Forging the Future
Leading NATO Military Transformation

Framework for Future Alliance Operations
Workshop Izmir

Read-Ahead

25-26 September, 2013
Izmir, Turkey

Organized by
Allied Command Transformation, Norfolk

In partnership with
NATO Land Command

Contents

FFAO Workshop Izmir: Tasks, Purpose and Outcome

Tasks: (1) The ACT Strategic Analysis Branch will gather a broad representation of Alliance and Partner Nations, Centres of Excellence, Component Commands, and defence experts from other governmental and non-governmental organizations including academia and industry to further develop NATO's Futures Work. (2) In a plenary session, ACTs FFAO lead will review the overall FFAO methodology and the results of the last workshop, specifically the Future Characteristic Models (FCMs) developed, that describe the future security environment (FSE). (3) The team will then divide into three cross-domain syndicates with each syndicate examining how the FCMs will affect the accomplishment of NATO's Core Tasks (Collective Defence, Cooperative Security, and Crisis Management) at the Political-Military level. The Core Tasks will be viewed not as stand-alone but in terms of supported and supporting tasks (Collective Defence-Crisis Management, Crisis Management-Cooperative Security, and Cooperative Security-Crisis Management). The second day the syndicates will be assigned new FCMs and repeat the process. (4) Each syndicate will develop at least one Broad Strategic Insight (BSI) per day, defined as "fundamental characteristic of the FSE that may indicate a change at the Political-Military level that informs future NATO missions, tasks, roles, and requirements."

Purpose: The participants in this workshop will use the FCMs to develop BSIs that describe how accomplishing NATO's Core Tasks will differ in 2030. These insights will be used in follow-on work to derive military implications that will be a key part of the FFAO.

Outcome: The participants will produce a list of BSIs that will be used to develop Military Implications, defined as "domain specific conclusions derived from Broad Strategic Insights that may drive change in how the military prepares for and executes operations to accomplish NATO's core tasks."

Future Characteristic Models:

Shifting Sands:

The syndicate decided that the Sibling Rivalry metaphor was not an accurate representation of the international system in that it was not a large family interacting without parental oversight but more like a wide variety of state and non-state actors interacting on an unstable and moving surface, like Shifting Sands.

The increased role of non-state actors in the future security environment could exert greater political and military influence causing increased tension and challenging the international system. The team highlighted the role of technology as an enabler and accelerant and the defence expenditure differential between the west and rising powers.

The shift of power between states and within states from state to people will impact the nature of societies. Additionally, the relationships between megacities will complicate state-to-state relations. Developing countries (e.g., within Africa) will suffer frictions that developed nations have already experienced but these frictions will occur at a faster rate. Thus, fractures within societies and changing demographics will have further impact on foreign policy of member and partner nations.

Despite the rise of non-state actors, nation-states are still relevant especially during national crisis. The syndicate was divided on the capacity of states to address future national crises. The debate was between the strength of nationalism versus individualism.

Greater interconnectedness creates more opportunity for management of resources and incentives for cooperation, but also can lead to vulnerabilities to exploitation by state and non-state actors and rapid spreading of economic shock events.

The Shifting Sands metaphor symbolizes an unstable environment that is in constant flux. Also it is not like tectonic plate movement that builds pressure and then fractures along well known fault lines, but rather as sand that moves and conforms to the weight of things placed upon it, never fracturing but constantly moving.

Approaching Storm:

The syndicate focused on three different trends to develop an alternative metaphor, Approaching Storm: Globalisation of Financial Resources, Environmental / Climate Change, and Increased Resource Scarcity.

Most of the issues the syndicate discussed exist today and are expected to continue and increase over the next 20 years. Emerging powers and non-state actors will challenge the Bretton Woods system. The weakening of international financial institutions will pose a security challenge to the Alliance members as room for maneuver of states are diminished. The ability of the states to absorb multiple financial crises is unlikely.

