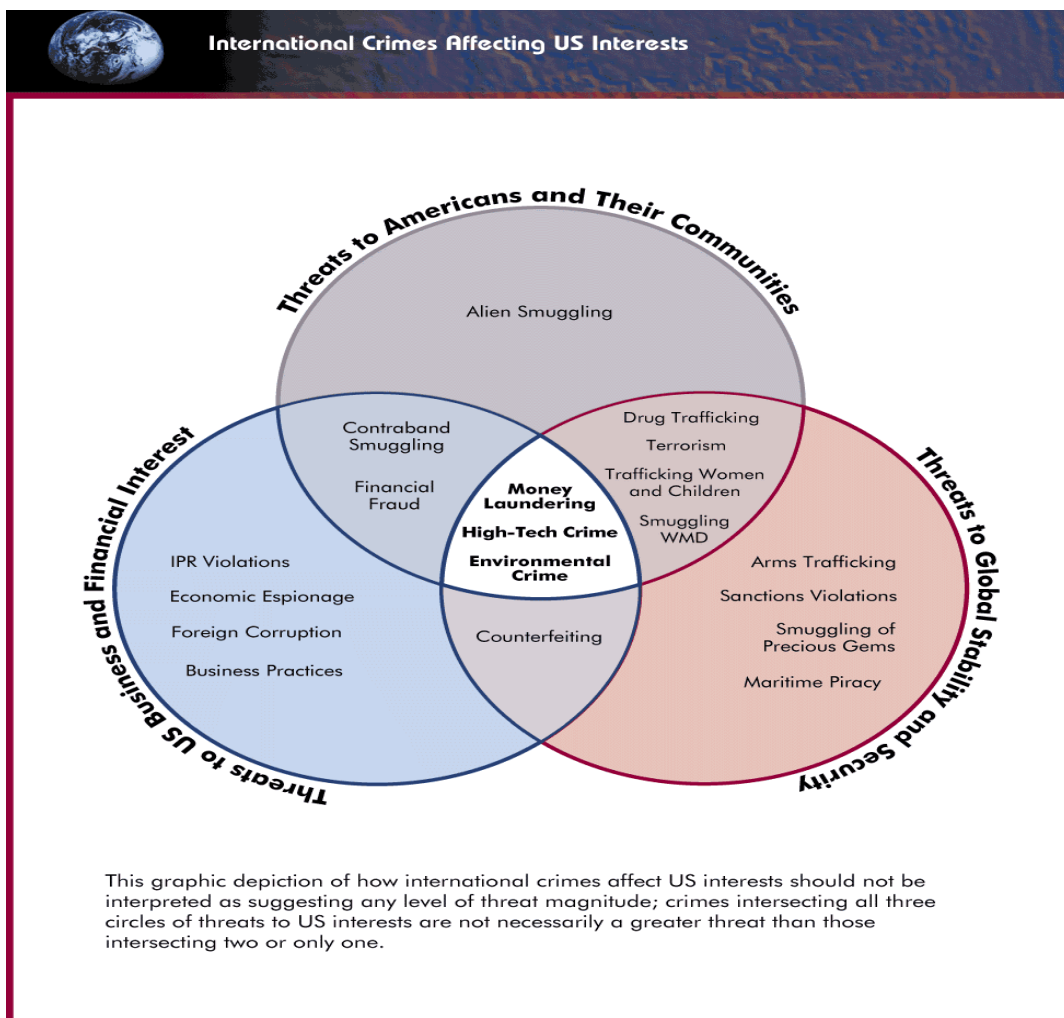
Failed or failing states are already havens for these organizations to operate and train within (i.e. Afghanistan, Pakistan, Libya, Somalia, Yemen, Iraq, etc.) and the possibilities of new states joining the ranks could widen the movements. As mentioned previously, terrorist groups will look to gain access to future weaponry and technology in order to carry out their goals. In actuality, these groups will adapt their tactics to the new technologies and continue to evolve in order to cause the most harm and avoid detection. Another area of evolution to expect with these groups will come with improved defensive measures used by states to defend areas such as public landmarks, government buildings or public transportation hubs from attack. These groups will then move their targets towards areas that have been neglected in areas of security, with the possibility of critical infrastructure such as power plants and food processing centres among others. All-in-all the fatality level in the coming decades will most likely remain low compared to other forms of conflict, but the effectiveness of attacks will markedly improve due to the combinations of media and technology diffusion.

International terrorism will see improvements in their effectiveness through greater cooperation with nation states that share similar ideologies. While efforts to bear down on the threats from rogue states and terrorists by nations with overwhelming military capabilities, such as the United States, lethal niche capabilities could allow small states and non-state actors (including terrorist groups) to form temporary alliances or coalitions based on common ideology or objective that will threaten the deployment and mission accomplishment of US armed forces creating a sort of “coalition of the willing” (USJFCOM 21-2). The next generation of leaders could look beyond their relatively minute differences in the Islamic extremist movement and see the benefits of joining together against superior foreign “invaders” to accomplish their goals. It would not even be surprising to see different terrorist organizations and criminal gangs teaming up to help further their goals, even if they do not fall in line with each other; the typical enemy of my enemy motif. Another area that is getting continually blurred with international terrorist activity is international crime. In the coming decades many areas around the globe will experience a

jump in their youth demographics, where majorities of the population will be between the ages of 15 and 29 years, which will put significant stress on already hard-pressed states trying to accommodate their need for jobs and education.

The statistics are staggering in the regions of the Middle East, Latin America and Sub-Saharan Africa where a population density reaching 40-50% of the population in this age range with limited opportunities can equal great instability. This trend can be seen the last two decades where “80% of all civil conflicts occurred in countries in which 60% or more of the population was under the age of thirty” (USJFCOM 10).

Figure 4.2



(USJFCOM 12)

These at risk populations are targets for recruitment into both extremist and criminal organizations when no better options exist. If the current economic woes continue for extended periods of time in Europe and North America, these groups operating internally could see a boost in membership as they offer possible solutions to solve hardship and direct youth anger at those perceived to be at fault; albeit through criminal activities causing greater problems for local law enforcement. Transnational crime is also around the top of the list for threats to international security. Figure 4.2 is a chart that shows the different areas in which national and international criminal organizations are functioning and the levels of harm that they reach from the local to international scale (from a US perspective, though this certainly rings true for NATO nations if not every country).

These organizations will use any means necessary to achieve their goals, including high levels of violence, and will thrive in areas weakened by international conflict. Drugs, cyber-crime, arms and human trafficking seem to be the most lucrative of areas of operation, however some organizations make large profits exploiting conflict zones by bringing products of necessity like food and medicines. The organized crime mechanism that will grow most in the coming decades will be in the realm of cyber, with untold growth in cyber weapon proliferation and more individuals, gangs and nations adding to the cluttered cyberspace each year. More on this specifically is discussed in the next section. Criminal organizations along with nation states will be the primary means of access to weapons for terrorists, from small arms to WMDs, meaning a focus on these relationships will be important to monitor by international enforcement operations. These WMDs will come in a variety of forms such as “[C]hemical, biological, radiological and nuclear (CBRN) threats include the intentional spread of a biological virus (such as smallpox) or chemical agent (such as Sarin gas) and the explosion of a radiological dispersal device to spread radioactive material” (Canada 83). Also, collapsing states that possess these types of weaponry will also be threats to sell off or lose these weapons to criminal or terrorist groups.

Finally, the drug trade will only increase in the coming years from areas in South/Central America, Africa and Central/Southeast Asia into Europe and North America, as well as states that are moving their way up the economic ladder. With more and more injectable drugs like heroin making it into the western underground marketplaces (with major

damage being done in Russia, Ukraine and Iran for example), transmittable diseases like HIV/AIDS will see a marked uptick synonymous with these levels. The numbers, much of which is due to the explosion in poppy production in Afghanistan, are astounding:

It is expected that the numbers of annual HIV/AIDS deaths globally will rise from 2.2 million in 2002 to 6.5 million in 2030. Sub-Saharan Africa is the most HIV/AIDS infected region of the world and posted 2.1 million deaths in 2006. During that same year, 590,000 people died of HIV/AIDS in South- and South-East Asia. Trends indicate that the centre of the HIV/AIDS pandemic will shift to the Eurasian region in future, with China, India, and Russia recording, in a mild epidemic scenario, some 66 million new cases between 2000 and 2025 (Canada 26)

This means for the NATO European member states that a possible epidemic scenario of AIDS is developing on its eastern border and one that already exists to the south. Criminal and terrorist organizations will continue to use the drug trade as a chief source of income, especially in the regions of the world where the drug is stigmatized and adequate measures of combating the issue are not used. Coordinated international efforts to target the perpetrating organizations and trafficking lanes of these substances, legalization of substances that don't show negative effects of societies as well as limiting the stigma and upping the treatment programs of end users will go a long way to combating the issues.

4.3.2 Domestic Terrorism

In the decades that saw the end of World War II, the end of colonialism, the end of the Cold War and the beginnings of globalization saw a mass migration from many developing nations to the West. In many of these Western nations, the focus has been on the immigrant minorities throughout the country (much of it from Muslim nations) as a possible rise in extremism. In these Western nations, many of which are NATO nations, the trend has also been tilting towards a rise in extremism in the domestic populations. With a multitude of factors brewing such as economic hardship, war, the threat of terrorism (and in the case of the United States the first ethnic minority President); Right-Wing radical organizations have seen

a boost in membership. This has begun to come to light with a string of racially motivated attacks. Examples of this can be seen with retired US Army veteran Wade Michael Page, a lone-wolf gunman with neo-Nazi ties, murdering 12 people at a Sikh temple in Wisconsin in 2012 and the political, racial and religious motivated attacks of Anders Behring Breivik in Norway in 2011 which killed 77 people, whom may have ties to conservative nationalist and Masonic groups.

The increase in attacks of Left-Wing parties in Germany by neo-Nazi gangs is also becoming a greater problem and has even become more public with flash-mob gatherings of neo-Nazis calling themselves "The Immortals" (In the former East German state of Mecklenburg-Vorpommern, statistics showed that there were 30 such attacks in the first half of 2011 compared to 44 attacks in all of 2010) (Kulish). Anti-immigrant movements with neo-Nazi ties, such as PEGIDA (Patriotic Europeans Against the Islamisation of the West) in Germany, are also spreading throughout the continent. Another report by the British think-tank Demos witnesses the widening of individuals supporting anti-immigration and nationalist ideals, specifically among mainly young men, through a series of online questionnaires. Trends have shown that more conservative ideologies have spread beyond the typical European strongholds to their more traditionally liberal neighbours to create noteworthy parliamentary blocs within eight European states. "As antisemitism was a unifying factor for far-right parties in the 1910s, 20s and 30s" says said Thomas Klau from the European Council on Foreign Relations, "Islamophobia has become the unifying factor in the early decades of the 21st century" (Walker and Taylor).

The risk posed to organizations like the European Union (EU) and NATO by domestic populations leaning further and further towards right-wing, nationalist policies is obviously defeating of the progress made in integrating Europe. However, this seeming re-emergence of popularity of right-wing organizations is partially the fault of Cold War NATO strategy, and partially the popularity many conservative policies have had in Europe throughout the past few hundred years. With the ending of World War II and communist parties having certain levels of success in elections in Western Europe, along with the constant threat of Soviet invasion or infiltration into the West, a program of leave-behind armies (in the style of the Germans at the end of the war) and weapons caches were scattered

throughout the European NATO nations and four non-aligned nations of Finland, Sweden, Switzerland and Austria to combat Communism. NATO was a party to these leave-behind forces as it was overseen in some degree by SHAPE (Supreme Headquarters Allied Powers Europe); however the US CIA (Central Intelligence Agency) along British counterparts the SAS (Special Air Service) and MI-6, as well as the military and civilian intelligence organizations within the nations, were primarily responsible for the operation.

Operation Gladio, being termed so by the name of the Italian leave-behind branch uncovered in 1990, recruited individuals directly after World War II that were staunch anti-communists and many of those types of people at that time had direct dealings with, fought for, or sympathized with the Nazis and fascist parties. Gladio used right-wing groups like Ordine Nuovo in Italy and actual ex-Nazis in Germany, with the aid of right leaning influential organizations such as Opus Dei and the Freemasons. These groups were given orders to some degree to subvert the government (mainly left-leaning sectors), infiltrate leftist organizations, terrorize populations (pretending to be leftist organizations) and act as informants for government agencies with impunity. Some of these groups throughout Europe were eventually disbanded when the authorities realized whom they had teamed up with, but many were left to their devices or re-formed on their own later.

In Italy alone, terrorist attacks like the 1969 Piazza Fontana bombing, 1972 Peteano massacre, 1974 *Italicus Express* bombing, 1978 murder of Prime Minister Aldo Moro and the 1980 Bologna massacre all have links to or were claimed later by neo-fascist organizations which “under the name 'strategy of tension' the massacres limed to create tension among the entire population” (Ganser 7). With the training and levels of access many individuals within the secretive Operation Gladio had/have, right-wing groups in Europe have been given a solid platform to build off of in order to make inroads into public life, and in the near future many of these organizations with possible ties to the Cold War “gladiators” could become increasingly popular with further economic and immigration issues. With recent claims by David Cameron of England, Angela Merkel of Germany and Nicolas Sarkozy of France that multiculturalism is failing in their nations, the fuel could have been thrown on the fire enough for many of these groups or their sympathizers to step up the level of political pressure or attacks with their perceived goals in sight.

The United States is not without its internal extremist threats as well, with home grown Islamic terrorists, right-wing white pride and neo-fascist organizations and radical leftist and ecological organizations all making a name for themselves. However, it is specifically the emergence of right-wing terrorists that have been closely watched by the Federal Bureau of Investigation (FBI) for some time and listed in a 2004 report that: “right-wing terrorists pose a significant threat due to their propensity for violence” and that their numbers have been growing since the 9/11 attacks (Smith). The anti-government militia movement had already seen a large amount of publicity during the Clinton presidency with the attack by Timothy McVeigh on the Oklahoma City Building in 1995 still fresh in the nation’s memory, and the membership of these movements have been on the rise again since the 2008 economic collapse and subsequent election of Barack Obama. Almost 6 months after the election Mark Potok, a Senior Fellow at the Southern Poverty Law Center and specializes in monitoring extremist groups in the country, observed that:

[T]he trend has continued. He notes the existence of 350 extreme, anti-immigration groups, like the border-patrolling Minutemen, and a steady rise in race and religion-based hate groups. As for the growth of militias, according to SPLC figures, the number of groups has tripled over the past year. "What we're seeing is the second iteration of the militia movement," he said. "The resurgence of the militia movement of the 1990s." (Kimbrell)

The link between many of these groups and the US Military is also becoming more prominent since the 1980s. Both Timothy McVeigh and Wade Michael Page served in the military during the last build-up of the militia movements in the 1980s-90s, and in McVeigh’s case he was discharged with a rather respectable record after the failure of a psychological test while applying for the United States Army Special Forces.

The biggest instance of known white supremacists operating within a US military base was at Ft. Bragg, North Carolina in 1995 when the murder of a black couple by two neo-Nazi sympathizing paratroopers showed that up to 22 soldiers there had connections to white supremacist organizations. Along with the discovery of swastikas painted on the doors at the barracks targeting African American soldiers, “language was added to a Department of

Defense directive, explicitly prohibiting participation in ‘organizations that espouse supremacist causes’ or ‘advocate the use of force or violence’” (Kennard). This is not ironically the same base where Wade Michael Page had been stationed while working within military Psy-Ops (mainly propaganda and intelligence techniques) until his discharge and subsequent banning from re-joining the military in 1998. The military was working towards rooting out neo-Nazis in the 1990s when they had the opportunity to pick and choose, but with the need for recruitment since the dawn of the GWOT; these restrictions have been seemingly eased in the recruitment of soldiers in areas such as waivers for convicted criminals or suggestive tattoos. The military experience is widely sought after in the neo-Nazi and militia movements because of the plethora of knowledge and experience in a wide variety of war-fighting skills that can be tapped for training and operational capabilities to prepare for the coming race war/civil war that many of these groups espouse.

In a report in 2008, the FBI recovered up to 203 military veterans (though some could be lying about their experience) operating in various groups within these movements, and these are only the ones whom have made their beliefs public. The different legal organizations in the US overseeing the proliferation of these groups believe their members are encouraged to infiltrate the military, police, and political structures of the country to gain influence and information without revealing themselves to those around them; unless an obvious recruitment opportunity comes about. These individuals are labelled as Ghost Skins. Another potential major plot was uncovered surrounding the death of a discharged soldier and his girlfriend near Fort Stewart, Georgia, where the soldier had worked. Those four men charged in the murders seem to have been covering up a potential leak in their plot to take over Fort Stewart, to bomb the Forsyth Park fountain in Savannah, Georgia, take over the government and assassinate President Obama. This group naming itself F.E.A.R. (Forever Enduring Always Ready) had bought \$87,000 worth of weaponry and land in Washington State to use as a base of operations (along with blowing up a dam and poisoning the state’s apple supply) with near half a million dollars from their apparent leader, Pvt. Isaac Aguigui.

Aguigui had the money from insurance when his pregnant wife died in reportedly interesting conditions (Bynum). At the moment what the political beliefs of the group are, or how many there could be, are suspect with matching tattoos of the group resembling an

anarchy logo, which points to possibility of an anarchist militia sect. However, some circumstantial evidence matches this Issac Aguiui with another that attended the 2008 Republican National Convention as a page, which would be an interesting placement for a strident anarchist instead of protesting on the outside. Though these levels of activity seem shocking, the numbers are actually not yet to a threatening level according to the same 2008 FBI report, but the attempts to recruit disillusioned returning soldiers from combat is worrisome for the US government, as an influx in radical activity at home could bring large amounts of instability in an already politically and culturally divided nation. The most difficult part of monitoring home grown extremists is that the same structure of information gathering generally doesn't exist as robustly internally for democratic states compared to internationally, so nations will need to be able to strike a balance between privacy and security to be able to avoid these threats in the future. The threat of home-grown terrorism doesn't just carry one label; whether it is right or left wing on the political spectrum or religious and non-religious fanatical groups, all of them with a significant following and access to weaponry pose a significant threat.

4.4 Cyber Attacks/Attacks on Critical Infrastructure

Cyber-attacks are becoming more frequent, more organised and more costly in the damage that they inflict on government administrations, businesses, economies and potentially also transportation and supply networks and other critical infrastructure; they can reach a threshold that threatens national and Euro-Atlantic prosperity, security and stability. Foreign militaries and intelligence services, organised criminals, terrorist and/or extremist groups can each be the source of such attacks (NATO Strategic Concept 4).

Much if not all of a country's services that are seen as vital to the running of a modern nation state are connected to the internet. Many within governments and industries of the world would assure you this is not true, but it's simply not the case. The European Commission defines critical infrastructure as follows:

[A]n asset, system or part thereof located in member states that is essential for the maintenance of vital societal functions, health, safety, security, economic or social well-being of people, and the disruption or destruction of which would have a significant impact on a member state as a result of the failure to maintain those functions (CEPS 21)

There are two main trends that former United States Secretary of Homeland Security Michael Chertoff sees as the main drivers of current and future threat scenarios: globalization and technology. These two elements make it so groups that want to do harm can move quicker, hide large amounts of operational money and have access to types of technology that only seemed realistic for nation states not that long ago. One creation that has demonstrated both of these drivers is the internet, and it has become a battleground for nation states, criminal groups and individual citizens around the world. Looking a little deeper into this shows the amount of damage that can currently be done and what will be done in the future.

The Iranian Natanz nuclear facility infected with the Stuxnet virus (Zetter 2010) and the US Department of Defence (DoD) secure network named SIPRNet infected with the Agent.bzt (Mills) virus apparently are air gapped between normal and secured networks, but that wasn't enough to overcome the use of thumb drives by inside personnel (presumably accidentally) to transport the viruses that brought certain parts of the systems crashing down. The Stuxnet virus has already demonstrated the danger that malicious code, no matter what type of actor it is, can be extremely dangerous when sent into the critical infrastructure of a country. In the Iranian case, the virus disrupted the Microsoft Windows 7 operating system that interfaced with the Siemens SCADA structures controlling the nuclear cyclones used for enrichment. The malicious code would tell the system to randomly stop these cyclones and then speed them up, eventually causing catastrophic failure and physical destruction of the systems.

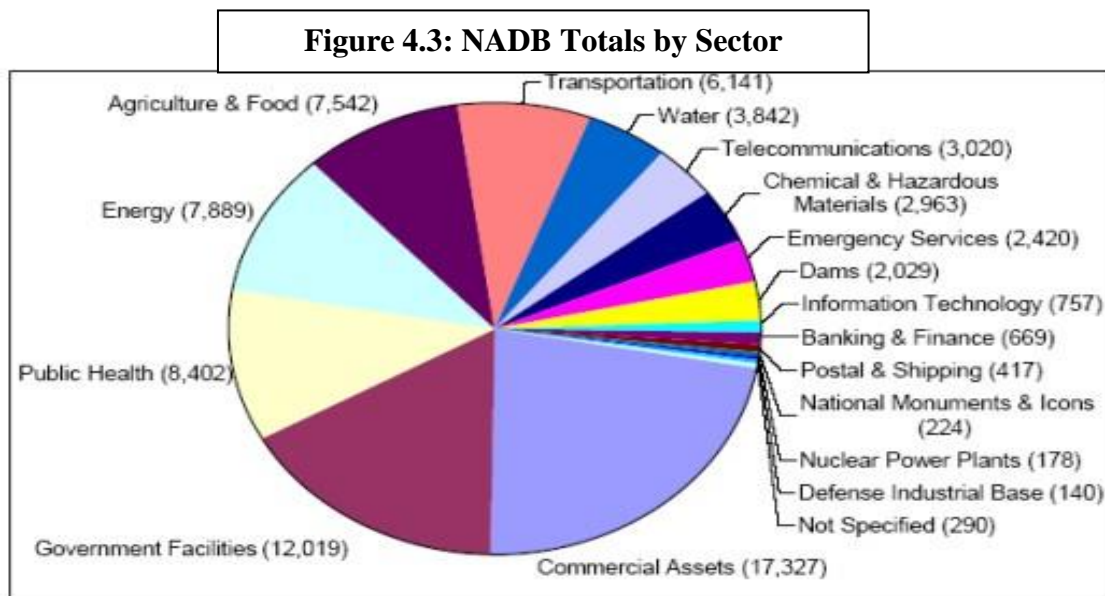
Stuxnet has been a wakeup call to nations of the world as the virus itself is a digital work of deviant art. The virus first showed up in Southeast Asia in 2009 having been discovered by antivirus companies such as Symantec; but the industry couldn't tell what the virus did and it had no side effects to users who had contracted it. The virus worked its way

into Iran, constantly recording information on its progress through cyber space and reporting back to its creators. The code also allowed for Stuxnet to be altered along the way depending on what information the creators had received. No one doubts the amount of time, money and insider information that was necessary in order to allow the virus to do what it did; targeting the exact specific systems that Iran had in place. This leads experts to believe that a nation state or states needed to be behind such an ambitious and specific target. Those assumptions keep looking increasingly correct, as a United States and Israeli link has emerged.

Wired Magazine's Threat Level Blog experts have been tracking evidence that after working with Siemens on testing the integrity of their PCS 7, or Process Control System 7 for controlling nuclear turbines in 2008, the Idaho National Labs (a part of the US Department of Energy) "may have passed critical information to Israel about vulnerabilities in a system that controls Iran's enrichment plant at Natanz" (Zetter 2011). From here Wired reports that the Israeli's rebuilt the setup at their Dimona nuclear facility (which has been the site of a joint US-Israeli operation against the Iranians nuclear plans for 2 years) in order to test the malware. Of course no definitive evidence exists that this is the case, aside from the massive circumstantial collection that has been gathered by researchers, but it wouldn't be the first time Israel has been accused of cyber operations in the past with the destruction of a Syrian facility in 2007.

The US government has issued two major studies recently to look at the state of their critical infrastructure: The Government Accountability Office (GAO) report in 2010 entitled *Critical Infrastructure Protection: Key Private and Public Cyber Expectations Need to be Consistently Addressed* and its predecessor the Congressional Research Service (CRS) report in 2007 entitled *Critical Infrastructure: The National Asset Database*. The latter report looked at around 77,000 entities addressed in the 2006 DHS Inspector General report thought to encompass critical infrastructure brought about by the 2003 DHS National Infrastructure Protection Plan (NIPP), which DHS claimed that through this number you can attain a list of 600 assets that are critical to the functioning of the United States. The reasoning behind this slimming down is because of those 77,000 assets many are malls, zoos, parks and other places that people congregate that are probably targets for a terrorist attack, but not really a

cyber-attack. Figure 4.3 shows the sectors of critical assets to which DHS addressed to get a better look at what is viewed as critical to the nation. The same is probably true of most industrialized nations. The GAO report focused more on these assets and their cyber vulnerabilities, being asked to look at (1) private sector stakeholders' expectations for cyber-related, public-private partnerships and to what extent these expectations are being met and (2) public sector stakeholders' expectations for cyber-related, public-private partnerships and to what extent these expectations are being met (GAO 5).



