TERESA RODRIGUES · RAFAEL GARCÍA PÉREZ
SUSANA DE SOUSA FERREIRA
EDITORS

GLOBALIZATION AND INTERNATIONAL SECURITY

An Overview

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AN OVERVIEW

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LIST OF ABBREVIATIONS

AAU	Assigned Amount Unit
ADNOC	Abu Dabhi National Oil Company
APT	Advanced Persistent Threats
AR	Assessment Report
ARPA	Advanced Research Projects Agency
ASB	Air Sea Battle
ASEAN	Association of Southeast Asian Nations
AU	African Union
BAU	Business As Usual
BP	British Petroleum
BRICS	Brasil, Russia, India, China and South Africa
BTWC	Biological and Toxin Weapons Convention
CCD COE	NATO Cooperative Cyber Defense Centre of Excellence
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CESEDEN	*Centro Superior de Estudios de la Defensa Nacional* - Centre for Advanced Studies of the National Defense
CNOOC	China National Offshore Oil Corporation
CNPC	China National Petroleum Corporation
COP	Conferences of the Parties
CRS	Creditor Reporting System
CTCN	Climate Technology Centre and Network
CWC	Chemical Weapons Convention
DAC	Development Assistance Committee
DRC	Democratic Republic of Congo
EIA	Energy Information Administration
ENI	*Ente Nazionale Idrocarburi*
ESRI	Environmental Systems Research Institute
EST	Environmentally Sound Technologies
EST	Emerging Strategic Technologies
EU	European Union
FDI	Foreign Direct Investment
FRG	Federal Republic of Germany

G8	Group of Eight
GCR2P	Global Centre for the Responsibility to Protect
GDP	Gross Domestic Product
GDR	German Democratic Republic
GEF	Global Environmental Facility
GHG	Greenhouse Gas
GICNT	Global Initiative to Combat Nuclear Terrorism
GIS	Geographic Information System
GSE	Government-Sponsored Enterprise
HEU	Highly Enriched Uranium
HIV/AIDS	Human Immunodeficiency Virus Infection / Acquired Immunodeficiency Syndrome
HR	Human Rights
IAEA	International Atomic Energy Agency
ICAO	International Civil Aviation Organization
ICISS	International Commission on Intervention and State Sovereignty
IDN	*Instituto de Defesa Nacional* – National Defense Institute
IEA	International Environmental Agreement
IMF	International Monetary Fund
IMO	International Maritime Organization
INA	*Industrija nafte*
INOC	Iraq National Oil Company
IOC	International Oil Company
IPCC	Intergovernmental Panel on Climate Change
IPE	International Petroleum Exchange
IPR	Intellectual Property Rights
IRA	Irish Republican Army
IRA	Irish Republican Army
KMG	Krav Maga Global
KP	Kyoto Protocol
KPC	Kuwait Petroleum Corporation
LDCF	Least Developed Countries Fund
LNG	Liquified Natural Gas
LULUCF	Land Use, Land-Use Change and Forestry
MENA	Middle East and North Africa
MOL	*Magyar Olaj*
MOP	Meetings of the Parties
NAFTA	North America Free Trade Agreement
NATO	North Atlantic Treaty Organization
NGO	Non-governmental Organisation
NIC	National Intelligence Council
NIOC	National Irarian Oil Company
NOC	National Oil Company
NOC	National Oil Corporation
NPT	Nuclear Nonproliferation Treaty
NSA	National Security Agency

NSG	Nuclear Supplier Group
OECD	Organisation for Economic Co-operation and Development
ONGC	Oil and Natural Gas Corporation
OPEC	Organization of the Petroleum Exporting Countries
PCN	Pipe Coaters Nigeria
PDO	Petroleum Development Oman
PDVSA	*Petróleos de Venezuela*
PFLP	Popular Front for the Liberation of Palestine
PISA	Program for International Student Assessment
PRIO	Peace Research Institute of Oslo
PSI	Proliferation Security Initiative
QP	Qatar Petroleum
R2P	Responsibility to Protect
RDD	Radiological Disperse Device
RtoP	Responsibility to Protect
SBL	Seabed Logging
SCCF	Special Climate Change Fund
SEZ	Special Economic Zone
SIDS	Small Island Developing States
SINOPEC	China Petrochemical Corporation
SLOC	International Sea Lines of Communication
SRES	Special Report on Emissions Scenarios
TEC	Technology Executive Committee
TNA	Technology Needs Assessment
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UAE	United Arab Emirates
UAV	Unmanned Aerial Vehicle
UCDP	Uppsala Conflict Data Program
UK	United Kingdom
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNMISS	United Nations Peacekeeping Mission in South Sudan
UNOCI	United Nations Operation in Côte d'Ivoire
US	United States
USA	United States of America
USA	United States of America
USD	United States Dollar
USGS	United States Geological Survey
USSR	Union of Soviet Socialist Republics
WEO	World Energy Outlook
WG	Working Group
WHO	World Health Organization
WIPO	World Intellectual Property Organization
WMD	Weapons of Mass Destruction
WTO	World Trade Organization

INTRODUCTION

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The number of publications that describe the phenomenon of globalization, its history, its process of evolution and its various actors, is quite extensive. The same is true when we deal with security and defense issues. Either when we assume them in a more classical realistic perspective or even when we select new subjects, considering the largest scope allowed by the concept of human security. Relevant studies have already been published on transnational threats, terrorism, climate change factors, or the *secutization* of certain matters, as migrations. At the same time we know that the number of publications that try to articulate the phenomenon of globalization with security issues is more reduced. But still they also exist and are quite recent.

However the coordinators of this volume decided to assume the risk of editing a publication linking globalization and security. What justifies another book on a recurring theme? The belief that the present book will contribute with new ways of approaching some topics. In fact in *Globalization and International Security. An overview* we seek to assure an updated and comprehensive perspective at two different levels: to tackle some unavoidable themes such as climate changes, governance issues, economic challenges, and terrorism threats), but also to approach less known subjects, such as population dynamics, natural resources and intelligence. To achieve this goal we had the privilege to rely on the expertise of about a dozen researchers, coming from different backgrounds and nationalities. Their analytical perspectives to address current issues reflect that diversity, without compromising the cohesion of the book.

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Globalization is one of the main features that characterize the international relations of our time. Scholars agree that we live in an era of economic, social, cultural and political change and some of those changes are correlated with the globalization process. Associated with globalization there is a set of phenomena that changed the international system. The complex nature of these phenomena and their interaction dynamics changed the paradigms of research that were predominant until the end of the cold war in the field of International Relations as a discipline. In this changing and undefined scenario, security has become the axis of the study of international relations by allowing to integrate the analysis of phenomena that were traditionally studied separately.

The link between globalization and security remains narrow. The wide range of old and new threats to security, from climate change to the non-proliferation of nuclear weapons, organized crime or terrorism have led to the awareness that greater collaboration between the various stakeholders is necessary. In this way, security is 'globalizing', in a double sense: on the one hand, as the problems identified with the maintenance of security (both of States and citizens) acquired a global dimension and, on the other hand, as measures that are considered necessary to deal with them also tend to be global. Both at the global and regional context, the emergence of new relevant international actors and the variety of old and new challenges point out, thus, to the creation of a non-polar world rather than a multipolar system.

Given their interests and global responsibilities, major powers face the same strategic insecurity sources, hidden, potential and real. So they have a common interest and a huge need to cooperate in order to coordinate the different national policies against these threats. The recognition that unilateral responses (and even small ad hoc coalitions) to transnational insecurity problems are inefficient, reinforces this common interest. Thus, the joint action in which the great powers optimize, rather than maximizing, the power of the State through the distribution of responsibilities, is the rational answer.

What is the world order of the 21st century? Despite the political dynamic that followed the financial and economic crisis of 2008, which increased the importance of the emerging powers, the post-cold war world, marked by the emergence of globalization, is the main frame of International Relations. As a result, a series of phenomena transformed the international scenario, forcing analysts to look at the new nature of the system [1,4,5,7,8,10,11].

The question that many have made is which concepts allow, today, the understanding of the system's structure and how to develop a research program capable of assuming the different phenomena of globalization? Thus, academics, politicians and those in general who deal with international politics, are trying to find a reformulation of the foundations of International Relations theories, capable of conceptualizing the problems of the post-cold war and the diverse trends arising from the globalization process.

Power and research for peace have lost its centrality as key concepts of the internal debate in the discipline. Thus, the quest for a new concept that allows us to address the phenomena that were not anticipated, nor treated by previous concepts [3]. That is why the International Relations theories are increasingly focusing the concept of security as a guide for the interpretation of the dynamics of the system.

Some analysts saw the collapse of the cold war as the way to a new international order, in which security matters require different approaches and analytic perspectives. Security has become an articulator axis of the debates in International Relations, dominating scientific

research programs and assessing problems that were not resolved or successfully assumed since the debate between realists and idealists [12].

Therefore, a security framework allows us to interpret various problems and to structure the discussion of phenomena that are usually studied separately and on its own, such as: arms proliferation and industry, international trade and investment planning, options of foreign policy, system and sovereignty dynamics, which may be connected within a broader framework. Security is available to analysts as an organizational idea for International Relations and is as effective as power when it comes to unify the debate. However, even analysts recognize that the centrality of security in the discipline of International Relations is not exempted of conceptual and semantic problems. On the contrary, the term security is ambiguous in its content and its form, and it is not easy to identify its own application level, or the spectrum of references that it refers to [2].

Therefore, this approach to security aims to debug the concept in order to get a more elaborate treatment as a central category when dealing with globalization [6].

Research on the concept of security is based on an initial assumption; current international relations can be understood through a security framework. Security has become an explanatory category of the international system characterized by the phenomena of globalization. Different security concepts arise different interpretations of the international system.

THE PROJECT: OBJECTIVES, METHODOLOGY AND CONTENT

This book is the contribution of a large number of authors. Thus, the analytical perspectives adopted to address the issues reflect the diversity of origins and academic backgrounds. In order to reduce the risk of exhibiting a dispersed work, the editors believe it to be necessary to provide a general (very general) vision which can frame all the issues that are addressed in this book.

Our intent is not to unify the analytical perspective, nor condition the complete freedom that each author had to write his chapter. The ideas presented here are not original. Many of you know them and some of you share them.

Our basis is a chronological perception of globalization according to which what we normally conceive as 'globalization' would begin at the end of the cold war and reach the present day. In this time frame there are two phases divided by the international economic crisis that began in 2008.

The first of these stages (1991-2007) is determined at the political level by the rise of the US and the creation of a unipolar system (at least the attempt to form one). Those years are characterized by the extension of a particular model of capitalism, with an American matrix, which broadly favored the interests of advanced economies, reaffirming its international influence.

The second phase, that begins with the outbreak of the financial crisis in 2008, the stage seems to change radically. A unipolar world gives place to a multipolar configuration. The behavior of the world's major economies is also reversed. The rise of emerging economies contrasts with the stagnation or recession in the old core countries.

Many of the ideas that have been discussed in the past two decades in the international arena were formulated during the first phase (prior to 2008) and were consistent with the political and ideological context of the situation: one of Western dominance and universal globalization under Western parameters. As far as we are concerned, a debate of deep ideological content took place, hinged on the notion of 'global governance'. Some of its main ideas involved a reduced role of the State (the 'withdrawal of the state') and a 'rethinking' of the principle of national sovereignty (in most respects).

Different structures of international cooperation, more or less institutionalized, for the collective management of global risks were created based on those conceptions. Those constitute the core of the analysis in this work.

Until now it has been common to attribute the slow progress of global governance to the resistance brought by those agents 'opposing' globalization (national and spurious self-interests). This has created a sort of discourse with two opposing positions: the course of history drives the need for global governance institutions that are restrained by hindrances of the past that resist the future. The dialectic modernity/post-modernity could summarize this approach.

The consequences of the international economic crisis in shaping the balance of power in the current international system contradicting approaches earlier to 2007: from a unipolar to a multipolar trend; from a 'post-modern state' to a 'state sovereignty'; from unrestricted integration in the global economy to the independent management of economy itself (competitive devaluation of currency, trade protectionism); from trade integration at the global level (WTO) to the fragmentation of the economic space in regional areas (the failure of the Doha Round, regional free trade agreements).

In short, the transition from a unipolar to a multipolar trend seems to be reflected in the increasing fragmentation of the economic space and, if confirmed, will also eventually affect the strategic and security space.

These changes are also affecting the 'discourse' that explains the process of globalization and the appropriate strategies to successfully deal with it. If until 2008 a sort of 'Western model' was accepted, it is now a lot more questionable, and we may even talk of an outright censorship. The rise of emerging powers associated with the construction of a new 'narrative' adapted to the values embodied by these countries. A scenario where it is increasingly difficult to adopt the tenets of globalizing governance.

This book is composed by twelve different chapters. Each one of them tries to present the state of the art and major structural lines on their own specific subject. Those chapters are divided in four sets. Each of these parts corresponds to one of the objectives we have assumed as main components for our study. Namely: (1) to characterize some of the major challenges of globalization, such as the framework of the economic and political international system; (2) to evaluate some issues concerning human imbalances in our globalized world and some of their specific consequences in security terms; (3) to identify environmental concerns coming from the lack of essential natural resources, whose access is leading to conflicts in most regions; and, (4) to assess different examples of new security threats resulting from the globalization process, such as cybersecurity, terrorism, WMD and intelligence leaks.

Part One offers the framework for the main challenges of globalization. The two first chapters follow the structural transformations which took place in the last decades in economic and political terms. The first, written by Félix Ribeiro, economist, supports a long-term analysis about international economy and the way globalization introduces insecurity

risks in the international system. This chapter focuses on the relationship between Globalization and Security, in a long-term horizon. It is characterized by the ongoing transformation of the geo-economics pattern of complementarity between the USA and Asia Pacific and the geopolitical and strategic rivalries between emerging powers and between them and the USA, in the afterwards of the international financial crisis of 2008 and the partial withdrawal of the US from the 'Greater Middle East'.

Actually, one of the main problems arises from the fact that the governance of global risks is not sufficiently advanced and it is difficult to expect significant advances in the future. This negative diagnosis made by Rafael García Pérez is due to the identification of two negative dynamics that occur in today's international society and that go against the agenda of global governance: the changes that are occurring in the international system, in transition to a post-Western and post-hegemonic system; and the increasing 'regionalization' of the globalization process that tends to manifest itself in an uneven performance (both economically and demographically) of the different regions of the planet in the process of global transformation. There is no uniform global society that perceives the threat posed by global risks in the same way and therefore is willing to react simultaneously and in a coordinated manner. To the extent that the behavior of the different regions diverges and thus traditional hierarchies established in the international system change, the implementation of proposals, with a Western profile, is increasingly more difficult. Those are rejected by the new emerging actors who support their own national agendas.

Some of these problems are addressed in a broader perspective in the second part, which we named as 'Human Perspectives'. In what regards population dynamics, the most relevant conclusion is that demography matters. The globalization process brought a larger complexity to the link concerning population and security. Thus, in the actual framework both the demographic conditions and the security environment are becoming increasingly complex. Demographic imbalances, poverty and economic inequality reinforces threats and risks, worsens economic and financial instability, uncontrolled migratory flows, organized crime, traffic of human beings, and terrorism. The social, economic, political and environmental context matters and demographic changes alone are unlikely to inflame political violence, but can trigger conflict and insecurity, as pointed out by Teresa Rodrigues.

In the last decades three, as the very idea of security has expanded beyond the traditional concern about territorial integrity and defense against military aggressions, the relationship between international migrations and security has become a hot topic in the academic literature, the media industry and the public in general. After emphasizing the growing importance of international migrations in a globalized world, Miguel Requeña focuses on one of the several dimensions of the so-called migration-security nexus: the possible threat to collective or national identity that international migrants can represent for host countries. In fact, international migrations are moving significant amounts of people from their countries of origin to receiving societies where the differences in religion, political beliefs, social values, and lifestyles between natives and immigrants appear to be very salient. This is particularly so in developed countries, where these differences are often seen as putting in jeopardy their societal security, cultural cohesion and collective identity. Although Muslim immigrants are not the only case of potential conflict with the cultural majority in ethnically heterogeneous societies, special attention has been devoted to them in European countries. Not only on account of their potential role as vectors of global terrorism, but also because of

the size of these displaced Islamic communities and the obstacles found in their path to social and cultural integration in host societies.

In order to face the new global security challenges the author of Chapter 5, Ana Isabel Xavier, provides an overview of Human Rights' four generations and explores the required balance between intervention and protection in order to safeguard fundamental and basic living conditions. Moreover, the author highlights Canada's and the United Nations' pioneering role and focuses on the current challenges and prospects within the debate on Responsibility to Protect. Governance responsibility in future years will have to solve some empirical dilemmas such as 'Tell me something new Vs. the need for a new narrative'; 'Legitimating to intervene Vs. License to kill'; 'Narrow Vs. broad scope'; 'Double standards Vs. International Community awareness'. We will see how this emerging label urges clear guidelines if it wants to give a step further in the traditional right/duty to intervene patterns.