Emerging powers will succeed if they can combine political power and economic power to exploit national interests. The stabilising influence of economic interdependence will become more critical.
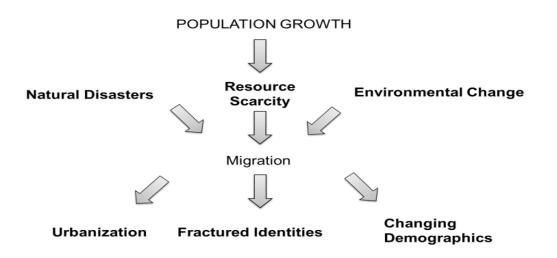
The least resilient states are most prone to climate change and greater impact of climate change with exponential population growth will increase impact on demographics and immigration. An increase in extreme weather events will require specific capabilities for humanitarian assistance and disaster relief (HADR).

Resource depletion, climate change, and technological progress will create the potential for increased competition (and possible conflict) for existing and newly accessible resources (e.g., High North).

The Approaching Storm indicates that there is very little uncertainty about the future of these three trends, i.e. we currently face these trends and we expect them to grow exponentially as they influence each other.

The Snowball Effect

During day 1 in the discussion of the relationships between the assigned group of trends (Increased resource scarcity, Urbanisation, Environmental and Climate change, Changing Demographics, Fractured Identities and Natural Disasters) the syndicate reached the agreement that the metaphor Metropolis was too cantered around Urbanisation and did not describe the trends. We reached a consensus that by using the "Snowball effect" as metaphor we could centre in on Population growth as the central influencing factor which tied the trends together as illustrated below:

POPULATION GROWTH

Natural Disasters — Resource Scarcity — Environmental Change

Migration

Urbanization — Fractured Identities — Changing Demographics

The global population growth, expanding at a rapid rate, focused primarily on developing countries, is causal to the trends studied. Increasing population increases demand for resources, thus increasing resource scarcity. As population grows, migration increases. This migration leads to urbanization, fractured identities and changing demographics. Natural disasters and environmental change are the second order effects of the increased population.

Global Brain

The interconnected nature of the world manifests on multiple levels including via the internet and human, structural, and organizational systems, as well as those networks found in nature. Also the new concept of growing connections between the internet of things adds yet another layer to this Global Brain. Today such connections are forming an exceptionally complex web that is decentralized, distributed, and multi-layered. This level of complexity will increase exponentially by 2030. With such high complexity comes great uncertainty because of the inherent property of networks called emergence—the way many relatively simple interactions cause new and unpredictable results. For example, a termite "cathedral" mound produced by a termite colony is a classic example of emergence in nature.

Complexity results from the synergistic consequences created by the entire complex system. The Global Brain will have strong emergence, which means it will develop new qualities that are irreducible to the system's constituent parts. Thus the Global Brain will have an advanced emergent property that will produce new and unpredictable aspects of the future security environment, e.g. people will live three times as long but children will become exceptionally rare and valuable.

The Global Brain does not change through the isolated work of individual nodes or agents, e.g. a person, an animal, a neuron, a power plant, a strip mine, or a hospital. This highly interconnected intellect changes because networks of relationships form among the many nodes just like areas of the human brain, composed of networks of neurons, specialize in specific functions.

People who share a common understanding develop along similar networks that grow and transform into new communities. These specialized groups of people have influence and possess qualities and capacities that were unknown in the individuals. The Global Brain produces emergent properties of the system as a whole; therefore, it creates radical change and possesses greater power and influence than is possible through planned and incremental change.

Based on the following SFA Trends:

Fractured Identities: Several contributing factors may lead to a fracturing of national identity

Polycentric World: polycentric world, dominated by dozens of actors possessing and exercising various kinds of power

Technology Accelerates Change: The accelerating cycles of exploration, discovery and exploitation of technologies, along with the innovative fusion of existing, emerging and new technologies will combine to bring about change rapidly in the future.