(DHS 5)

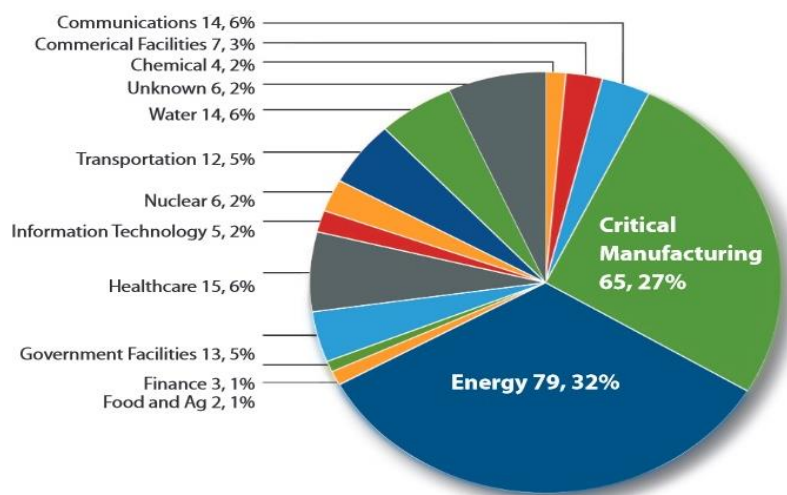
The private stakeholders want good information of the high level/classified type on cyber threats and for the government to be less fractured in its approach to cyber security. The public sector wants similar action, specifically the private sectors' unwillingness to give sensitive information on cyber-attacks for fears of market losses and stolen proprietary information (which happens at an alarming rate anyway), and for the private sector to do a better job at adopting plans and recommendations for cyber protection. Needless to say, these studies show that the critical infrastructure is quite large in the United States and also that the public and private sectors are still quite disjointed when it comes to the protection of these assets; regardless of how many Presidential Directives are signed.

MacAfee Antivirus issued a study entitled *In the Crossfire: Critical Infrastructure in the Age of Cyberwar* in 2009 that surveyed 600 leaders in the field of cyber security that protect critical infrastructure worldwide. Many of the findings here, as with many of the studies in the field, are quite shocking. The findings of the study, explained by Brian Prince from eWeek.com, show:

- On average, monetary losses for down time of Critical Infrastructure systems of the group surveyed was \$6.3 million per day, and \$8.4 million per day for the oil and gas industry
- Only 19% implemented “whitelisted” technologies for SCADA/ICS and IT protection, despite these monetary losses
- Only 57% of executives overall said their organization patched and updated software on a regular schedule, with Russia and Australia leading the way with 77 and 73%, respectively. Brazil was at the bottom with 37%. Only 1/3 of security executives stated their company had a policy against the use of removable/thumb drives
- The most widely adopted security measure overall was the use of firewalls between private and public networks, which 77% reported using (65% for SCADA or ICS systems)
- Technologies such as security information event management (SIEM) and role and anomaly detection tools were deployed by 43% and 40%, respectively
- In virtually all cases, China led the way in adoption of security technologies. When IT and security executives were asked about 27 different security measures in the survey, China was found to have the highest security adoption rate, standing at 62%. That figure is roughly 10% higher than what was reported by the United States, Australia and the United Kingdom
- Overall, 54% of respondents said they have already suffered a large scale denial of-service attack by organized crime gangs, terrorists or nation-states. In addition, 37% of IT executives said the vulnerability of their sector had increased over the past 12 months (Prince)

While these findings contain a lot of figures that can be intimidating to read through, the proof is in the numbers: critical infrastructure across the world is not generally safe. A Report by the US National Cybersecurity and Communications Integration Center’s (NCCIC) Industrial Control Systems Cyber Emergency Team (ICS-CERT) released in March 2015 has shed some light into the prevalence of the attacks on these systems which can be seen in Figure 4.4. The 245 recorded incidents mentioned in the study are only those that were reported to ICS-CERT; many of which go unreported. These numbers were arrived at through reporting by the asset owners, by relationships with third-party organizations and researchers, or through the involvement of ICS-CERT in incident management. These numbers are much higher than are generally reported in the media, and the 245 incidents in this report are only fraction of the events within US critical infrastructure. These vulnerabilities are certainly a hindrance to all the people trying to run financial sectors, governments or even households using the interconnectedness and ease of the web. The ability to exploit from all angles is only getting greater, and with rapid internet expansion all over the world to places such as Africa (which threatens to become the world’s biggest botnet one day). Because of the trend towards privatization of critical infrastructure, new vulnerabilities and the scope of the battleground are only increasing.

Figure 4.4: FY 2014 Incidents Reported by Sector (245 total)



(ICS-CERT 1)

4.5 Resource Constraints and Disruptions

All countries are increasingly reliant on the vital communication, transport and transit routes on which international trade, energy security and prosperity depend. They require greater international efforts to ensure their resilience against attack or disruption. Some NATO countries will become more dependent on foreign energy suppliers and in some cases, on foreign energy supply and distribution networks for their energy needs. As a larger share of world consumption is transported across the globe, energy supplies are increasingly exposed to disruption (NATO Strategic Concept 4)

4.5.1 Disruption of Communications

Increasingly information is becoming the most valuable weapon on the battlefield, and the key to superior information utilization is continued uninterrupted communication. Satellite technology gives the war fighter the ability to monitor operations by the enemy from a safe distance. Not only is information sharing between all levels of an operation important (command and control functionality), but most advanced precision weaponry such as UAV drones, laser guided missiles and any future space or robotic weaponry that will be developed rely upon these communication wavelengths to function (Canada 85). As mentioned earlier, new forms of weapons will be developed in order to hinder these communications and cripple a major strength of any nation or military force.

It is information which is most targeted by nations and organizations around the world, so the security of these lines of communication will be of the utmost importance. The NIC reports in *Global Trends 2025: A Transformed World* that it is very probable by the time 2025 comes around some states will have already deployed weapons targeting communications on the battlefield and on infrastructure that supports military functions. The technologies that much of the developed world relies upon for its everyday operability will be the same means that irregular forces will be utilizing as the battlefield will become increasingly blurred into western life. Resiliency for the critical infrastructure that could be targeted will be the most important aspect in a nation's defences against these attacks. If a

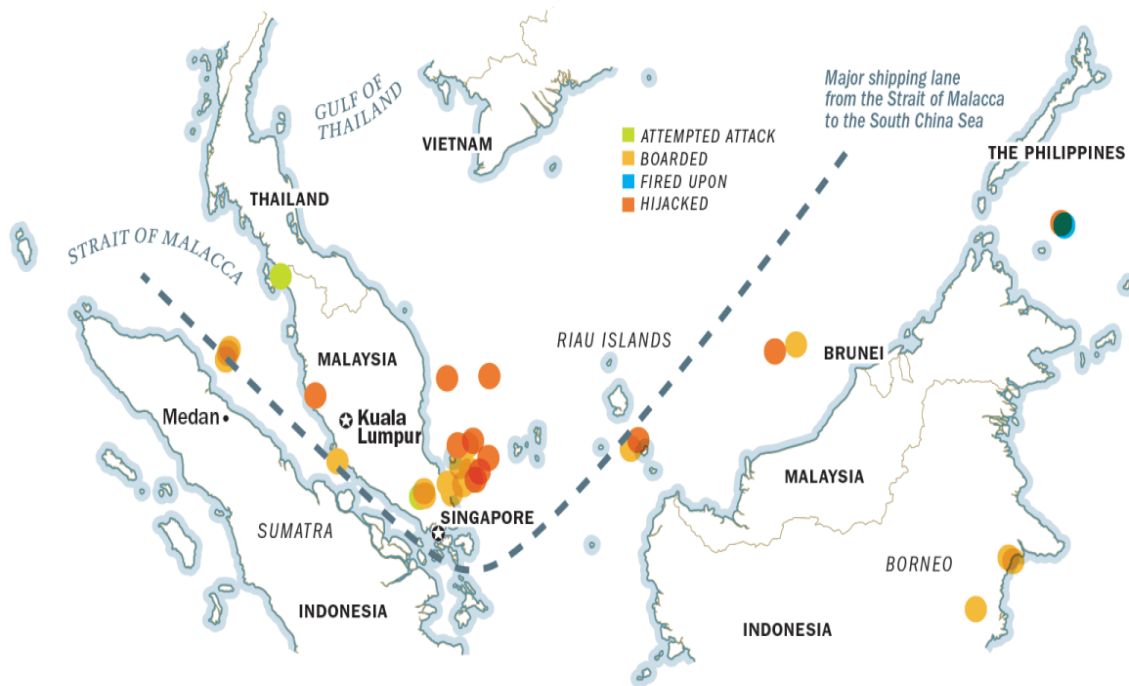
system can recover with little time lost no matter the type of attack, then the target will lose its allure to interested parties.

4.5.2 Disruption of Trade Routes

There is no doubt that piracy has made a comeback in a big way the past few decades. With greater globalization and world trade that is reliant upon global shipping lanes being open for business, more and more targets are vulnerable to militarized groups on the seas. Not only do groups like those that occupy the Horn of Africa off the coast of Somalia pose the biggest threats to international shipping but inter and intra-nation conflicts or strategically placed rogue states have the possibility to shut off billions or trillions of dollars' worth of products or resources. Any increase in the levels of conflict or piracy in the coming decades will have a debilitating effect on the international energy market, as "two thirds of all oil is transported this way" and "much of this oil transits through various chokepoints" (Strait of Hormuz - 17 million bbl/day, Strait of Malacca – 15 million bbl/day, Bab el-Mandab – 3.3 million bbl/day), which makes these areas strategically important to oil importing nations (Canada 18). Other areas at high risk for attack are the Gulf of Guinea at the Niger River delta, and the shipping lanes between India and Sri Lanka. These will obviously become increasingly important targets for groups or states looking to make an economic impact as long as nations continue relying on fossil fuels for everyday life. As countries like India and China will need more and more access to oil and goods, these already cluttered shipping lanes will only fill up with more and more criminal opportunities. The most dangerous shipping route as considered by the United Nations exists in the waters of Southeast Asia:

Stretching from the westernmost corner of Malaysia to the tip of Indonesia's Bintan Island, the Malacca and Singapore straits serve as global shipping superhighways. Each year, more than 120,000 ships traverse these waterways, accounting for a third of the world's marine commerce. Between 70% and 80% of all the oil imported by China and Japan transits the straits (McCauley)

Figure 4.5: Southeast Asia Shipping Hot Spots



(McCauley)

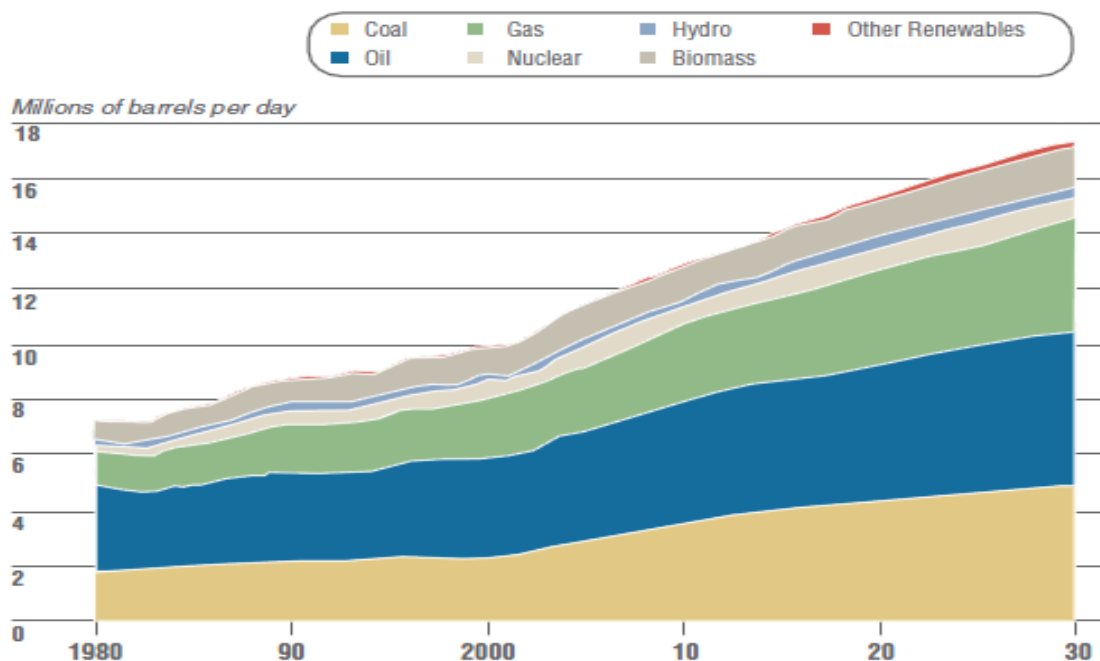
Some of these criminal enterprises have ties to Islamic militant groups, and with an average of \$5 million per ransom on a ship in Somalia, groups like al-Shabab and their cohorts in Yemen will generally end up with a generous piece of the pie. The same is becoming true in Southeast Asia as well. The numbers seem staggering, as some experts put the possible yearly losses from piracy at around \$16 billion; however Martin N. Murphy whom penned a 2007 study on the subject reports that this is realistically only a small fraction of shipping profits that are in the trillions of dollars yearly (Hanson). *The New York Times* also reported that piracy saw a major boom in 2008 when the International Maritime Bureau discovered globally piracy incidents had jumped 11% globally and 200% alone in the Gulf of Aiden off of Somalia. These numbers have decreased in recent years, but if more work isn't done to stave the fix causes of these maritime threats, criminal organizations will have continual income to fund better operations, weaponry, technology to avoid detection and terrorists that may aid in their operations.

4.5.3 Energy Resources and Energy Security

It is no secret that fossil fuels are a finite resource. The end of these resources is only being accelerated by their growing usage of by the increasing populations and middle classes around the world. To illustrate this fact on the next page, Figure 4.6 shows past amounts of fuels used and the estimated growth in the next 20 years; where finite resources of oil and coal are the biggest demands. Nations that rely upon the extraction and production of natural resources as the main source of GDP need to begin looking to take their massive profits and look towards new areas of production or expertise to avoid the possibility of civil unrest or failed state status when the money runs out and an economic depression sets in. Within the next decade many states that are major oil exporters, such as Saudi Arabia and Mexico, may need to decrease current export levels or halt exports all together in order to serve their domestic energy needs; much like Indonesia already has (USJFCOM 24-5).

Figure 4.6: Energy Use Prediction

Breakdown of Likely Energy Sources



Note: Global demand grows by more than half over the next quarter of a century, with coal use rising in absolute terms.

(NIC 2025 43)

Russia is predicted to become the largest exporter of natural gas in the coming decades, however depending on who you ask their oil and gas industry is nearing its end unless a major overhaul is made on the nation's oil infrastructure to boost production. This isn't only bad news for Russia, who went from being a major manufacturing base during the Soviet times to relying on the sale of natural resources, but also for Europe as they are "projected to rely on Russia for upwards of 40% of their energy supply by 2015" (Canada 58-9). Europe has also had to deal with issues in the relations between Russia and Ukraine over oil sales and transportation cost that go over Ukrainian territory to the West. Many oil producing states in Africa, the Middle East and Asia are some of the most unstable regions of the globe, and their production output can be limited due to any number of reasons; from state conflicts, terrorist attacks, separatist movements, intra-state conflict, etc.

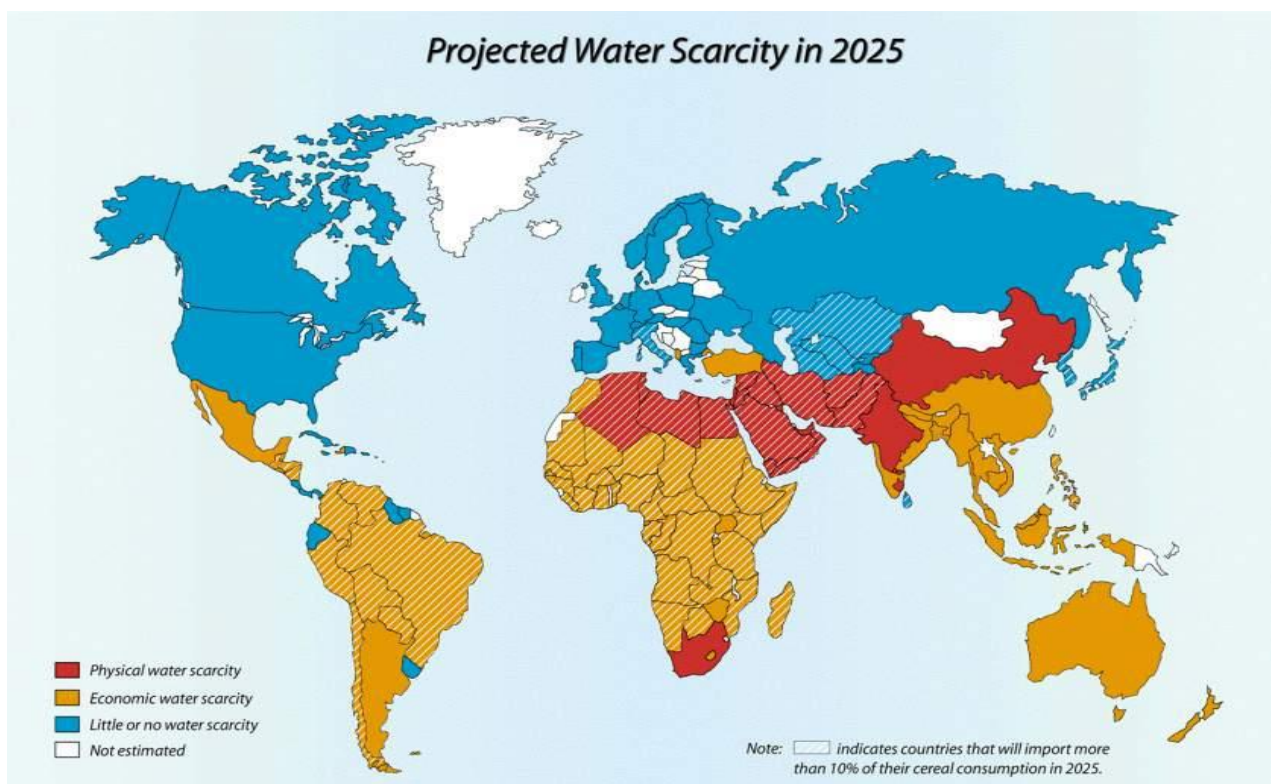
The stresses that will undoubtedly affect the international market will demand the major overhaul of societies around the globe to avert economic catastrophe. Russia and China have made sure that most foreign interests have stayed out of much of Central Asia, but eventually these two powers will butt heads over it, with the possibility of a more economically powerful India joining the equation. Other sources of disruption include terrorists, pirates, or rival nations through various forms of conflict or sabotage. These wild cards could severely hinder the flow of energy resources to their end destination, putting both the supplier and buyer in a rough position. The search for new energy resources in areas that are either disputed or are under no one's control (such as much of the Arctic Ocean or the South China Sea) will lead to a greater chance of state conflict from regional or international competitors. Advancements in wind, solar, battery, nuclear and geothermal will allow states to ease into less of a dependence on these finite fuel sources and calm international markets.

4.5.4 Natural Resources

Constraints on necessary natural resources due to environmental stresses could become the main source of conflict in the near future. The UN mentions in its *More Secured World* document that rising world populations will lead to shortages of land and resources such as clean drinking water that will lead to civil strife (15). Clean drinking water will become an even greater issue in many areas of the world that are already unstable due to

various reasons. According to the World Water Council, 1.1 billion people now live without clean drinking water (Stableford). The image on the previous page shows what the likely access to necessary water supplies will look like in the year 2025. According to the Stockholm International Water Institute: "[T]here will not be enough water available on current croplands to produce food for the expected 9 billion population in 2050 if we follow current trends and changes towards diets common in western nations" (Vidal). Because of this shortage, 20% of the world population that gets its protein intake from animal products will have to rethink their diets as it will likely have to drop to 5% in 2050 because of large regional water deficits.

Figure 4.7



(Canada 40)

In the orange and red areas of the Figure 4.7, food shortages will also become a huge strain on society as much of this water would be needed for the purposes of growing food and animal resources domestically. Similarly, the population boom will put stresses on the ocean

from over-fishing. The large amounts of ocean, sea, lake and river pollution will further diminish the possibilities of sea life reproduction and edibility. These reductions are not the only ones that will cause problems for nations and their economic interests. Increases in use of certain mineral deposits used in the mass production of much of today's and tomorrow's technologies will also put a major dent in supplies. One positive is that there exists a great possibility these substances will become obsolete by the formulation of new technologies which will improve space travel, mining, farming, water desalinization and green energy capabilities. The construction of these technologies will be spurred forward by the dwindling supplies that are necessary for the world of today and the near future.

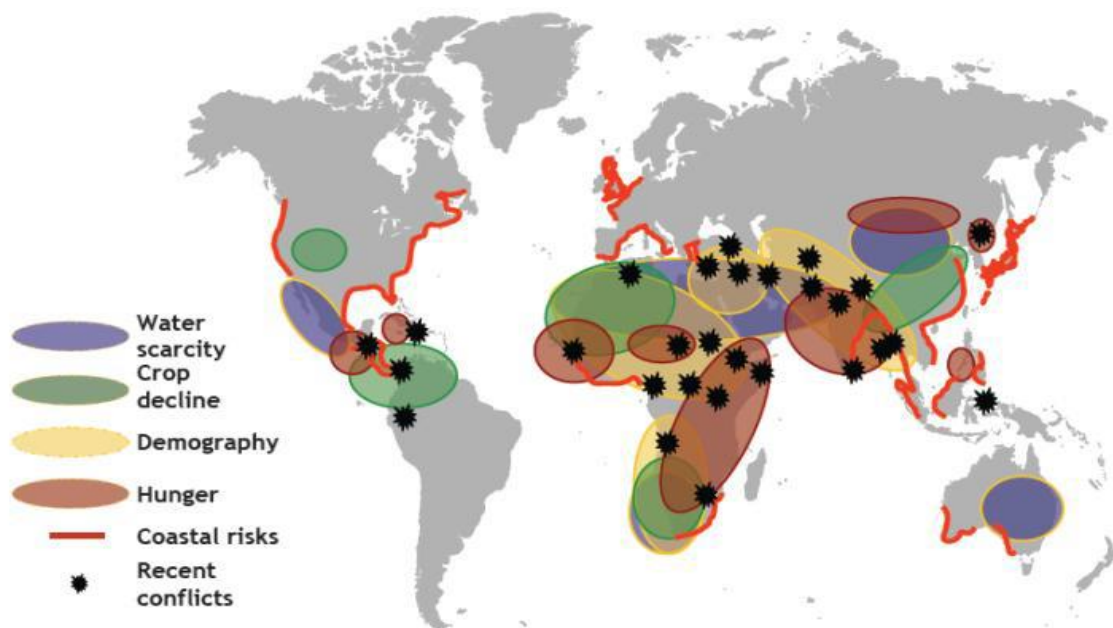
4.6 Climate Change

Key environmental and resource constraints, including health risks, climate change, water scarcity and increasing energy needs will further shape the future security environment in areas of concern to NATO and have the potential to significantly affect NATO planning and operations. (NATO Strategic Concept 4).

Potential climate change due to the natural or manufactured production of greenhouse gases has the capability to be the biggest drain on many nations' future access to natural resources, stability and GDP growth. These stresses will put even greater focus on nations' abilities to appease their populations and make sure any existing social tensions do not boil over. States that rely on natural resources for their GDP will take major hits economically if the trends intensify and push nations to turn to green energy sources. The trends of negative economic and ecological affects from climate change have been noticeable since the 1970's. USJFCOM has noticed that "insurance losses have increased at about 10 percent each year, with destructive weather, including heat waves, hurricanes, typhoons, tornados, floods, wildfires, hailstorms and drought accounting for 88% of all property losses paid by insurers from 1980 through 2005" (USJFCOM 22). Sandia, a research and development national laboratory for the United States Department of Energy, has claimed that "the climate uncertainty as it pertains to rainfall alone [puts] the US economy is at risk of losing between \$600 billion and \$2 trillion, and

between 4 million and 13 million US jobs over the next 40 years” (Weiss). Reuters also noted that there have been stresses on the \$500 billion US property insurance business, explaining that “storms are happening in places they never happened before, at intensities they have never reached before and at times of year when they didn’t used to happen” (Weiss).