The third part is composed by three chapters called 'Exogenous Issues'. The purpose is to debate the main security threats due to climate change and consequent fight for natural resources, such as water, food or energy. Lázaro Touza and Zoghby assume a weak constructivist perspective of risks in highlighting the potential impacts of climate change, the vulnerabilities to its effects, the mitigation and adaptation options available for effective climate action as well as financial and technology transfer issues. They believe that the International Environmental Agreements have not played a central role in the process of managing climate change, leading to the consensus that temperature increases above 2ºC compared to pre-industrial levels will lead to dangerous climate change. The pending challenges to reduce climate risks are many and they need to be addressed earnestly in the very near future to avoid the worst consequences of unabated climate change.

In Chapter 7, Zuzarte Reis sustains that research on the relationships between environmental factors and violence or environmental related conflicts constitute a much debated research field nowadays. Over the past two decades much attention has been paid to the role of natural resources in post-cold war conflicts, particularly in Africa. While it is debated to what extent and under which conditions abundant resources in Africa increase the risk of conflict, it is clear that resource governance should form an intrinsic part of peacemaking and development building on the continent. Both the geographies of civil war and conflicts, coincide and reinforce theories that associate the wealth of natural resources and conflict.

The chapter on *Energy Security in a Globalized World*, focuses its attention on energy security issues (namely those arising from oil and natural gas) in a globalized world. Catarina Leal divided it in three parts, with a large commented bibliography. It begins by analyzing the main energy risks, some concepts about energy resources, the strategic-institutional aspect of oil and natural gas, emphasizing the reorganization of oil and natural gas companies and its consequences in geopolitics. It follows with a presentation on the outlook of the present energy landscape (either conventional or unconventional): reserves, producers, consumers, flow trades and future trends. It then focuses on the present structural changes and future main geopolitical challenges on energy. And in its final remarks, it stresses, on the one hand, the current major energy game changers that will shape the energy world in the near future of this century; and, on the other hand, it underlines the implementation of some solutions.

Finally, on the fourth part of the book we approach some of the new security threats, taking as examples cybersecurity, terrorism, the proliferation of Weapons of Mass Destruction and Intelligence.

The first one, written by Viegas Nunes, emphasizes the rapid pace of technological development, recorded over the last three decades that largely concurred to popularize the use of internet worldwide. Cyberspace, only accessible through the internet, has become a true mediator of social relations and driver of economic development in most developed countries. If, on the one hand, this new virtual space came to promote and simplify the relationship between citizens, government and businesses, on the other hand it has also acquired a central role in providing essential and critical services to the functioning of societies in the Age of Information.

Cyberspace as a global common good has no physical borders and clearly defined spaces of sovereignty; making it difficult to differentiate between what is public or private, civil or military, domestic or international. The increase in cyber conflict in general and the increasing militarization of cyberspace in particular, boosts the use of force and the occurrence of armed conflicts in cyberspace.

In Chapter 11, Susana Ferreira underlines the growing interconnection between globalization and terrorism as one of the main paradigms of the twenty-first century. Terrorism is not a new phenomenon, but the terrorist attacks in New York and Washington in 2001 gave it a new boost and international concern. Transnational terrorism has become a main idiosyncrasy of modern times and poses compelling challenges to international security. The author takes a closer look to the relationship between globalization and transnational terrorism, by analyzing the link between transnational terrorism and globalization, exploring key trends in transnational terrorism, and assessing the interconnection between new transnational threats and terrorism.

Proença Garcia and Galamas focus on the tremendous transformations to the international economy brought by globalization, which created benefits in several areas of economy, politics and science, but also significant security challenges. As most publications address the strategic issues emanated from the proliferation of Weapons of Mass Destruction (WMD), few are those which explain the proliferation phenomenon from an operational perspective. This chapter demonstrates that the same mechanisms used every day by individuals and WMD trafficking networks, have also been used to support the phenomenon of proliferation of WMD over the past few years. Furthermore, the chapter also looks at the threats posed by proliferation to regional stability as well as the risks emanated from non-State actors attempting to acquire such weapons.

The last chapter deals with intelligence analyses. Helena Rêgo points out that in an increasingly globalized and unpredictable world, which is under an accelerated pace of transformation, and characterized by technological advancement, the intelligence analyst faces particularly demanding challenges in order to achieve its goals. The intelligence of states must be understood as a higher stage, which allows states to organize themselves, in order to survive and provide security and justice for their citizens. The science of complexity and its theory helps us to find new methods and challenge our perceptions, while analyzing such events and the world as a whole. While schematization helps us to investigate the predictable future, we must also prepare for chaos. Education plays a critical role in the preparation for the future, which implies a holistic organization of knowledge. Consilience, or the convergence between sciences and humanities, will help us to create an integral vision of the world and to prepare the discovery of the needed answers to the whole set of challenges facing humanity. A collective mobilization will be needed so that states will survive and accomplish their mission.

The following pages will assess risks and opportunities coming both from security and globalization. Let's see how.

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Lisbon and Madrid, July 31, 2014

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PART I: RISKS AND OPPORTUNITIES

Chapter 1

GLOBALIZATION, CRISIS AND SECURITY – WHAT WILL BE THE MAP OF GLOBAL RIVALRIES IN THE HORIZON 2030?

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ABSTRACT

The approach that guides this chapter is that the relationship between Globalization and Security, in a long term horizon, will be intermediated by the ongoing transformation of the competition pattern and geopolitical and strategic rivalries between emerging powers and between them and the USA, in the afterwards of the international financial crisis of 2008 and the partial withdrawal of the US from the "Greater Middle East" (vd. Iraq and Afghanistan).

ECONOMIC GLOBALIZATION AND GEOPOLITICAL FRAGMENTATION – A BRIEF RETROSPECT – 1980-2010

Globalization, the USA, and Asia Pacific

We date the beginning of the contemporary phase of globalization in 1979/80 after the almost simultaneous decision by the US, UK and Japan to opt for the freedom of capital movements in a monetary context of a dollar standard and with a close relationship between dollar and oil prices that had been established in the middle 70s. This dating coincides with a geo-economic breakthrough: the beginning of China's integration in the world economy and its spectacular growth based on exports and investment in the export sector.

The consolidation of the globalization process – analyzed in an economic perspective – led to an exponential increase in financial transactions and the growth of international trade

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and investment, based on the relationship established in the 80s, between the US and Asia-Pacific.

This relationship was characterized by a flow of US imports from Asia Pacific (from Japan, South Korea, Taiwan, Singapore, Hong Kong, Thailand, Malaysia and, later on, the People Republic of China) and a flow of savings from Asia Pacific to the US economy applied on several kinds of assets – treasury bonds, GSE bonds, company shares and bonds). With the USA assuming in a global scale the function of "Consumer of First Instance".
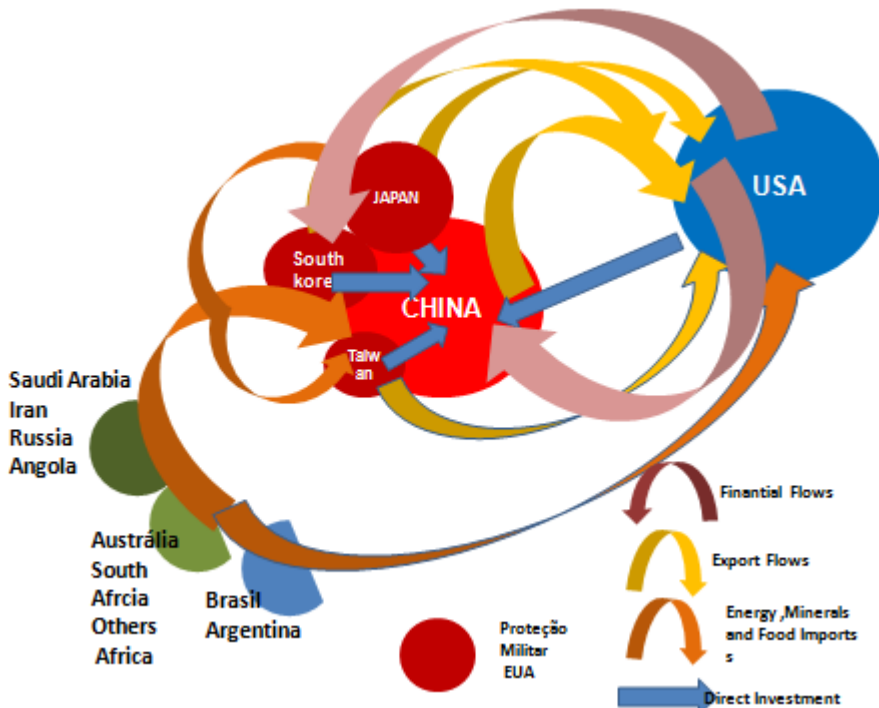
Source: Author's elaboration.

Figure 1.1. The Investment and Trade Flows between Asia Pacific, the United States and the Commodity Producers.

This recycling of Asian savings partly applied to the purchase of US treasury bonds by the central banks of Asia Pacific (from Japan to China, Taiwan and South Korea) - and by private investors from these countries - has allowed the US to maintain a huge military apparatus, without burdening US citizens with higher and higher levels of taxation. Transfers of savings from Asia – and also from the Oil monarchies of the Persian Gulf – to the US partially financed the US' Defense expenditures, as if it were a tribute paid to the US for the double strategic service they provide to the States of Asia Pacific:

- Maintaining a climate of peace between powers and states in Asia with strong potential for rivalry –Japan, China, Taiwan and South Korea – thanks to its dominant military presence in the Pacific and the Indian Oceans, dispensing these states from higher Defense spending;

- Securing the access of all Asian states to the energy resources of the Persian Gulf/Middle East, due to its hegemony in the region, which has prevented the assertion of a local dominant regional power and assured the control of extensive maritime communication lines that separate Asia Pacific from the Gulf/Middle East.

Globalization thus has given the US external financing conditions for the biggest investment in Defense in peacetime (performed by the Reagan administration) that, along with the counter-oil shock in 1985 greatly contributed to the defeat of the USSR in the Cold War and for its subsequent implosion. Thus changing completely the bipolar system that structured international relations from the end of World War II. [1, 2]

The End of the Cold War and the Forces of Geopolitical Fragmentation

The end of the Cold War determined the end of a bipolar structure in global strategic and geopolitical relations that, having heightened the tensions in several regional complexes as a result of superpower competition has simultaneously kept these tensions under control, thanks to the intervention of each and both superpowers. The nuclear deterrence between the two superpowers, allowed the centralization of the management of deterrence in terms of regional conflicts.

If Globalization has been an evolutionary process towards the global triumph of the market economy the Geopolitical Fragmentation was a different kind of process – it resulted from a Systemic Rupture – the implosion of the Soviet Union and the end of the Cold War.

This systemic rupture did not lead immediately to a new stable structure, but has given place to several epochal changes in the international environment:

- The loss of strategic importance for Europe, parallel to the disintegration of the USSR and the German reunification process that brought together the two territories where during the "Cold War" were concentrated the most advanced forces of the two superpowers – GDR and FRG;
- An intense process of fragmentation and recomposition of States in Europe's Balkan periphery and in the Caucasus;
- The growing strategic importance of an "Arc of Crisis" which includes Central Asia, the Middle East, the Persian Gulf, South Asia and Asia-Pacific (with Koreas, Kuril, the Taiwan Strait and South China Sea);
- The complex and possibly tumultuous emergency of new Great Powers (China, India and Iran) that want to assert themselves as key players in the "regional security complexes" in which they operate and which are located along this "Arc of Crisis";
- The decline of Russia's external power, divided between the two contrasting options-privileged understandings with key US allies during the Cold war – Germany, Japan, South Korea and Turkey OR try to benefit from the rise of new Great Powers to reduce US' maneuvering capacity along the "Arc of Crisis";
- The affirmation of the US as the only power capable of projecting power throughout this "Arc of Crisis" and with the technological and financial resources to reduce the

vulnerability of its territory to weapons of mass destruction. Giving rise to the false idea of a New Structure – the *Unipolar World*.

During the 1990s, Globalization – with the promises of growth and development that it gave to emerging economies - has functioned as an economic stabilizer in a fragmented international system. Complemented by a set of US diplomatic and military interventions that kept under control the process of geopolitical fragmentation in the "Arc of Crisis".

When trying to summarize the factors that allowed the US to occupy a central position at geo-economic, geo-political and strategic levels, and through this centrality to ensure continuity to Globalization and containment of conflicts resulting from the Geopolitical Fragmentation in the "Arc of Crisis", we can point to the following:

- The USA preserved the technological superiority in the military field that allowed them to maintain control over the "strategic fluids" – oceans, airspace and outer space and to revolutionize the "art of war" in land;
- The USA remained the only military power that was able to secure a strategic superiority in the Pacific and Indian Oceans and in the Persian Gulf, organizing the maritime security framework for the Asia Pacific and its secure access to a crucial energy supply base;
- The USA could count with its allies as economic competitors and sources of energy supply – from Japan to Saudi Arabia who depended on them for their own security and defense - although sometimes they had difficulty in managing the ambitions of autonomy of some of these allies.
- The U.S. organized from the 1980s, a circulation of goods, services and capital in the Pacific that allowed them to finance a large part of the costs in Defense based on external financing coming from Asia Pacific and the Persian Gulf and including China in this circulation - by co-optation.
- The USA continued to issue the dominant international currency, the US Dollar – and had unparalleled capital markets – liquids, deep and varied – resulting from its own "model of capitalism". [4]

THE EMERGING CHINA

The new millennium is experiencing a qualitative change in the international system and, eventually, in the position occupied by the USA on it. This change is closely associated with the emergence of China.

- Unlike Japan and Germany, which in the post-World War II competed economically with the US but depended on North American protection against the USSR, China now has a pattern of very strong economic interdependence with the US but is involved in a process to obtain a much greater strategic autonomy, based on the development of a military industrial complex. With which China intends to manage the strengths and weaknesses of its geo-strategic characteristics in order to acquire a much greater ability to dissuade the US to oppose the goals that the Chinese regime

considers crucial – e.g., the reunification of Taiwan – and to affirm a clear superiority in face of its long-term rival Asian power – India.

- Unlike the USSR, China could create the conditions for economic growth based on its integration in the world economy, which allowed them to start investing massively in Defense capabilities and in a huge and modern military industrial complex without being concerned with its own economic viability.

Looking in detail to the strategic and geo-economic distinctive featurees of China – which show the extent to which China is a completely different entity from the USSR – we can identify the following:

- China, although having a large land mass, does not to have to fear any ground invasion from its neighbors with greater military potential, i.e.: Russia – whose core territory is separated from China by a vast space, sparsely populated and with difficult accessibility in Eastern Siberia and the Far East – and India, separated from China by the highest mountain ranges on the planet. Nevertheless, China is in serious risk of internal fragmentation involving territories such as Xingiang and Tibet – which have great value for military reasons – related to its nuclear arsenal and deterrence posture – and economic potential – energy and water resources;
- China is obviously vulnerable to nuclear attacks to its territory from three powers – the US, Russia and India – but does not have to fear land invasions by its continental neighbors, nor by the US. which gives a favourable strategic position not having to think how to use nuclear weapons to solve conventional wars in defense of its territorial integrity, but only to dissuade potential adversaries from attacking with nuclear weapons[1];
- China, in defending its territorial integrity – if threatened in the peripheral regions of Islamic or Buddhist influence (Xingiang and Tibet) - can be forced to intervene militarily in the continental mass around it to control outbreaks of radicalism in Afghanistan or Central Asia; or may intervene to prevent a disintegration or territorial breakdown of its main ally in the region – Pakistan; or to condition the options of India forcing it to concentrate its military potential in its continental border rather than developing its maritime potential;
- China has a set of coastal provinces exceptionally well placed to access the Pacific Ocean, which constitute a valuable asset in geo-economic terms but which bring with it strategic challenges since its emergence as a global power occurs when the Pacific maritime space is organized around the naval and air presence of the US with its maritime allies – South Korea and Japan – and protect a territory that the regime in Beijing considers as a non-negotiable part of China – Taiwan;
- China, despite having such a large land mas, is not however a "continental economy", self-sufficient in primary goods such as food, minerals and energy resources as were the US or the USSR in identical periods of their industrialization. China relies increasingly more on imports of these goods whose sources of supply in some cases lie in its Asian proximity (e.g., in Australia, Indonesia or Malaysia), while in many other cases are separated from China by extensive sea lines of

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[1] Or as the recent White Paper refers "conventional long-range attacks with great destructive power".

communication patrolled by the US (as the global dominant naval power) and are punctuated by *choke points* that China does not control [3];

- China – in Russia's current period of relative decline of power – regards Central Asia as an area in which it can obtain a growing influence enabling it to access and control energy, mineral and agriculture resources without depending on far distant regions only accessible by sea; but to secure its position in this area it must ensure that Afghanistan does not become a base of Islamic radicalism or a corridor to link India and Central Asian resources (Figure 1.2).

Trying to have a long term perspective of the geopolitical aims of the Communist Party of China we have to formulate the following hypothesis: it will try hard to reposition China as the "Middle Kingdom", a Power surrounded by militarily weaker states agreeing to integrate their transport infrastructure and energy resources in complete consonance with the needs of the Chinese economy and the geo-economic imperatives of the unity of China and which will be willing to finance the Chinese State, in return for guaranteed access to its huge internal market. [5]

If this is the long term aim of China's regime, this implies:

- To remove the US leadership in Asia, which means hitting the core of the North American geopolitical power;
- To prevent India from constituting an autonomous pole of attraction in Asia, possibly in alignment with the US;
- To become the essential power to guarantee peace and stability in the Persian Gulf, after leaving the US exhaust alone its "strategic energies" in this region.