Centrality of Computer Networks: A globally connected and networked world creates a universal availability of information.

Globalisation of Financial Resources: The financial networks and communication systems that manage the world's critical resources are increasingly intertwined.

Decreasing Defence Expenditures: Governments faced with slow or non-existent growth, rising unemployment and increasing debt burdens will continue to have many competing priorities.

Filtering Worldviews

The pace with which new information is produced, becomes available and is accessible to the world is unprecedented in history. The ability to generate, share and comment on any topic of interest is made possible by the widespread use of computer networks and their ability to sort and categorize this information. Equally, the ability to search for information, connect with like-minded and form communities of interest has allowed millions of people to be aware of world-wide events, local news, deeply specialized and detailed topics and to be informed citizens of their communities. On the other hand it has allowed for the spread of non-verified or non-verifiable information, the breakdown of established media authorities, the opportunity to choose one's own sources of information and blindness to other points of view. As such the spread of information has created a plethora of different worldviews; each of them filtered by the beliefs and already established opinions of the owners, by the ability to gather information on one's own, and by the ability to process the information in a proper manner.

The first filter is formed by the tendency of people to seek confirmation of the worldview they already have established, a product of their upbringing, culture, nationality, education and professional surroundings. Because of the increase in access to technology and the sheer ability to connect with other people through human networks, people will not seek to adjust this first filter as they can choose with whom to communicate and to which communities to belong, a choice that did not exist before in a world that was dominated by physical limitation of movement and communications. The second and third filters are mainly determined by the level of education. Gathering information on one's own is only possible when people have learned where to get information and to determine whether the information is relevant. Additionally, the ability to process the information and combine it with other pieces of information certainly depends on the level of education and critical thinking that people have achieved. The trends of centrality of computer networks, forming of human networks, increased access to technology and the acceleration of change technology brings will all put a premium on the enhanced ability of people to gather, filter and process information, and thus on education.

Throughout history the increased participation by citizens in governance has originated from a middle class and has been rooted in the access to education and schooling. A shift of power in the world away from dictatorships, theocracies and autocratic rule towards form in which the general public has a voice, will further challenge the division of power held by traditional institutions and will lead to the movement toward more participatory forms of government.

The increase in the availability of information could lead to information overload on one hand and to setting of information barriers on the other. It is likely that those who encounter overload will turn towards others to help them filter the information, thus creating unwillingly a form of self-censorship, or filter them on their own by seeking only the information that confirms their present worldview. Others will encounter information barriers erected by government, companies or others to prevent information to flow

freely. In both cases filtering of information takes place. Questions arise whether those who have access to all information and have the least amount of filtering are closer to any form of 'truth' and greater enlightenment, or are also subject to filtering amounting from a natural tendency to 'make sense of the world'.

This tendency of making sense of the world gives the advantage to those people that have the ability to shape opinions, form ideas and live up to expectations. This shaping and forming of information may lead to manipulation of individual filters toward a few thus enhancing the process in which perception becomes reality. Popular or populist filters may prevail over the most accurate views of the world and the fog of information will play a role in this process. Furthermore, when enough shaping and forming of opinions and ideas has taken place, opportunities arise to control the information itself and its distribution.

Based on the following SFA Trends:

Centrality of Computer Networks: A globally connected and networked world creates a universal availability of information.

Technology Accelerates Change: The accelerating cycles of exploration, discovery and exploitation of technologies, along with the innovative fusion of existing, emerging and new technologies will combine to bring about change rapidly in the future.

Shift in Political Structures of Global Power: established regimes face reform resulting in a period of social and political instability

Increased Access to Technology: Commercial research and technology has begun to outpace that of governments in the development of new technologies.