Figure 4.8: Convergence of Destabilization Trends

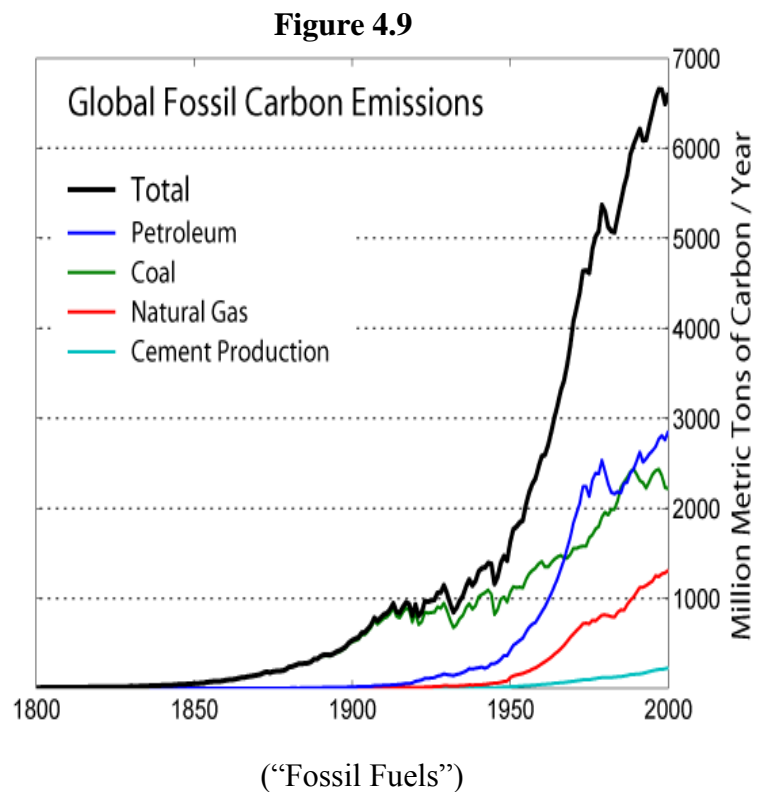


(UK SCPT 14)

Figure 4.8 above demonstrates some of the areas that are the most stressed due to climate change and conflict, and it’s noticeable that a majority of these are in the hottest regions of the globe which are only getting hotter. Displacement of populations from these regions will become an even bigger problem as the decades go by, as the 2006 UK Stern Report of Climate Change “suggested that *200 million people could be displaced by 2050* by rising sea levels and droughts” alone (RUSI 5). Though large scale interstate conflict is probably unlikely due to climate change issues, it is certainly likely to have small scale conflicts over resources and refugees. This is especially true in the developing world which already has enough economic and social problems that will only be compounded by natural disasters or limits on access to natural resources. Climate change will lead to more regional

instability and conflicts covering the areas marked in the image above. The *2025 Global Trends* report expresses worries of nations that will be negatively impacted by climate change that are religious states with major minority blocks of another religion that can lead to increased violence because of scapegoating. They mention countries in Africa and Asia that have significant threats, and the breakdown is as follows: predominantly Muslim countries with significant Christian minorities (Egypt, Indonesia, and Sudan); predominately Christian states with substantial Muslim minorities (e.g., Democratic Republic of the Congo, the Philippines, and Uganda) or finely balanced between Christian and Muslim (Ethiopia, Nigeria, and Tanzania) (NIC 2025 86).

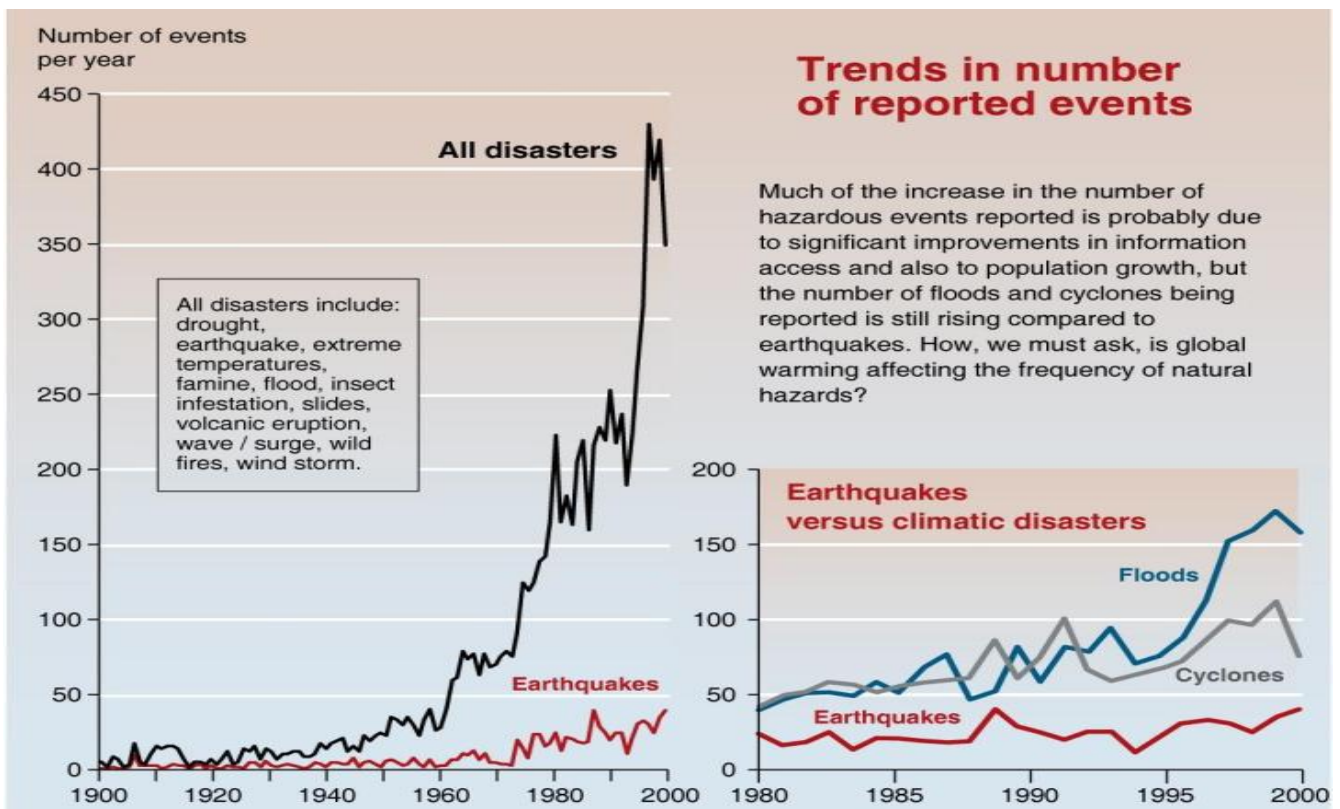
Another zone of worry due to climate change is the increasing lack of clean drinking water for many regions around the globe. With the accelerated melting of glaciers, which just under half of the world’s population gets its drinking water from, may lead to nearly two-thirds of people not having adequate access to drinking water in the next two decades. Some regions that will be hardest hit by water shortages which could have dire effects on the populations and governments include: “the Himalayan region, which feeds the major rivers of China, Pakistan, India, and Bangladesh; Israel Palestinian Territories; along the Jordan River (Israel-Jordan) and the Fergana Valley of Central



Asia” (NIC 2025 66-8). The increasing global population along with increased farming and cattle production may become unsustainable as temperatures increase. Increasing temperatures due to increased greenhouse gas production will also lead to the increased

intensity of storms and greater amounts of climate events. Evidence of the increase in these events can be matched up with levels of global carbon emissions over the same time period, shown above in Figure 4.9. Larger amounts of extreme weather will stress infrastructures and nations' resource supplies which will be needed to address the destruction to public and private property.

Figure 4.10: Disaster Trends



(USJFCOM 36)

4.7 Global Instability

Instability or conflict beyond NATO borders can directly threaten Alliance security, including by fostering extremism, terrorism, and trans-national illegal activities such as trafficking in arms, narcotics and people (NATO Strategic Concept 3).

4.7.1 Failed States

The economic and social issues of the coming decades will prove to be too much for some states around the world, as the potential for global instability will lead to potential for government failure, and vice versa. Many domestic social issues will come in the form of terrorist organizations, lack of resources for

the population, large economic disparity, religious and ethnic strife or criminal organizations. External economic factors which are out of the control of many underdeveloped nations will lead to a decrease in governing capability and capacity over certain areas of society. States with authoritarian regimes will continue to face external pressures from more democratic nations using many different means, one being economic sanctions, in order to pressure more democratic and open market principles. Internal pressures will come (when the opportunity arises) from sections of the population that have been maligned for years or simply want change. Table 4.11 is part of the construction of a Human Rights Index (HRI) by researchers at Sandia

National Laboratories in order to explore different links involved in state conflict. In this study “seven indicators are used to calculate the HRI: population growth rate, population density, caloric intake per capita, renewable fresh water per capita, arable land per capita, median age, and population health (including infant and child mortality and life expectancy)” (NIC 2030 43). Figure 4.11 is duplicated directly from the source article and shows Nigeria

Figure 4.11

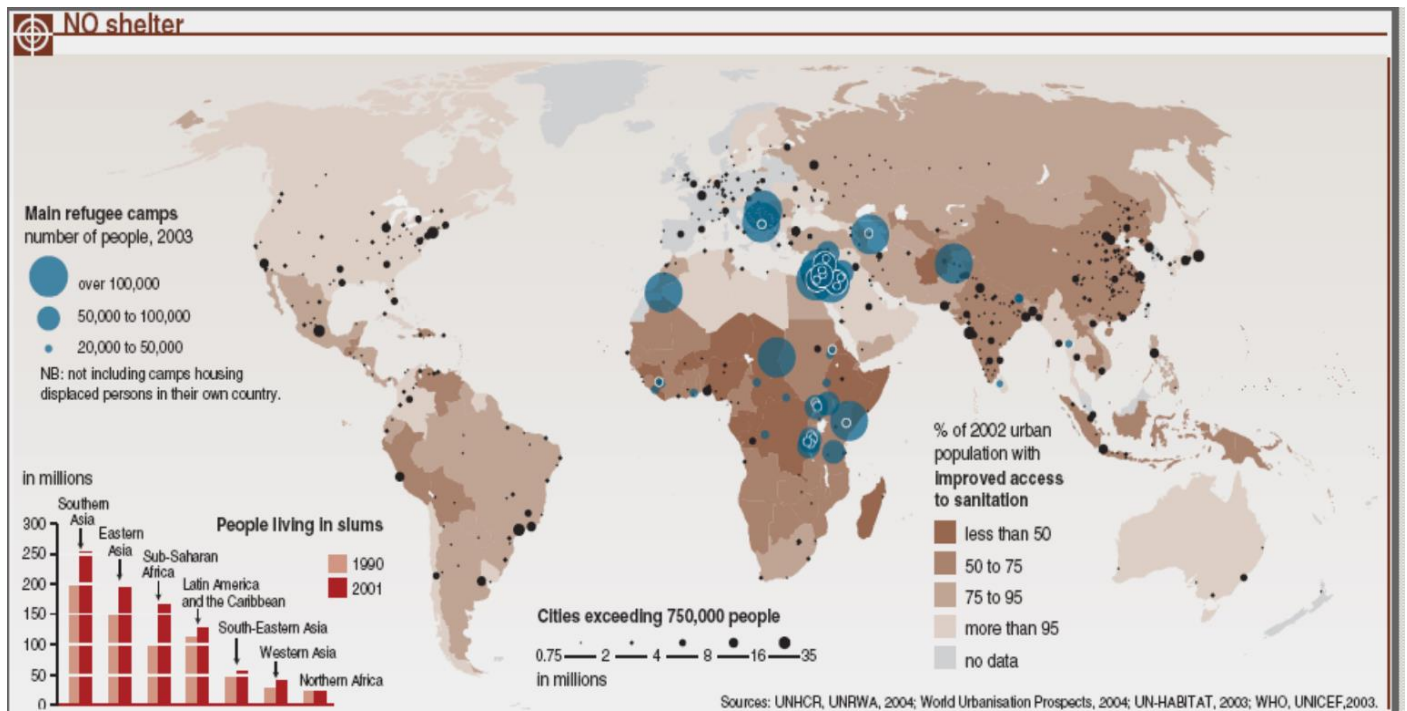
COUNTRIES AT HIGH RISK OF STATE FAILURE		
Rank	2008	2030
1	Burundi	Somalia
2	Yemen	Burundi
3	Somalia	Rwanada
4	Afghanistan	Yemen
5	Uganda	Uganda
6	Malawi	Afghanistan
7	Dem. Rep. of Congo	Malawi
8	Kenya	Dem. Rep. of Congo
9	Haiti	Nigeria
10	Ethiopia	Nigeria
11	Bangladesh	Niger
12	Pakistan	Pakistan
13	Nigeria	Chad
14	Niger	Haiti
15	Chad	Ethiopia

(NIC 2030 43)

twice in the listing for 2030; however Kenya should be listed there for one of the entries instead.

Recently, the Arab Spring has become a good example of this. With the spread of media technology among the global citizenry these types of revolutions will likely spread as more people start to believe there and numbers in people and there is a chance for success in revolutionary endeavours. These types of revolutions, whether bloody like in Libya or without war like in Egypt, the fragility of the new governments will bring new competition to fill the power vacuum from internal and external forces; which can create a new, long-term, type of instability.

Figure 4.12: Areas of Instability



(USJFCOM 39-40)

If the above study in Figure 4.11 were completed more recently, countries such as Libya, Syria, Iraq and Jordan would be placed somewhere on this list due to current (possibly long term) conflicts. The instability created in this environment can also spread to neighbouring

countries and regions as the flows of ideals, refugees and fighters over state lines can become overwhelming. Figure 4.12 above demonstrates some of the greatest factors for instability and some of the areas that are failing or have the biggest risks for instability.

A major concern for the world when a state fails is the opportunity for non-state criminal and terrorist organizations to operate and train with impunity. Nevertheless, it is becoming harder for these organizations to function with the assets being pumped into the GWOT; even within failed states. The mere presence of a failed or failing nation can wreak havoc regionally as well as globally. The risks associated with these ungoverned or poorly governed spaces include endemic criminal activity, the basing of terrorists, irregular activity and conflict, are likely to increase and add to the complexity, and, by extension, to the burdens of maintaining the integrity of the international system (UK DCDC 16).

International organizations such as the UN and NATO will have a tough choice in the coming years whether or not to be proactive in these conflicts or failed states, but history has shown that operating in these environments can be harmful no matter what the choice. Failed operations in nations such as Somalia, Rwanda, Sierra Leone, Congo, and to some level Bosnia and Afghanistan have made many nations weary of entering these types of situations again. In the coming years it seems more likely that powerful nations and international organizations will pick and choose the conflicts or failed states they will enter based on political and economic reasons. Recently there are good examples of this as the UN, NATO, and regional organizations were very much for intervening in Libya against Kaddafi and successfully led to his removal, whereas in a similar conflict in Syria the international community remained inactive due to division and a lack of prospects for success. The international community will have to deal with the sides picked and choices made since both nations will more than likely be unstable for many years to come. Even if terrorist or criminal organizations do not play a major factor at the beginning of a conflict such as these, the situation opens the opportunity for these groups to come in and corrupt a resistance movement (like in Iraq) or offer a side in conflict an opportunity that the international community will not do for whatever reasons (like in Syria).

A threat to global stability does not only have to deal directly with failed states and violence. Another type of threat to international stability could come from if a major

economic power, for example China, were to simply suffer a sustained slowdown in growth rates or a recession. China would be a perfect example of a state that is performing well economically, but is using this success to cover up many issues within the nation that can be debilitating: a rapidly ageing population and unpopular policies for limiting childbearing, issues with ethnic and religious groups, densely populated cities and increased urbanization, the effects of pollution and climate change, as well as increasing monetary inequity and poverty numbers within the population to name a few. If a nation like China were to, for whatever reason, collapse or have a revolution leading to instability, the international economy could very well be taken with it due to the dependencies on nations by the interwoven economic structure created by globalization.

Another area that could be in trouble with the threat of collapsing states would be Latin America and the Caribbean. The increasing power and influence of drug cartels have led to some states like Mexico, Columbia, Honduras, Guatemala, El Salvador and Jamaica at times turned into warzones that have taken a huge toll on the populations. The number of murders is staggering, with many of these states having the highest murder rates in the world. Burgeoning economic powers like Brazil and Mexico are increasingly going to become targets of drug cartels and criminal organizations as the money continues to flow into these nations. Another major threat globally would be the loss of control of a major metropolitan area, particularly in Africa or Southeast Asia.

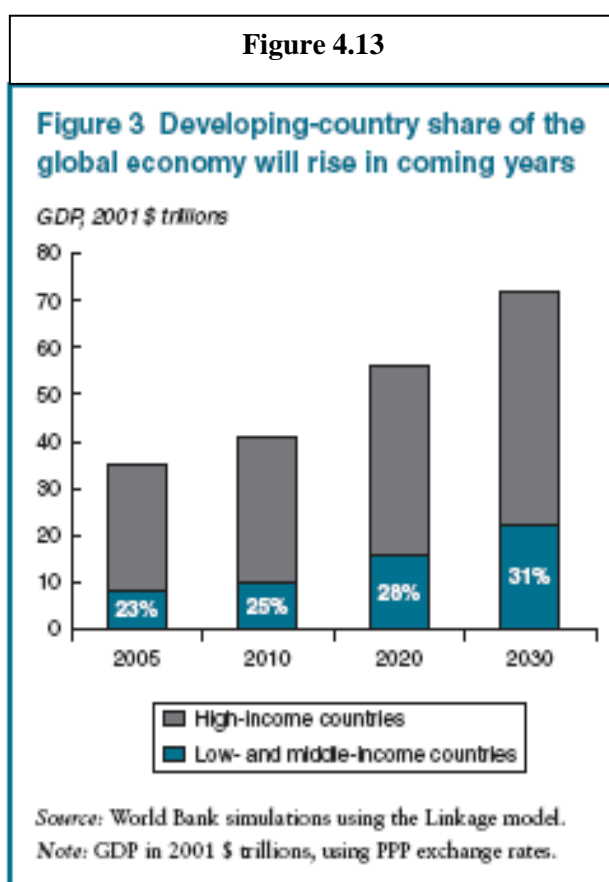
An urban population explosion in these areas could become unmanageable for many nation states, especially with the potential for resource constrains. The UN is reporting that “Africa’s urban population will increase from 414 million to over 1.2 billion by 2050 while that of Asia will soar from 1.9 billion to 3.3 billion, according to the 2011 Revision of the World Urbanization Prospects, produced by the UN Population Division of the Department of Economic and Social Affairs (DESA)” (UN News Centre). The same report labels India, China, Nigeria, The United States and Indonesia as the countries with the greatest growth in metropolitan areas in the next 40 years, and outside the United States and maybe China this growth could be completely unsustainable and cause a loss of control of an important national hub.

4.7.2 Economic Conflict

According to the World Bank's projections, the global economic trends will continue to keep growing into 2030 thanks to increasing populations, technological advancements and a tightening of economic relations due to increased globalization. This scenario by the World Bank "anticipates that global economic output in 2030 will be USD \$72 trillion, up from USD\$35 trillion in 2005" (CAN 16).

Although it is obvious that not all nations will have similar rates of growth, many developing nations will see that their population growth can lead to an increasing workforce if the infrastructure can be built up to incorporate them. The Figure 4.13 on the right shows the predicted growth by developing nations in the coming years. The increase in GDP and production for these nations will give them a better chance to fight off certain internal disputes as long as the populations are also feeling the positive growth. If financial grow is only limited to a small group, which has been common for developing nations, then the growth will not lead to stability in the long run. Another worry is the fact that the world is more connected economically and any negative effects on one nation can ripple throughout the global marketplace. In the end, the international community should be more inclined to help an ailing nation or region whose impending collapse (due to any number of factors) could impede continued market growth.

Unfortunately states can become inward looking at times of crisis (worse than that of 2008), and there is a high probability that any major crisis could cause nations to pull away from

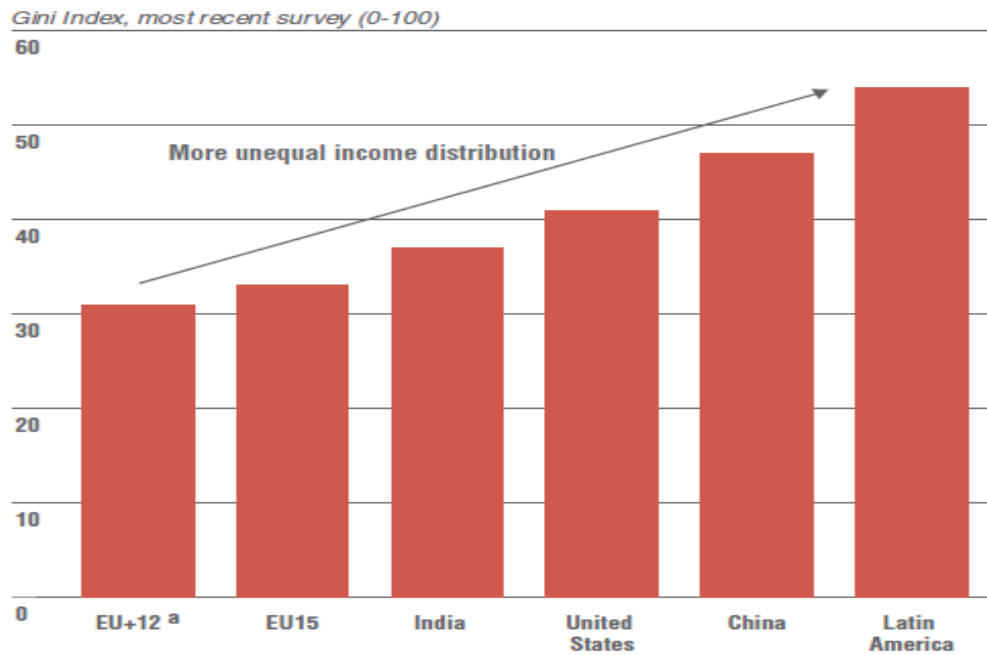


(Canada 17)

the economic ties that bind, which could be very dangerous for the international market’s survival or peace between nations. The NIC states that “[I]f global economic growth did suffer a severe reverse—akin to the Indonesian crisis of the late 1990s but on a worldwide scale—religiously based rural insurgencies and ethnic struggles probably would ensue in a number of countries including Brazil, India, China, and in much of Africa” (NIC 2025 86). Even in times of prosperity, the threats of societal destabilization exist in many corners of the world due to income inequality. The chart below shows the regions that will have the most to worry about when it comes to income inequality and possible internal destabilization due to it.

Figure 4.14

Regional Income Inequality: European Inequality Lower Than Most



^aEuropean Union Nations that acceded in 2004 or later.
Source: UNDP, Human Development Report 2007/2008: World Bank.

(NIC 2025 9)

Economic issues between states can also be a catalyst for state conflict regionally. Some fear that a next Great War could be between the US and China over influence in

different regions, however this seems quite unlikely based on how much these two countries need each other to succeed. This concept can be thrown out the window if interdependency of nations is done away with because of truly vast economic issues like a global depression or a shock to the markets; such as a war in a strategic region pulling major powers apart when choosing sides. The bigger threat will be between states that are competing regionally, perhaps over disputed land and resources, and one state may feel superior enough to make a move on its competitor. This type of regional power play could expand instability in other neighbours or trigger an adverse response from global powers that have interest in the continued functioning of said region. Economic sanctions have also become a viable soft power for nations within NATO/EU, which can be seen as a use of economic conflict for a purpose, and is usually used against states that are seen to be going against global stability in their actions. Sanctions have been used to varying degree of success with the goal of getting nations to come to the negotiating table in regards to stopping their military actions, nuclear programs or human rights abuses. Recently, sanctions have been used by the West against Serbia, North Korea, Iran, Iraq, Syria and many others to varying degrees of success, but prolonged and targeted economic sanctions have proven a successful long term means of getting parties to the negotiating table.

Most recently with the annexation of Crimea by Russia, sanctions again are being used by the West to attempt to calm Russia's actions (and Russia is doing similarly in retaliation), but this situation is being treaded lightly because of the economic impacts that can possibly be felt on all sides due to the interconnectedness of the global economy. This will be in interesting test for the future of NATO/EU nations, as there seems to be no taste for military conflict with Russia over Ukrainian territorial integrity, but if sanctions can effectively bring all sides together and lead to a secession of aggression (much like has happened recently with the Iranian nuclear program), the idea of punishing economically instead of militarily will gain more traction for future conflicts. It is very possible that in this case Russia will not be deterred by the sanctions, but in fact will be greater provoked by them and lead to a rallying of nationalism against the West as the people of Russia begin to feel the strain, which could be seen as a blessing for a furthering of President Putin's territorial

aspirations. It will be seen if economics or territorial/nationalist desires is a more powerful force in the post-Cold War politics.

In this case with Russia, it is very possible that powerful states may become more aggressive globally when they have reached a point of stagnation and get passed economically by up-and-coming nations or regional competitors. Another way that interdependency can decrease is if organizations like the WTO, World Bank, UN, EU, etc., fail in averting some minor catastrophes or fail to reform significantly in the eyes of the world, leading to whatever faith in them remains to disappear. International poverty rates are also putting strains on society, as the UN Commission on Social Development states that 735 million people will be living in extreme poverty (living on less than \$1 a day) by 2015. Although this is fewer than the 1.22 billion impoverished people tallied in 1990, it still represents an enormous number of people who lack access to money, education, health care and power (USJFCOM 27). Many regions, such as those mentioned in the previous section as having penchants for instability like Latin America, the Caribbean and Sub-Saharan Africa particularly have some of the worst economic inequality. A lot of work in these specific zones is needed in order to reverse these negative trends that could potentially have calamitous results for the international markets and the individual citizens that make it up.

5. Implications and Recommendations

“We are made wise not by the recollection of our past, but by the responsibility for our future.”

~George Bernard Shaw

The goal of this study has been to create a sort of consensus on the Future Security Environment (FSE) to determine if the North Atlantic Treaty Organization (NATO) is planning accordingly and if they will be the same world power in the coming decades that it has been the previous six; or will simply become a dwindling security Alliance. The previous chapters have demonstrated the areas of focus for the study; looking first at NATO’s history of planning for the near future since its inception in 1949 through the Strategic Concept, to the development and content of the 2010 Strategic Concept, and finally a consensus look at the FSE that the most recent Strategic Concept is addressing for the security of the Atlantic Alliance. In order to properly assess how NATO as an organization looks to fare in this FSE, one needs to look at the formulated threat assessment and gauge how NATO will perform in addressing these tasks by not only the declarations within the 2010 Strategic Concept, but looking at policy being developed or the effectiveness of recent operations in the specific areas of threat.