FROM TODAY TO THE HORIZON 2030

Globalization and Financial Crisis – This Time It Was Different – In a Geopolitical Perspective

The consolidation of globalization has been accompanied by successive financial and currency crisis, from Japan (1989), Mexico (1994), East Asia (1997) (1) (or Russia (1998) followed by the US *dotcom* crash. But these crisis were managed to contain their impact, thanks to the intervention of the monetary authorities of the USA providing liquidity to the world economy, the opening of the US market to increase exports of the countries in difficulty and, in some of these crisis, with the IMF intervention.

However, in 2008, the bankruptcy of one of the major investment banks in the US triggered a global financial crisis, which ended a decade of explosive growth of credit and unleashed what many authors have designated as the "Great Contraction".

In Europe this financial crisis has been followed by a severe crisis in the Eurozone, among the States which, in previous decades, had benefited the most from the cohesion policy of the European Union – Greece, Portugal, Ireland and Spain – and threatened to infect economies such as Italy, Belgium or even France.

The financial crisis of 2008, which mainly hit the US and Europe – due to the tight integration of the economies in the North Atlantic – has proved difficult to overcome. If expansionary monetary and fiscal stimulus prevented this crisis from becoming a Great Depression, the combination of these policies has not allowed to go back to a sustainable growth but did increase public debt to levels known only in wartime.

This crisis, occurring at the exact moment that the large boomer generation of the West entered the traditional retirement age, has posed particular challenges:

- to the institutional investors that manage private pensions or saving accounts of that generation which, confronted with historically low interests rates, were forced to seek opportunities around the world that generate higher returns;
- to the Public Finances of States that have co-responsibility for social security and health services, which are faced with the need to reduce other government spending in order to cope with the demographic shock.

Aware of this fact, the markets are forcing fiscal consolidation – particularly in Europe where the social responsibilities of States are far superior to those found in the US – generating serious resistance in Western societies.

The USA in a Strategic Pause

The decade 2000/09 was marked in the US by the coincidence of two financial crisis (the *dotcom* and the subprime crisis) which, although did not metamorphose into prolonged recessions, have contributed to bigger budget deficits; and two wars, in Iraq and Afghanistan, which also contributed to high budget deficits.

The US, both in Iraq and in Afghanistan, were not able to achieve what seemed to be their "war aims", in each case: the transformation of Iraq in a democratic State allied with the US and leading to a new management model for their oil sector in the Middle East, and the consolidation of a new regime in Afghanistan that, in addition to expelling Al-Qaeda, will side-line the Taliban and strengthen the influence of Washington in Pakistan.

In October 2010 the New National Security Strategy of the USA was announced, which defined a new doctrine that relates economics and diplomacy with military power, pointing to the need for a compromise between the diplomatic engagement, economic growth and military power to preserve the role of America in the World. Renew the economy, spur growth and put the fiscal situation of the United States in order are major concerns and a national priority recognized in the National Security Strategy.

USA – A New Military Strategy

Presented in early 2012, the new US Military Strategy pointed to smaller armed forces, but more nimble, enabling them to defeat a "major conflict" and at the same time contain an aggressor in a second conflict (instead of the previous strategy that pointed to the ability to fight and win two "major conflicts" simultaneously). At the same time, budget cuts of nearly

490 billion dollars over the next decade were announced. The number of soldiers will be substantially reduced, but the investment in cyber capabilities will be increased.

The ability to mobilize and deploy forces very quickly is central to this New Strategy in parallel with the wider use of unmanned means, Special Forces and cyber defense. Improved systems for intelligence, combined with closer diplomatic ties with allies in Europe were also essential in this new strategy, which will rely on new generations of long-range air assets and new types of weapons capable of projecting power to longer distances. These new capabilities, integrated in the new concept of Air Sea Battle (ASB) are all the more necessary, as powers like China or Iran develop weapons and tactics of asymmetric warfare that could threaten US aircraft carriers in international waters near their coastal zones.

The activity of US Armed Forces will focus on existing and emerging threats in the Middle East and Asia Pacific. Thus, US' defense policy will give emphasis to security in the Middle East and Persian Gulf region, in collaboration with its ally, Israel, and, where appropriate, with those states belonging to the Gulf Cooperation Council in order to prevent the development by Iran of the ability to produce nuclear weapons and to meet its destabilizing policies in the region.

In turn, the shift of focus to Asia Pacific is related with growing US concern with respect to the strategic objectives of China, when it started the installation of weapons systems that the US military authorities perceive as aiming to prevent naval and air assets from US to project power in the Far East. Nevertheless, the Pentagon did not see the current military build-up of China as a direct threat to the US and recognized the existence of common threats to both countries, such as the possibility of a military conflict between the two Koreas, nuclear proliferation and the rise of fundamentalist Islam in which prevention both powers would be interested.

The New Military Strategy of the United States determines also an evolution of the country's military posture in Europe, which, without jeopardizing its commitment to NATO, involved the reduction of forces, as has already been decided on troops stationed in Germany, and assumption of responsibility for their own European allies.

Turbulence in the Middle East and North Africa

The vast space which includes North Africa, the Middle East and the Persian Gulf, has been a focus of permanent tension and conflict, given the coexistence of natural resources and global shipping routes of concern to great powers, alongside a "mosaic" of clashes between religions, ethnicities, peoples and States. We can refer in particular, tensions between Sunni and Shiite Muslims, between Arabs and Persians, and the relationships of strong tension of many of these States with Israel, around the question of the creation of a Palestine State.

This region is now polarized by the tensions resulting from the emergence of Iran as a regional power with hegemonic ambitions. Iran has developed an important military industrial complex, which includes a nuclear program with potential military use, and the development of missile and space vectors.

Iran has also built a regional network of alliances based, first, on its alliance with Syria; secondly, on the control of political and irregular military forces on the borders of Israel, as the Lebanese Hezbollah and Islamic Jihad – and radical Palestinian groups; and, thirdly, on

Iraq following the overthrow of Saddam Hussein regime by the US and the ascension of Shiite parties.

And made the confrontation with Israel a cornerstone of its regional policy in geopolitical competition with Sunni Arab States.

But it must be noted that the US could be interested in establishing closer relations with Iran, in parallel with the strengthening of its partnership with India if it wants to enhance its role in the Indian Ocean – the most important of the Oceans from the strategic point of view on the Horizon 2030.

Since 2011 we witnessed another profound political change in North Africa and the Middle East. After decades of a relatively stable authoritarian political order, this macro-region was crossed by strong popular movements - what was called the "Arab Spring".

They provoked the fall of autocratic regimes in Tunisia, Libya and Egypt, and a prolonged civil strife in Syria, as well as peaceful political reforms in Morocco and Jordan. This initial movement of masses opened the doors of power to political parties aligned with the Muslim Brotherhood, in some of these countries (Tunisia, Egypt and Morocco).

But soon it became clear that some States in the Gulf region – such as Saudi Arabia opposed to this increase of influence (that was sponsored by another State of the Gulf Cooperation Council – Qatar).

We can say that the Arab Spring uprisings did divide the Sunni Arab field at the time that Iran strengthened its geopolitical influence.

THE CHANGING MAP OF GEOPOLITICAL COMPETITION AND RIVALRIES

Figure 1.4 tries to represent how we consider the three "major competitions" that will mark the first half of the twentieth century and will set the security issues globally.

- A competition involving the USA and China in strategic, geopolitical and geo-economic terms, first in the Pacific Ocean, but also in the Indian Ocean and even in the Persian Gulf. In the context of a competition for naval power, the militarization of outer space; and cyber warfare.
- A competition involving China and India around Tibet, Pakistan, Afghanistan and Central Asia and, increasingly, in the Indian Ocean through which pass the sea lines of communication between China and the Persian Gulf and South Atlantic regions, which are of interest for both powers.
- The competition inside the Islamic World and of it with Israel. Competition centered in the Mediterranean, the Red Sea and the Persian Gulf but with a dynamic in which the strategic control of the Indian Ocean is crucial.

Three other powers - Russia, Turkey and, surprisingly Germany - are going to try to reinforce their global influence giving priority to the Black Sea, Caucasus and Central Asia, the place where they are going "to meet China" in its drive to have continental alternative to huge reserves of energy and minerals (Figure 1.2)
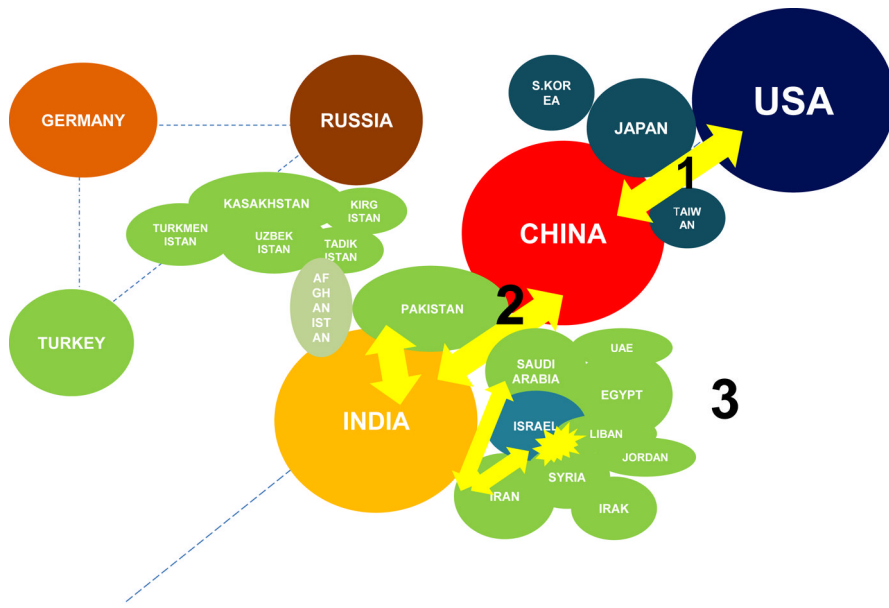
Source: Author's elaboration.

Figure 1.2. The map of rivalries and geopolitical and geo-economic competitions – Horizon 2030.

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Chapter 2

GLOBAL GOVERNANCE FAILURE

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ABSTRACT

The thesis defended in this chapter is that the governance of global risks is not sufficiently advanced and it is difficult to expect significant advances in the future. This negative diagnosis is due to the identification of two negative dynamics that occur in today's international society and go against the agenda of global governance: the changes that are occurring in the international system, in transition to a post-Western and post-hegemonic system; and the increasing "regionalization" of the globalization process that tends to manifest itself in an uneven performance (both economically and demographically) of the different regions of the planet in the process of global transformation. Globalization is not meeting the defined perspectives from the West in the mid-90s of the last century. There is no uniform global society that perceives the threat posed by global risks in the same way and therefore is willing to react simultaneously and in a coordinated manner. To the extent that the behavior of the different regions diverges and thus traditional hierarchies established in the international system change, the implementation of proposals, with a Western profile, is increasingly more difficult. Those are rejected by the new emerging actors who support their own national agendas.

INTRODUCTION

Global governance has not achieved the expected results when it was announced as a political project after the Cold War. In less than twenty years, the relationships of power in the international system have swiftly changed and are here to stay in the foreseeable future. These changes have created an atmosphere of uncertainty, a lack of predictability which has

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weakened cooperation between governments and obstructed an agreed management of global public goods. We have been submerged in a process of transition towards a post-West and a post-hegemonic world in which the ideas favored in previous contexts have no reason to be fulfilled in spite of their rationality.

The international financial crisis which started in 2008 affects every region on the planet in a different way. This uneven behavior produces divergent expectations in every continent, favoring the crumbling of the global economy and weakening political integration. In recent years, we have seen how each regional conglomerate has tried to erect new barriers in an attempt to reach domestic agreements rather than a global collective management.

This break-up, simultaneous and parallel to globalization, buries itself in long term tendencies which strengthen it and stand out in global risk management. The changes taking place do not reflect the premises global governance was based on.States have not seen their influence reduced and the West's liberal solidarity order has faced a strong, growing resistance, especially from the emerging countries. Multipolarity is not making way for multilateralism.

In the present chapter we will firstly describe the political project which underlies the idea of global governance in its three critical elements; diagnosis, perception and response. We follow on assessing why the international society's perception of reality is not uniform, depending on demographic and geo-economic variables which have not been sufficiently taken into account. We then discuss why the emergence of a multipolar world is not automatically associated with multilateralism as an executive instrument and, finally, if global risks, although perceived and recognized as such, can determine a cooperative response from the international participants.

DIAGNOSIS OF THE SITUATION: A WESTERN EXPLANATION FOR GLOBALIZATION, GLOBAL RISKS AND GLOBAL GOVERNANCE

Global governance is a Western political proposal which emerged from the interpretation of the globalization process centered on the weakening of the State [50]: on the inability of the modern (Westphalian) State to face the new challenges globalization presents and the need to adapt to it.

Anthony Giddens [14] identified two features which singled out globalization as opposed to other historical phenomena: the radical transformation of time and space - the acceleration of time and expanding space. Until a few years ago, all the political systems focused on the immediate present and were structured on a geographical space defined by State borders. This double time and space limitation began to break up during the 1970s and progressively "the future" and its consequences have slowly become a part of the present-day political debate. Structuring economic, social and political action, taking into account not only the present but also the future has become one of the greatest challenges that globalization has presented to mankind [27].

The preservation of common wealth (environment, economic development sustainability, international peace) or the management of global problems (climate change, proliferation and

nuclear threat) is only possible by using strategies which consider this new time (between the present and the future) and space (between States and the planet as a whole) as a dimension which characterizes globalization.

Planetary time and space (market globalization and risk) cannot be administered from the time-space coordinates represented by States (territorial sovereign powers centered on the management of the present). For this reason global governance is necessary to attain State political systems which have been defined by a global democracy [30].

Global governance aims to answer those new challenges by overcoming the judicial formal notion of government restricted to a territory over which it has authority. This may be achieved by a collective management procedure for these global conflicts using a system of collectively agreed practices and rules that do not come from a formally constituted authority [11].

The concept of global risk is more complex than it appears to be. Ulrich Beck [6] established the difference between danger and risk, pointing out that risk is the result of human action and decisions: technology produces unwanted and unknown effects which are unforeseeable and, frequently, irreversible. At present, these risks are mainly environmental and suggest a new concept, namely "the threat of self-destruction of all life on Earth" [6].

The situation we are living in at the moment is not so much of "risk", which implies a statistically calculated assessment of its possibilities of being carried out, but "uncertainty": a multiplication of diffuse risks without a definite probability. Peter L. Bernstein [7] analyzed the evolution of the risk concept based on the laws of probability in order to set out statistical rules to support decision-making. He ended up establishing a distinction between risk and uncertainty, the former being a measurable, assessable value and the latter not so.

Now, risk (where the assessable result may have both positive and negative consequences) has turned into uncertainty which is why we can assume that any future result will have negative consequences and is beyond our ability to control and beyond rational calculation.

The so-called global risks (global warming, nuclear proliferation, new viral diseases, the loss of biodiversity and others) constitute the unforeseen and undesirable effects of human technological action, threatening to inflict irreversible harm on all living things. Its indeterminate manifestation in time and space, the uncertainty of its causes and effects and its planetary direction reduce humanity to a state of vulnerability.

This gives rise to an indefinite, generic sense of insecurity, a loss of control over our own lives [4]. The same fears of the globalization era are indefinite, according to Zygmunt Bauman [4]. It is about unclear and extended fears expanding from a "liquid fear" generated by a feeling of insecurity and a perception of a loss of control - a fear produced by real danger but lacking a clear, recognizable cause.

The "liquid fear" of global risks is not necessarily converted into an individual or collective reaction to confront them.The indefinite nature of the threats produces a distortion in the perception of danger which is generally translated into a passive attitude.Some authors have highlighted the role emotions play to explain behaviour not always, nor necessarily, rational [10]. Moreover, for the rational information which we introduce into our cognitive system to have an effective impact on our behavior it should be accompanied by emotions which allow us to "react emotionally". For Elena Pulcini the main difficulty when facing global risks lies is the imbalance between "knowing" and "feeling" the risk [43].

Generally this imbalance is explained by applying the concepts of denial (*Verleugnung*) and self-deceit (*Selbstbetrug*), coined by psychiatry to describe individuals' reactions to moments of vulnerability. Sigmund Freud described nine ways of avoiding reality which he called "defense mechanisms".

Among these unconscious protective tactics negation, projection, distortion, externalization, rationalization, sublimation, religion and even humor stand out. The most well-known of all is repression. Self-deceit is a peculiar survival strategy. Traumatic experiences are overcome or an uncomfortable truth is neutralized by a fallacy [45]. With the help of this unconscious self-protecting mechanism people sacrifice the correct perception of reality in exchange for maintaining spiritual peace. Nonetheless, the result is not always beneficial: denying a real danger can make us not protect ourselves.

Stanley Cohen has used the concept of denial to identify several traits which characterize contemporary society:

> people, organizations, governments or whole societies are presented with information that is too disturbing, threatening or anomalous to be fully absorbed or openly acknowledged. The information is therefore somehow repressed, disavowed, pushed aside or reinterpreted. Or else the information 'registers' well enough, but its implications - cognitive, emotional or moral - are evaded, neutralized or rationalized away [9].