Human Networks / Transparency: Human networks are expanding at an exponential rate with many varying effects.
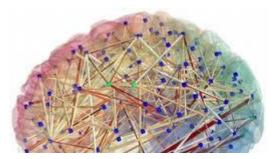
Globalized Polycentric Brain

The current political, social and economic activities in the world manifest themselves as a set of interconnected networks that exchange knowledge and information as a system of systems (or subsystems). While each individual subsystem may have an aim and purpose, the system of systems or the interconnected network as a whole does not necessarily work toward a global aim or purpose. While we see examples in nature of system of systems working towards a common goal (e.g. ant colony) we have to admit that this is not the case for a "Global Brain." The interconnected world must be seen as a system of systems interacting with each other each with their own purpose and attempting to influence each other. This conglomeration of world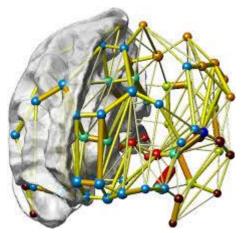-spanning, loosely connected network of networks defines a Globalized Brain in a Polycentric World. As such we must admit that it is uncontrollable as a whole, even in the future despite the promises of Artificial Intelligence (AI) which may at most provide a sense of control over some subsystems.

This "Globalized Polycentric Brain" lives and survives by the dynamics of the subsystems. These networks do not necessarily work in tandem and harmony. By continuously adapting to the complexity of its interactions, the brain develops and provides advantages to the parts that promise diversity, opportunity and utility. For example, there are advantages for those parts that offer economic gain,

technological advances and promising innovation. Those parts that do not have a clearly defined aim or purpose will struggle, while other parts may attempt to affiliate themselves to those that are well developed and strongly connected and represented.

Both access to technology and globalization of financial resources favour well-developed parts and rewards them, therefore allowing them to grow stronger and establish themselves firmly. This puts a premium on those parts that are already highly connected and resourced. On the other hand, it

deprives these advantages to parts that are not viable in economic, social or political terms. Such deprivation leads to an atrophy of parts of the brain, particularly if those parts are not adaptive to changes. Some less viable parts that are adaptive and flexible may find opportunities and resources to fight this asymmetry. This challenge to the dominance of the well-developed parts increases the likelihood of tension, strife and conflict. Increases in defence and security investments will continue to be available in those instances where internal strife within the subsystem is present, ripe or likely. Decreasing defence expenditures will happen when either the general sense of strife in a particular part of the brain lessens or if the part itself is in atrophy.

While these developments continue the subsystems will strive toward an affinity with the more successful parts of the globalized brain, there will be instances that will upset the order. The convergence of parts of the brain to look like the more successful parts will lead to uniformity and therefore vulnerabilities that may threaten the successful subsystems. For the system as a whole to survive, the internal dynamics will want to steer towards more diversity, thus allowing for parts of the brain that are competing and in strife to actually emerge and cause disruption, shock and shifts in influence. In essence, we have the paradox of uniformity and diversity that favours initially the former and at later stages the latter.

Based on the following SFA Trends:

Fractured Identities: Several contributing factors may lead to a fracturing of national identity

Polycentric World: polycentric world, dominated by dozens of actors possessing and exercising various kinds of power

Technology Accelerates Change: The accelerating cycles of exploration, discovery and exploitation of technologies, along with the innovative fusion of existing, emerging and new technologies will combine to bring about change rapidly in the future.

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Sibling Rivalry

In a polycentric world dominated by dozens of actors that possess and exercise various kinds of power, the gap between great powers and lesser powers decreases. The rising economic powers exert greater political and military influence causing increased tension between sibling powers since the adult (or great powers) no longer exist. The social and political instability caused by the reformation of established regimes has resulted in sibling rivalry between the more stable powers in proxy or direct involvement (e.g. U.S. and Russia in Syria). Within the established western democracies national identities will be challenged by non-integration of immigrants, new media as creator of new identities and economic dependencies and therefore political decision making will become more complicated.