There are more threats to Alliance security than are focused on in this study, but the threat scenario obtained does give a good look at what most experts agree need the greatest amount of focus in the coming years. However, there are some areas not addressed properly or at all (even within the other FSE studies, not just NATO documentation) and these areas will need mention within these findings. Now that the FSE is as established as possible, the question has to be asked what is NATO doing in these areas and will it be effective enough to protect the Alliance populations. The first area to look at based on the list of threats in the last chapter is that of state conflict.

5.1 State Conflict

Both interstate and intrastate conflict will have the ability to cause instability in the NATO neighbourhood or with NATO interests abroad. The instances of state conflict could become an increasing threat due to the evolving international system that is moving away from the post-Cold War unipolar one. Though this movement to a more globalized world has been seen as a way to limit state conflict, the next few years may challenge that principle as the United States begins to lose its sole superpower status and guarantor of the international system as others begin to challenge the position. Looking currently at the situation of the civil war in Syria and the emerging situation in Ukraine, the weakening of the US' abilities to do what it wants geopolitically is becoming more apparent. China and Russia have shown that they can act increasingly successfully as roadblocks to the American agenda and push their own abroad and in the United Nations (UN) Security Council. This situation may lead some leaders to believe they can act with impunity against rivals if the Security Council is becoming more divided.

Another issue in the coming years will be the Americans' and Europeans' desire within their populations to enter conflicts and mitigate them. The long and painful wars in Afghanistan and Iraq have had an isolationist effect on their populations. One positive outcome of this could be a strengthening of UN institutions and international partnerships (such as NATO) as states will look to avoid entering conflicts and put more efforts into diplomacy. "Intrastate conflicts have gradually increased in countries with a mature overall population that contain a politically dissonant, youthful ethnic minority", with some examples of this being "ethnic Kurds in Turkey, Shia in Lebanon, and Pattani Muslims in southern Thailand" (NIC 2030 16). One way to counteract civil instability becoming violent conflict, as some have recently in the MENA (Middle East North Africa) region with the Arab Spring, would be for organizations like the UN and NATO to reach out to all sides in a potential intrastate conflict, as well as the surrounding states that may have interested parties to the conflict and begin to help manage the situation from its infancy. The situation in Syria has shown that more could have been done diplomatically for humanitarian reasons by the Security Council members in the previous few years, specifically the US and Russia.

Another way to end some of the gridlock in the Security Council could be an updating of its rules of operation and voting, as well as a broadening of permanent membership to add some more perspective (i.e. Brazil, Germany and India).

NATO has an ability like no other international organization to use political might and solidarity with military capabilities to carry out crisis management. The Alliance is uniquely suited for international stabilization efforts. However recent events in Libya and Syria, two conflicts in NATO's neighbourhood, show that NATO can only be utilized if the political situation is right; affecting NATO's influence over events even in its own region. In order to combat these threats to populations and strategic interests the Alliance has the ability to make an impact in any point of a conflict: whether to mediate talks before a major conflict breaks out, provide assistance in quelling the conflict politically or militarily and providing for refugees during the conflict. Also it will be important to promote or lead reconstruction efforts and the reconciliatory processes after the conflict's conclusion. This concentration in crisis management is not only to protect NATO interests abroad, but to also ensure the safety of Alliance populations back home because of the worry that "crises and conflicts beyond NATO's borders can pose a direct threat to the security of Alliance territory and populations" (NATO Strategic Concept 2).

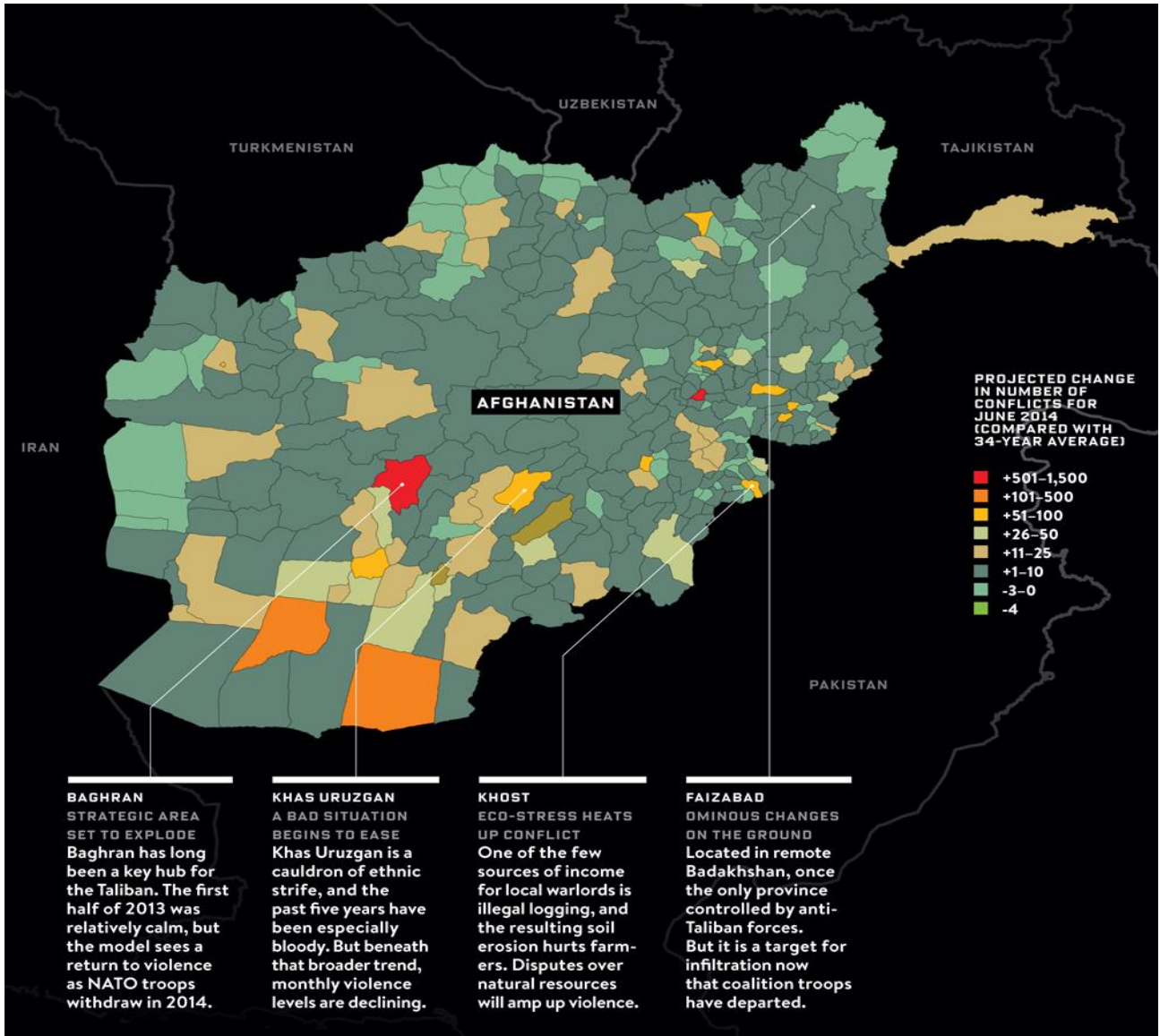
Recent experience in conflicts such as Bosnia, Kosovo, Afghanistan and Libya, along with a history of Lessons Learned documentation and a combined military budget far greater than any nation (mainly because of the United States), NATO is better suited today to deal with any type of state conflict that will arise in the near future. The only obstacle to decisiveness will obviously be international political willingness and consensus on what action to take. With a recent history of inaction in conflicts such as the early parts of the conflicts in the former Yugoslavia, many parts of Africa including Rwanda and the Sudan, the Russia and Georgia war in 2008 and currently the bloody civil wars in Syria and Ukraine, it is possible NATO will be unable to have an effect on many future conflicts if it interferes with the interests of increasingly powerful global players. The only certain with political and military consolidation in the future is if NATO is attacked directly by a nation or group as was seen with 9/11. If this future conflict is in the NATO neighbourhood and the Alliance

cannot do anything, there will be risk to the Alliance populations (such as the possible spill over of the Syrian civil war into Turkey).

The success of NATO intervening in conflicts abroad is mostly out of the hands of NATO itself, as when a conflict is started that does not invoke an Article 5 response then the Alliance is affected more by international politics. As the recent conflicts in Libya and Syria have demonstrated, one never does completely know how the politics of international and intra-national conflict will play out. This, despite the Alliance becoming more dedicated to this type of crisis resolution after the end of the Cold War and are probably the most prepared for the task, the Alliance will probably be sitting on the side-lines of many future conflicts because of political deadlock between major global players and their interests. This does not mean that NATO isn't ready, as the ending of the war in Afghanistan will refresh NATO forces and further develop the 13,000 soldier strong, rapid reacting, NATO Response Force (NRF). This development will only improve Alliance capabilities. The Supreme Allied Commander – Transformation (SACT) for NATO, General Jean-Paul Palomeros was quoted in this respect that: "The crisis won't wait for us, so our forces should be ready, and that's where I see a major role for the NATO Response Force" (Freedberg Jr.).

Technology and data gathering will also give NATO a heads up on areas of the globe where the biggest threats could emerge. Figure 5.1 below is a forecast for the levels of conflict in Afghanistan for June 2014, which was just a few months before the suspected pull-out of NATO forces. This figure is from the Global Database of Events, Language, and Tone which is compiled by Penn State political Scientist Philip Schrodt and his team. This is done by collecting “news from the Internet—the BBC, yes, but also hyperlocal sources around the world—and catalogue events from village elections to genocide” (Keats). From here the group can analyse trends, both short and long term, to demonstrate the most vulnerable areas in the world for conflict. This information can aid NATO in seeing which areas of Afghanistan will need the most attention before and after the withdrawal, and those that the Afghan forces will have to invest the most resources in after. These are areas NATO should be able to successfully tackle as the Alliance will only operate in those scenarios where they are allowed internationally (outside of Article 5 responses) and the Alliance is built to thrive in disaster and conflict relief operations.

Figure 5.1: Afghanistan Potential Conflict Forecasts (June 2014)



(Keats)

Therefore it seems that NATO will be able to stop some conflicts from getting out of hand, but others it will have no way of stopping given constraints. The possible outcomes of non-intervention in many conflicts could have adverse effects on the security of the Alliance at later dates, much like with Somalia after the failed UN intervention and Syria in the coming years.

5.2 Proliferation of WMD/E

In the area of WMD/E proliferation, NATO has been very active and focuses a lot of attention in this direction. This dedication was backed up with a statement from the leaders of NATO member states at the NATO Summit in Chicago in May 2012 that said: “[p]roliferation threatens our shared vision of creating the conditions necessary for a world without nuclear weapons in accordance with the goals of the Nuclear Non-Proliferation Treaty” (“Weapons of Mass Destruction”). The *Deterrence and Defence Posture Review* that accompanied this conference noted that they are committed “to maintaining an appropriate mix of nuclear, conventional and missile defence capabilities for deterrence and defence to fulfil its commitments as set out in the Strategic Concept” (“Deterrence and Defence Posture Review”). NATO has set up many different structures to combat WMD/E proliferation in the past few years. Some examples of this would be:

- NATO’s Weapons of Mass Destruction Initiative in 1999 that created the Weapons of Mass Destruction Non-Proliferation Centre at NATO Headquarters the following year to create military and political fusion within the Alliance to combat proliferation
- The creation of the Joint Centre of Excellence on CBRN (Chemical, Biological, Radiological and Nuclear) Defence located in the Czech Republic in 2007 to benefit the Alliance in transformation these areas
- The Committee on Proliferation (COP) in 2010 that streamlined many older high level committees into one in order to address different political and military changes needed to combat proliferation, protect Alliance populations, detect new threats, and perform outreach to allies.

Other policies that NATO has crafted in order to make fighting WMD/E proliferation are NATO’s Comprehensive Strategic-Level Policy for Preventing the Proliferation of WMD and Defending against CBRN Threats along with 182 STC 09 E rev 1 - Combating WMD Proliferation; both released in 2009. The former document made the agreement that anti-ballistic missile defence is also on the top of the Alliance’s list of priorities, and announced at

the 2012 Summit in Chicago that the first step (an interim missile defence system) had been completed.

In this area NATO will have a high likelihood of success against future proliferation or threats of use. One of the main reasons for this is that the United States' massive nuclear arsenal serves as the main nuclear deterrent for the Alliance. Since the times of the Cold War, even though other NATO members have nuclear capabilities, it is the United States with their quick strike capabilities and negotiating power that make deterrence work. Another reason pointing to successes in the field for NATO is Russia's willingness to participate in non-proliferation talks and nuclear arsenal inspections. Russia shares the same fears as the Alliance of the threat of loose nuclear materials and warheads, but unfortunately does not agree with the Alliance's plans for anti-ballistic missile defence. They view any attempts without their participation or involvement of previously established facilities within the former Soviet Union as an act of aggression against them and their geopolitical interests. It now seems the US and the NATO allies are hoping to speed up the phased deployment of their "Standard Missile 3 Block 1B interceptor, which is designed to destroy nonstrategic ballistic missiles" by placing them in the Mediterranean, the Black Sea and Poland ("Moscow: US, NATO Missile Shield"). This has displeased Moscow, who sees this as a direct action aimed more towards them than the Middle East and Asia. If NATO cannot assuage Russia's fears or bring them more into the fold over the next few years, all types of past agreements in these areas of non-proliferation could be severed. Of course it is a two-way street, and Russia hasn't done a good job playing the trusted partner with recent actions on their periphery in Georgia and Ukraine.

Miniaturization of warheads, radiation containment and other technological advancements will also make the tracking of such devices harder for the Alliance to monitor when being sold on the black market. Much of this technology will probably be developed in the West, or within nations friendly with the West, so NATO should be able to remain ahead of the curve in keeping tabs on the materials. Overall, given the global concern for WMD proliferation and the amount of cooperation that exists, the Alliance's future successes in the area of anti-WMD/E proliferation seem high. There is always a small chance that does exist that due to unstable nuclear (or near nuclear) states such as North Korea, Iran and Pakistan, as

well as Russia's spotty record on maintaining their stockpiles, that these materials are moved into the hands of terrorist or criminal organizations. Many terrorist organizations like al-Qaeda have reportedly lost interest in the acquisition of nuclear materials because of the cost and attention the action would bring to their operations. These organizations have instead focused on acquiring biological or chemical agents to be deployed in dirty bombs, but this mission has also not yet proved fruitful and will remain difficult in the years to come.

The threat of rogue nation states using WMD/Es on NATO nations themselves is quite miniscule since if NATO is aware where the emerging threat is, they can take down any Intercontinental Ballistic Missile (ICBM) technology aimed their way through military action. Currently these states that are the biggest threat, besides Russia, do not possess the capability to strike Europe or North America. By the time they do have the capability, the technology to stop them will be greatly improved no matter what type of missile shield (sea, air/space, land based or any combination) that the Alliance decides is most feasible. The biggest threat in the coming years seems to be the use of a miniaturized dirty bomb brought in to an Alliance member state's international shipping ports and transported to a major city; but even this scenario seems unlikely at best due to the probable ease of attribution and following retribution.

5.3 Terrorist, Extremist and Other Criminal Groups

On the subject of the future of terrorism within the FSE, NATO surely will have its hands full dealing with threats from both the outside the Alliance as well as from within. Terror groups like al-Qaeda won't be going anywhere anytime soon, even if the current al-Qaeda and similar established groups are weakened and fragmented by the current Global War on Terror (GWOT) that began after the 9/11 terror attacks, these entities will reform and rebrand themselves and remain a threat. An example of this is demonstrated by the emergence of ISIS within Iraq and Syria which evolved from Saddam's former Baathists, the Sunni militias and al-Qaeda groups that waged war against coalition forces in the Iraq war. The same is threat exists from international criminal syndicates and drug cartels. A growing threat is one that NATO itself may have played a part in the emergence of: the threat of

domestic terrorism. Europe especially had a rough time with terror groups during the Cold War, and some of that may be directly attributable to the failed program that was to function as a last resort of resistance in case of a Soviet power grab or full on invasion of territory. Operation Gladio has allowed the far right wing of Europe to quickly rise from the ashes of World War II in order to compete against the Soviet threat. NATO gave an easy way for these groups to rebrand and maintain political influence within their countries. The uncovering of Gladio coincided with the collapse of the Soviet Union, which allowed NATO to dodge nearly all media scrutiny for connection to Europe's recent bloody history of domestic terrorism. This also allowed the right wing operatives whose operations were coming to light to recede back underground to exert their influence another day, perhaps on a new post-Cold War generation.

Nationalistic organizations and political groups have seen a bolstering of their ranks with the current economy hitting many sectors of North America and Europe hard, the first African-American president in the United States and increasing racial tensions throughout many European nations. These systemic problems within the world economy, if unchecked and not corrected, could lead to increased social fragmentation within societies as groups use each other as a scapegoat for their deteriorating condition. The increasing use of social media and the growing reach of the internet will also take the messages of these groups to ever increasing audiences that may become sympathetic to terrorising NATO populations, allies or interests abroad. Security organizations within the Alliance member states, as well as NATO itself, have a greater presence online infiltrating the forums and the terrorist groups to combat this growing threat.

One major internal threat from radical political organizations, specifically when it comes to European nations within the EU and the Alliance, is actually coming from abroad. Far right nationalistic political parties such as Jobbik in Hungary, Golden Dawn in Greece, National Front in France and Ataka in Bulgaria have been receiving training, political backing and financial aid from the Kremlin in Moscow. These parties are anti-EU and anti-NATO, all have stated platforms desiring to leave these organizations, and in some cases advocating the annexation of territories that share ethnic communities outside of borders (Jobbik has called for the seizing of Hungarian communities in Slovakia and Romania).

Russia is playing these far right parties in Europe for their own advantage. A recent report from *Foreign Affairs*, which is published by the Council on Foreign Relations (CFR), states that when it comes to Vladimir Putin: “[I]n the European Union, he hopes that his backing of fringe parties will destabilize his foes and install in Brussels politicians who will be focused on dismantling the EU rather than enlarging it” (Orenstein).

A destabilized Europe would allow Putin to emerge as a geopolitical power over much of the continent, as a possible re-emergence of a Cold War like world would have the United States and the Russian Federation fighting for influence. Russia is also hoping to eventually attract EU nations away from their economic union to his proposed Eurasian Union. Russia is engaging these far right parties (and in some cases even far left like with Germany’s Die Linke) is done through inviting them to Moscow to meet with Duma leaders and speak at renown institutions such as Moscow State University. Moscow has tried to add legitimacy to these groups through their far right NGO the Eurasian Observatory for Democracy & Elections (EODE) (Orenstein). Russia has openly stated their dislike for fascism since World War II, however Putin and the Russian government are using far right Christian nationalists at home and abroad to serve their regional, territorial and economic desires.

Since the 9/11 attacks, NATO has decided to take the fight directly to the terrorist threat with the war in Afghanistan. The war has generally seen as having a severely negative impact on al-Qaeda operations in the region, even putting greater pressure on groups over the border in Pakistan through the increased drone attacks under the Obama administration; however the overall success of the war against the Taliban has been lacking. This war has pushed Islamic militants into other strongholds in Southeast Asia, the Middle East and North Africa and will continue to move around when these areas draw the attention of local or Western forces. Many of the ways of keeping terrorist forces out of regions where they currently thrive are mostly out of the Alliance’s hands. However, the NATO is in a good place to be able to promote economic advancement, social stability, a fixation on human rights and assistance with improving law enforcement structures. Another option is through the UN Security Council, which under resolution 1540 maintains that they “can offer States model legislation for security, tracking, criminalization and export controls, and... develop

minimum standards for United Nations Member State implementation (UN 45). In 2010, NATO instituted the Emerging Security Challenges Division in order “to deal with a growing range of non-traditional risks and challenges, including terrorism, in a cross-cutting manner” (“Countering Terrorism”) The Alliance has also created new strategies for fighting terror with the Policy Guidelines on Counter Terrorism at the Chicago Summit in 2012 that has built upon the Defence Against Terrorism Programme of Work in 2004.

Another major threat to the Alliance is that members of its populace are going to fight in other wars around the world and then return home. The Syrian civil war is an ideal example of this. Fighters from across Europe have illegally entered the country to fight for any number of purposes be it religious, human rights, desire for violence or freedom against persecution. The main worry is that when fighters return from these types of conflicts they may be bringing back with them beliefs and skills that can threaten the safety and security of their home nations. Many are also using social media to demonstrate their exploits in the conflict. Some trends are becoming more worrisome for Western nations as their citizens are turning towards propaganda for violent action and Jihad. Much of the imagery and statements are displaying the extremist changes in the individuals themselves. In the case of British fighters who have left for the Syrian battlefields, they had been joining moderate groups fighting for the rebels, but in past years that had begun to change. According to a VICE News report:

The renegade al Qaeda offshoot that was joined most by Brits, the Islamic State of Iraq and al Sham (ISIS), alienated more moderate rebel groups due to its tendency to attack those groups and kill their commanders. By January, all the other rebels had had enough, with even the official Syrian al Qaeda franchise Jabhat al Nusra joining the rebels of the Islamic Front and of the relatively moderate Syrian Revolutionaries Front in a campaign to rid the rebel-held north of ISIS (Roussinos)

With the online campaigns that these British fighters are also waging, the thought of them coming back home and actively spreading these ideas among the populace will be keeping the British security services awake at night. The same can be said of those member states that have portions of their population joining in the conflict in Syria and other locations

around the world. ISIS is known as the Islamic State of Iraq and Syria or the Islamic State of Iraq and the Levant (ISIL) and its war has found successes across Iraq and Syria. The group is using the sectarian divide between Sunni and Shia that was exploded in the recent US war to take city after city from the weakened Iraqi military and government. Any expansion of the war in Syria will pose a possible major threat to NATO and its allies, and especially for Iran. Iran has deployed the Revolutionary Guard and Quds Force to help the fellow Shia Iraqi government fight off the insurgency (Fassihi). Ironically, this development has led to the United States, at times, providing air support for Iranian backed forces to combat the radical Sunni forces.

NATO nations will continue to have problems with criminal organizations looking to deal weapons or WMDs to adversaries, produce and sell drugs that can have detrimental effects on civil society, cause financial and identity loses of citizens through cyber-crime or traffic people illegally across borders. As NATO nations look to improve their ways of policing and combating these groups, many of them remain a step ahead of the defensive measures. The Alliance will have to work together better to share information and to create innovative policies that will combat these groups in a multitude of ways as simple police or military action alone has not been successful so far. Some nations are coming up with legal changes that have been successful in various sectors, such as the legalization of marijuana in the states of Washington, Oregon, Colorado and Alaska in the United States, as well as the legalization of medical usage in more than 20 states. The results so far have been encouraging in combating the Mexican cartels, as a *Washington Post* report states:

Farmers in the storied “Golden Triangle” region of Mexico’s Sinaloa state, which has produced the country’s most notorious gangsters and biggest marijuana harvests, say they are no longer planting the crop. Its wholesale price has collapsed in the past five years, from \$100 per kilogram to less than \$25. ‘It’s not worth it anymore,’ said Rodrigo Silla, 50, a lifelong cannabis farmer who said he couldn’t remember the last time his family and others in their tiny hamlet gave up growing mota. ‘I wish the Americans would stop with this legalization’ (Miroff)

Now these cartels have moved on to opioids, cocaine and methamphetamines to replace the lost marijuana market, so new methods will have to be formulated to combat this scourge until doing business in the United States isn't worth the cost. Other countries in NATO have seen various degrees of success combating these elements in Europe through legalization or decriminalization of a variety of drugs. Countries in Europe such as the Netherlands, Portugal and the Czech Republic have embraced the idea that decriminalization, regulation and treatment can be a positive replacement for the policies of imprisonment embraced by the controversial War on Drugs.