Along with this Freudian self-protection mechanism, there is a specific variable which consists of lying to ourselves in order to believe something which does not correspond to our rational knowledge but to our desires. Self-deceit allows individuals to act not in accordance to what rational judgment indicates. For Elena Pulcini, both denial, and self-deceit determine present day's society's lack of perception of the nuclear threat (denial) or the environmental risk (self-deceit), which explains our inability to react. By weakening the fear, the future nature of harm allows individuals to minimize the risk by denying its possible consequences. The consequent reasoning the author arrives at is that "we need to learn to fear again" [43].

The aforementioned arguments may be summed up as follows: the West understands that the globalization process (present) identifies future global risks. Humanity should react to these risks using political participation and decision-making which do not exist at present (States). This should be reformed, mainly by reinterpreting the sovereignty which allows States to be submitted to external normative restrictions (global governance).

If this simultaneous, concerted reaction has not surfaced it is because rationally we do not perceive reality, we deny it and deceive ourselves. This is why we need to learn to fear again to be able to collectively react while there is still time.

This succinct summary obviously simplifies the arguments but it does not pretend to offer a circumvented interpretation. By looking at them in a systematic approach we can identify the three main elements it sustains and that condition all the logical construct of the line of argument: diagnosis, perception and response.

We are not going to argue about the diagnosis. We admit it is correct. Let us not question the fact that global risks are not "systematic risks" but rather inherent contradictions of capitalism itself which might be controlled with a greater and better political regulation, but which cannot be avoided whilst the very bases of the capitalist system remain unchanged [22].

We are going to direct our arguments towards the other two dimensions of the proposal about governance of global risks (perception and response) aiming to highlight the suppositions they are settled on and how those suppositions have conditioned the appliance of suggested response.

DIVERGENT PERCEPTIONS OF REALITY:
DEMOGRAPHIC AND GEO-ECONOMIC REASONS

The governance of global risks sets out from an essential condition: globalization has created a worldwide society, which similarly and simultaneously perceives threats identified as global risks and that, as a result, is willing to respond, regardless of the sacrifices. This condition has not been fulfilled, at least not until now, because globalization has not created a uniform worldwide society before, on the contrary [4,36,44]. Therefore, political communities are still very self-centered, thinking about themselves and the perception of threat they face. Their behavior is influenced not only by social and economic circumstances but also cultural and political ones, different in each case, and thereof not always coinciding with the rest of humanity.

Present societies do not regard the future in the same way and although they identify the risks they harbor they do not face them in the past. This divergence of attitude is not only determined by self-defense mechanisms such as self-deceit or denial of reality but also by different influential social variables which contribute to creating a collective state of mind: dominant optimism or pessimism in certain societies.

The collective emotional state of a society may contribute to facing the future with fear or confidence, with fatalism or determination and, as a result, the sacrifices they are prepared to assume collectively will vary considerably and, only rarely will they coincide in time. Each community's political agenda does not coincided simultaneously worldwide.

We will consider two variables which have a decisive influence on the notable optimism or pessimism in current societies: the demographic regime and its economic behavior. These variables will explain how different attitudes regarding the future exist.

The planet's demographic conditions are changing rapidly. For the first time in history some developed countries (Japan and several countries in the West) have inverted their population pyramids: they have more inhabitants older than 60 and younger than 20. The average number of children women have has dropped increasingly faster in Europe, the Far East (especially Japan and China) and to a lesser extent in the United States (US).

At the same time the population continues to increase in Africa, the Middle and South East. These regions' share of the world's population will increase in the next fifty years. Probably, Europe, Russia, Japan and China's share will drop in the same period (significantly in some cases) while in the American continents it will remain stable. At opposite ends of this evolution is Europe (less than 8% of the world's population in 2050) and Africa (more than 23%).

The result is an accelerated ageing in some societies which, in certain cases, already present a negative growth rate (United Nations, 2012). On the one hand, the percentage of under 15s is of 41% in Africa, 19% in North America and 28% in Latin America, 25% in Asia, 31% in the Middle East, 16% in Europe, and 15% in Russia. On the other hand, those

over 65 make up to 3% in Africa,13% in North America, 7% in Latin America and Asia, 5% in the Middle East and 16% in Europe (13% in Russia). These changes will unavoidably have a profound impact on economic growth or geopolitical balances [17]. They will also influence the way we face the future.

Societies with an ageing population and prolonged longevity are more inclined to show fear, in line with the cycle of life of emotions associated with ageing (Pochintesta, 2010).

The opposite reaction is associated with youth. Optimism, confidence and hope for the future are characteristic feelings of young people. They may be well aware of the risks they are exposed to but their attitude is different from older people. These traits are also noticeable in collective society behaviors. The optimism or pessimism with which future challenges are faced is influenced by the average age of the population.This optimism, which moves individuals more instinctively than rationally to take on risks, was pointed out by Keynes to characterize decisions on economic investment which were made during moments of euphoria motivated by "animal spirits": an instinctive impulse which does not consider the possibility of future losses, "as a healthy man puts aside the expectation of death" [32].

As well as the demographic variable, the economic factor also influences societies' attitudes when facing these problems. Societies enjoying fast economic growth do not regard the future in the same way as societies submerged in economic recession and crisis.

At the end of the twentieth century, economists' general diagnosis was that global economy was moving towards a greater integration within a liberal normative framework [49]. A feeling of euphoria dominated which assured that the world was on the way to unifying the binomial made up of free markets and liberal democracies. However, the economic and financial crisis which burst in 2008 highlighted an increasing divergence in the behavior of the world economy which has developed at two rates: while the poorest and traditionally richest economies languished, the burgeoning economies have resisted, maintaining their financial, commercial and economic prosperity. The growing commercial imbalances have led to an unprecedented situation in which the emerging countries have managed to accumulate an enormous quantity of currencies (this amount tripled during the first decade of the 21st century) and they have become net creditors of the richest countries. The group of emerging economies has managed to equal the share of the richest countries' GDP.

The 2008 crisis has uncovered a long term tendency in the global economy: the growing convergence of the per capita worldwide income, especially from 2000 onwards [48]. At the same time, there has been an increase in social inequality. Although poverty has diminished rapidly in recent decades thanks to the growth in highly populated developing countries, the disparity between the share of income and wealth has not ceased to grow. Up until the 20th century this inequality was explained mainly by the existing differences between countries. Nowadays, however, there is a greater disparity within countries themselves. Seemingly, this tendency will last throughout the coming decades [1].

Globalization is definitely not resulting in an equal or "flat" world [13]. The increasing demographic and economic disparities are leading to diverging social reactions against global risks. Ageing societies submerged in the crisis, with poorer and threatened middle classes show their pessimism for the future by fearing it.

On the contrary, young societies, at the height of their economic rise, with hundreds of millions of people leaving poverty behind face the same challenges with absolute confidence.

The West's appeal for fear ("we need to learn to fear again") is thwarted by these economic, demographic and social differences.

Several studies confirm this opinion. The Pew Research Global Attitudes Survey of 2007, inquired more than 45.000 people in 46 countries, found that more people in more places have grown more satisfied with their lives. The results suggest that people are generally happier in countries that have experienced stronger economic growth over the last five years, compared with the previous five years.

In these economically expanding countries, citizens are likely to be particularly satisfied with their incomes and more likely to say they are making progress in their lives, conditions that lead to higher levels of overall satisfaction with life. In Africa, the world's poorest region, people are markedly less satisfied with their lives and incomes than people in other regions [41].

These trends were confirmed in a recent survey conducted by the firm Ipsos-Mori, about the future of youth in their countries. They found that people in so-called Western countries, like the US, France and Spain were more likely to say that the future was bleak, when compared to developing countries. On the vision of the future, in France only 7% believe that the world in which their children live will be better than theirs; in the US it reached 19% and 16% in Spain. In contrast, in China 81% believes that the future will be better than the present, 49% in India and 45% in Brazil [28].

Ever-increasing fear is shared by all societies. Nonetheless, social perception of fear varies greatly according to the social group in question. In developing countries, the sectors with little purchasing power fear the present, the sorrows of daily life, the insecurity derived from poverty and exclusion. In countries with high per capita income and an extensive middle class, for whom worries about survival and citizen insecurity have diminished thanks to social and economic development, their fears for the future are not linked to daily life. It is not about poorer societies not knowing or being aware of global risks. They worry about more immediate daily problems. This is why future risks take second place. The diversity of social conditions where fear is an individual and social experience means that generating an agreed global response becomes extremely difficult [40].

It is highly likely that the consequences of the present economic crisis are affecting the perception of global risks.Insofar as the crisis has impoverished the middle classes in the rich countries, their fears have been redirected to the immediate needs of the present: fear of losing a job, elimination of social class, etc. Crises have always fed population's fears and the traditionally rich countries (Europe in particular) are now gripped by fear. This was recognized by Van Rompuy, President of the European Council as: "[t]he biggest enemy of Europe today is fear" [54].

In the present economic situation, the appeal for a need to educate the population in fear of global risks has not been taken up by Western society. The populace already has enough worries; it concentrates more on the daily experience of a precarious present rather than the problems of an indeterminate future. Under these circumstances, how distant are President Roosevelt's words in his first inaugural speech in 1933: "[t]he only thing we have to fear is fear itself". The crisis seems to have destroyed Western society's faith in itself.

MULTIPOLARITY WITHOUT MULTILATERALISM

Two new facts have broken into the international scenario in the last decade disrupting the predicted evolution of geopolitical power: the rise of the developing nations and the 2008 crisis. The unipolar vision of the post-Cold War world has turned into a vision of permanent instability at an alarming rate which now characterizes present international relations.

As stated by Christophe Jaffrelot: disorder is the new order [29]. A political consensus does not exist to define an international order which goes along with the United States military supremacy and the economic changes in a growing interdependent, multipolar world.

It is widely acknowledged that the 2008 crisis has furthered the shift of financial and economic power from the West to the developing countries. The crisis is also considered to have changed the West's intellectual interpretation of globalization: it has gone from being considered a post-modern phenomenon to a "geopolitical" one [16,31], which favors a distribution of wealth that, for the first time in centuries, benefits non-Western countries [33].

The crisis has accelerated the transition of power in the international system and as such was immediately recognized by politicians and analysts. In autumn 2008 Javier Solana stated: "the crisis is accelerating the power shift from the West to the East. This is true both in terms of material resources and ideological 'pull'" [46].

John Gray also highlighted the geopolitical aspect of the crisis:

> Our gaze might be on the markets melting down, but the upheaval we are experiencing is more than a financial crisis, however large. Here is a historic geopolitical shift, in which the balance of power in the world is being altered irrevocably. The era of American global leadership, reaching back to the Second World War, is over [20].

In the US, the National Intelligence Council (2008) foresaw the appearance of an uncertain, multipolar international system, defined by the growing influence of upcoming players which, by defending their own interests would try to promote new rules of the game. This report becomes more significant if we take into account the previous report of 2004 which confirmed an everlasting US dominance due to lack of counterweights.

The rise of non-Western powers has influenced the structure of world order since the end of the Cold War. During the early decades a "common front" process was laid down [2] which tried to foment a collective management of global problems adopting liberal generalized values and creating supranational institutions to restrict State's sovereign autonomy. The rise of new influential players has curbed the process posing a normative controversy for international order by opposing two different models: the "liberal common front" and the "post-modernism" of the US and the European Union as opposed to a Westphalian pluralism of the rising powers. They demand the defense of national sovereignty and non-interference in home affairs as basic principles of the international order. This normative controversy obstructs a collective response which assumes governance as an executive instrument of global risks.

The tension arising from these two opposing proposals (post-modern *vs.* Westphalian) is apparent in several areas although the most relevant is in the United Nations' debates on the "responsibility to protect" and its enforcement, authorizing a humanitarian intervention in Darfur, Libya or Syria.

In this new context, the West's, particularly the European Union's, normative proposals and their behavioral practices (global governance) are coming up against increasing rejection from non-Western authors who consider them "Euro-national" [56], if not downright neo-colonial [12].

The diplomatic behavior of the rising nations is becoming more self-asserted and is justified by their own interpretive and theoretical assumptions based on the opposition and moral flouting of the West [37].

Their interpretation of reality goes beyond the West's understanding of the world [47] and leads them to justify, with unruly pride, their own method of economic and political development equal to the Western model [56]. The key to explaining both the rise of these States and the fall of the West, punished by the crisis and its democratic and market fundamentalism may be found in their independent and alternative behavior to Western influence.

The rejection of anything Western by Southern rising powers does not necessarily have to lead to a direct confrontation between alternative models for the international order. It may be possible to come to a mutual understanding [35]. If this agreement was to materialize, the agreed terms would hardly reflect the post-modern assumptions proposed by global governance. The inability of the European Union to convince other States in the United Nations seems unstoppable.During the nineties, the European countries received an average 70% support for their proposals from the members of the General Assembly. This share was reduced to 50% in 2008. On the other hand, in the same period, support for China went from 50% to 74%.The economic crisis seems to confirm this tendency.In 2011, 60% of the votes went to China, 58% to Russia, 40% to the European Union and 38% to the United States [18,19]. China (along with Russia and other developing countries) has managed to consolidate a sovereign pole which obstructs the creation of the normative framework favored by Western powers.

The difficulties creating a global governance within the post-modern international order not only arise from the resistance and opposition of the emerging and growing number of Southern powers, but also from Western powers themselves.

For different reasons, neither the United States nor the European Union seem to have the same faith in their proposals as they had a decade ago. In the European case, this may be due to failures in their home affairs.In the US, Barack Obama's foreign policy seems to be finding a place in the new international system.

Europe has been a perfect example of how not to manage the economic crisis as it did not apply the principles and values it was supposed to support. The crisis that has threatened the existence of the euro on three occasions has its political roots in the selfishness of Member States' national policies. The crisis, allegedly attributed to fiscal irresponsibility or to a handful of corrupt countries, has brought to light a huge lack of collective compromise to foment shared sovereignty and form a true fiscal union [3]. The multiple meetings between national leaders which have been taking place in recent years have emphasized the ongoing divergence between the political objectives of each government preventing the setting up of a common strategy to fight the crisis.

It will be extremely difficult for the European Union to gain support for its post-modern proposals because it falls back on national selfishness to protect its own interests at the expense of its neighbors' – a pure exercise in Westphalian sovereignty. This has been the

main difficulty since the onset and cannot go unnoticed by the rest of the international players and undermines the international position of the EU as a credible model.

Some authors, however, defend the options the Union maintains to put its project of efficient multilateralism into practice. This project is based on rules which allow it to have a greater influence and repercussion in a multipolar context. But to achieve this, the EU would need to apply a "great strategy" [25], the possibility of which seems to be fading away. In the end, although Europe may be able to get back on track and surmount the crisis by remodeling its union, the wounds inflicted during these last years will not be forgotten so quickly.

The punishment imposed on the citizens, such as the ones the Portuguese or Greeks are experiencing, will encumber the future viability of a shared European project threatened by hegemonic relations which have reappeared in continental policies.

While awaiting the balance which will bring the crisis to an end, the EU is considered to be just a week partner of the US, unable to convert their collective power into results. The new creditors, increasingly independent, are exercising a progressive influence over the indebted European democracies. The Union seems to be doomed to a slow isolation from the worldwide strategic scenario, reducing its opportunities to promote the "solidarity" international order it worked towards.

Barack Obama's government has taken a significant turn regarding the international strategy of its predecessor. The Obama administration abandoned the Bush doctrine of a hegemonic unilateral project and transformation of the international order. According to the new approach, the great powers are facing the same strategic sources of insecurity. This means they have a common interest and a real need for cooperation in order to coordinate the different national responses to these threats.Joint action optimizes State power by distributing responsibilities. Thus, operative responses are no longer a Western monopoly. Instead of trying to stop new powers from rising as new poles of independent power, the US should consider itself a partner bringing about a greater cooperation among the largest number possible of players (National Security Strategy, 2010) – a chance of *primus inter pares* able to lead worldwide alliances.

Along this line, the US would bring about a new international order even between the great powers which would not coincide precisely with global governance. This would be based on new alliances with India and China, to a lesser extent. Decision-making would take place in new international *fora*, more flexible and informal than the traditional international organizations, e.g., the G-20 which brings old and new powers together. The role of these associations is that of a management committee which makes decisions and promotes worldwide policies, enforced by regional, traditional institutions (the UN or IMF).

However, these plans have not been achieved. In the collective control of the financial crisis, the results of the G-20 have been very limited. No general agreement was reached to overcome the systematic failures detected, not even on the basic levels, such as the coordination of national policies or the balance in currency rates. At the same time, the US government seems to be more concerned with its internal political battles. Its hesitations regarding Syria and other serious international conflicts indicate it is no longer interested in being a leader of international affairs. Its unwillingness to promote foreign affairs is a reflection of its own public opinion which demands its government to look after its own economic growth, and not to assist external conflicts.

A considerable increase in the national energy production has notably reduced dependence on imported petroleum. Thanks to new technologies that allow the exploitation of

shale oil, the US is expected not only to be self-sufficient in terms of energy but also to become an exporter. The consequent reduction in fuel prices will allow the US to bring back high energy consuming industries which were relocated in previous decades thus increasing employment and economic growth and reducing its ecologic footprint. This will result in a more inward-looking country with less international presence but acquiring a larger share of world trade. Being a worldwide leader in a new international order will be less important. There is no wish to become isolated. US foreign policy will remain active but will change, with more selective priorities making future global risks more intense.