The tension between sibling powers is increasing. As non-state actors gain access to advanced weapons such as WMD/E, the potential for use of these weapons increases and the level of fear between sibling powers increases. Human networks influence transparency of organisations, the decentralisation of power from traditional institutions and the democratisation of established social structures. Organisations are more open and transparent as people gain access to a broader set of information and move to become involved in political discourse. A conflict between education vs culture is likely to happen. At the same time, loyalty to national states is about to vanish, new megacities and human networks will create new identities.

The population growth in Africa and Asia together with the urbanisation will set the conditions for the development from tribally or religiously fractured failed states towards a number of megacities with loose ties to the state they belong to and under limited control.

Greater interconnectedness creates more opportunity for management of resources, incentives for co-operation but also vulnerabilities to exploitation by non-state actors, and rapid spreading of economic shock events.

Based on the following SFA Trends:

Polycentric World: polycentric world, dominated by dozens of actors possessing and exercising various kinds of power

Shift of Global Power: rising economic powers exert greater political and military influence

Shift in Political Structures of Global Power: established regimes face reform resulting in a period of social and political instability

Urbanisation: by 2040 cities contain 65% of the world's population, 95% of urban population growth in developing nations; mega-cities situated in littoral areas; people migrate to employment, education, and higher living standards

Changing Demographics: United States is youngest in the developed world; China, Japan, Europe and Russia most rapid aging; India most populous; strong population growth in Brazil and decline in Russia; African continent fastest growing population

Fractured Identities: Several contributing factors may lead to a fracturing of national identity

Metropolis

An increasing complex world system becomes highly urbanised, with populations expanding at a sharply increasing rate particularly in developing countries. Urbanisation becomes the primary living condition for the human race. Cities compete for people, energy and goods, even international recognition as they become more powerful and populous than some nations. They become centres of innovation and therefore become exporters of new technologies but also crime and other social problems. Furthermore, the location of many cities in the littoral increases their vulnerability to rising seas and other natural disasters and the proximity of people and global transportation hubs speeds the transmission of some diseases generating sizeable epidemics. The density of population and infrastructure magnifies the consequences.

Within urban areas, uneven energy and resource distribution generates conflict among importers, exporters, and users. The nexus of water, energy and food confounds solution development – which is further complicated by the fact that most of the infrastructure is held privately. Short term solutions are chosen which cause tension between different demographic groups.

Within cities social complexity increases as identifying with a nation erodes in favour of new groups, including affiliation with cities and neighbourhoods. Compression between different levels becomes a growing issue as continuous information floods the system. Aided by complete connectivity between individuals, new models for democracy take hold in cities as direct polling becomes a reality and as a result small groups become capable of strategically shaping the information environment.

Based on the following SFA Trends:

Urbanisation: by 2040 cities contain 65% of the world's population, 95% of urban population growth in developing nations; mega-cities situated in littoral areas; people migrate to employment, education, and higher living standards

Environmental / Climate Change: more hurricanes, typhoons, floods; droughts; significant environmental and infrastructure damage, and human suffering create insecurity / instability leading to mass population movement

Increased Resource Scarcity: limited resources, supplies, and uneven energy and resource distribution increases conflict among importers, exporters and transit countries; states with strategic materials influence the global economy

Changing Demographics: United States is youngest; China, Japan, Europe and Russia most rapid aging; India most populous; strong population growth in Brazil and decline in Russia; African continent fastest growing population

Natural Disasters: increased population and infrastructure in disaster prone areas magnifies consequences

Fractured Identities: Several contributing factors may lead to a fracturing of national identity

Global Game

Day 2 grouping of trends consisted of Increased Resource Scarcity, Urbanisation, Changing Demographics, Fractured Identities, Polycentric World and Increased Access to Technology. The syndicate discussion focused on the last two trends - Polycentric World and Increased access to technology to develop the metaphor "The Global Game". The initial discussion for a metaphor centered on a thought that NATO could be viewed as a "bazar" - a framework from which everyone can look around and work with opportunities as viewed by different members and partners. If NATO hopes to have an influence on how this polycentric world develops; helps to develop regional frameworks with similar views. The shift in world power to a more polycentric model, along with an ever-increasing rise in technology, was associated with a never-ending world game, the nature of which continually changes over time, in which there was global participation but no ultimate winner.