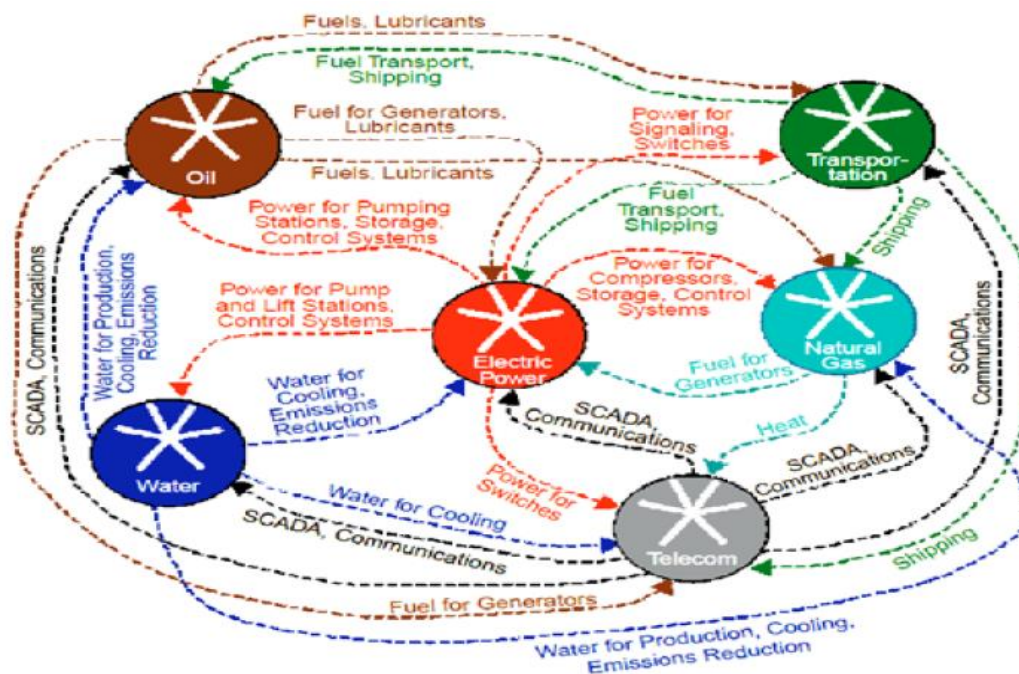
NATO's increasing information sharing capabilities between their member states and allies along with increases in technology give the Alliance a great chance at making an increasing impact in the war against terror in the coming years. With the war in Afghanistan approaching an end in the coming years, NATO will be able to use more assets on stopping terror and affecting their centres of operations around the world using their political, military and technological means. With the widespread threat of terrorism both externally and internally in the decades to come, NATO and their member states will obviously be unable to stop every terror threat globally. However, the Alliance will start becoming more adept at these tasks as the years go on with greater cohesion, adaptation and experience. However, the same technological advantage that NATO employs will be increasingly tested by similar technological advancements that terrorist and criminal cells will use to avoid detection. NATO must stay ahead of these trends, and greatly monitor the proliferations of these technologies that much of will be developed within its borders. NATO can have greater success in this category due to the Alliance's capabilities and focus, but regardless some attacks will slip through their fingers even if not to the level of the 9/11 attacks.

5.4 Cyber and Critical Infrastructure Protection

When it comes to ways international organizations such as the EU and NATO can make Critical Infrastructure Protection (CIP) more effective, there are many roadblocks standing in the way. In regard of individual nations' internet networks, many within Europe are reluctant to hand some of those sectors over to the observant eye of a supranational

watchdog, as a nation’s secret information and many companies’ proprietary data is flowing through many of these channels. Another impediment standing in the way of improving CIP are the weakening many economies in Europe, which can lead to: less investment in security, poor communication between the public and private sectors from regional to national levels, lack of publicized reports leading stakeholders to doubt the need for investment in greater security, deficiency of specificity in which sectors are more important for increased security, lack of understanding of how much should be spent to offset the risk of an attack, and a general lack of knowledge as to the future of CIP and the threats that will be presented (CEPS Task Force 39). In the end, CIP comes down to the individual nations, but some things have been done within Europe to try and bring about greater cooperation. One major reason for increased CIP from both cyber and physical attacks is the interdependence that exists between different sectors within the US, Canada, EU and NATO nations (as well as almost all countries) as demonstrated below by the CEPS Task Force Report by the Center for European Policy Studies.

Figure 5.2: An Example of Interdependencies between Sectors



(CEPS Task Force Report 13)

As one can see from the diagram above, many of a nation's critical infrastructure is intertwined with other sectors. If one sector is taken down by an attack, it's possible that chaos can ensue within many different sectors as well.

The United States has been slowly attempting to implement greater CIP since the Homeland Security Presidential Directive 7 in 2003. They have continued to try to address these vulnerabilities as recently as 2009 with the National Infrastructure Protection Plan (NIPP) and with the creation of US Cyber Command (USCYBERCOM) in 2010. However, the US is still far from secured in many of these sectors. The European Union has also been focused on improving CIP, and in 2006 the European Commission finalized its European Programme for Critical Infrastructure Protection (EPCIP) which focuses on CIP not only from terrorism but also from criminal activities, natural disasters, etc. The EPCIP action plan has three main work streams.

- The first relates to the strategic aspects of EPCIP and the development of measures horizontally applicable to all CIP work
- The second concerns the protection of European critical infrastructures and aims to reduce their vulnerability
- The third is a national framework to assist EU countries in the protection of their NCIs (EPCIP)

The European Union has also followed up on the EPCIP in 2008 with the Critical Infrastructure Warning Information Network (CIWIN) as a framework within the EPCIP to facilitate cooperation voluntarily to share information and warnings about potential attacks. The European Commission unveiled new cyber defence rules at the end of 2012, which the online platform *Security & Defence Agenda* reports are “imposing obligations on energy, transport, banking and financial companies to report on breaches of their security networks.... Telecommunication and ICT (Information and Communication Technology) firms are already subject to these rules” (EPCIP).

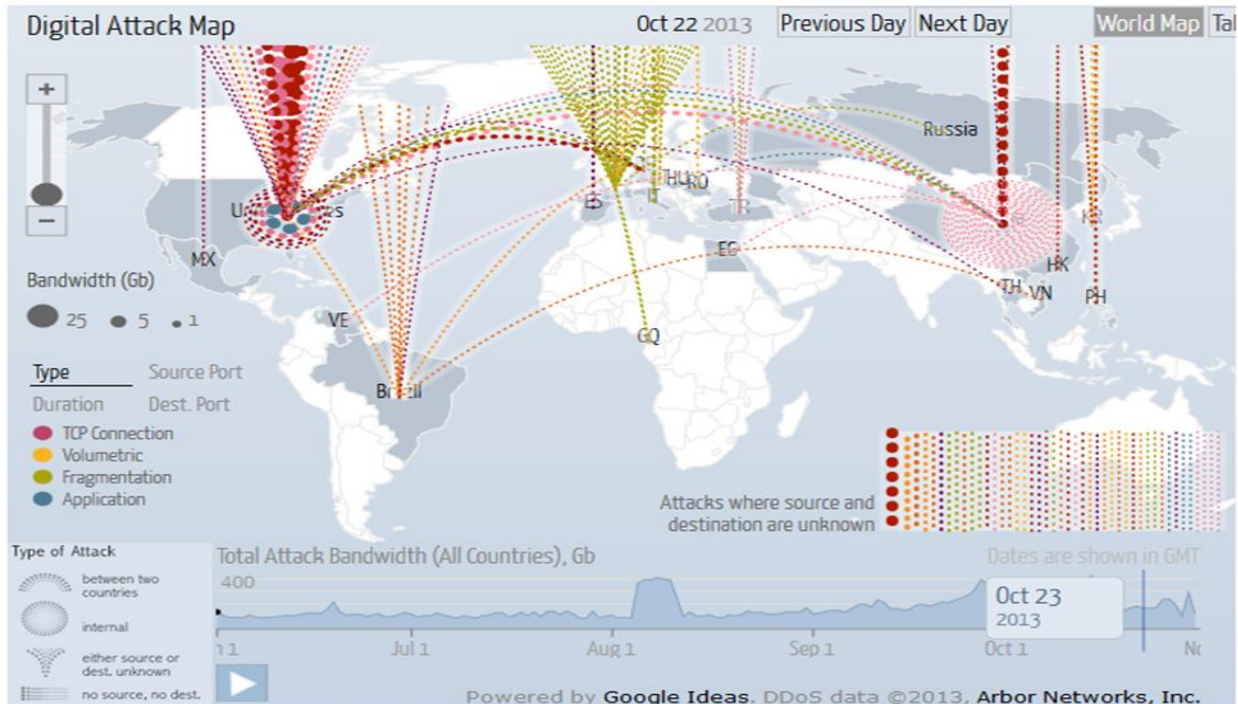
So what is NATO doing to protect their networks and those of the Alliance nations in the wake of the 2010 Strategic Concept? The Alliance already has cyber-attacks covered

under Article 4 of the NATO Treaty so that member nations would have to consult with each other in the wake of the attack, but not be bound to an Article 5 response. In 2008, NATO created the Cyber Defence Management Authority to collaborate between member states, while the 2007 cyber-attacks in Estonia lead to the creation of NATO's cyber think-tank the Cooperative Cyber Defence Centre of Excellence (CCD COE). The Alliance is also joining with allies such as Japan and Australia to team up in information sharing on cyber threats and how to do more to stop them. NATO is attempting to create a proactive defensive system through the NATO Computer Incident Response Capability (NCIRC) that was established in 2003, and at the end of 2012 NATO launched its own cyber Rapid Reaction Force (RRF) to protect its static and mobile networks. This force is also able to be called into action at the request of a member state. Along with this, the NCIRC has also awarded a 50 million euro contract to "a team co-led by US firm Northrop Grumman and Italian firm Finmeccanica to equip 50 sites in 28 countries to detect and respond to cyber attacks" (Sorel). This system, which is operational since the end of 2012, introduces certain "honeypots" into the NATO networks to attempt to lure attackers into seemingly important fake information servers that will record all types of information on the attackers and their methods.

NATO has become extremely proactive on the cyber and CIP fronts since 2001, and now with the new Strategic Concept in place mandating them to do even more; it seems that as an organization NATO seems to adequately be able to protect its own critical infrastructure. However, the same issues that plague the EU and other nations of the world persist here; how can NATO properly protect its critical infrastructure and populations from dire attacks when it cannot have the proper access to public and private networks within its member states? In this regard, NATO would not be graded out particularly positively. This is seen as negative because of the lack of oversight that NATO will realistically be granted of its member states' networks. In order to be able to protect vital networks and infrastructure that do not directly belong to the organization of NATO, Alliance members would have to formulate a system like China's that allows government oversight over every single nodule of the network and also the ability to remove NATO states from the grid at a moment's notice in case of attack. This is politically unfeasible in the near future, thus perpetrating a huge

weakness in North American and European security. Figure 5.3 below shows an average day of internet traffic from Google's Digital Attack Map.

Figure 5.3: October 22, 2013 - Typical Internet Traffic



(Groll)

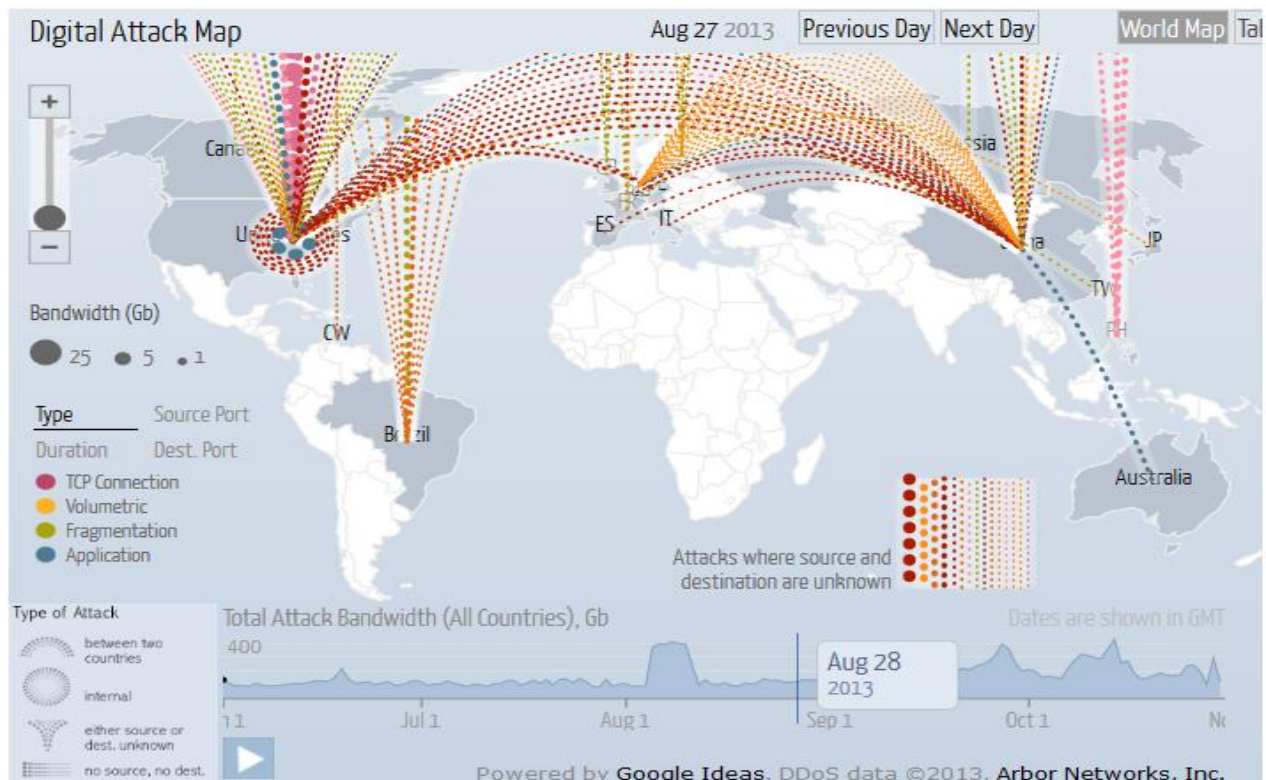
Figure 5.4 on the next page demonstrates how difficult it is even for China to withstand a cyber-attack aimed at its servers, resulting in crashes of sectors of the .cn domain. This attack has been deemed the largest Distributed Denial of Service (DDoS) attack against China they had incurred at the time. In response to the attacks the Chinese authorities did not point any blame, however from an article in *Foreign Policy*:

Attacks whose origin and destination are both known are depicted as an arc between the two countries, with the data traveling from source to victim. Attacks whose origins are unknown but whose victims are clear are depicted as a downward flow into the victim country. As you can see, the attack that took out the .cn domain came from both the United States and the Netherlands (keep in mind: there are several ways

for attackers to obscure their location and make it appear as if attacks are originating in different countries) (Groll)

Included in the Attachments in Annex B will show attacks on South Korea and on the United States for further reference. Further reasoning why NATO will suffer in this category is a quote from former Secretary of Defense of the United States Michael Chertoff who states: “The problem with the lack of attribution for cyber is: how do you deter what you can’t prove, because you have deniability and that means we need to think very carefully about what our response would be to certain kinds of attacks” (Chertoff 10).

Figure 5.4: August 27th, 2013 - Cyber Attack on .cn Domain



(Groll)

The issue of the difficulty of attribution (which can be seen with the Estonia attack in 2007 and in a plethora of other cyber incidents) is what will lead cyber-attacks to being one

of the most unlikely for an Article 5 response. Surely attribution techniques and technology will improve over time, but so will the methods of attack and concealment of perpetrators. Issues of competition and jurisdiction in many cyber related areas between the EU and NATO will probably further complicate matters. The increasing cyber offensive and defensive capabilities will improve the chance for success for NATO in the increasing asymmetric battlefield. The dedication to improving security and the will to pay for it is certainly a step forward in addressing these weaknesses; however the fragmentation that exists on the issue within the Alliance members and their critical infrastructure will be too much to overcome to create an appropriate and effective defence.

5.5 Resource Constraints and Disruptions

The following section shows NATO's preparedness to combat these types of constraints and disruptions globally.

5.5.1 Disruption of Communications

In order to maintain constant communication and information services working, NATO's networks are overseen by the Communications and Information Agency (NCI), which was created on July 1st, 2012 after determining the need for communications to be more streamlined. The result was that NCI was formed out of six separate offices doing similar information security services. NCI has many responsibilities including delivering "advanced Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) technology and communications capabilities in support of Alliance decision-makers and missions, including addressing new threats and challenges such as cyber and missile defence" (NCI). There will be many more emerging challenges to NATO's communications security both in the battlefield and at home with possible electro-magnetic pulse (EMP) devices, cyber weapons and signal jamming equipment with increasing abilities, stealth and ever decreasing prices.

Not only will terrorist organizations, rogue states, or competitors like Russia and China threaten this security, but other criminal organizations looking to hide from NATO's watchful eye or groups that demand information freedom like Anonymous and Wikileaks will also constantly threaten NATO's information security. In the area of communication and information security, it could go either way for NATO. The reason the Alliance won't fare so well in this area in the future is that an organization that streamlines its communications so effectively doesn't have as much to do with the security in place as it has to do with the overabundance of information out there; weaknesses will always exist and something will always get out. As for the communications systems themselves, NATO should have plenty of resiliencies with the Alliance operations at home, abroad or in the battlefield.

5.5.2 Disruption of Trade Routes

It is not really known what future will befall piracy in the incarnation that exists now. An increased military presence in the Gulf of Aiden and the Horn of Africa from not only NATO, but also nations like India, China, Russia and others has put a lot of strain on the recently re-emerged pirate phenomenon; affecting their ransoms that go towards terrorist and criminal organizations. NATO Operation Active Endeavour was instituted as a response to the 9/11 terror attacks in order to monitor the Mediterranean Sea for terrorist activities and weapons shipments. Due to the success of the operation, Active Endeavour is still intact today and it has kept adapting; seeing some unexpected benefits in the area of trade route security due to its military patrols and close relationships with the shipping industry. An updated Operational Plan implemented in 2010 aimed at improving communication between participants in the operation along with those in the Mediterranean Dialogue, especially in North Africa. Another goal has been to streamline the operation by moving from a platform-based to a network-based operation, using a combination of on-call units and surge operations instead of deployed forces ("Operation Active Endeavour").

Another on-going NATO operation is Operation Ocean Shield, which is specifically a counter-piracy operation. This operation consists of two multinational Standing NATO Maritime Groups (SNMG) that are responsible for providing escort for the Suez Canal region

since 2006. With the uncertain future for piracy operations and a solid infrastructure in place with the backing of the United States Navy to combat piracy and terrorism, NATO should be able to have a good amount of control over this situation. The main problem is simply the difficulty in covering all areas of sea shipping lanes with the plethora of possible attacks from small, quick and stealthy targets. Advancements in monitoring, networking and communication technology will lead to greater successes in disrupting the actions of pirate forces before they are able to seize civilian vessels. NATO and the EU can also use their political clout to try and address the root causes of why piracy has returned within communities such as the Somalis and their issues with corporate fisheries that are competing over the areas. Deals that benefit all sides when it comes to contested waters can go a long way of stemming the rising tide of international piracy.

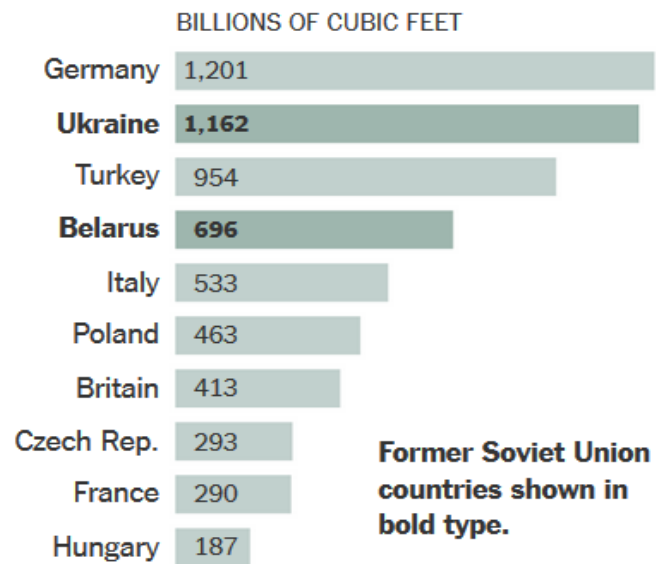
5.5.3 Energy Resources and Energy Security

Energy Security will probably become a larger part of NATO's plans in the near future, as access to global energy resources begin to strain. The report entitled *NATO's Role in Energy Security* was released in 2008 and listed five specific areas which the Alliance can improve upon the current situation: information and intelligence fusion and sharing, projecting stability, advancing international and regional cooperation, supporting consequence management, and supporting the protection of critical infrastructure ("NATO's Role in Energy Security"). Though the protection of critical infrastructure is included with cyber security, the arena of energy security has severe importance as production and refinement facilities will become increasingly popular targets for terrorist groups to hit. This is not only true of Alliance nations, but those friendly nations who trade with member states. NATO actively monitors energy issues and writes up risk assessments for the critical energy infrastructure within the Alliance to raise awareness. NATO also monitors different means of energy shipping between the Alliance and its business partners, however in the years to come some of Alliance member states' partners could become the problem. Fluctuating costs of energy and production will become a problem that NATO will be relatively unable to affect. Nations like Russia and those in the Organization of the Petroleum Exporting Countries

(OPEC) will be dependent upon NATO nations to do business, but with rising population demands like those in China, India and Brazil, they will have the upper hand in negotiations with Alliance member states; causing potential issues within NATO nations.

When it comes to energy security, NATO looks to be in a decent position. The reason for this belief is that NATO’s military and political strength will allow them to successfully sustain energy shipping routes. When it comes to access to energy supplies on the market in the future, even NATO’s growing political might won’t really have any way of greatly effecting diminishing resources and price fluctuations. One way that NATO can help this from happening would be to increasing become energy independent and begin to rely more upon clean energy

Figure 5.5: Natural Gas from Gazprom 2012



Source: Gazprom

(Davenport and Erlanger)

and domestic resources. Figure 5.5 demonstrates the amount Europe relies on Russia for natural gas. Russia uses this dependence and its position as a global leader in energy production to further its political strength globally and to build its military might, which has allowed them to remain defiant in solving conflicts such as Syria, or provoking them in Ukraine. Renewable energy may prove to be easier to do politically within Europe and Canada than in the United States, but the uptick in American domestic production will go a long way towards energy independence for the Alliance. This seems to be coming to fruition with the United States becoming the number one producer of natural gas, surpassing even Russia: “Although Russia is still the world’s biggest exporter of natural gas, the United States recently surpassed it to become the world’s largest natural gas producer, largely because of breakthroughs in hydraulic fracturing technology, known as fracking” (Davenport and

Erlanger). With Canada's uptick in production of tar sands, NATO nations will no longer have to rely as much on potentially unfriendly nations for their energy supplies.

The US military has also been on the front lines of becoming energy independent to circumvent these risks. For example, the US Navy has been researching for decades how to turn seawater into a liquid hydrocarbon fuel. The military understands the risk from not only climate change, but also the risks of using finite fuel sources in a globalized, capitalistic world. A researcher who has spent nearly a decade on the project, Dr Heather Willauer has said that "[F]or the first time we've been able to develop a technology to get CO₂ and hydrogen from seawater simultaneously... That's a big breakthrough," and that "[W]e've demonstrated the feasibility, we want to improve the process efficiency," when discussing to the fuel itself (Harress). Through military strength and political unity, the NATO Alliance states should be able to deal better than most with future predictions of energy insecurity by utilizing their vast technical capabilities

5.5.4 Natural Resources

Natural resources are of a finite quantity on earth, and with an increasing world consumer economy, natural resources will become more rare and desirable in the decades to come. This is especially true for energy sources like oil and minerals needed for the production of computer parts and batteries. This means one of two things for nations in possession of these widely sought after materials: they have the infrastructure and society in place to deal with the increased demand and will greatly profit from sales, or they do not and society can crumble under the internal and external pressures. The United Nations has focused a lot of attention on global conflicts that occur and how to prevent them in these resource rich environments; an example of which being the areas of Africa and the production and distribution of "conflict diamonds" (UN 35). NATO may have increased value and need in a future of resource restrictions as member states' companies may find themselves in threatened positions abroad, or peacekeeping efforts may be necessary for local populations if a struggle for control of these resources gets bloody.

The Alliance and its supporting organizations have recently been discussing ways of dealing with natural resource security, energy security, assessing global resource needs, etc. The Atlantic Treaty Association brainstormed ideas at their annual meeting where the main topic was *Minimizing Conflict in the Race for Natural Resources: Securing Economic Stability in the 21st Century*. The conference aimed at promoting NATO values abroad through Alliance member state institutions and businesses, along with NATO itself. A recent workshop conducted by NATO in 2012 was held in to discuss the threats to these areas. NATO's success in this area could go either way. Natural resource security is only going to become more and more complicated as these resources begin to decline in amount on the earth. Many nations may choose to nationalize industries and take access away from outside companies that extract or refine the materials; or conflict over these resources could halt production and not only harm the world economy, but the lives of local populations as well.

NATO would be an organization that has the political and military might to make a difference in these areas; however political will with allies and non-allies alike may decrease the desire to work with NATO in these situations in the coming decades, depending on the state of the economies in North America and Europe. One area where NATO nations will be able to be effective, which was discussed previously in section 4.5, is that of fresh water scarcity. Technologies are being developed that can eventually be cost effectively deployed around the world to provide clean water to those communities in most need, whether it be in desalinization techniques or purification of polluted water sources. Once again many of these threats will be out of NATO's hands for the most part as they are located abroad, but the Alliance will have to take its opportunities to secure access to resources and secure resource extraction for those involved and provide access to those resources for the good of all. NATO and its member states could find significant pushback in many resource rich locations, as it could be seen as a neo-colonial force trying to steal resources and exploit populations.

5.6 Climate Change

The effects of climate change are already beginning to show in many regions of the earth. Carbon levels in the atmosphere are beginning the upward trend that, if unstopped,

will put many nations of the world into very bad environmental, economic and social predicaments. Humanity has been the major culprit when looking at this phenomenon, as the US Joint Forces Command states: “the increasing density of the world’s population as well as urbanization and development of economic infrastructure will increase the impact of natural disasters such as earthquakes, hurricanes, floods, fires and tsunamis” (USJFCOM 36). All of these weather patterns will increasingly put world populations at risk and will demand prompt government, military and social responses for disaster relief. Increasingly, NATO nations will have to deal with population migrations within or around their borders, which could cause increasing instability within their borders (as can be seen with recent migrations from the Middle East and Africa).