DO GLOBAL RISKS INFLUENCE A COOPERATIVE RESPONSE FROM THE INTERNATIONAL PLAYERS?

Global risks' governance is a Western proposal, made after the end of the Cold War. It is based on the understanding of the nature and destiny of globalization as a historic process and on some assumptions about the awareness and ability of international society to react collectively. These assumptions are yet to be confirmed. While the West maintained leadership in the post-modern liberal international order, the political and institutional developments of its proposals were heard to a greater or lesser extent, having little impact. The emergence of new Southern powers and the consequences of the 2008 crisis have put an end to its implementation, with growing opposition from the non-Western world.

We are not facing a plural international scenario where States have relegated influence. Nor a multipolar system where international cooperation arises from structured dialogue. Richard Haass considers that the transformation of the international system has led to an era of non-polarity in which power is diffuse [23]. Ian Bremmer shares the same opinion when saying that we are heading towards a vacuum where no single State is able to galvanize global initiatives – a world without poles: the G-Zero [8].

A hegemonic power or a coalition of players with similar interests and goals is necessary to confront global risks, to promote a global governance plan and to make sure the agreements are carried out. Is there such a convergence of interests? Do both old and new players have a shared interest in overcoming global risks by working together? Are we perhaps moving towards the interdependent, interpolar world foreseen by Giovanni Grevi [21]?

There is hope. John Ikenberry [26] considers that the Western proposal based on multilateral, bilateral institutions and regional alliances has the necessary requisites to accept commitments, including the rising powers. These are based on norms and integrated institutions which favor non-discrimination and open markets.With this idea in mind, all the relevant players would share an interest in maintaining a working international economic system. China, India or even Russia itself benefit from the existing *status quo* inasmuch as they are trying to come up to date by integrating the whole world in order to have access to the markets, technology and foreign investment. So the crisis that began in 2008 has highlighted the mutual economic interests and the interdependence between the great powers.

Although both new and old stakeholders can identify common strategic challenges, they are still unable to achieve sustainable responses together, as shown by the meagre results of the multilateral *fora*. Hence the alternative advocated by Moisés Naím in favor of

"minilateralism". This means gathering the fewest number of countries necessary to obtain the greatest impact on a global risk, whose solution is beyond the individual action of a State [38,39]. Bringing together a larger number of participants probably hinders the real possibility of reaching agreements.

Whether it is down to too many participants or to the fundamental ideological differences of each, all the relevant players, including Western countries, only defend multilateral governance when it affects their immediate interests, especially when considering their home affairs. They all favor regional to global organisms as well as addressing national interests rather than global ones, in the long-term.

Different ideas and expectations may explain the difficulties encountered when trying to improve international cooperation. The fragile bonds of mutual confidence are continually broken because there are various opinions on global risks and disparities in the international agenda.Different ideas between Western and Southern countries, between rich and poor, about the new normative principles are increasingly more apparent.

New norms about "responsibility to protect", "democratic governance", "responsible sovereignty" or "ecological responsibility" lack universal support. Agreement over how, when and where they should be applied persists. The different views regarding the West's recent humanitarian intervention perfectly exemplify the real limits which the necessary normative convergence to establish global governance is up against. When there are more pressing national interests, international norms and agendas take second place. Global institutions are weakened by the absence of this basic impulse.

At the same time, the rising of Southern powers has reduced existing differences between the most powerful players thus helping the global convergence process. However, social and economic indicators in these countries show they are still developing. This creates tension between their role as defensive powers in the s*tatus quo* and the need to sort out their own internal challenges to achieve *maximum* development. The divergent expectations about the distribution of power in the future determine the real possibilities of cooperation.

The new powers have gained sufficient influence and independence to stop the post-modern liberal program being carried out in several areas - they defend the sovereign authority of the States without assuming the responsibility to face collective problems. The definition of international order is currently blocked and without a leader to direct it. Moreover, this behaviour of the ruling elite of the emerging powers counts on wide support from their nations, even though in many places they are not democratically governed. The economic boom experienced in recent decades and the consequent increase of the middle class (23% of the total population of China, with a 1% annual growth) has given the population expectations of prosperity so the people accept the political restrictions in the hope of collective wealth. Under these social and economic circumstances, with young, growing populations, the views on global risks not only diverge from Western opinion but from the responses they are willing to adopt. All the emerging powers are experiencing a feeling of national pride that given their shared colonial past drives them away from Western proposals and strengthens their independence and their uniqueness. It may not be possible to prolong this tacit social pact but while the economic cycle continues to expand, the new powers' sovereignty will expand with it.Perhaps the near future will be dominated by globalization made up of geopolitical blocks, regional groups of players where each State looks after its own interests, but not global issues. A globalization, starring multiple regionalisms [35], governed by strong States but without a global leader, will be unable to conduct international

cooperation and even less to make global governance work.It is also possible to explain the inability to give common answers to global risks because of the very nature of these threats which pose increasing doubts about the allocation of duties and responsibilities [24]. The enormous potential consequences of unexpected events with multiple secondary effects may create a *vacuum* of power, where it is not clear (and nobody wants to clarify) where legitimate authority lies.

> For many of the global risks discussed in this report, the ownership of these risks remains fragmented and unclear, and it is often difficult to identify actors willing and able to take ownership. This, coupled with the complexity of interdependencies, is perhaps why so many of these issues remain endemic and systemic in nature, although their existence and potential impact is known [15].

Are we perhaps facing a situation where the ability to manage (collectively or not) world affairs is inadequate when dealing with the magnitude and complexity of the risks before us? Are the dynamics unleashed by the globalization process beyond humanity's intellectual capacity to analyze and comprehend? Global risks have created a negative co-dependence among all the international players which identifies common risks. However, this knowledge alone does not bring about positive agreements which, in turn, produce efficient, legitimate and fair responses.

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PART II: HUMAN PERSPECTIVES

Chapter 3

POPULATION DYNAMICS: DEMOGRAPHY MATTERS

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ABSTRACT

The following pages focus on the discussion of the possible existing links between population and security. Globalization produces opportunities and raises fears for states, civil society and new international actors. Given the existing economic and social disparities, new and different challenges will rise, assuming a visible geographic expression. We wish to grasp the main issues that rise from these changes in today's human societies, as well as their possible evolution in the coming years. The globalization process brought a larger complexity to the link concerning population and security, as in the actual framework both the demographic conditions and the security environment are becoming increasingly complex. Demographic imbalances, poverty and economic inequality reinforced some threats and risks, worsened economic and financial instability, uncontrolled migratory flows, organized crime, traffic of human beings, and terrorism. Yet the social, economic, political, and environmental context matters. In fact, demographic changes alone are unlikely to inflame political violence, even if they can trigger conflict and insecurity situations or just their perceptions.

Keywords: Demography, population, security, sustainable development, well-being, development

INTRODUCTION

Demography matters. The globalization process brought a larger complexity to the link concerning population and security, as in the actual framework both the demographic conditions and the security environment are becoming increasingly complex. Demographic imbalances, poverty and economic inequality reinforced some threats and risks, worsened

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economic and financial instability, uncontrolled migratory flows, organized crime, traffic of human beings, and terrorism. The social, economic, political and environmental context matters [22]. Population is an underlying variable for conflict.

Nevertheless, demographic changes alone are unlikely to inflame political violence, but they can trigger conflict and insecurity. Population volumes, specific age structures, fertility and mortality average levels and migratory dynamics are both a resource, an indicator and a multiplier factor of power and security. They impact not only the capability of a given State to defend itself from external threats, but they also help it to prevent collapsing and can even contribute to guarantee reasonable wellbeing standards to its citizens. Thus, demographic characteristics have effects at two different levels which we can split in a simplistic and classical way into internal and external security risks. Although in contemporary societies this dichotomy had ceased to make an absolute sense, it still helps us in the analysis of the contextual factors of the demography-security link.

The characteristics of a given population at a given moment increase or reduce the likelihood of conflict and the levels of social instability and economic growth. They also influence the will of assertion of power from a political entity (State or ethnic group), its attempts of expansionism, the probability of ethnic conflict, terrorism, radicalism or religious fundamentalism, and even of environmental stress episodes.

Demographic trends influence political stability and security. For analytical purposes we can consider three major aspects correlated with the possible demographic impact on a State's national security [28]. The first one is the external framework, i.e., how to secure state borders and assure the capacity to project power in the international system. The second and third levels are associated to internal framework, both to regime issues and collective structural security. It concerns a) the guarantee of political and social internal stability, b) the protection of the system's interests; and c) the right to access resources and thereby its citizens human security.

For the coming decades we know how many, where, and which characteristics will the world's population have. But still we do not know how the inevitable changes it will face may represent an asset or an embarrassment to global security.

The following pages focus on the discussion of the possible existing links between population and security. Globalization produces opportunities and raises fears for states, civil society and new international actors. Given the existing economic and social disparities, new and different challenges will rise, assuming a visible geographic expression.

We wish to grasp the main issues that rise from these changes in today's human societies, as well as their possible evolution in the coming years. We will (a) present the links between demographic dynamics and regional asymmetries; (b) discuss the complex links of sustainability between population volumes, resources, economic and social development levels and security challenges; and (c) debate the crossing lines between demographic dynamics and security issues.

POPULATION AND SECURITY CHALLENGES. CONTEXTUAL FACTORS

Demographic studies should be regarded as a fundamental area of security studies and as an instrument of support for political decision. Information regarding population volumes,

age and sex characteristics, and geographical distribution contributes to detect and prevent possible factors of risk.

So, population must be seen as a strategic vector in the context of security and defense sectors. In past societies the total number of inhabitants of a given State or a region was regarded as an element to measure its relative power. The issue was not complex, within a framework in which all populations grew moderately, had a similar age structure (many children and a few elderly), economic production was based in household units, and mainly focused in primary activities. Today the issue can no longer be seen in this simple way.

In contemporary and future societies the importance of demographic variables varies according to the main characteristics of human resources (in terms of gender, age, skills and education). Population's volume, sexe and age characteristics can be considered as elements of soft and hard power, but can also trigger real or perceived insecurity risks.

In the new paradigms of the international system, the demographic volumes and their main dynamics are a crucial factor. Nevertheless, demographic changes occur slowly and imperceptibly, which partially hides its importance and interest for some of the actors responsible for the maintenance, prevention and mitigation of security threats. The inertia and predictability of demographic trends is an advantage for those who look into their dynamics for reliable information in terms of decision-making. But this characteristic is also one of the reasons why population studies are not always seen as an interesting subject for researchers and policy-makers [26].

In terms of academic research, the link between demography and security features three distinct perspectives [23]. The first one goes back to 1968, with the publication of *The Population Bomb* (Ehrlich, [8]). It considers that insecurity results from a complex and unbalanced relationship between population growth, vital resources and economic development. During the first stage it was mainly focused on discussing conflicts between States. Population volumes were seen as the determining factor for the assertion of power. But other factors were progressively added to the dynamic equation of the considered populations, such as the average levels of education and health status, employment and well-being, and quality of life in terms of housing, food and leisure. Those were recognized as determinant factors to guarantee satisfactory levels of collective security.

The second set of theories are symbolized by Weiner and Russell's work [34]. They assume a more historic and economic point of view and are linked to the International Studies Association, the American Political Science Association and the Environmental Change and Security Program [18]. Their emphasis is given to the way how environmental conditions, demographic trends, diseases, economic globalization and technology must be seen as solutions, but also as potential problems for war and peace, sovereignty and development. Supporters of this theory underline the security implications resulting from the patterns in which the relationship between population, natural resources and development patterns is based. They assume an ecological profile and highlights the risks to stability coming from competition for essential resources such as water, food, employment. The risk of conflict is higher in politically weak states and lower in democracies or dictatorial states. Some of its followers advocate the economic and military advantages of numerous populations and acknowledge that economic development leads to increased political and social security.

The third and last tendency is chronologically more recent and underlines the importance of geostrategy, geopolitics and prospective forecasting. It perceives population as an unconventional threat and considers demographic vitality as a strategic vector of security and

defense [28]. The future of conflicts is being shaped by demographic trends in terms of fertility, mortality and migration.

World population growth is mainly concentrated in developing regions and impacts local political power, influences regional capacity of economic development and might worsen social tensions. Demographic trends can hinder the achievement of human security, and thus put in danger the security of a nation. The existence of young population structures increases the risk of internal conflict, as there may be no responses from the labor market and difficulties to access health care and education.

But young political states can have their window of opportunity by having many young adults. This contributes to increase their importance in the international political system (e.g., projection of armed forces, advantageous alliances with ageing countries, consolidation of political strength international organizations).

If we look at the demographic model as a locked system, with its endogenous dynamics arising from the fecundity, mortality or migration variables, the study of populations might be considered as an end in itself. But we can also look at it as an open and dynamic structure, where each variable is both a cause and a consequence of exogenous political, economic and cultural conjunctures. The link between demography and security fits in this holistic view of the international system. The end of the Cold War brought new threats to populations and states security, although some of them might be unreal. The characteristics of a given population should be considered as a security predictor at three different levels (Figure 3.1).

Population as Indicator
- Youthful age structures increase the risk of internal conflict;
- Youthful populations favour development and reinforce role in the international system;
- Asymmetric growth dynamics among ethnic and religious groups increase internal tensions;
- Urban growth and migratory pressure increase internal tension;
- High mortality levels affect military preparedness, economic growth, and governance;
- Gender imbalances (males rather than females) are correlated with higher crime rates.

Population as Multiplier
- Too much demographic pressure in a politically weak State can make it a failed one;
- Demographic pressure may encourage democracy implementation;
- Demographic pressure can increase the likelihood of conflict;
- In less developed countries the ageing process increases instability and social stress;
- Migrants improve wellbeing in origin and host societies;
- Rapid demographic ageing reduces internal economic dynamics.

Population as Resource
- Youthful, productive and healthy populations favor development, increase social cohesion as well as military force;
- Highly qualified immigrants favor development, increase social cohesion and military force;
- In aged populations the feelings of insecurity are higher;
- Aged populations affect the willingness and ability of allies to support security efforts.

Source: Author's elaboration, based on Sciubba [28].

Figure 3.1. The Demographic-Security link. A few examples.

DEMOGRAPHIC ASYMMETRIES, DEMOGRAPHIC CHALLENGES

The world's population doubled four times between 1900 and 2000, with a *momentum* of maximum increase in the mid-80. In 2011 we hit 7 billion inhabitants. Although today we

notice a slight reduction in all population increase growth dynamics, pronounced regional differences are still a reality.

These differences are connected with the prevalent stages of demographic transition models they belong to [12]. Populations grow quickly in South Asia, the Middle East and in sub-Saharan Africa.

In what concerns the international system and the geopolitical balances today's distribution of human populations presents three aspects of awareness. The first one is related to geographic distribution: a) there are major inequalities in that distribution; b) the number of inhabitants increases faster in least developed countries, while it decreases or stabilizes in the most developed ones (of a total of 250 thousand daily births registered in the world, 90 percent take place in poorly developed countries); c) only the evolution to new stages of the demographic transition model (and fertility levels reduction) will significantly reduce this increase.

The second aspect relies on the concentration of population levels: a) there are political units with optimal levels of population, others under or densely populated; b) differences are even more obvious at the internal level (e.g., urban/rural areas; costal/interior areas). Asia and Europe have higher average values of soil occupation, but only the first one will continue to see its density levels increasing.

Finally, we must highlight the importance of population's age structure: a) this was not a question in past societies, but becomes more complex today, as some areas are increasingly older, while others grow too quickly and have very young age structures; b) migrations do not solve the problem, as there is a "sociological limit of tolerance" in what concerns the percentage of immigrants in a given society. Those limits are being broken as we speak, arising serious social tensions, particularly in the European Union; c) demographic pressure worsens the inequalities between rich and poor societies: 70 percent of the world's population has less than 30 percent of the world's total income [31].

The economic boot of an undeveloped country with a rapidly growing population most frequently implies the adoption of measures which benefit capital holders and a few wealthy social groups which can generate popular discontentment and internal tensions.

Until the end of the 21st century an increase of around three thousand million individuals is expected. More than three quarters of these "new populations" will have been born in Asia or Africa. The expected future depends on present differences in age structural characteristics (percentage of young, adults and aged population) (Figure 3.2).

However, the projections undertaken by different international organizations reveal a progressive slowdown in terms of demographic increase, due to the sharp reduction of fertility rates in regions where today they still remain high. Somewhere between the end of the 21st century and the beginning of the following one the world's population will start reducing, after reaching the maximum value of 10 billion [17].

In a two-speed world in terms of economic and human growth, the relationship between population, resources and development will face a multiplicity of challenges. The most developed countries will struggle with the accumulated effects of the double ageing of their age structures (less youngsters, more people with at least 60 years old), scarcity and ageing of their active population, the need of redefying labor market rules and social support systems, and a growing dependence on (not always wanted) migrations.