Based on the following SFA Trends:

Increased Resource Scarcity: limited resources, supplies, and uneven energy and resource distribution increases conflict among importers, exporters and transit countries; states with strategic materials influence the global economy

Urbanisation: by 2040 cities contain 65% of the world's population, 95% of urban population growth in developing nations; mega-cities situated in littoral areas; people migrate to employment, education, and higher living standards

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FFAO Overview and Definitions

NATO's Long-Term Military Transformation (LTMT) places future challenges and opportunities within an Alliance specific context. In 2012, the Allied Command Transformation initiated a new phase in LTMT that supports on-going futures work and responds to a Military Committee task regarding the Connected Forces Initiative (CFI). This work requires critical thinking, transparency, and collaboration to develop and empower new strategic thinking that fully supports and informs the NATO Defence Planning Process (NDPP).[1] Today, this original work contains three parts: the Strategic Foresight Analysis (SFA), the Framework for Future Alliance Operations (FFAO), and the Persistent Foresight and Future Studies.

The SFA identifies trends that will shape the future strategic context and, from these trends, derives defence and security implications for the Alliance out to 2030 and beyond. The SFA informs transformation efforts and serves as a foundation for the FFAO by building a common understanding among the member nations. The SFA provides an Alliance-wide view that serves as a collective departure point and shared reference for discussing future challenges and opportunities. The FFAO will assess the impact of the trends and defence and security implications expressed in the SFA through an investigation across the Alliance Core Tasks, the Capability Hierarchy Framework (CHF) and cross-domain functions.

Persistent Foresight and Future Studies is a process for continuing this new futures work that will incorporate outcomes and findings within NATO over time. The overall aim of LTMT is to enable transformation and facilitate the alignment of National and Alliance capability development. Thus, LTMT should inform the NDPP with regard to the security and military implications of future operations.

FFAO: FFAO will seek to answer the question:

> **Anticipating an increasingly complex future security environment (FSE), what should the Alliance be able to do to overcome the challenges and exploit the opportunities of the long-term future (2030 timeframe) in the execution of NATO's 3 Core Tasks to safeguard the freedom and security of all its members by political and military means?**

To answer this question, NATO will seek to identify the political-military level implications, i.e. the Broad Strategic Insights, and the military specific consequences, i.e. the Military Implications. Taken together these two elements, the BSI and the MI, act as a basis for assessing the requirements and capabilities of NATO to execute the three core tasks[2]. The FFAO methodologically is a two-step process:

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[1] Emphasising the long-term focus is one approach to enhance the NDPP. The SFA is intended to be an input during Step 1 "Political Guidance" to leverage the common understanding of the future security environment. The FFAO aims to support Step 2 "Minimum Capabilities Requirement" by identifying the military implications and supporting Step 5 "Capability Review".

[2] The core tasks Collective Defence, Cooperative Security and Crisis Management are laid down in NATO's 2010 Strategic Concept.

Broad Strategic Insights (BSI): A Broad Strategic Insight is a fundamental characteristic of the future security environment that may indicate a change at the Political-Military level that informs future NATO missions, tasks, roles, and requirements. NATO develops BSI from an analysis of interaction among Core Tasks and Future Characteristic Models (FCM) as expressed by both Domain and Cross-Domain assessment.[3] The BSI will answer the questions of the first part of FFAO: What do the future characteristics mean for NATO in executing the three core tasks; and what will change?

Example: One possible deduction of the FCM, "Global Brain", could be that future conflicts will be more networked and complex. In the context of the core task "Cooperative Security" this means that NATO should continue to be able to provide a coordinated response between Alliance members and partners. Additionally, this may demand a deepened civil-military co-operation.