Increasing technology, improved weather prediction and a better understanding of the shifting environment will allow nations to better deal with the effects of climate change. Nothing will matter down the road if the progression of climate change is not halted through major global action. Increasing numbers of nation-states in Europe as well as others like China and Brazil are investing in green energy sources and demonstrating that through “economic development, the spread of new technologies, and robust new mechanisms for multilateral cooperation to deal with climate change may foster greater global collaboration” (NIC 2025 66-8). If the developed nations can set an example and lead the developing nations in the move towards clean, sustainable energy sources and transportation, then a slowing of climate change remains a real possibility.

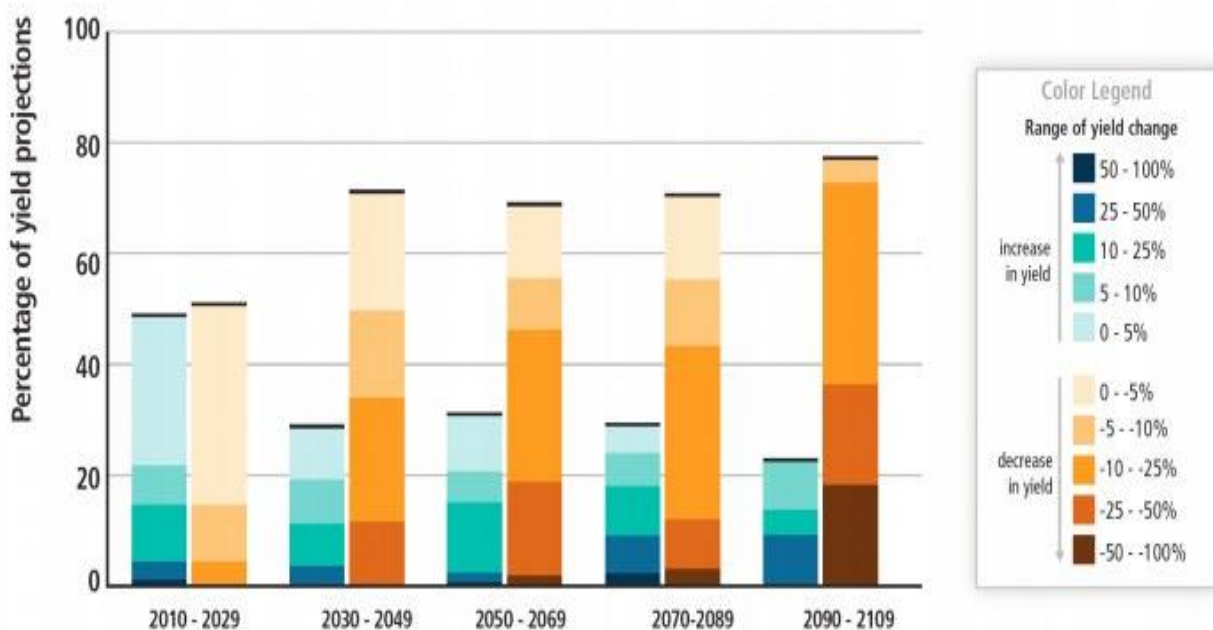
The threats of climate change on environmental security for NATO and its member states will become far more stressed in the coming decades if the current trends continue on their paths. Many states which have coastal and low lying regions could become overwhelmed by flooding loss of habitable lands from glaciers melting or severe weather. The eternal threat of climate change to the Alliance of instability is also great. The threat of mass population migrations that can be caused by climate change and other issues is mentioned by the United Kingdom’s Development, Concepts and Doctrine Center (UK DCDC) as something to be monitored:

A combination of resource pressure, climate change and the pursuit of economic advantage may stimulate rapid large scale shifts in population. In particular, Sub-

Saharan populations will be drawn towards the Mediterranean, Europe and the Middle East, while in Southern Asia coastal inundation, environmental pressure on land and acute economic competition will affect large populations in Bangladesh and on the East coast of India. Similar effects may be felt in the major East Asian archipelagos, while low-lying islands may become uninhabitable (UK DCDC 28)

NATO currently has capabilities to deal with these crises through the Euro-Atlantic Disaster Response Coordination Centre (EADRCC), the Partnership for Peace Trust Fund projects and their science programme. Many of these services are unable to help enough looking at projections, so NATO is in the process of improving capabilities: “with a focus on civil emergencies, energy efficiency and renewable power, and on helping member and partner countries address the impact of climate change in vulnerable regions” (Environmental Security).

Figure 5.6 Decreases in Crop Yields Over Time



(Newitz)

Global scientific research is showing year after year that there is growing consensus that humanity is behind the global warming trend. In 2013, the 5th Intergovernmental Panel on Climate Change (IPCC) released its report, noting that this certainty of human responsibility between recorded data from 1951-2010 for “global average surface temperature” had gone from 90 per cent in the 4th report in 2007, up to 95% now (Abraham and Nuccitelli). This report acts as a collection of major studies on climate change, comparing and combining the results in order to create a consensus picture, much like this dissertation does for the FSE. A chart demonstrating these statistics and the studies used can be found in Annex C. The IPCC also reports that higher levels of global instability and conflict are likely due to food and water sources and this “will foment civil unrest and could lead to more armed conflicts than we have now” (Newitz).

As the world’s largest military Alliance, if NATO can truly have a positive impact on the amounts of carbon their facilities and military equipment produce, a major impact can be had on the world levels using their political power and good will. Part of the problem will be the United States constantly being torn between their established energy sector and emerging clean energy sector, with politicians firmly split on each side slowing any efforts. However, NATO will be in a prime position to be a global leader in efforts to relieve these stressed nations which could fall into instability through relief efforts. This includes bringing new technologies to help desalinate and purify water, boost crop yield, or serve in peacekeeping operations in these areas.

Looking at the capabilities of NATO, it seems the Alliance is in a position to be able to do some good if the politics and economics allow. The major weaknesses for the Alliance in this area are as follows: the cooperation of the United States on international projects like the Kyoto Protocols, how dedicated the Alliance member states really are in decreasing greenhouse gases, the economic capabilities to help other nations who are in increasing plight, and the general uncertainty as to how bleak the situation is currently. Nonetheless, renewable energy seems to have a major backer in the military of the United States. For example, the US Navy has been researching for decades how to turn seawater into a liquid hydrocarbon fuel.

The military understands the risk from not only climate change, but also the risks of using finite fuel sources in a globalized, capitalistic world. A researcher who has spent nearly a decade on the project, Dr Heather Willauer, has said that “[F]or the first time we've been able to develop a technology to get CO₂ and hydrogen from seawater simultaneously... That's a big breakthrough," and that “[W]e've demonstrated the feasibility, we want to improve the process efficiency," when discussing to the fuel itself (Harress). Some ability to reverse the process of climate change may be outside the grasp of humanity. Major changes in the way energy is discovered and processed could slow or even reverse global warming, but it is still far too early to tell.

5.7 Global Instability

In the previous chapter, many different areas of global instability were discussed in the realm of failed or failing states and in terms of economic issues and conflict. Nonetheless, NATO sees other areas that will have significant future threat to NATO member states that concern populations abroad and at home. One example will be youth bulges in developing and third world nations, which will put strains on local societies and economies to find work and provide educational opportunities for populations getting younger. Poor economic situations and unsympathetic leaderships can lead to a splintering within societies which can lead to conflict and instability beyond NATO's borders. The opposite of this is true within most NATO member states, as populations are growing older and there are not enough young workers to fill the gaps by retirees. The significant pushback in many of these countries to increased immigration to fill these roles could lead to massive economic turmoil on the European continent in the coming decades. Another area of concern is the threat of mass migrations to regions with more opportunity from the countries affected by the issues mentioned in the climate change section. NATO does not directly address this issue in their 2010 Strategic Concept, but their emphasis on crisis management and crisis prevention in sections 20-25 might be sufficient enough to convince people that this issue is in their purview before these situations get out of control.

5.7.1 Failed States

When looking at the nature of conflicts post World War II, certain trends are becoming more noticeable that the world of interstate war is being replaced by one of intrastate conflicts. This trend is demonstrated here: 1946-1959 sees 4 major wars a year, 11 minor civil conflicts a year; 1960-1991, the height of the Cold War, there were 17 interstate wars a year and 35 minor; 1991-2010 at 5 major wars, but 27 minor conflicts (Shea). With these results, it is becoming more obvious that nations are staying out of conflict of with other nations. However, the conflicts that cause states to balance on the thin line between failing and failed are not going anywhere. The desire of major global players to directly enter into many internal conflicts has gone down since the end of the Cold War, perhaps in response to the emergence of the internet and global 24 hour news cycle. Seeing dead bodies of countrymen dragged through the streets in the same manner as the “Blackhawk Down” incident in Mogadishu in 1992 forces governments to deal with their populations back at home. States are becoming more cautious and looking for more partners when entering conflicts; hoping to share risk, damage, casualties and public opinion (the recent operations in Libya and Iraq are prime examples). When comparing the civil war in Syria to a similar instance in Libya; the international consensus and the UN Security Council votes just weren’t there to act in a peace enforcing manner. The risk of intervening forces needing to be on the ground, as well as a probability of a moderate number of casualties, has placed full Syrian intervention out of the realm of possibility for war-weary western nations.

The conflicts that cause state structures to wither or completely fail are a huge risk for NATO nations’ security. This threat comes from the ability of extremist or criminal groups to form a base of operation in these countries and target the Alliance. The Director of Policy Planning in the Private Office of the Secretary General, Dr. Jamie Shea, notes two lessons for dealing with failing or failed states: “lesson number one – we need to anticipate better. Lesson number two – we need to use diplomacy more. If the military goes in, it’s a failure of anticipation; it’s a failure of prevention. It’s also increasingly expensive” (Shea). Most western nations, if not all, would probably agree with improving upon these few areas. Also for NATO nations, the approach of using drone strikes to weaken these groups in nations that

would not be politically or militarily feasible such as Pakistan, Yemen, Iraq and Somalia has given member states options to act when their intelligence provides opportunities. There are negative impacts of drone strikes that the Alliance will increasingly have to deal with. The negative fallout of civilians killed in the strikes, both internally and internationally, could become overwhelming and force nations to improve their usage. NATO also has experience, positive and negative, with nation building in Afghanistan. This first hand expertise and knowledge from lessons learned could be crucial for a state that is teetering on collapse. When dealing with failed or failing states, NATO has the ability to have a very constructive effect on these states (resources permitting of course). The Alliance has the ability to deal with failed states better than most organizations due to its military and political might. This is certainly true in the case of extremist and criminal groups residing in those regions. NATO also has the ability to mediate conflicts, aid it nation building, and use peacekeeping and peace building to help resolve conflicts when it is politically possible. In the end it comes down to the will of nations.

5.7.2 Economic Conflict

Future economic insecurity will have major effects on many NATO member states' abilities to fund their militaries enough to keep Alliance capabilities at optimum levels. Current outlooks for many European states in terms of slowing growth and increasing debt shows an inherent structural problem that unless fixed in the coming years, military funding will be greatly hindered. Money will be further deflected from military spending in the coming decades because of the increasing age gap in nations:

The European Commission (EC) and the OECD recently published long-term projections of the impact of global aging on public budgets.* According to these “official” numbers, spending on public pensions in the typical developed country will grow by 4.4 percent of GDP by 2050, or from 8.8 to 13.2 percent of GDP. This represents a 50 percent increase—and it may be a serious underestimate (Jackson 16)

Because of current and projected low birth rates across the continent, Europe will be forced to rely on migration in order to keep up the workforce. With the recent confessions from major European capitals that multiculturalism is not working, greater amounts of clashes between different groups can be expected if economic prospects are not improved in the long term. Many European states will continue cutting military budgets in order to maintain social welfare programs as they have done noticeably since the end of the Cold War. This is much to the chagrin of the United States and their military spending. Even though the process of globalization has brought the world economy more intertwined and will continue to do so in many cases, the possibility for international economic conflict remains a possibility. Disagreements with OPEC nations, the West, China, India and Russia over oil access and prices could reach the brink if significant strides aren't made in alternative energy sources in the coming decades. Furthering of economic sanctions between the West and countries like Russia, Iran and North Korea could also push conflict to an inevitable level.

Figure 5.7

Military Expenditures as a Percentage of G.D.P. in NATO					
Country	1985-89, average	2010	Country	1985-89, average	2010
U.S.	6.0	5.4	Norway	2.9	1.5
Greece	4.5	2.9	Czech Rep.	--	1.4
Britain	4.4	2.7	Denmark	2.0	1.4
Albania	--	2.0	Germany	2.9	1.4
France	3.7	2.0	Italy	2.2	1.4
Poland	--	1.9	Netherlands	2.8	1.4
Turkey	2.5	1.9	Romania	--	1.3
Estonia	--	1.8	Slovak Rep.	--	1.3
Bulgaria	--	1.7	Belgium	2.7	1.1
NATO – Europe	3.1	1.7	Hungary	--	1.1
Portugal	2.5	1.6	Spain	2.1	1.1
Slovenia	--	1.6	Latvia	--	1.0
Canada	2.1	1.5	Lithuania	--	0.9
Croatia	--	1.5	Luxembourg	0.8	0.5

(Benitez)

China's continuing currency manipulation, North American and European debt issues, and increasing international competition in the marketplace could all cause tensions to flare. The beginnings of trade or currency wars would make life difficult for the Alliance. As for how the Alliance has handled economic conflict previously, NATO had the Economic Committee which did much of the economic security work for the Alliance until 2010. From then the responsibilities moved on to the "Defence and Security Economics (DSE) section of the Political Affairs and Security Policy Division of the International Staff" that "constitutes the core team that deals with defence and security economics on a day-to-day basis (Defence and security economics). The DSE monitors economic performance and trends within the Alliance and its partners in order to advise them on security matters or in following blueprints for general success or in order to join the Alliance one day. For NATO's ability to help maintain economic stability in the future, the Alliance will probably have very little chance to have an effect. Most of the reasoning for this has to do with the fact that NATO as an organization doesn't have complete control over what happens in a globalized economy, even if many of the world's top markets reside within its borders.

Conversely, as mentioned in the previous chapter, NATO and EU nations do possess very strong tools of economic sanctions that can be used in the international marketplace against belligerent nations. Though these are not perfect, they can have great effect due to virtually every nation's reliance upon the interconnectedness of the markets. Recently sanctions have been used to bring Iran to the negotiating table over their nuclear program. The true test for the West may be the effectiveness of sanctions in regards to the situation with Russia over Crimea and eastern Ukrainian territory. To help maintain stability where possible, NATO has to focus on securing markets, banks, businesses and shipping within their purview. This will be something NATO will physically be very capable of doing if they can manage budgetary issues; however economic security within cyberspace will continue to be far more difficult.

6. Conclusions

“The future influences the present just as much as the past.”

~Friedrich Nietzsche

At the completion of this study, a clearer consensus of the major threats within the Future Security Environment (FSE) has emerged. This consensus has been drawn up from the analysis of many different notable FSE reports from organizations and security services within NATO nations. NATO has been used as a case study for this FSE study to grasp a historical understanding of how a security organization has successfully utilized this type of future planning process. The Strategic Concept was directly analysed with other security reports to get a look at the cohesion, or lack thereof, between NATO and these various security organizations within its borders. The analysis has revealed a definite consistency exists between the responses within the reports and those outlined in the 2010 Strategic Concept. These threats were then examined by looking at the areas deemed the biggest threat to the future wellbeing of the Alliance and comparing them to the level of past successes and current dedication in solving them. The results show that although it is great that NATO is constantly preparing, enhancing capabilities, spending assets and adding much needed manpower in these areas, the upcoming decades will be the most challenging the Alliance since the Cold War. The rapid increase of technology and globalization has put the global security outlook on a much different path than was assumed in previous decades.

6.1 Concerns

Before the final tabulations are presented, there are a few areas of worry to mention as well as critiques about divergent issues between the main documents analysed and the NATO 2010 Strategic Concept. The first issue is the lack of mention of the term “asymmetric” in the Strategic Concept, while five out of the seven explicitly discuss asymmetric threats on the battlefields of today and tomorrow. This term did not make the threat list because it was not

also mentioned in the Strategic Concept, however it is clearly mentioned in NATO's *Multiple Futures Project* (MFP). Now, this is probably just a semantic issue, as asymmetric threats (or hybrid threats) are described by the Canadian military as "attempts to circumvent or undermine an opponent's strengths while exploiting his weaknesses, using methods that differ significantly from the opponent's usual mode of operations" (Henrichon 10). In the coming decades NATO will have to deal with "[T]he spread of light weaponry, including precision tactical and man-portable weapon systems, and information and communication technologies will significantly increase the threat posed by irregular forms of warfare over the next 15-20 years" (NIC 2025 71).

Asymmetrical warfare is evolving with the technological advancements, trends and emotions of the time. One nation in particular is reinvigorating old strategies that were once used to add to its once vast empire; this nation is Russia. These methods are very uncomfortable for traditional military powers like the United States and NATO who want to use their strength on the battlefield, as the strengths of a powerful military do not so much come into the purview of this Russian strategy (although it is important to have as a threat in case of a potential direct conflict). Dr Stephen Blank of the US Army War College's Strategic Studies Institute, an expert on the Russian military, has stated that "[S]oftening up the enemy with intelligence units before an active involvement of Special Forces had been 'a part of Soviet doctrine, but this form of warfare is entirely new and not well understood'" regarding recent conflicts in Georgia and Ukraine (Faith). This strategy, which Russian military strategists call "New Generation Warfare", is laid out by the National Defence Academy Latvia Center for Security and Strategic Research and lists these changes in capabilities as their goals for 2020:

- From direct destruction to direct influence;
- from direct annihilation of the opponent to its inner decay;
- from a war with weapons and technology to a culture war;
- from a war with conventional forces to specially prepared forces and commercial irregular groupings;

- from the traditional (3D) battleground to information/psychological warfare and war of perceptions;
- from direct clash to contactless war;
- from a superficial and compartmented war to a total war, including the enemy's internal side and base;
- from war in the physical environment to a war in the human consciousness and in cyber-space;
- from symmetric to asymmetric warfare by a combination of political, economic, information, technological, and ecological campaigns;
- from war in a defined period of time to a state of permanent war as the natural condition in national life (Bērziņš)

These new capabilities will be utilized in eight phases to win the “New Generation” war, which is spelled out in Annex D.

The major focus is on the last point, which defeating an enemy's will to fight by creating a sense of permanent and open-ended war. The evidence exists within public polling that shows how the populations came to dislike wars like those in Vietnam (France and US), Afghanistan (Soviet Union & NATO) and Iraq (US and allies) the longer they went on. The populations came to detest the idea and costs (both monetary and human life) of war over time. These strategies had been used in some degree by General Washington in the US Revolutionary War, General Giap in the Vietnam War and by Osama bin Laden in his Islamic jihad against the West. The major difference here being that Russia is aiming to use these tactics of permanent war to not only erode opponents from within, but to keep them down even after the “conflict” ends. This is leading to former Soviet states in Russia's neighbourhood to take interesting preparatory steps in the wake of Georgia and Ukraine, such as:

Uzbekistan requiring all television and radio transmitters to be equipped with ‘self-destructing devices.’ Tajikistan mandating that old car tires be disposed of not in the capital city, but in a dump 25 miles away, lest they be used by protesters in flammable barricades. Latvia joining Lithuania and Estonia in banning Russian state

TV broadcasts. Kazakhstan passing a law permitting censorship and limiting protests during states of emergency (Faith).

These strategies are being adapted in case Russia turns its eyes towards their nations. It will be interesting to see how NATO and its member states adapt to combat these new Russian strategies, and they will certainly have to adapt because they are not going anywhere anytime soon. If the West's response to Georgia and Ukraine is any tell, there is a lot to do publically and militarily to expose these tactics for what they are. It is strange that the term asymmetric warfare was omitted as it has been a major part of NATO language for the past decade; however threats as these are described throughout the document when addressing different topics such as crisis management and terrorism. NATO is at least addressing them, albeit not as a singular entity.

The next area of worry is threats of military privatization are not addressed. The 34th President of the United States Dwight Eisenhower, who is also a former 5-star general, warned of the power and threat to democracy of a runaway military-industrial complex when he said: "[I]n the councils of government, we must guard against the acquisition of unwarranted influence, whether sought or unsought, by the military-industrial complex. The potential for the disastrous rise of misplaced power exists, and will persist" ("Ike's Warning"). This not only addresses the threat posed by the inroads into government and politics that these companies maintain, but also those of Private Military and Security Companies (PMSCs) whom profit off of war and instability. These private companies are working within warzones in more areas and greater numbers as the years progress, providing many services traditionally done by soldiers and humanitarian groups. The companies are generally operating without a clear framework of international legal action that can be taken against them in case of criminal actions committed by their employees. Nations within NATO, but specifically the United States, have to worry about these close relationships with the defence industry when it comes to concerns with budget, war waging, and subcontracting.

A major area that needs to be addressed is also that of the Alliance communities themselves. At the end of World War I, United States President Woodrow Wilson released his famous "14 Points" that spelled out a path for self-determination of peoples. President

Wilson stated that: “settlement of every question, whether of territory, of sovereignty, of economic arrangement, or of political relationship” is to be made “upon the basis of the free acceptance of that settlement by the people immediately concerned and not upon the basis of the material interest or advantage of any other nation or people which may desire a different settlement for sake of its own exterior influence or mastery” (Wilson 233). This stance has been controversial, as many peoples from within Europe and around the world have used it as a point of emphasis as to why a distinct nation of peoples should be allowed to separate from the country they currently inhabit, known as separatism. Another way this idea is taken is when a community joins another country with their similar national communities, known as irredentism. Within the Alliance these situations exist all over the continent of Europe, some have been violent and some not, but all have the possibility to be major strains on the EU and NATO. Some countries currently dealing with these situations are Spain, Portugal, Italy, Austria, Hungary, Slovakia, Romania, Albania, Macedonia, the United Kingdom and Ireland. These situations have proven difficult for the Alliance on its borders (Serbia/Kosovo, Russia/Georgia and Russia/Ukraine) and carry with them a vast destabilizing factor when military force is involved. This is one area of concern that has plagued and will continue to plague Europe and the world for years to come. This area deserves more attention as it can be destabilizing for not only a single country, but to those bordering as well.

One last concern would be the possible further erosion of civil liberties for citizens within NATO nations. With increase threats on the homelands of many nations, these states are turning towards more intrusive monitoring techniques that will erode privacy the more the technology increases. Laws such as the Patriot Act in the United States will allow these techniques to legally expand in countries they are implemented. Looking deeper into this area, the UK DCDC has gone on to say that:

Technology will enable pervasive surveillance in response to terrorism, rising transnational crime and the growing capability of disparate groups or individuals to inflict catastrophic damage or disruption. Coupled with intrusive, highly responsive and accessible data-bases, the emergence of a so-called ‘surveillance society’ will increasingly challenge assumptions about privacy, with corresponding impacts on

civil liberties and human rights. These capabilities will be deployed by the private as well as the public sector (UK DCDC 60)

Other areas of worry in this regard, extraordinary rendition and torture, have emerged in the post 9/11 security environment. It is now public knowledge that the Global War on Terror (GWOT) has revealed that the United States Central Intelligence Agency (CIA) has used “black sites” in allied nations in order to torture and indefinitely hold terror subjects who are captured off the streets or on the battlefield. The reports of the practices in facilities such as Guantanamo Bay will continue to be beacons to world Muslims populations that will continue to erode the credibility of anti-terror operations and galvanize populations that extremist and criminal organizations pull from. A better system of international courts for trying those detained in the GWOT will be necessary in the future to gain more legitimacy in fighting terror. Also concern exists about the rights of citizens of western nations who are targeted in the GWOT; an example of which is the drone attacks in Yemen that have killed American cleric Anwar al-Awlaki and his son. Many have brought the question of the legality of convicting a US citizen in this sense without a trial. This question will probably continue to plague NATO nations as the GWOT continues to develop, and if not properly addressed it could serve to radicalize domestic groups that believe they don’t get the same rights afforded to others.

6.2 Results

Since prediction is an imperfect science, this means that there will always be a wide range of successes and failures. This is especially true with the overabundance of information regarding possible threats that can cloud the judgement of which are the most likely to occur. However, a security organization such as NATO has a responsibility to its population to try to sort through this mass of information and plan to the best of their ability. The previous chapter was an attempt to gage NATO’s likelihood of success at with these endeavours. The tabulated results are taken from the analysed literature, but are not comprehensive due to the language, location and timeline restrictions set as parameters at the beginning of the study. The analysis of the documentation should give a potential reader a solid grasp on not only of

the possible Future Security Environment (FSE), but also NATO's place within it based on their past successes or failures using the Strategic Concept. The comparison with the main threats yielded these results as the main threats:

- State Conflict
- Proliferation of WMD/E
- Terrorist and Other Criminal Groups
- Cyber and Critical Infrastructure Protection
- Resource Constraints and Disruptions
- Disruption of Communications
- Disruption of Trade Routes
- Energy Resources and Energy Security
- Natural Resources
- Climate Change
- Global Instability
- Failed States
- Economic Conflict

Much like NATO's more than 60 year history, the Alliance will struggle at times to adapt to some changes and suffer hardships. Overall NATO has a strong base to continue succeeding at their mission of protecting their populations from possible devastation coming from these threats. The results are not definitive however, and there will be many more pains in the next few decades, but because of NATO's established institutions and intertwined allies, they should more likely than not to overcome threats that could bring down the Alliance. These results prove the original assumption correct that by no means will the changing FSE be an easy river to traverse for the worlds' largest military Alliance, yet NATO will should persevere through the threats to maintain the security that NATO members enjoy.