At the same time, more than 80 percent of the world's population will be confronted with the effects of a still substantial demographic increase rate and most of all with its

consequences to access vital resources, conditioned by new global phenomena such as global warming, water scarcity, and soil desertification.
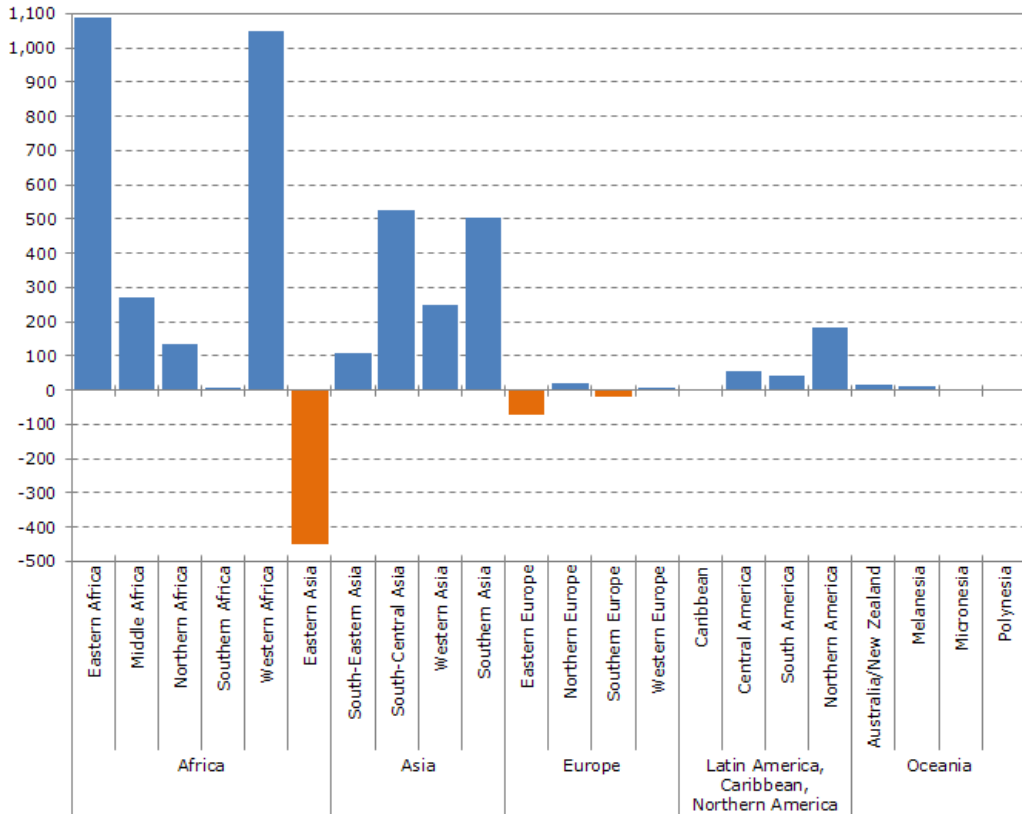
Source: UNDP [30].

Figure 3.2. World's population. Trends and distribution (2010-2100).

The inevitability of demographic asymmetrical growth (Figure 3.3) generates other uncertainties, particularly how to ensure the urgent improvement of life quality and well-being indicators in the least developed countries, against a backdrop of sharp demographic increase. And also how to ensure their economic development, considering the weakness of their domestic markets. Once again in mankind history it will be urgent to find a suitable answer to the following questions [21]: how to ensure a balance between population and resources, without endangering the necessary and desirable economic, social and human development? How to assure that this process guarantees a closer relationship between levels of well-being among populations without compromising the sustainability of vital resources and without increasing the pressure on the natural or built environment?

The management of the trilogy population, resources and development is increasingly difficult, as the geography of most vital natural resources does not match the geography of population (Figure 3.4). The growing pressure on resources, under the form of consumption and particularly of degradation, aggravates stress situations. Pollution levels are rising, as well as soil deterioration, shortages of drinking water and hunger episodes, as a result of the asymmetric distribution of resources, in the context of climate change. The latter act as multipliers of risks and threats and are potential facilitators of social tensions and conflicts.
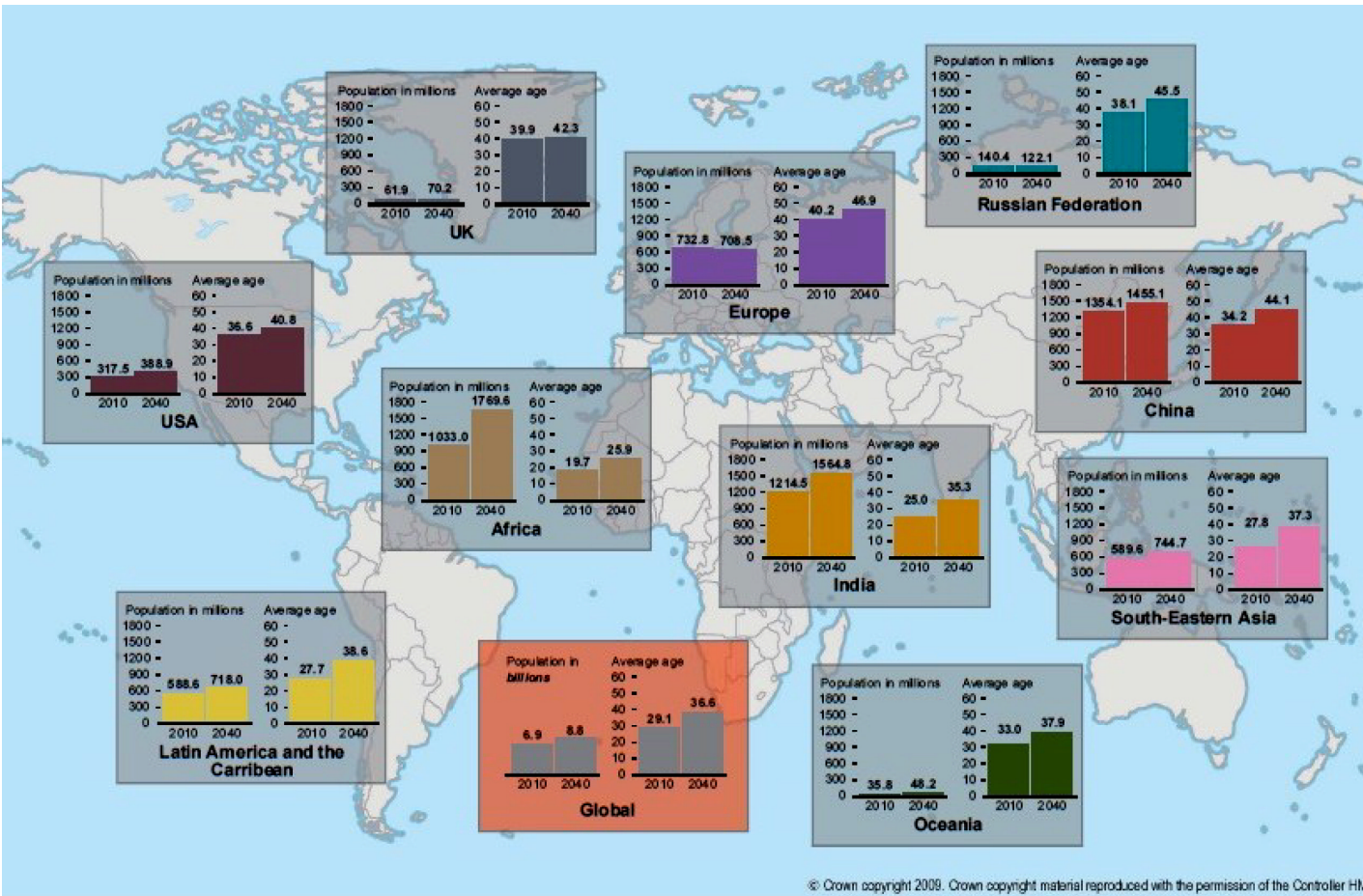
Source: Global Strategic Trends [11].

Figure 3.3. Growth population rates and median age (2010-2040).
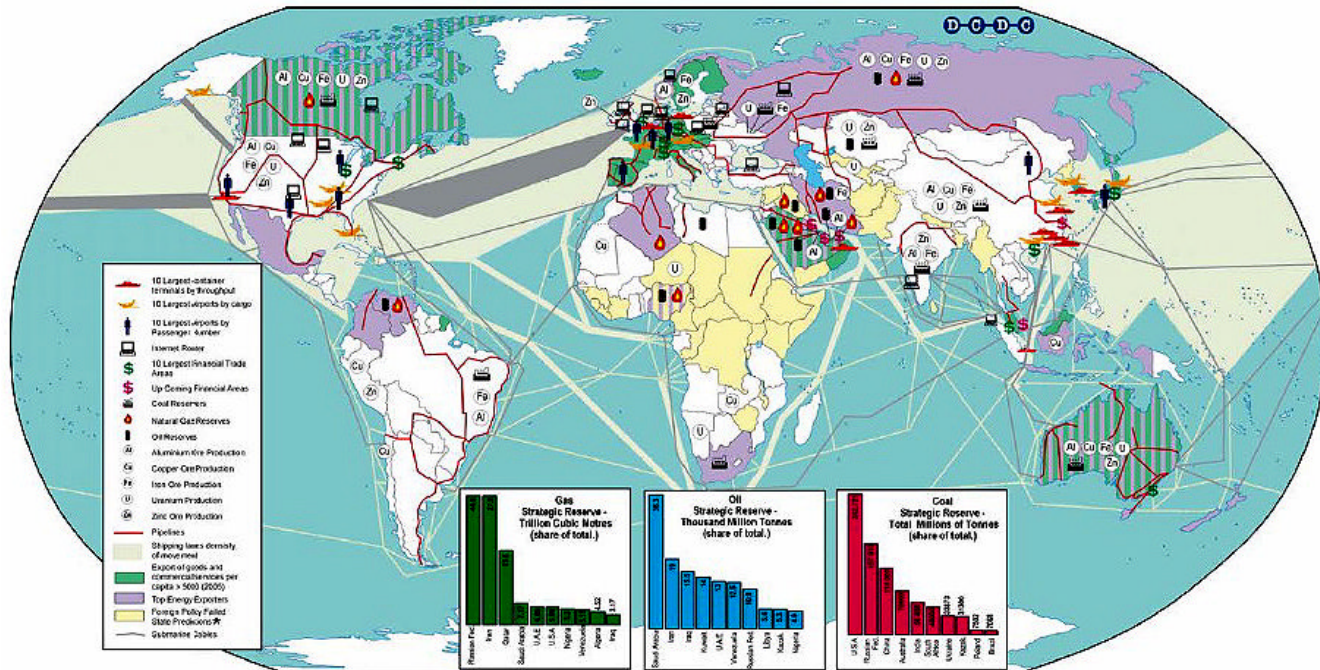
Source: Global Strategic Trends [11].

Figure 3.4. Infrastructure and global resources.

They intensify disparities between groups, ethnicities and political entities, generate processes of forced migration, either in the search of these resources or simply to escape from their costs. The challenges of global society tend to transform population into a vector that can trigger security risks [11].

Demographic dynamics figure among the MEGATRENDS assumed by the NIC for 2030 [11], although they are also seen as background for most of the GAME-CHANGERS. But of what are we talking about? 1) of individual empowerment, which will be accelerated by poverty reduction, growth of the global middle class, greater educational attainment, widespread use of new communications and manufacturing technologies, and health-care advances; 2) of power diffusion, as power will shift to networks and coalitions in a multipolar world; 3) of demographic patterns, as the demographic arc of instability will narrow; economic growth might decline in "aging" countries; 60 percent of the world's population will live in urbanized areas; migration will increase; and 4) of tackling problems pertaining to one commodity will be linked to supply and demand for others, as the demand for food, water and energy resources will grow substantially due to demographic growth.

THE COMPLEX LINKS OF SUSTAINABILITY

The world of the 21st century inherited from the former one the need to understand and regulate the challenges and opportunities produced by globalization, but also the urgency to address the risks associated with it [24]. The relationship between population volumes and security is more complex nowadays, as we have populations with different characteristics and we also have new concepts and new environments of (in)security.

World society faces an increased interdependence of powers. In this complex reality the State performs the difficult role of acting as a moderator between the commitments undertaken externally within alliances and international institutions, while guarantying its acceptance by civil society and non-governmental agencies [1]. Countries with better socio-economic indicators and a better degree of political and social structuring can manage the neo-liberal offensive, even with different degrees of success. However, in the case of poorly consolidated states the process overlays the way to situations of tension and disruption, which can worsen internal inequalities. The accumulation of differences between those who are able or unable to follow the process creates risks of human security at an international scale, associated with exclusion processes, most of which have a clear spatial interpretation. One should discuss the achievement of balance between equality and equity, equality and/or identity, equality and/or profitability, redistribution or reward, the articulation between a global and "world culture" and regional specificities [2].

At the beginning of this century the world isn't getting politically more integrated, economically more interdependent, culturally more homogeneous or safer [27].

The Population-Development *nexus* returns to the agenda in a global risk society and acquires a new perspective of analysis: human security [25].

As we live in a two-speed world, nature is no longer used or shaped according to human interests in the short run. In fact, the new actors of the international system have to focus in the management, resolution or mitigation of problems that arise from the effects of technological and economic options from previous generations. We deal with different types

of risk (natural, technological, global and mixed) and different risk analysis dimensions, including spatial, temporal and social ones.

Our current society is characterized by the globalization of risk, in terms of intensity, generalization, existence or weightlessness of certain risks and the development of new ones. It also faces the ambivalence in the decision concerning the risks, as well as the need for international cooperation for its regulation and neutralization. We refer to risks without borders, both natural and technological, resulting from transnational threats and identity (e.g., pollution knows no borders, nuclear waste and genetically modified organisms have a long life span) [25]. Man's relationship with the ecosystem is at present characterized by new questions and concerns. Today's society faces a "readjustment crisis" of unpredictable extent in rhythm and intensity, which can even worsen for the coming generations, as the ecological footprint grows. How can we joint a world of contrasts?

Some controversy and major uncertainties frame the attempts made to rank the world's current and future global risks, according to their impact to human societies. The situation becomes even worse, if we consider its variability according to geographic regions. The international scientific community has given relevance to the effects of climate change, the issue of public health, armed conflicts, financial instability, poor governance and corruption, malnutrition and hunger, migration, ensuring access to drinking water and sanitation structures, trade barriers [7]. This listing, far from exhausting the emerging concerns, can be further simplified if restricted to the problems with larger consensus [14, 15].

Let us address some of them (Figure 3.5).

Climate change and global warming - major changes in ecosystems contribute to the decrease of the ice cap, the rise of water levels and coastal flooding, scarcities, desertification and famine, as well as a higher probabilistic occurrence of cyclones and other climate incidents [6, 16]. Pollution levels have risen, just like soil degradation, scarcity of drinking water and food, as a result of the asymmetric distribution of resources.

Climate change is a risk and threat multiplier and a potential catalyst of tension and conflicts associated with food insecurity, and access to clean water and energy. It deepens asymmetries between social groups, ethnicities, rich and poor populations.

Although climate change is never the only cause of conflict, it can increase its probability. It also generates forced migrations and struggles to ensure the ownership of these resources or to escape the consequences of its shortage. Most of the States affected by conflict already face social, economic, and political instability, which means that they will find it difficult to address the impacts of climate change.

Provision of drinking water - over the last fifty years freshwater resources have declined swiftly. Today, over a billion people have no access to sufficient quantities of water and two more billion do not have access to drinking water. The consumption's increase is accompanied by the diminishing of its quality, with direct impacts in food security and public health. Demographic growth will increase the need for water in the near future, requiring new technological investments and most of all a concerted international solidarity. Guarantying sufficient water will become a problem of international solidarity, but the forms and ways of doing it remain still unclear.

Technological risks - Nuclear energy is one of the best examples of technological risk, and a subject of the international political agenda. The option for nuclear energy can reduce the impact of global warming. However, its use is associated with severe accidents caused by the release of radioactive gases and also with the possibility of its use for military purposes or

terrorist acts (Weapons of Mass Destruction - WMDs). Another sensitive area in the field of technology lies on genetic research, molecular biology, cloning and genetically modified organisms.

Climate change and global warming	The provision of drinking water	Technological risks
Public health, infectious and "avoidable" diseases	The impact of demographic ageing	The unevenness of life in the large megacities
The instability bred by the international migration	The management of wealth and opportunities	The ecological balance

Source: Author's elaboration.

Figure 3.5. Human population and global risks.

Public health, infectious and "avoidable" diseases - World's population health status has improved in the last decades. But despite all progresses situation is still far from satisfactory. Some diseases considered controlled in the past decades returned suddenly, new diseases with unknown prophylaxis appeared and the number of degenerative and disabling diseases increased [13]. The main problem is that in our progressively globalized society a growing number of individuals does not have access to health care or does not receive the appropriate treatments. According to the World Health Organization (WHO), 90 percent of the treatment means are committed to a tenth of world's total population. The situation is illogical: Africa loses 12 billion dollars per year due to malaria consequences, while a lower investment would assure the control of the disease. Moreover, donations in the domain of health cooperation faced a backspace in the last few years, due to the unfavorable economic context.

Management of wealth and opportunities - the percentage of world's poor people is decreasing, but not the number of poor. Regional inequalities have decreased, but not in regions or social groups who failed to keep up with the challenges introduced by globalization. Even in societies where the average income levels increased there were globalization "collateral" effects, visible in the rise of internal inequalities [35].