Military Implications (MI): A Military Implication is a domain specific conclusion derived from a Broad Strategic Insight that may drive change in how the military prepares for and executes operations to accomplish NATO's core tasks. NATO develops MIs from an analysis of and interaction among BSIs and the Tier one functions of the Capability Hierarchy Framework (CHF) as expressed by both Domain and Cross-Domain assessment within the following five domains: Air & Space; Cyber; Maritime; Land; and Human Interaction. The generated BSI will be the foundation for a workshop in November in Brussels and the second part of the FFAO which will answer the following question: What are the military implications that can be derived from the BSI?

Example: Based on the above mentioned BSI example, an improved ability to provide a coordinated response and deepened civil-military co-operation may demand an intensified co-operation between the armed forces of Allies and Partners, intensified collective training and new approaches to intelligence gathering and sharing. The methodology for the development of the Military Implications is the apportionment of the BSI by using the Capability-Hierarchy Framework (CHF)[4] and the cross-domains functions. This military specific analysis has to be done mainly by the Centres of Excellence (COE) and Component Commands (CC).

Timeframe:
25-26 September 2013: Izmir Turkey FFAO Workshop #2 (BSI development)

September-November 2013: Domain-specific MI development

November 2013: Brussels Belgium FFAO Workshop #3 (MI review)

January-Apr 2014: FFAO writing period

April-Jun 2014: FFAO review-phase

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[3] The assumption is: There will be a change in the ways and means while the ends stay the same.
[4] The CHF is required to conduct all three core tasks defined in MC/0400/3. It provides the structure for Minimum Capability Requirements (MCR) and Priority Shortfall Areas (PSA). Therefore, it is directly linked to the FFAOs aim to link to the Step 2 process in the NDPP.

Facilitator Biographies

GENERAL (ret) SVERRE DIESEN, NO A

General (ret) Sverre Diesen served as Norway's Chief of Defence from 1 April 2005 to 30 September 2009. He is a graduate of the Norwegian Military Academy, the Norwegian Staff College and Army Command and Staff College, Camberley (UK). He also holds a MSc in civil engineering from Norway's University of Science and Technology. He has served in a number of command and staff positions, including CO of His Majesty the King's Guards, Chief of Staff 6 Division and Assistant Chief of Staff for Strategy and Long Term Planning in Norway's Defence HQ.

He is currently working as a researcher at The Norwegian Defence Research Establishment (NDRE), Analysis Division, and is engaged on a number of projects supporting Norwegian long term defence planning, including cyber warfare, network enabling capabilities and the future security environment.

He has published two books on strategy and the future of the Norwegian armed forces, as well as chapters in a number of anthologies on strategy and security policy. He is a frequent contributor to professional journals as well as to the Norwegian media in general of articles on military and security affairs.

MR. IAN BAYLESS

Staff Officer, Defence Capabilities, Defence Planning and Policy Division, HQ NATO.

Ian Bayless was born in Hong Kong in 1959 and spent his first 10 years there. He then boarded at Ottershaw School, Surrey before entering the Royal Military Academy Sandhurst in 1977. He joined his first unit in Germany in 1979 as an anti-tank troop commander including a tour in Northern Ireland in the infantry role followed by two tours with field artillery regiments including 6 months in the Falkland Islands in 1982/3 and a 6 month tour in Belize. He was also ADC to the Deputy Supreme Allied Commander, Europe during his early years.

After attendance at the Army Staff College, he spent 2 years as the operations officer at HQ Southern District in Aldershot and then took command of a field artillery battery in 1994, exercising in Kenya, Canada and with the Five Powers Defence Arrangement, and, training for a further tour in Northern Ireland. This was followed by 18 months in HQ 1(UK) Armd Div as the artillery brigade Chief of Staff, including a tour in Bosnia, and then on promotion to Lt Col as the Div's exercise planner for the largest logistic LIVEX in Germany for some years.