At the outset of this study, multiple questions were asked concerning different points to be addressed within the project. The first of which was: "What will the FSE look like between now and 2030?" The picture painted of the possible FSE shows that the categories of threats listed above will dominate much of the world's security apparatus. The problems can become unsustainable if they are ignited by catalyst events; examples of which include a viral plague outbreak or an attack on a major city with a weapon of mass destruction/effect (WMD/E). Given the current economic environment which could remain stagnant for much

of the NATO nations, the future could be made increasingly more difficult with a lack of resources and capabilities. Increases in capabilities in other areas due to technological development will alleviate many of these issues. Due to this, NATO and its nations will have to promote their individual strengths and rely on integration (especially with the European Union) to successfully share defensive and peacekeeping capabilities across the Alliance. Developing into a smaller, quicker and more efficient military force will also alleviate future stresses on the Alliance; especially financially. Many of the steps taken, such as the development of a Rapid Reaction Force (RRF) and the NATO Response Force (NRF) as well as expanding training exercises and simulations between partners, are a start. Further sharing of capabilities and information and increasing cohesion is not only necessary for NATO to succeed in this future, but to simply survive as a security organization.

The next question asked, using NATO as a case study for this compiled future, is as follows: “Will the Alliance, as the premiere security organization, have the sufficient planning to match up with the emerging or changing threats that will make up the FSE?” Comparing NATO’s 2010 Strategic Concept with the tabulated threats has shown that NATO certainly has the ability to succeed in this future due to its experience, cooperation and resources. The results show that NATO and the research of security entities analysed in this study match up very well in their priorities. The cooperation between NATO and outside groups will help the Alliance be on top of developing global situations and develop strategies to deal with them. The establishment of Centres of Excellence (CoE) and their pairings with NATO, along with the on-going mission of NATO Headquarters Supreme Allied Command Transformation (HQ SACT), NATO will have enough knowledge resources to gain a firm grasp on what awaits the battlefields of tomorrow.

Finally the question was asked: “By looking at NATO’s past performance and current planning for the future, will NATO continue to succeed into the near future and deserve to continue to exist as a security organization?” Looking at NATO’s history of success in many areas dealt with in past Strategic Concepts, it seems completely reasonable to expect similar results with the current Strategic Concept. It will come down to the ability of NATO to remain resilient in the face of instances where security is breached and disastrous results befall a portion of the Alliance population. Much like the terrorist attacks in the United

States on 9/11, The United Kingdom on 7/7, Spain in 2004, or with cases the 2008 financial market collapse; resiliency for member states is key.

Another key to success in combating the threats of today and tomorrow is the ability of nations and security organizations to adapt and streamline. Bureaucracy can become a threat itself if security entities become too bloated, redundant, restrained or lack communication proper communication between them. A prime example of this in the United States as stated by the 9/11 Commission was the misinterpretation of FISA (Foreign Intelligence Surveillance Act) rules on the ability of information to be shared between organizations doing criminal investigations (the FBI in Yemen) and those in intelligence operations (the CIA in Yemen). In response to this issue while tracking al-Qaeda in Yemen pre-9/11, retired FBI Agent Ali Soufan (who a 2006 New Yorker article claimed as the one closest to stopping 9/11) stated in his 2011 memoir *The Black Banners: The Inside Story of 9/11 and the War Against al-Qaeda* that:

The claim that criminal agents could have no access to intelligence reports was a false reading of the FISA rules, especially as FISA rules don't necessarily apply to intelligence gained overseas. The 9/11 Commission found that the guidelines had been misinterpreted, and not only by the CIA; many in FBI headquarters had done so, too, much to our frustration. This error was identified by the 9/11 Commission as one factor in the failure to stop the attacks on New York and Washington. The commission found that the procedures governing information sharing between intelligence and criminal sides 'were almost immediately misunderstood and misapplied.' It also found that the Office of Intelligence Policy and Review (OIPR), the FBI leadership, and the United States Foreign Intelligence Surveillance Court (FICA) built barriers, discouraging information sharing. At the time, we tried explaining that the rules were being misread, but to no avail (56)

The resiliency of security forces and populations, along with the aid of the Alliance member states holding true to their Article 4 and 5 promises of solidarity, should aid in member states being able to fight through a serious security situation. When dealing with the FSE, NATO needs to attempt to always have the right people and the right information for the right time.

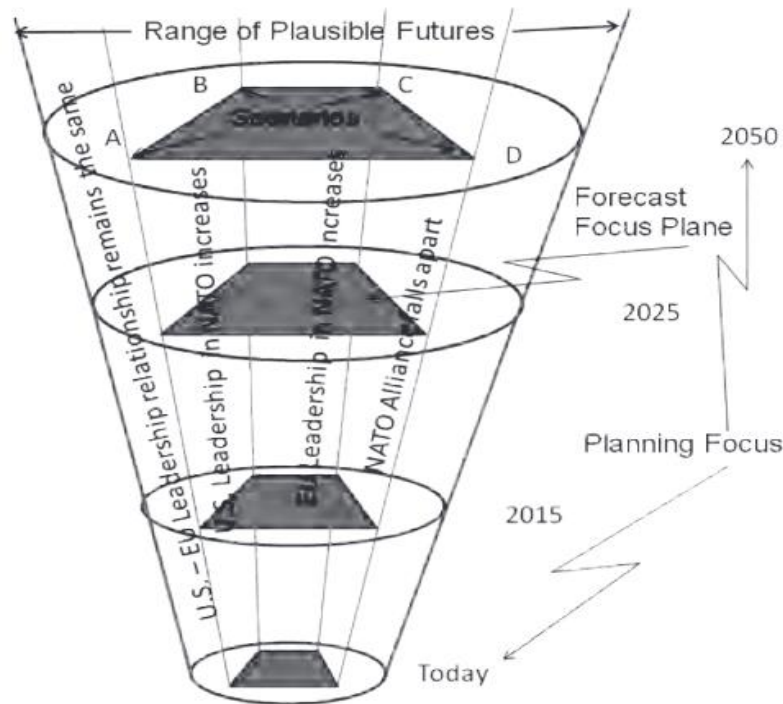
With the volume of information, as well as resource and time constraints on personnel, this ideal situation will not always exist. However, NATO as an organized defensive collection of prosperous states, has the best infrastructure around the globe to be able to deal with the moments that may have the wrong people, wrong information, no resources or no time.

In the end, everything comes down to the commitment to the Alliance internally; both the nations' leaderships and the populations. To this some may say that a true singular enemy in the Cold War mould is the only thing that can hold the Alliance together in the future; as more abstract enemies such as Islamic extremism, cyber warfare and global warming might not be immediate and tangible enough to keep the different nations focused and together. An example of this worry was demonstrated in 2009 by Dr Florin Diaconu, the Senior Researcher at the Romanian Diplomatic Institute whom stated that the "future has all the chances to be more influenced by the political will inside the Alliance than by what MFP calls globalization, or terrorism, or technology" (Cuccia 24). A lack of consensus could be the straw that breaks the camel's back, and to this idea, the United States Army's Strategic Studies Institute developed a "Cone of Plausibility" for NATO's future in the similar design of Charles W. Taylor's 1993 SSI publication *Alternative World Scenarios for a New Order of Nations* (demonstrated below in figure 6.1 below). This construct shows four plausible futures: a) US leadership relationship with NATO continues on the same path, (b) US leadership in NATO increases, (c) EU leadership in NATO increases, and (d) The NATO Alliance breaks apart (Cuccia 29). The prediction of future events gets more uncertain the farther you look and the wider the cone gets. The trends that are observed in the diagram on the next page are taken from the 1999 Strategic Concept and the 2006 Comprehensive Political Guidance (CPG) report. The main driver is the 2010 Strategic Concept, hence the importance of addressing this study here. The intricacies of each possible future scenario will be presented in Annex E.

The scenarios give a look at the wide ranging possibilities for the future of NATO from the time of the 2010 Strategic Concept and the challenges that, if addressed properly, could solidify the Alliance for decades to come. If these threats are not addressed properly, with special attention played to the member states and their populations, the results could mean the future nonexistence of the Alliance. All of these challenges and the threats they

pose have been addressed in the previous chapters, but what this study demonstrates differently is what can become of the Alliance in the face of these challenges.

Figure 6.1: The Cone of Plausibility



(Cuccia 29)

Fortunately for NATO, all of the preparation for possible scenarios and an aggressive stance in attacking them on all fronts gives the Alliance the best chance for cohesion, success and survival. NATO will have to work hard in these days of declining budgets, spy scandals, protest movements and terrorism to promote the Trans-Atlantic partnership and bridge the gap between North America and the Europe. Showing that all the member states are all on the same page with how to move forward will give the people more faith in the validity of these institutions.

Bringing attention to these threatening trends in the public sphere and allowing for a public debate can promote the necessity of NATO and also make people have a sense of connection to the body that is responsible for their security. A constant informational

campaign of what is possible and allowing unfettered access to this information will help the Alliance more than anything else. A knowledgeable population that is working together, combating global threats and moving towards its own security goals will be the best deterrent to anyone wanting to do harm the Alliance or its allies. At this point in history it truly seems that, as Dr Diaconu stated, the biggest threat to the Alliance is its own internal politics and this. Perhaps this will not be the case in the future, as many external factors are quickly rising to a head that could overwhelm the Alliance. If these internal differences or feelings of discontent persist, it could defeat the cohesion the Alliance has been working decades to build.

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Annex A

Security Implications

DARK SIDE OF EXCLUSIVITY	DECEPTIVE STABILITY	CLASH OF MODERNITIES	NEW POWER POLITICS
<ul style="list-style-type: none"> • NEGATIVE IMPACT ON ECONOMY • ILLEGAL IMMIGRATION • HUMAN EXPLOITATION • ISSUE OF RIGHT/OBLIGATION TO INTERVENE • DANGER TO CITIZENS • VIOLATION OF TERRITORIAL INTEGRITY • LIBERAL-DEMOCRATIC VALUES AND IDEAS AT RISK • NEGATIVE IMPACT ON CRITICAL INFRASTRUCTURE • DIFFUSION OF NATIONAL IDENTITY • DESTABILISATION OF PREVIOUSLY STABLE GOVERNMENTS • INCREASING NUMBER OF POTENTIALLY HOSTILE STATES • CHALLENGES TO DOMINANT VALUES • UNDERMINING NATIONAL AND INTERNATIONAL LAW • POPULATION HOSTILITY AND UNREST • DOMESTIC DISORDER • DECISIONS BY MULTINATIONAL INDUSTRY CHALLENGES INTERNATIONAL ORDER • ASYMMETRIC SECURITY ENV 	<ul style="list-style-type: none"> • NEGATIVE IMPACT ON ECONOMY • DANGER TO CITIZENS • SOCIAL DISORDER • HUMAN EXPLOITATION • ORGANISED CRIME • VIOLATION OF TERRITORIAL INTEGRITY • LIBERAL-DEMOCRATIC VALUES AND IDEAS AT RISK • ISSUE OF RIGHT/OBLIGATION TO INTERVENE • ILLEGAL IMMIGRATION • NEGATIVE IMPACT ON CRITICAL INFRASTRUCTURE • REDUCED WILL TO USE MILITARY POWER • REDUCED SELF-DEFENCE POSTURE 	<ul style="list-style-type: none"> • NEGATIVE IMPACT ON CRITICAL INFRASTRUCTURE • OVEREMPHASISED SECURITY VERSUS PERSONAL LIBERTIES TENSION • DANGER TO CITIZENS • NEGATIVE IMPACT ON ECONOMY • LIBERAL-DEMOCRATIC VALUES AND IDEAS AT RISK • EXPLOITATION OF CORPORATE & STATE SECRETS • CHALLENGED STATE MONOPOLY ON THE USE OF FORCE (PMC) • ERODED STATE-SOCIETY COHESION • EXPLOITATION OF COMMUNICATION SYSTEMS • LOSS OF COMMUNICATIONS SYSTEMS • DECISIONS BY MULTINATIONAL INDUSTRIES CHALLENGE INTERNATIONAL ORDER • DISRUPTION OF VITAL RESOURCE FLOWS • UNCERTAIN ALLEGIANCE OF PMCs 	<ul style="list-style-type: none"> • LARGE-SCALE WARFARE • NEGATIVE IMPACT ON ECONOMY • NEGATIVE IMPACT ON CRITICAL INFRASTRUCTURE • DANGER TO CITIZENS • VIOLATION OF TERRITORIAL INTEGRITY • LIBERAL-DEMOCRATIC VALUES AND IDEAS AT RISK • ILLEGAL IMMIGRATION • HUMAN EXPLOITATION • ISSUE OF RIGHT/OBLIGATION TO INTERVENE • DEVASTATION CAUSED BY WMD/WME • REDUCED ABILITY OF INDIVIDUAL NATIONS OR IOs TO INFLUENCE OR MANAGE CRISIS/EVENTS • ASYMMETRIC SECURITY ENVIRONMENT • DISRUPTION OF VITAL RESOURCE FLOWS • ERODED COHESION OF EXISTING ALLIANCES

(NATO MFP 31)

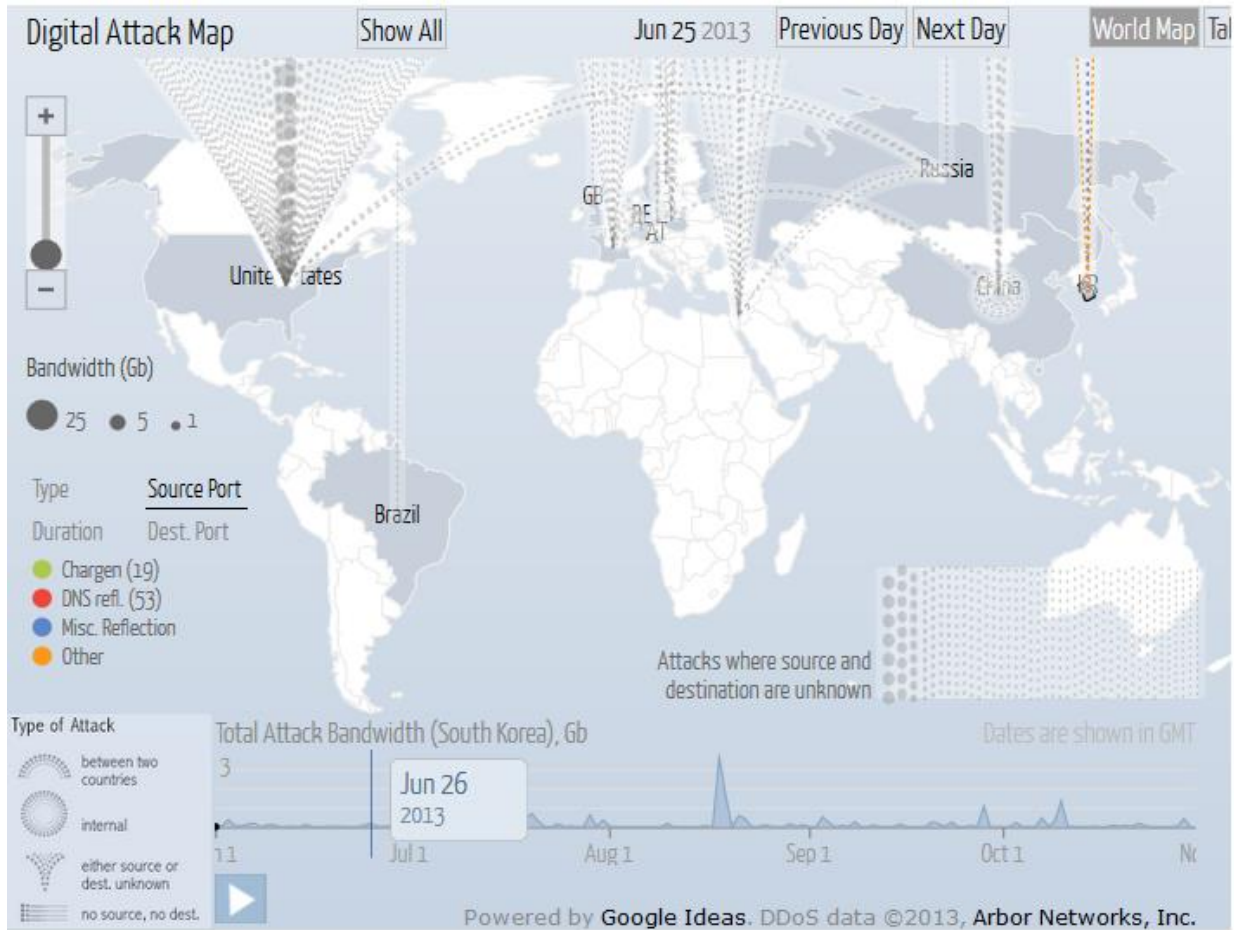
Military Implications

DARK SIDE OF EXCLUSIVITY	DECEPTIVE STABILITY	CLASH OF MODERNITIES	NEW POWER POLITICS
<ul style="list-style-type: none"> • CONDUCT DETERRENCE OPERATIONS • CONDUCT EXPEDITIONARY OPERATIONS TO PROTECT LINES OF COMMUNICATIONS • PREVENT THE DISRUPTION OF FLOW OF VITAL RESOURCES • SUPPORT COUNTER-PROLIFERATION EFFORTS • PROTECT CRITICAL INFRASTRUCTURE • CONDUCT COLLECTIVE FULL SPECTRUM DEFENCE OPERATIONS • CONDUCT EXP OPS IN SUPPORT OF HUMANITARIAN ASSISTANCE • PROVIDE AID TO CIVIL AUTHORITIES • ENHANCE CIVIL-MILITARY OPERATIONS • ADDRESS THE PRESENCE OF PRIVATE MILITARY COMPANIES • PROTECT AGAINST ASYMMETRIC THREATS • CONDUCT MILITARY OPERATIONS AGAINST NON-STATE ACTORS • CONDUCT COHERENT INFORMATION OPERATIONS • CONDUCT OPERATIONS IN COHERENT COMPREHENSIVE FRAMEWORK • CLARIFYING ROE IN ALLIANCE OPERATIONS • INTERVENE TO PREVENT ESCALATION (FORCE PROJECTION) • PROVIDE MILITARY LOGISTIC SUPPORT TO HUMANITARIAN ACTIVITIES • TRAIN INDIGENOUS FORCES • SUPPORT & COOPERATE WITH MULTIPLE ACTORS IN MULTI-NATIONAL RESPONSE EFFORTS TO NATURAL DISASTERS 	<ul style="list-style-type: none"> • IDENTIFY EMERGING FOREIGN SECURITY THREATS • PROVIDE AID TO CIVIL AUTHORITIES • CONDUCT COLLECTIVE FULL SPECTRUM DEFENCE OPERATIONS • CONDUCT DETERRENCE OPERATIONS • CONDUCT EXP OPS IN SUPPORT OF HUMANITARIAN ASSISTANCE • SUPPORT SHAPING OF SECURITY ENVIRONMENT • ADAPT RECRUITMENT PROCESSES • ADEQUATELY ADDRESS THE USE OF NON-LETHAL FORCE • SUPPORT & COOPERATE WITH MULTIPLE ACTORS IN MULTI-NATIONAL RESPONSE EFFORTS TO NATURAL DISASTERS • PROVIDE MILITARY LOGISTIC SUPPORT TO HUMANITARIAN ACTIVITIES 	<ul style="list-style-type: none"> • PROTECT C4 SYSTEMS AND MILITARY NETWORKS • PREVENT THE DISRUPTION OF FLOW OF VITAL RESOURCES • CONDUCT EXP OPS TO PROTECT LINES OF COMMUNICATIONS • PROTECT CRITICAL INFRASTRUCTURE • CONDUCT DETERRENCE OPERATIONS • CONDUCT COLLECTIVE FULL SPECTRUM DEFENCE OPERATIONS • MITIGATE NEGATIVE IMPACT OF DISRUPTIVE TECHNOLOGIES • PROTECT AGAINST ASYMMETRIC THREATS • PROTECT ELECTROMAGNETIC SPECTRUM • TRAIN INDIGENOUS FORCES • ADEQUATELY ADDRESS THE PRESENCE OF PRIVATE MILITARY COMPANIES • CONDUCT OPERATIONS IN A COHERENT COMPREHENSIVE FRAMEWORK 	<ul style="list-style-type: none"> • CONDUCT DETERRENCE OPERATIONS • PROTECT CRITICAL INFRASTRUCTURE • SUPPORT COUNTER-PROLIFERATION EFFORTS • CONDUCT COLLECTIVE FULL SPECTRUM DEFENCE OPERATIONS • CONDUCT EXP OPS IN SUPPORT OF HUMANITARIAN ASSISTANCE • CONDUCT EXP OPS TO PROTECT LINES OF COMMUNICATIONS • PREVENT THE DISRUPTION OF FLOW OF VITAL RESOURCES • PROTECT C4 SYSTEMS AND MILITARY NETWORKS • MITIGATE NEGATIVE IMPACT OF DISRUPTIVE TECHNOLOGIES • PROTECT ELECTROMAGNETIC SPECTRUM • PROTECT AGAINST ASYMMETRIC THREATS • TRAIN INDIGENOUS FORCES • CONDUCT OPERATIONS IN A COHERENT COMPREHENSIVE FRAMEWORK • INTERVENE TO PREVENT ESCALATION (FORCE PROJECTION) • PROVIDE MILITARY LOGISTIC SUPPORT TO HUMANITARIAN ACTIVITIES

(NATO MFP 43)

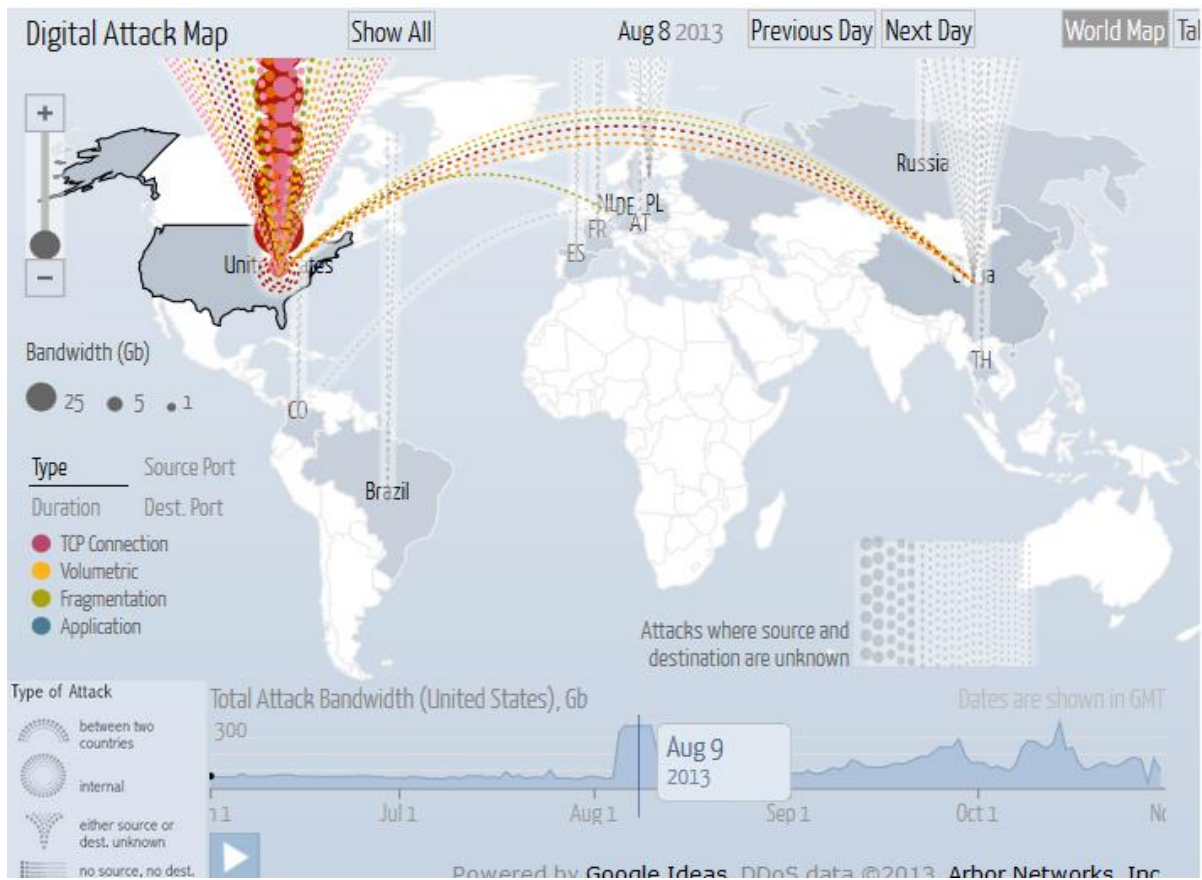
Annex B

June 25th, 2013 Cyber Attack by the DarkSeoul Gang on South Korea



(Groll)

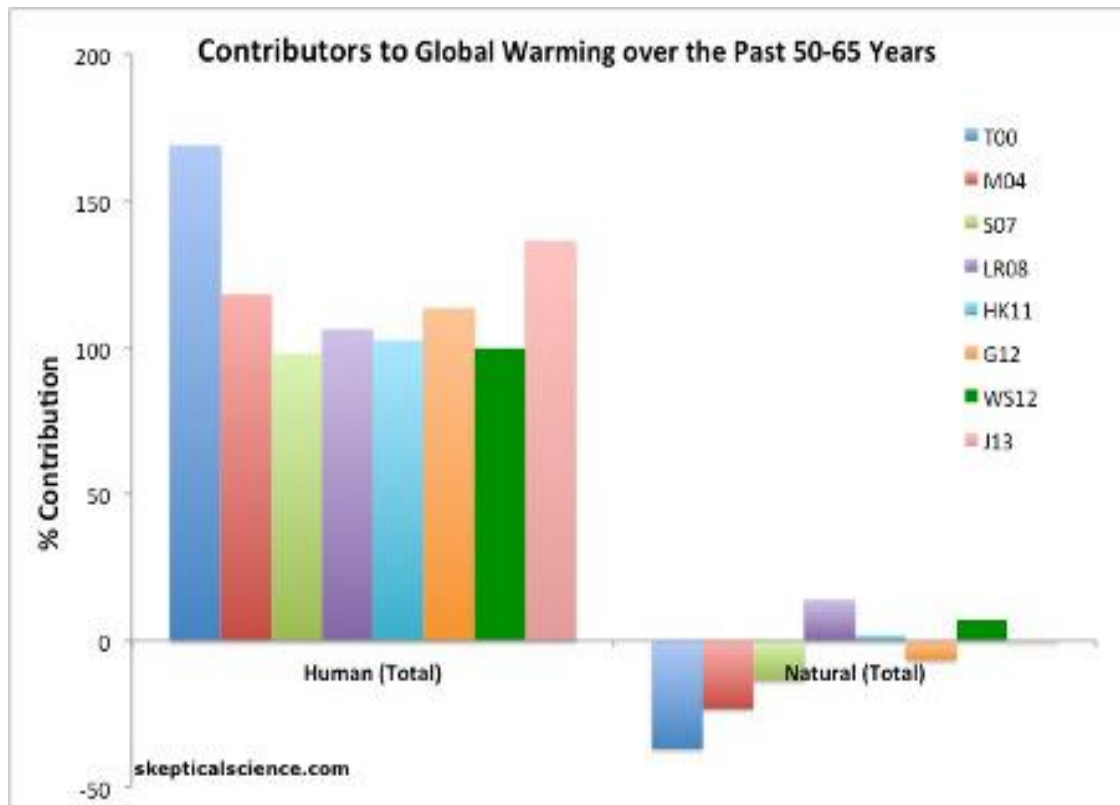
August 8, 2013 – Massive Cyber Attack on United States Critical Infrastructure



(Groll)

Annex C

IPCC Report – Other Report Results



Net human and natural percent contributions to the observed global surface warming over the past 50-65 years according to Tett et al. 2000 (T00, dark blue), Meehl et al. 2004 (M04, red), Stone et al. 2007 (S07, light green), Lean and Rind 2008 (LR08, purple), Huber and Knutti 2011 (HK11, light blue), Gillett et al. 2012 (G12, orange), Wigley and Santer 2012 (WS12, dark green), and Jones et al. 2013 (J12, pink) (Abraham and Nuccitelli).