Impact of demographic ageing - in the coming decades there will remain a coincidence between aged societies and societies with better indicators of human development [20]. In fact the globalization of the aging phenomenon represents a victory of man over death. The

problem is the speed of the process in contexts of scarce sustainability and weak support networks. Changes in population's age structure in a given territory influence its economic capacity, governance characteristics, military strength and also collective behaviors [21]. As we know, the different chronologies of population's aging creates regional imbalances between demographic growth rates and most of all a growing migratory dependency in most developed societies.

Instability bred by international migrations - migratory movements represent one of the most obvious testimonies of world narrowing. But migration is a complex phenomenon, which does not fit in a strict economic logic. Therefore migratory movements and volumes represent one of the biggest challenges for the international community. There is no linear relationship between who wants to migrate and those who are wanted by host societies. But the dissemination of information on economic opportunities and the access to certain goods that define degrees of life quality will inevitably increase over the coming decades the volumes of migrants. All forecasts agree on an increase in the number of those who want and will leave their countries of origin [26].

Unevenness of life in large megacities - According to the United Nations, in 2008 the global urban population surpassed half of the world's population. Nowadays 52 percent of the world's population is urban. The number of urban residents will continue to grow at an accelerating pace during the first half of the 21st century, with the number of larger cities increasing as well. Delhi, Dhaka, Jakarta, and Mexico City will surpass the 30 million residents and more than 500 cities will have more than a million residents within a decade. Most of the global population growth will continue to be urban and take place in the developing world. Simultaneously urban inequality is becoming widespread and poverty average rates are increasing [4]. Moreover, life is dangerous in non-European megalopolis [7].

Ecological balance - The planet does not lack natural resources, and the real question lies in its unequal distribution [33]. The implementation of guiding principles of sustainable development must be based on effective planning, which: 1) enables population's growth in a perspective of resource sustainability and reduces the use of harmful products for human health in food production processes; 2) ensures food for all in the long term, through the adaptation of crops and soil stabilization to local resources, reforestation and the retreat of desertification; 3) preserves biodiversity and ecosystems, even in contexts of human pressure; 4) reduces the consumption of non-renewable energies and develops technologies to promote the use of renewable energy sources; 5) increases industrial production based on ecologically adapted technologies; 6) controls regional planning; 7) bets on environmental education, new forms of citizenship and behaviors (the recycling of renewable materials/unusable or not wasting water and food are exemplify the importance of the education of future generations).

Countries that lack the means to provide for their citizens' basic needs face greater risks of instability and conflict. The PAI identifies a few links between demographics and security to highlight strategies for governments and global institutions to combat poverty, ensure that growing nations develop sustainably, and create a more stable world. Some programs that promote demographic transition (such as family planning, girls education, maternal and child health, HIV/AIDS prevention, care and treatment) should be an integral part of the development assistance [22].

The future has to be seen in a perspective of sustainability which can only be achieved through a global diagnosis. We face a time for reassessment, and of search for new paradigms where human populations are the structuring element [25].

DEMOGRAPHY MATTERS. CROSSING LINES

Demographic trends influence political stability and security. We should not neglect the importance of demographic studies as an instrument of decision in security and defense policies. To further recognize the importance attributed to population volumes, it is paramount to obtain and manage information on the different kinds and geographical directions that demographic dynamics may assume.

Demography is progressively in the policy agenda and the diversity and novelty of the field requires a close connection between academics and policymakers.

Demography and policy influence each other. It is important to understand how governments perceive their own demographic issues and how these issues are integrated at different national and global levels. The question is whether demographic trends are dealt with sufficient resources.

What is therefore the influence that demographic dynamics have in a given political entity? Which other settings should be considered when it comes to measure the potential role or relevance of a given political reality in today's globalized world?

We can underline four factors or spheres of context:

1   Natural environment, i.e., location, topography, climate, natural resources;
2   Economic system, i.e., the status of the entity on the global economic system, either if it assumes a leading role or a role of economic dependency in a regional context;
3   Political system, i.e., if either we refer to a democracy or a dictatorship, a stable political regime or a vulnerable one;
4   Finally, men: a) in terms of volume large populations' benefit from an advantage situation, as a small country, even though highly developed, has greater difficulties to stand in the international system; b) the levels of human concentration and urbanization are also relevant, as the likelihood of social exclusion and facilities to uphold subversive practices are easier in areas with higher densities; c) the population's age characteristics in richer and older societies determine geriatric peace situations and intensify the real or perceived insecurity. In less developed societies the concentration of youngsters can fuel social tensions, as a result of poor living conditions, unemployment, and social exclusion.

So, today and in the near future we must consider four essential aspects in the link between population and security:

1   A two-speed world: population growth along with demographic inertia factors lead to a rapid population growth, which is higher in less developed regions. But population increase is only an advantage a) if complemented by internal stability, and b) if the State involved has endogenous capacity to maximize the advantages of this new

workforce. On the other hand, the ageing phenomenon of societies with better indicators of human development makes them lose military capability and human force (hard power). In this case only alliances and technological investment can make up for the number disadvantage.

2   Globalization of migration: we face more sensitive and rapid human movements as a reaction to economic and political stress situations. Human mobility generate changes in cultural identity, balances in internal and regional powers and can be a source of conflicts and insecurity. All regions become regions of origin or destination of migrants. The percentage of foreigners in almost all societies rises, as well as the variety of nationalities, profiles and expectations [29].

3   Urbanization and asymmetric internal migration: the privileged directions of migration flows can reduce wealth standards in the most attractive societies. It can also increase the likelihood of occurrences and the intensity of humanitarian disasters. As we saw poverty is becoming an increasingly urban phenomenon. These profound demographic and economic changes are go along with geographic changes, which are especially important in a time of global climate change. Social inequalities are greater in the global cities of the 21st century, where vulnerable populations live. The scale and complexity of urban communities requires that politicians promote broader development and that security agendas acknowledge the urban context [4]. Urban growth clustered in places of social tension and economic exclusion increases the risk of violent occurrences. Anonymity is easy in the illegally built neighborhoods, safe havens for subversive actions and terrorism.

4   Age structure changes: changes in population age structures influence local economy, military capacity and governance. Youth predominance can accentuate social claims against the existing authority and dominant life conditions. Urban young people with some instruction, unemployed and with frustrated expectations easily join mercenary forces or adhere to radical groups. Moreover, in societies with numerous elders, isolation and vulnerability will increase insecurity, real or perceived. Political stakeholders will face the problem of what to do with so many youngsters, while others will face the issue of what to do with so few [22].

The link between demography and security requires a continuous process of adjustment, as we face dynamic realities. The future implies the redesign of global society, ensuring the sustainable management between more aged societies, complex and distinct migratory flows, needs in terms of economic development at local, national and global scales, without threatening human rights and guarantees.

In 2004, the United Nations established a Human Security Unit promoting the protection and empowerment of people to achieve "*survival, livelihood and dignity*" [32]. Human security includes four aspects: survival and physical safety; conditions for health and economic well-being; legitimate, trustworthy and capable governance; and individual dignity [3]. This concept, based on the dignity of the individual, implies a concern for our environment and with the geographical universe that surrounds us. Security is mainly the product of proactive and preventive attitudes and behaviors.

Demography matters, but we must avoid the securitization of the demographic issue. Population volumes need context. They are insufficient in themselves to foster social

tensions, political or economic disruptions, and conflicts. Population dynamics can create insecurity but they can also give answers.

As already stated, we believe that population trends should be read as an indicator, a resource and a multiplier. The link between demographic dynamics and security is not univocal. The same demographic behavior can have different impacts, depending on climate conditions, social reality and political context.

This happens mostly because threats assume diffuse forms in response to changes of various kinds, including the environmental ones. They frequently imply population mobility and displacement and in a matter of weeks they can change the human composition of a given region.

Future implications of security arising from demographic trends will depend on the political capacity (especially of institutions, Governments and a growing set of actors) to deal with the inevitable challenges.

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Chapter 4

INTERNATIONAL MIGRATIONS, SECURITY AND IDENTITY

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ABSTRACT

Over the three last decades, as the very idea of security has expanded beyond the traditional concern about territorial integrity and defense against military aggressions, the relationship between international migrations and security has become a hot topic in academic literature, the media and for the general public. After emphasizing the growing importance of international migrations in a globalized world, this chapter focuses on one of the several dimensions of the so-called migration-security nexus: the possible threat to collective or national identity that international migrants can represent for host countries. In fact, international migrations are moving significant amounts of people from their countries of origin to receiving societies where the differences in religion, political beliefs, social values, and lifestyles between natives and immigrants appear to be very salient. This is particularly so in developed countries, where these differences are often seen as putting in jeopardy their societal security, cultural cohesion and collective identity. Although Muslim immigrants are not the only case of potential conflict with the cultural majority in ethnically heterogeneous societies, special attention has been devoted to them in European countries, not only on account of their potential role as vectors of global terrorism, but also due to the size of these displaced Islamic communities and the obstacles found in their path to social and cultural integration in host societies.

INTRODUCTION

There is nothing intrinsically new in the phenomenon of contemporary migrations: territorial and geographic mobility has been a persistent trait of human populations from their

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origins [36]. However, the magnitude, reach, frequency, causes and significance of these movements have varied a great deal over time and space. Human history has witnessed both short movements of small communities and long movements of large populations that have ended up occupying entire continents. In the same geographic areas, periods of scant migration have alternated, sometimes suddenly and unexpectedly, with massive exoduses. From time immemorial, differences in wealth and the quality of life between countries, demographic pressures derived from excessive population density or imbalanced age structures, political, ethnic or religious persecution, as well as natural disasters, have induced human beings to abandon their birth places to look for better opportunities, escape violence and oppression or simply to reunite with family members living in other countries. And although not all population movements have had, have or will have the same importance, those that involve a certain number of people usually imply changes for the emitting and receiving societies, which can sometimes be transcendental. A good illustration of the historical significance of migrations can be found in the experience of countries in which international emigrants played a decisive role in their formation (e.g., United States, Argentina, or Brazil). Or the establishment of ethnic communities and diasporas in receiving societies. The reader can easily find many cases of such communities and the political, social, economic or cultural roles that they carried out. Just to mention a few examples, we can cite the Jews, Albanese, Armenians, Russians, Chinese, Cambodians, Mexicans or Cubans who have left the places where they or their ancestors were born.

Although it is not a new phenomenon[1], international migrations have acquired a truly global importance today. There are various reasons that explain why large cross-border population movements are one of the most distinctive structural characteristics of globalization [9]. First, international migrations are no longer limited to or localized in certain areas, but rather they have extended all over the planet: an increasing number of countries are finding themselves affected by them and the origins of migration flows and their destinations are increasingly diverse. In fact, along with the transnational movement of goods, capital and ideas, large movements of people from one country to another constitute one of the defining traits of globalization. More flexible and comfortable transportation that is also safer and cheaper has facilitated –and in all probability will continue to facilitate in the future– international movements of people in a context of increasing economic interdependence between different societies. Second, the direction of international migration flows is rapidly changing, sometimes radically. From a historical point of view, the clearest case of migration flows changing direction can be seen in Europe, a continent that traditionally transferred part of its population to other parts of the world through conquest, colonization and voluntary economic migration, but that after World War II began to attract many international migrants. In recent years, more and more European and non-European countries are producing an authentic migration transition in which emigration countries become immigration countries. Spain, Italy, Mexico, Turkey and Korea have all followed this pattern, while Poland has undergone a change in the opposite direction, becoming a country of emigrants.

And thirdly, the reasons for migrating (economic, labor related, educational, family reunification, political, recreational, etc.) have become increasingly diverse on the global

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[1] It is estimated that during the second half of the 19th Century and until World War I, around 60 million Europeans moved mainly to the Americas, Oceania and South Africa. Hatton and Williamson [25, 26] have named this period the age of mass migration.

level as modern communication technologies provide greater access to information that can be exchanged more fluidly and quickly on the comparative living conditions in the emitting and receiving societies.

This also means that migrants and the kinds of migrations in which they participate are growing more heterogeneous. The growing feminization of many contemporary migratory movements or the permanent migrations of retirees are proof of this. All these factors suggest that international migrations can become, if they have not already, one of the most powerful forces shaping globalized societies on the planet.

The intensity of international migrations observed during the second half of the 20th century and their predicted acceleration in an increasingly globalized world have made large population movements a priority on domestic political agendas and for international relations. Obviously, migration policies are not a recent development and migrations have always had notable economic and social effects on both receiving and emitting countries.

But it is growing ever clearer that the political implications of migrations are gaining greater notoriety and relevance, becoming an issue of great interest and concern to governments and international organizations. The realization of how difficult it is for nation-states to manage migration flows by themselves within the context of globalization and the demand for transnational or genuinely global regulation instruments are clear symptoms of the political prominence that migrations have recently acquired.

One of the most explicit aspects of this growing politicization of international migrations is its association with security problems [3, 23]. Although not without criticisms [17], the migration-security nexus has been consolidated as a public policy issue and academic subject, in which unwanted or unregulated inflows of foreign populations are viewed as a possible threat to state security. At first glance, the most obvious implications that migrations have for state security are related with the border control that states must carry out to stop the flows they do not want to enter their territories.

But interestingly, the conversion of migrations into a security issue has coincided with an extraordinary conceptual transformation of the notion of security itself over the past few decades, which is now seen in much broader terms than the traditional concern of protecting the integrity of the state's territory and defending against military aggression.

After documenting the growing importance of international migrations in a globalized world and reviewing how they can be a threat to security, this chapter focuses on one of the several dimensions of the so-called migration-security nexus: the possible threat to collective or national identity that international migrants can represent for host countries.

In fact, international migrations are moving significant amounts of people from their countries of origin to receiving societies where the differences in religion, political beliefs, social values, and lifestyles between natives and immigrants appear to be very salient. This is particularly so in developed countries, where these differences are often seen as putting in jeopardy their societal security, cultural cohesion and collective identity.

Although Muslim immigrants are not the only case of potential conflict with the cultural majority in ethnically heterogeneous societies, special attention has been devoted to them in European countries, not only on account of their potential role as vectors of global terrorism, but also due to the size of these displaced Islamic communities and the obstacles found in their path to social and cultural integration in host societies.

INTERNATIONAL MIGRATIONS IN THE CONTEMPORARY WORLD: AN OVERVIEW

There is a broad consensus among specialists that in an increasingly globalized world international migrations will become more intense[2]. This prediction is also a projection into the future of the tendencies observed in the recent past. Although it is always difficult to obtain precise estimates on the volume of international migrations, it seems clear that over the past years it has increased in scale and magnitude. According to the available data (Table 4.1), in the last fifty years the stock of international migrants in the world (defined as individuals who live for at least one year in a country they were not born in) has multiplied by nearly a factor of 3, increasing from 77 million individuals in 1960 to 214 million in 2010. This growth was slow in the 1960's and 70's, accelerated in the 80's, slowed down in the 90's and accelerated again during the first decade of the 21st century. Obviously, one of the reasons the number of international migrants increased during those fifty years is simply because the world population also grew. But if we consider that the world population multiplied only 2.3 times, international migrants have grown more in relative terms. This means that while in 1960 international migrants represented 2.5% of the world population, in 2010 they reached 3.1%. Therefore, despite the growing tendency to migrate, the vast majority of the inhabitants of the planet have either not migrated or they have done so within the borders of their own country[3].

Most international migrants change countries voluntarily, usually for economic reasons. But some of them are forced migrants who become refugees: war, political violence and repression, as well as ethnic (racial, linguistic, religious) persecutions and major natural disasters obligate people to move and seek shelter in safer areas. For example, the recent civil war in Syria has produced more than two million refugees since 2011 who have settled, sometimes precariously, in neighboring countries. Because the factors leading to these movements are often unpredictable, and their success depends on asylum policies in receiving countries, it is difficult to anticipate tendencies when talking about refugees.

Table 4.1. Millions of international migrants in the world, several years

Year	Refugees	Voluntary migrants	Total migrants	World Population
1960	1.8	75.3	77.1	3,026.003
1970	2.0	82.5	84.5	3,691.173
1980	8.4	93.6	102.0	4,449.049
1990	18.5	137.0	155.5	5,320.817
1995	18.5	147.5	166.0	5,741.822
2000	15.6	162.9	178.5	6,127.700
2005	13.9	181.4	195.2	6,514.095
2010	16.3	197.6	213.9	6,916.183

Source: UN DESA and Migration Policy Institute [52].

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[2] This broad agreement [22] has emerged despite the well-known fact that, in comparison with birth and deaths, migrations are the most unpredictable element of the balancing equation of population change.

[3] Globally, internal migrations are more common than international migrations due to the volume of domestic movements in countries with large populations, such as China, India, Indonesia or Brazil.