His first tour in the UK MOD was in 1997 as the staff officer responsible for peace keeping policy and Army commitments in the Southern Hemisphere. He then took command of an air defence regiment, including 6 months in Cyprus as UN peacekeepers. He also exercised in Canada, Germany, Poland and Oman with elements of the regiment. On promotion, he took command of an air defence brigade and took part in Operation Iraqi Freedom with the UK Air Component HQ based in Saudi Arabia as the Land Component Liaison Officer. This tour was followed by 9 months in Tampa as the Chief of Staff of the British Liaison Team to US CENTCOM.

His first NATO staff post in 2005 was as the Chief, Defence and Force Planning Branch of the International Military Staff, preparing force and capability policy for the Military Committee. He then returned to the UK MOD in 2008 to run the branch responsible for the Army's global bilateral relationships and engagements for 3 years. Immediately prior to his retirement from the Army in 2012 to take up his current position in the International Staff, he was the Branch Chief, Defence Planning Implementation, Allied Command Transformation, based in Mons, Belgium.

Ian is married to Sarah and he has two sons, George (aged 20) and William (aged 18) both of whom are at university in UK. His interests include keeping poultry (when he has a garden large enough) and sailing; he and Sarah own a boat which consumes much time, energy and money.

MR. STEPHAN DE SPIEGELEIRE

Stephan is Senior Defence Scientist at the The Hague Centre for Strategic Studies. He teaches at Webster University in Leiden and at a number of military academies throughout Europe.

Stephan studied Slavic Philology (K.U. Leuven) and International Affairs (MA, HEI, Geneva and SIPA at Columbia University). He passed both qualifying exams for the Ph.D. program in Political Science at UCLA with distinction, but has since then been chronically and undistinctively ABD.

He started his professional career in 1989 at the RAND Corporation as a Sovietologist. After successfully terminating this research topic he stayed on at RAND (both in the US and in Europe) as a defence and security analyst for nearly 10 years. His work at RAND was interrupted by 3-year stints at the Stiftung Wissenschaft und Politik (Ebenhausen, Germany); and the WEU's Institute for Security Studies (Paris, France).

From a start as a Soviet specialist, Stephan has branched out into a number of different directions, all related to international security policy. He has published widely in many areas of defense and security policy, currently most actively in the application of new ideas such as adaptive planning, security resilience, network-centrism, capabilities-based planning, and meta-foresight for national and European security policy planning in the broader sense

(homeland security and external action). He remains keenly interested in developments throughout the post-Soviet area.

His most notable recent achievements include:

- He received NATO's Research and Technology Organisation (RTO) 2011 Scientific Achievement Award for his role in NATO's Joint Operations 2030-study.
- He supported the project team that spearheaded the 2010 (interdepartmental!) Dutch bottom-up defense review;
- He was the Lead Subject Matter Expert for NATO Allied Command Tranformation's Multiple Futures project (2009)
- He is a father of the new Dutch National Security Strategy (2007), the world's first modern (post-Mintzberg), genuinely capabilities-based, government-wide, all-hazards national security planning construct that starts from (meta-) foresight and goes via a systematic national risk assessment to capabilities-based planning;
- His main recent books include: *Contours of Conflict in the 21st century* (2011), a meta-analysis mapping views on this topic in 4 language domains; *Putting the C Back Into NEC. Designing Capabilities that Are 'Born Networked/-ing'* (2011), a critique of current capability development techniques; a *Planning Guide for Defence and Security Benchmarking*, which was validated by the Dutch MoD and is used for all major MoD policy and acquisition decisions; *STRONG in the 21st Century. Strategic Orientation and Navigation Guidance under Deep Uncertainty* (2010), a sketch of a new approach to strategic planning for defense and security; and *Closing The Loop. Towards Strategic Defence Management*, a benchmark study of defence planning in a number of different countries.
- He is publishing a blog on what's wrong with defence planning and how to fix it at http://gettingdefenseright.blogspot.com.