Annex D

First Phase: non-military asymmetric warfare (encompassing information, moral, psychological, ideological, diplomatic, and economic measures as part of a plan to establish a favorable political, economic, and military setup).

Second Phase: special operations to mislead political and military leaders by coordinated measures carried out by diplomatic channels, media, and top government and military agencies by leaking false data, orders, directives, and instructions.

Third Phase: intimidation, deceiving, and bribing government and military officers, with the objective of making them abandon their service duties.

Fourth Phase: destabilizing propaganda to increase discontent among the population, boosted by the arrival of Russian bands of militants, escalating subversion.

Fifth Phase: establishment of no-fly zones over the country to be attacked, imposition of blockades, and extensive use of private military companies in close cooperation with armed opposition units.

Sixth Phase: commencement of military action, immediately preceded by large-scale reconnaissance and subversive missions. All types, forms, methods, and forces, including special operations forces, space, radio, radio engineering, electronic, diplomatic, and secret service intelligence, and industrial espionage.

Seventh Phase: combination of targeted information operation, electronic warfare operation, aerospace operation, continuous air force harassment, combined with the use of high-precision weapons launched from various platforms (long-range artillery, and weapons based on new physical principles, including microwaves, radiation, non-lethal biological weapons).

Eighth Phase: roll over the remaining points of resistance and destroy surviving enemy units by special operations conducted by reconnaissance units to spot which enemy units have survived and transmit their coordinates to the attacker's missile and artillery units; fire barrages to annihilate the defender's resisting army units by effective advanced weapons; air-drop operations to surround points of resistance; and territory mopping-up operations by ground troops

Annex E

NATO Cone of Plausibility Scenarios

Scenario A: US leadership relationship with NATO continues on the same path.

Scenario A, the “Continuation Scenario,” presupposes that the relationship between the United States and the other NATO nations will remain the same relative to each other as we move from today to the year 2025. Additional countries may join NATO and, conceivably, some may even leave NATO—in the same manner that Georgia joined the CSTO in 1994 and withdrew in 1999, or more precisely when France departed from the NATO IMS in 1966 and rejoined in 2009. Other nation-states or collections thereof may form Alliances to counter NATO such as those discussed in “Potential Threats to NATO,” but again the US leadership within the Alliance remains the same.

Scenario A 2025:

The US/EU relationship remains constant. Russian suspicions of NATO continue despite efforts by the Alliance to be open and transparent. The Strategic Concept in 2010 was open, frank, and directive. The Alliance sustained cooperation in Afghanistan. The openness forced the committee penning the Strategic Concept to define terms clearly and more importantly, agreed to the definitions and approved the Strategic Concept 2010. The clear descriptions of the “attack” in Article 5, including cyber attack, and resolution on mission and purpose for out-of-area operations allowed individual NATO countries to better project military defense plans. Many NATO militaries were able to sustain a viable force despite a decline in the military cohort and smaller defense budgets.

Scenario B: US Leadership in NATO increases.

Scenario B describes an environment where US commitment to NATO security goals increases with respect to the European counterparts. This scenario is plausible. According to Global Trends 2025, “divergent threat perceptions within Europe and the likelihood that defense spending will remain uncoordinated suggest the EU will not be a major military power by 2025. The national interests of the bigger powers will continue to complicate EU foreign and security policy and European support for NATO could erode.” This scenario depends conceivably more on the US willingness to take a more involved leadership role within NATO than any other competing factor. This willingness would include resourcing NATO operations. Friedman argues that “the world does, in fact, pivot around the United States.” This is not only due to American power. He points out that for the past 500 years, Europe was the center of the international system and that the main highway to Europe was the North Atlantic. Whoever controlled that body of water controlled Europe and Europe’s access to the world, and hence the “basic geography of global politics was locked into place.” He goes on to explain that in the early 1980s a remarkable shift occurred in that for the first time in history, transpacific trade equaled transatlantic trade and hence any

country that controlled the North Atlantic and the Pacific would, if it wanted to, control the global economy. He concluded that therefore whoever controls North America is virtually assured of being the dominant global power and that “for the twenty-first century at least, that will be the United States.” Friedman’s Mahanian view of sea power in the new globalized world may be incorrect but even so, it is probable that the United States will be a major power for the foreseeable future. The question is where will the United States focus on foreign engagement: Europe, Africa, Asia, the Americas, or a combination thereof?

Scenario B 2025:

A number of socio-economic factors and security perceptions made the European nations more receptive to a strong US leadership role. The Strategic Concept in 2010 did not differ much from the 2006 Comprehensive Political Guidance. It did not convey a purpose. As 2025 approaches, the effects of Europe’s aging population, Muslim immigration, and diminished military age cohort become more pronounced. Stronger views toward international security versus home defense become more clear and distinct. The United States, wishing to maintain the Alliance, invests more effort and money. The United States also leads the out-of-area operations. The net gain is more symbolic than practical in furthering US strategic goals as those goals become increasingly divergent from those of the Europeans.

Scenario C: EU leadership in NATO increases.

Scenario C portrays the United States as leaning toward isolationism which forces the EU to assume an increased leadership role within NATO. In John McCormick’s book, *The European Superpower*, he supports the idea that American global leadership is on the decline, and that European leadership, on the other hand, is in its ascendancy. McCormick rejects the traditional view that the greatest powers are those with large militaries which consciously pursue national interests. He argues that globalization and interdependence have undermined power politics and supplanted it with a more nuanced set of international relationships. In this post-modern environment, the international relationships attained by the EU has made it a superpower. This scenario depends heavily on greater EU leadership.

Scenario C 2025:

This scenario develops as US and EU interests continue to diverge, and the United States disengages from Europe. The Strategic Concept in 2010 did not clearly state a mission and purpose. US and European views on the way ahead in Afghanistan began to diverge after the 2010 Lisbon Summit. Some European NATO members disengaged in Afghanistan and the United States turned to other nations and organizations for support. The Alliance continues to exist and even contributes to stabilization in areas outside of NATO countries, but the thrust is defined by Europeans. EU countries lead most operations.

Scenario D: The NATO Alliance breaks apart.

Scenario D depicts the breakup of NATO as the US national security interests diverge from the rest of the Alliance. The strength of the European commitment to the Alliance influences the pace of the dissolution of the Alliance. If the European countries also develop diverse individual notions of their main national or collective security threats, then the breakup of the Alliance quickens.

Scenario D 2025:

This scenario occurs because of a combination of events described in Scenarios B and C. National defense and international security priorities continue to diverge between the United States and the European NATO countries. The United States moves more toward isolationism, while the EU experiences the effects of aging population, Muslim immigration, and a diminished military age cohort. Common interests fade. The Alliance continues its efforts in Afghanistan with no clear definition of success. The countries, which feel Russia is their main threat, oust the politicians who authorized involvement in Afghanistan, then withdraw. Some begin to leave the Alliance's military establishment just as France did in 1966. The Alliance, already weakened from the threat from within, starts to feel the pressure from Russian military training exercises along its borders. The eastern NATO members become less confident in NATO's commitment to their territorial defense. These countries organize their own collective defense Alliance focused on the potential threat of a resurgent Russia. Farsighted transatlantic diplomats tried to reassure Russia of NATO's nonthreatening security structure but failed. Russia, seeing the opportunity to strike, claims Georgia has violated citizens' rights in the contested areas and occupies that country. NATO continues to lose members, while common interests among the remaining members diverge. For all intents and purposes, it has failed to keep Europe at peace while it focused on the larger global terrorist threat. (Cuccia 30-34)

Abstract

If there is one certain truth about the world as known by humanity it is that the future is hardly predictable. This general lack of forward-looking knowledge creates a great deal of fear and stress for experts in many fields, especially those in security. This study focuses on the mapping of the Future Security Environment (FSE) looking towards the year 2030 and uses the North Atlantic Treaty organization (NATO) and their future planning process, the Strategic Concept, as a case study. The general questions to be asked in this study are as follows: “What will the FSE look like between now and 2030?”, “Will the Alliance, as the premiere security organization, have the sufficient planning to match up with the emerging or changing threats that will make up the FSE?” and “by looking at NATO’s past performance and current planning for the future, will NATO continue to succeed into the near future and deserve to continue to exist as a security organization?”. This is done by taking a variety of future security studies from western militaries, universities, governments and think-tanks to build a set of threats that will challenge the world looking to the year 2030. When the results are compiled, a comparative case study is done when the list of threats is compared to the concerns addressed in NATO’s 2010 Strategic Concept.

The results from this comparison demonstrate that the main threats for the Transatlantic Alliance will be in the areas of: state conflict, proliferation of weapons of mass destruction/effect (WMD/E), terrorist (international/domestic) and other criminal groups, cyber attacks/attacks on critical infrastructure, disruption of communications, disruption of trade routes, energy security, constraints on natural resources, climate change, failed states and economic conflict. Given the current economic environment that could remain stagnant for many of the NATO nations into the near future, combating these forthcoming domestic and international threats will be made increasingly more difficult with an increasing lack of resources. Increases in capabilities due to technological developments will alleviate many of these issues and help keep the Alliance relevant. These difficulties dictate that NATO and its member states will have to rely on their individual strengths and integration (especially with the European Union) to successfully share defensive and peacekeeping capabilities across the Alliance while developing into a smaller, quicker and more efficient military force. If NATO is able to remain as cohesive in dealing with these future pressures as it was in combating the Soviet Union, there is no reason to believe the Alliance will dissolve due to any of these specific threats.

Key Terms: NATO, Future Security Environment, Strategic Concept, state conflict, weapons of mass destruction/effect, cyber attacks, critical infrastructure, terrorism, communications, trade, energy security, natural resources, climate change, failed states, economic conflict

Abstrakt

Pokud existuje jedna určitá pravda o světě, tak můžeme říct, že je to, že budoucnost je těžce předvídatelná. Takový obecný nedostatek výhledové znalosti vytváří obrovský strach a stres u odborníků v mnoha oblastech, zejména těch, které se nachází v oblasti bezpečnosti. Tato studie se zaměřuje na mapování Future Security Environment bezpečnostního prostředí budoucnosti (FSE), dívá se až do roku 2030 a používá organizace Severoatlantické smlouvy (NATO) a její proces plánování budoucnosti, strategickou koncepci, jako srovnávací případové studie. Hlavní otázky naší práce jsou následující: "Jak bude vypadat FSE mezi dneškem a rokem 2030?", "Bude-li Aliance, jako vedoucí bezpečnostní organizace, mít adekvátní plánování pro vyrovnání se s rozvíjejícími se změnami nebo hrozbami, které spadají do FSE?" a "Při pohledu na předchozí vývoj NATO a současné plánování do budoucna, bude-li v blízké budoucnosti NATO i nadále úspěšné a zaslouží-li si toho, aby i nadále existovalo jako bezpečnostní organizace?". Výzkum je založen na zkoumání celé řady dalších studií ohledně bezpečnosti od západních armád, vysokých škol, vlády a badatelských organizací a vytvoření sady hrozeb, které budou výzvou pro svět až do roku 2030. Po sestavení výsledků, se provádí případová studie kde seznam hrozeb se srovnává s problémy, k nimž apeluje strategická koncepce NATO v roce 2010 .

Výsledky tohoto srovnání ukazují, že hlavní hrozby pro Transatlantickou alianci se objeví v těchto oblastech: státní konflikty, šíření zbraní hromadného ničení (WMD/E), teroristické (mezinárodní/domácí) a další kriminální skupiny, kybernetické útoky/útoky na důležité infrastruktury, narušení komunikace, narušení obchodních cest, energetická bezpečnost, omezení přírodních zdrojů, změna klimatu, zhroutené státy a ekonomické konflikty. Vzhledem k současnému ekonomickému prostředí, které v blízké budoucnosti může zůstat stagnující pro mnoho členských států NATO, boj s těmito nadcházející domácími i mezinárodními hrozbami bude čím dál obtížnější kvůli rostoucímu nedostatku zdrojů. Nárůst schopností v důsledku technologického vývoje však hodně těchto problémů zmírní a pomůže udržet relevanci Aliance. Tyto obtíže nutí NATO a jeho členské státy spoléhat na své individuální silné stránky, soft power a integraci (zejména s Evropskou unií), aby mohly úspěšně sdílet obranné síly a síly pro udržování míru v rámci Aliance a zároveň rozvíjet menší, rychlejší a efektivnější vojenské jednotky. Pokud NATO je schopné zůstat stejně soudržné při řešení těchto budoucích tlaků, jak to bylo v boji proti šíření sovětské sféry, není žádný důvod se domnívat, že se Aliance rozpadne kvůli některé z těchto konkrétních hrozeb.

Klíčová slova: NATO, Future Security Environment, strategická koncepce, státní konflikt, zbraně hromadného ničení, kybernetické útoky, důležité infrastruktury, terorismus, komunikace, obchod, energetická bezpečnost, přírodní zdroje, změna klimatu, zhroutené státy, ekonomické konflikty.

Summary

If there is one certain truth about the world as known by humanity it is that the future is hardly predictable. This general lack of forward-looking knowledge creates a great deal of fear and stress for experts in many fields, especially those in security. One area that benefits greatly from any possible grasp on what may come in the future is that of international security. Looking back in recent history, being able to predict the actions of possible aggressors such as Adolf Hitler pre-World War II or al-Qaeda with the 9/11 terrorist attacks would have saved much hardship around the world if these threats could have been dealt with beforehand. Even with the foreboding knowledge that existed in these two cases: Hitler's ramblings in his publication of *Mein Kampf* or security reports from back in the Clinton administration about al-Qaeda's intentions up until the last days before the 9/11 attacks; for whatever reason the right people weren't paying enough attention to the right information at the right time to make the right choices.

History shows that this is simply what happens sometimes, and with the increase in the amounts of information and intelligence out there, it can be easy to get lost in the fray. This however does not mean that it is unnecessary to even try, as a government has the responsibility to protect its people from any form of threat now or in the future; and it would be irresponsible to neglect any possibilities in the future that are deemed possible. To give an example of a collective of states that has formed a security alliance and relatively successfully used this type of planning, the North Atlantic Treaty Organization (NATO) will be analysed as a case study to show how planning for future threats has proven a fruitful endeavour in international security based on their track record. The aim of this study is to look at the current view of the Future Security Environment (FSE) that security organizations, think tanks and nations within the Alliance proclaim will be in the coming decades and compare it to NATO's mechanism of planning, the Strategic Concept. The goal of this is to create a sort of consensus on the FSE and to determine if NATO is planning accordingly and if they will be the same force in the coming decades that it has been the previous six.

This study will embody the evolutionary style with which NATO has conducted itself with throughout its existence. The first part of the work will cover NATO since its inception, covering the periods which Secretary General Anders Fogh Rasmussen termed NATO Versions 1.0 and 2.0 at his speech to the German Marshall Fund in October of 2010. Each of these versions is respectively the Cold War period of 1949-1989 and the post-Cold War period of 1990-2010. These eras of planning during and after the Cold War will be looked at through the Strategic Concepts that were penned and the general effectiveness of the strategies that can be analysed in hindsight. Version 3.0 of NATO's evolution, and how it could look, will be discussed in a later part of this work and compared to the most likely threats that will be faced. NATO attempts to stay ahead of the curve and prepare for the global changes through the aforementioned Strategic Concept. The world changes so quickly that it is at times tough for major organizations in human history to adapt to these situations fast enough and they fade into the history books. Fortunately the Alliance does not have a set timeframe for the Strategic Concepts, so even if every ten years or so is the norm, it is possible to hold onto a set of guidelines that work for a longer period of time or formulate new ones more quickly. Also the Strategic Concept "is not binding and thus cannot prescribe NATO's future, but the revision offers an excellent opportunity to stimulate productive debate and thereby reenergize and refocus on the Alliance members' common problems and their possible solutions" (Chivvis 1).

The goal here is to simply paint a picture of what the FSE may look like based on apparent threats as well as seeing how NATO fits into that picture. These documents were chosen for the esteem that the authors and organizations have within the international security field and their hands-on shaping of security policy in the West through their various endeavours; whether they be within a nation's military and security apparatus, in academia or a think-tank. These documents are produced within NATO nations and within a certain ending timeframe (2025-2030), are representative of various elements of security research (military/university/think tanks well as being published in languages the author of this work can comprehend easily (English/Czech) were the only prerequisites for inclusion.

Following this analysis, a final comparison will be made with the 2010 Strategic Concept and the various FSE studies to that of the compiled view of the FSE. The reasoning

for this final analysis is that being a relatively informed citizen of a NATO member state, the author has a sheer interest to see where the thoughts of security organizations that protect his areas of living coincide or deviate from his own. Going through the study, the author has produced results using the basic question of: “What will the FSE look like between now and 2030?” Using NATO as a case study for this compiled future has also asked the question: “Will the Alliance, as the premier security organization, have the sufficient planning to match up with the emerging or changing threats that will make up the FSE?” Finally the question will be asked: “By looking at NATO’s past performance and current planning for the future, will NATO continue to succeed into the near future and deserve to continue to exist as a security organization?”

Since prediction is an imperfect science, this means that there will always be a wide range of successes and failures, especially with the overabundance of information regarding possible threats clouds which of these results will win out. However, a security organization such as NATO has a responsibility to its population to try to sort through this mass of information to the best of its ability, and the previous chapter was an attempt for the author to gage NATO’s likelihood of success at this endeavour. The results tabulated from the previous chapter are taken from the analysed literature, and by no means are completely comprehensive due to language and timeline restrictions set as parameters at the beginning of the study. This analysis of documentation should give a potential reader a solid grasp on not only the possible FSE, but also NATO’s place within it based their past successes or failures planning for these types of threats using the Strategic Concept. The comparison with the main threats

- State Conflict
- Proliferation of WMD/E
- Terrorist and Other Criminal Groups
- Cyber and Critical Infrastructure Protection
- Resource Constraints and Disruptions
- Disruption of Communications
- Disruption of Trade Routes
- Energy Resources and Energy Security
- Natural Resources
- Climate Change

- Global Instability
- Failed States
- Economic Conflict

Much like NATO's more than 60 year history, the Alliance will struggle at times to adapt to some changes and will suffer occasional hardships, but overall they will succeed at their mission of protecting a majority of their populations from devastation coming from a plethora of various threats. The results are not definitive however, and it shows there will be many more growing pains in the next few decades, but because of NATO's established institutions and intertwined allies, they should more likely than not overcome threats that could bring down the Alliance. These results prove the original assumption correct that by no means will the changing FSE be an easy river to ford for the worlds' largest and most successful military Alliance, yet NATO will persevere through the threats to preserve the western way of life that NATO members enjoy.

At the outset of this study, multiple questions were asked concerning different points to be addressed within the project. The first of which was: "What will the FSE look like between now and 2030?" The picture painted of the possible FSE show that the areas of cyber security and critical infrastructure protection, global warming, population migrations, regional conflict, failed states, extremist and criminal groups, economic conflict, reduced defence budgets, advanced technology and weaponry proliferation, limited resource access and overall hybrid asymmetric threats will dominate much of the world's security apparatus. The problems can become unsustainable if they are ignited by possible catalyst events such as a viral plague outbreak or an attack on a major city with a weapon of mass destruction/effect (WMD/E). Given the current economic environment that could remain stagnant for much of the NATO nations, this future will be made increasingly more difficult with a lack of resources and capabilities. Definite increases in capabilities in other areas due to probable technological development will alleviate many of these issues. Due to this, NATO and its nations will have to rely on their individual strengths and integration (especially with the European Union) to successfully share defensive and peacekeeping capabilities across the Alliance while developing into a smaller, quicker and more efficient military force. Steps

taken such as the development of a Rapid Reaction Force (RRF) and the NATO Response Force (NRF), with expanded training exercises and simulations between member states are a start. Further cohesion, sharing of capabilities and information is not only necessary for NATO to succeed in this future, but to simply survive as a security organization.

The next question asked, using NATO as a case study for this compiled future, is as follows: “Will the Alliance, as the premiere security organization, have the sufficient planning to match up with the emerging or changing threats that will make up the FSE?” Looking at the results mentioned earlier when comparing NATO’s 2010 Strategic Concept with the certain major threats, as well as the scale of these threats, has shown that NATO certainly has the ability to succeed in this future due to its experience, cooperation and resources to overcome even the direst of events. The results show that NATO and the other entities of security expertise within the Alliance borders that were analysed in this study match up very well in their priorities. This cooperation between NATO and these groups will help the Alliance be on top of developing global situations and strategies to deal with them. The establishment of Centres of Excellence (CoE) and their pairings with NATO, along with the on-going mission of NATO Headquarters Supreme Allied Command Transformation (HQ SACT), NATO will have an increasing grasp on what awaits the battlefields of tomorrow.

Finally the question was asked: “By looking at NATO’s past performance and current planning for the future, will NATO continue to succeed into the near future and deserve to continue to exist as a security organization?” Looking at NATO’s history of success in many areas with the past Strategic Concepts and the experience of the storms already weathered, it seems completely reasonable to expect similar results with the current Strategic Concept. This also means that while having moderately strong chances for success in the FSE, NATO will surely be made to withstand attacks to its territory and interests abroad regardless. It is the ability of NATO to remain resilient in the face of these instances where security is breached maybe only momentarily, but to disastrous results for a portion of the Alliance population. Much like the terrorist attacks in the United States on 9/11, The United Kingdom on 7/7 and Spain in 2004, or with the 2008 financial market collapse; resiliency for member states is key. Another key to success in combating the threats of today and tomorrow is the ability of nations and security organizations to adapt and streamline. Bureaucracy can

become a threat itself if these entities become too bloated, too many in number and s lack communication between them.

The resiliency of security forces and populations, along with the aid of the Alliance member states holding true to their Article 4 and 5 promises of solidarity, should lead to any state being able to fight through a serious security situation. When dealing with the FSE, NATO needs to always have the right people and the right information for the right time. With the purveyance of information, resource and time constraints on personnel, this ideal situation will not always be able to exist, but NATO as an organization of states has the best infrastructure around the globe to be able to deal with the moments that may have the wrong people, information or time. In the end, everything comes down to the commitment to the Alliance internally; both the nations' leaderships and the populations. To this some may say that in absence of a true singular enemy in the Cold War mould is the only thing to hold the Alliance together in the future; as more abstract enemies such as Islamic extremism, cyber warfare and global warming might not be immediate and tangible enough to keep the different nations focused and together.