An analysis of the recent past reveals that at certain times during the period between 1960 and 2010, refugees accounted for a considerable part of the total number of international migrants (up to 12%). This percentage grew strongly in the 1990's, then tapered off and stabilized during the first decade of this century. As a consequence, at the beginning of the new century refugees have become a smaller part of the total number of international migrants. The growth of the 90's was strongly influenced by the breakup of the USSR and the Balkan conflicts; the later change in this tendency is largely explained as the result of less favorable asylum policies in developed countries, in particular European countries [24].
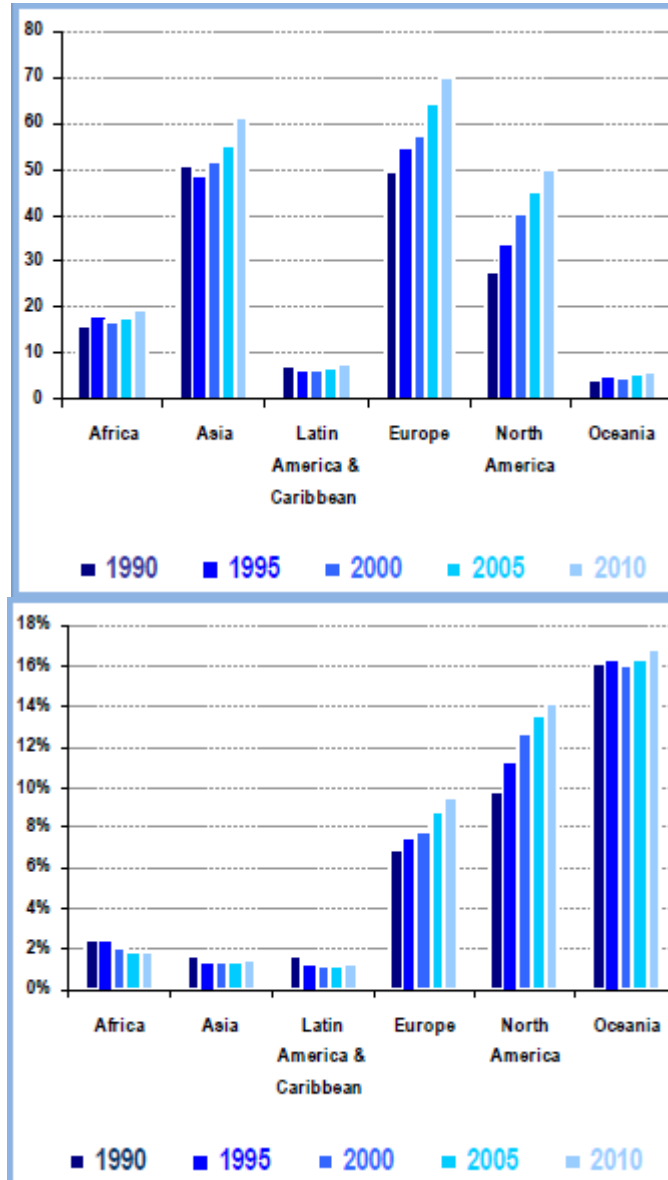
Source: United Nations, Department of Economic and Social Affairs, Population Division [52].

Figure 4.1. International migrants. Absolute numbers (millions) and as a percentage of the population.

It is not surprising that international migrants are not distributed equally throughout the planet given the enormous disparities in income, wealth, security and welfare between different regions of the world. As expected, the development divide is the fundamental aspect. Figure 4.1 presents the distribution by continent of international migrants over the past twenty years, revealing that the dominant flows of international migrations have been mainly directed from developing countries to developed countries. However, it is important to make a distinction between absolute and relative data. In absolute terms, in 2010 Europe (70 million), Asia (61 million) and Northern America (50 million) were the regions most populated by international migrants; in comparison, 19 million of those migrants lived in Africa, 7.5 million in Latin America and only 6 million in Oceania.

But an examination of the percentage of migrants relative to the total population of the receiving countries tells a different story. A very high number of immigrants live in Asia, and this number has increased by approximately ten million over the past two decades, but the proportion of the total population of the countries in which they live (1.5%) has hardly changed. Conversely, although Oceania has received a limited number of international migrants, they represent a high percentage of the total population (15%). The migrant populations in North America and Europe have increased both in absolute and relative terms, as they are the preferred destination for migrants looking for advanced societies that offer better life opportunities than those available in the developing societies they abandon when they emigrate. The countries of Oceania, North America and Europe present the highest levels of economic, social and human development on the planet; in addition, compared to the rest of the world, they have low rates of demographic growth and old populations as a result of their low fertility and mortality. It is true that the absolute and relative stocks of immigrants vary between these three wealthy regions of the world, but their attraction to migrants has been, and will probably continue being, unquestionable.

On the contrary, the countries of Africa, Asia, Latin America and the Caribbean, with high rates of demographic growth and large populations of young people have very small percentages of international immigrants, around or below 2%. In fact, many of these African, Asian and Latin American countries emit migrants towards the developed world.

There are countries that have extremely high proportions of immigrants, far exceeding the native population —for instance, 70% in Kuwait and United Arab Emirates or 86% in Qatar in the Persian Gulf. But these are usually small countries with economies that are highly concentrated in a single sector (oil) and of relatively little importance in world demography[4].

Therefore, when studying the impact of migrations on receiving countries the focus should be on developed countries in particular. Nobody can deny how important emigration is for developing emitting countries, as can clearly be seen by the volume of economic resources they receive in remittances.

However, it is in the most developed countries of Europe and North America where the proportion of immigrant population is relatively larger and has grown most significantly over the past few decades, something that has not occurred in African, Asian or Latin American countries.

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[4] The migrant share is also very large in some microstates (Luxembourg, Liechtenstein) or city-states (Monaco, Singapore). These political entities are known by their very relaxed fiscal controls and their supposedly high numbers of bogus residents. Not reaching such migratory levels, other countries like Jordan, Saudi Arabia, and Israel have also received large contingents of international migrants.
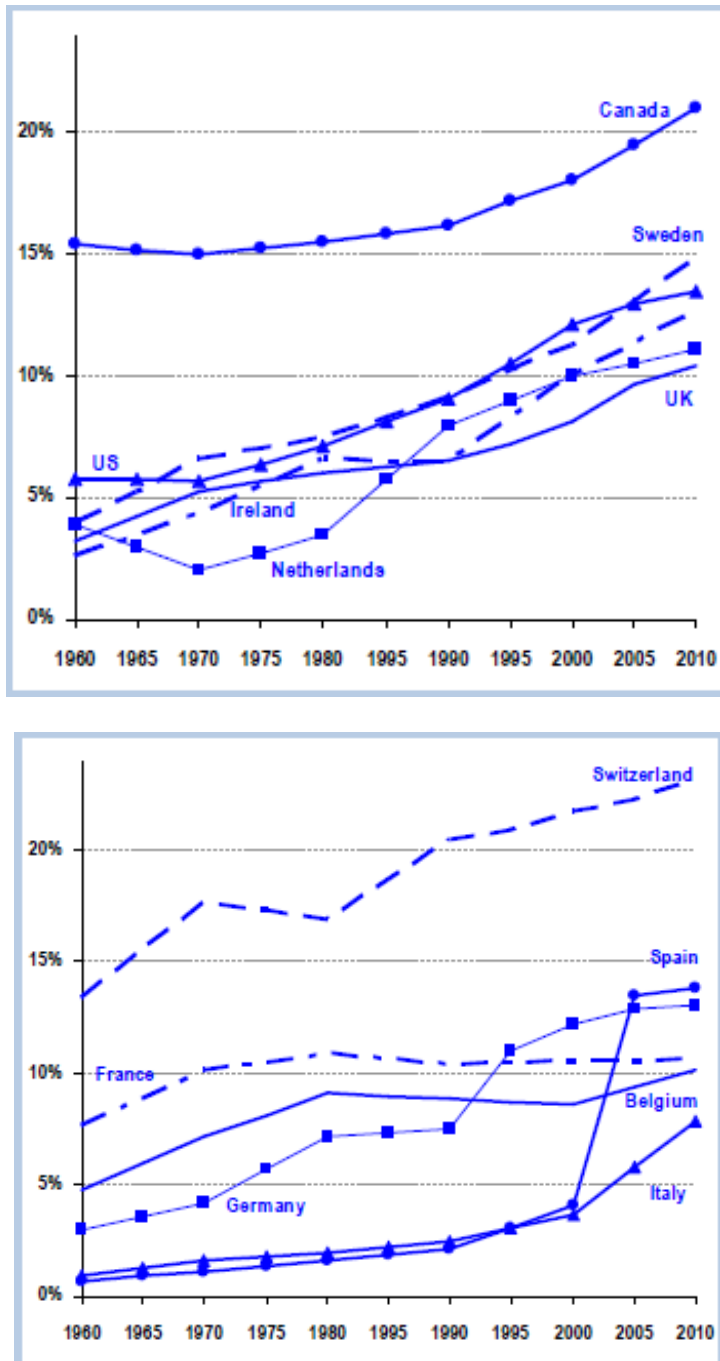
Source: UNDESA. Migration Policy Institute [52].

Figure 4.2. International migrants as a percentage of the population. Selected developed countries.

Figure 4.2 shows that in a selected group of European and North American receiving countries the clear tendency over the past half century is a growing immigrant population. Currently, immigrants constitute at least 10% of the population of Sweden, the United Kingdom, the Netherlands, Ireland, Canada and the United States. In those six countries

immigrant flows have grown noticeably over the last fifty years. Other countries in Central Europe (Germany, France, Belgium, and Switzerland) and Southern Europe (Spain and Italy) have also undergone the same ascendant tendency. In these European countries, more than one out of every ten residents are immigrants[5]. In order to anticipate future tendencies, the percentage of the total population of a receiving country represented by immigrants is very important. As Collier [14] convincingly argues, the size of the diaspora is *ceteris paribus* one of the factors that accelerates immigration through the mechanism known as the 'migration function' or immigration supported by diasporas: the larger the diaspora is, the faster the immigration to join the diasporic community.

Returning to Figure 4.1, the data shows that Europe and North America are the only large regions of the planet where there is a large concentration of international migrants that also constitute a large percentage of the receiving society. Such countries face a dual challenge that has become more urgent over the past fifty years: regulating growing migration flows and integrating populations that are becoming more culturally and ethnically diverse. At the same time, these countries are major protagonists on the international scene. As a consequence, in recent years migrations that cross national borders have been politicized [9]. That is, they have become more politically relevant than in the past, becoming a priority on domestic political agendas and are the object of intense debate among the public and its political representatives. Clear examples of the growing politicization of international migrations include the increased concern with immigration after the September 11 attacks in 2001 in the United States and the attribution of migration control functions to the Department of Homeland Security in 2003; or the appearance and relative growth in some European countries of political parties whose programs are explicitly anti-immigration. International migrations have also been the subject of bilateral and regional accords between nations and have become an important objective in the work of international diplomacy. Additionally, over the past few years various initiatives have been developed to try to place international migrations in the field of action of emerging institutions of global governance. In one way or another, all of these developments have ended up situating international migrations in the field of security analysis.

HOW INTERNATIONAL MIGRATIONS CAN BE A THREAT TO SECURITY

To understand how international migrations can be a security threat it is worthwhile to start with a brief review of the idea of security itself and the remarkable expansion of its conceptual content over the past few decades. At the same time that analysts, political authorities, journalists and the informed public grew aware of how important international migrations had become in an increasingly globalized world, the notion of security underwent something akin to a mutation, something like a paradigm shift. The result has been that the traditional conception of security as a nation defending its territorial integrity from military aggression has given way to a much broader, more inclusive and complex understanding in

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[5] The exception is Italy, which in 2013 had 5.7 million immigrants, representing 9.4% of the population of the country.

which the center of attention is no longer a country's borders and its territory, political order or basic infrastructure, but rather society in the broadest sense of the term.

In a globalized world, viewing security as how a nation can survive external military attacks is considered, at the very least, insufficient; new threats to security have been perceived and the types of physical and even symbolic entities that warrant protection have been broadened. The concepts of human security [44, 49] and societal security [54] respond directly to these new demands, although they are not free from criticism [40, 50].

The geostrategic context of this transformation of the idea of security is well known. The fall of the USSR, the disappearance of the Soviet Bloc and the collapse of the bipolar system of the Cold War produced a new framework for international relations in which not only have powers that were once irrelevant or had little political, economic or military power appeared and consolidated, but also non-state actors with the capacity to destabilize situations that were previously in equilibrium and provoke violent conflicts have also proliferated. The novelty of this situation compared to the bipolar order is that in these new conditions the possible conflicts, risks and threats, as well as the strategic actors, do not necessarily, or do not only, fit into the traditional framework of interstate relations. A very telling datum in this respect is that the number of armed conflicts —both interstate war and civil or societal warfare— has significantly decreased in recent years [38]. Under these premises, experts are concerned about the problems that can arise when states collapse or do not display sufficient institutional strength to maintain security in their territories or when their weakness becomes contagious to neighboring countries. Authors such as Bobbit [5] have pointed to the relevance of threats that can arise from attacks by global terrorist networks, the proliferation of weapons of mass destruction or humanitarian disasters. In these circumstances, the possibilities of asymmetrical conflicts emerging that seriously threaten security are increasingly real[6].

In parallel, and from a purely conceptual point of view, the idea that security is a social construction that can have different meanings in different societies —even in different sectors of the same society— is beginning to spread among experts. A fundamental aspect of this new conceptual focus is that it does not understand security as a category with unanimously accepted or objectively determined empirical values, but rather as an issue subject to evaluation using heuristic procedures.

And the same thing occurs when attempting to determine when a risk, whose probability is never precisely known, becomes an imminent threat. Here perceptions, impressions and sensations count, and they count a great deal [31, 57]. This gives rise to what is known as *securitization*, that is, processes that socially construct security by converting certain entities —tangible and intangible— into referent objects of security, by deeming certain factors as threats to those objects and by convincing experts, political authorities and the general public to acknowledge them (both the objects and the threats) as such. The logic behind this conceptual transformation is easy to understand: when the traditional risk of military aggression against the integrity of the state diminishes, other entities become part of the group of objects considered to be threatened and therefore in need of protection.

These strategic and conceptual changes have led to a doctrinal redefinition and reconceptualization of security in much broader terms than what had been common just two or three decades ago. Briefly put, the sources of insecurity that are acknowledged by analysts and political authorities today go far beyond the threat of military aggression by a rival state.

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[6] For a critical stance about these positions from the 'realist' point of view, see for instance Kagan [32].

Today, security threats are openly acknowledged as transversal, interdependent and transnational; because of this, the line between internal and external security has become so blurred that it is doubtful that it makes sense to maintain such a distinction; finally, there are many more objects under threat that must be defended beyond the territorial integrity of the state. A corollary to these arguments is that the traditional approach which equated security to defense no longer applies; instead, comprehensive approaches are applied to national security strategies in advanced societies. In addition to traditional armed conflicts, today the tendency among national security strategies is to see as main threats terrorism, organized crime, economic and financial insecurity, energy vulnerability, the proliferation of weapons of mass destruction, cyber threats, uncontrolled migration flows, emergencies and disasters and the eventual insecurity of infrastructures, supplies and critical services. This is the strategic and conceptual backdrop upon which international migrations have become a security issue: international migrations are securitized, giving rise to the migration-security nexus; and sometimes relevant political and social actors accept these ties [28, 51].

How exactly can international migrations become a security threat? What are the main aspects upon which the nexus between security and international migration is based? Possibly the most obvious connections have to do with the way that international migrants put at risk security understood in its most classic and traditional sense, as state or national security. But the cases in which migrations imply a threat to human or societal security have also been considered. For example, seen from the perspective of human security, it is clear that factors such as economic, food, health, environmental, personal or community security are all relevant to understanding the experience of many migrants and refugees, both in regards to the conditions that motivate or force them to move and to the conditions they endure during the move itself or those when they settle or integrate into their countries of destination.

Under the paradigm of state security, studies on political demography [55, 56, 57, 58] have pointed out various situations which produce a fairly direct relationship between international migrations and state security[7]. First of all, immigrants and refugees represent a threat to the countries of residence when they are actively opposed to the political regimes of their countries of origin and they become a source of conflict between the two countries; sometimes this active opposition is not only tolerated, but supported by the receiving country, which intensifies the conflict. A good example is the case of Cuban emigrants in the United States. There is also the possibility that the effects of these organized activities have an impact on the country of origin: the mobilization of the diaspora and the recruitment of fighters among the emigrated communities have been indicated as an important factor in transnational cycles of political violence exemplified by the cases of exiled Kosovars, Kurds and Tamils [1]. Immigrants and refugees can also be a risk to a receiving country if these groups direct their subversive acts against it. This possibility has been dramatically illustrated by the 9/11 attacks in the United States in 2001, the 3/11 attacks in Madrid in 2004 and the explosions in the public transportation system of London on 7/7 in 2005 and, in more general terms, by the development of global terrorism. A parallel threat to internal security, although

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[7] Of course, forced international migration has also been used in the past —very often in a brutal and heartless way— as a state resource to strengthen security by eliminating political dissidents, pressing neighboring states or colonizing and decolonizing. Alternatively, voluntary or induced migration can also become a tool to promote national interests, for example by attracting highly skilled workers or using displaced communities of countrymen as diplomatic agents; in this case, migrations can be considered as an instrument of 'soft power' in the international arena.

not politically motivated, arises when immigrants take advantage of the conditions offered by the displaced communities to introduce or establish organized criminal groups there, including youth groups; in these cases migration networks promote, or at least facilitate, the operation of transnational networks of organized crime.

Second, the illicit entrance of unauthorized immigrants is another way in which international migrations are a direct and immediate challenge to state security. Given that our world is basically organized in national states, migrations, and in particular unregulated migrations, represent a challenge to border control, a fundamental component of state sovereignty. A weak control of national borders, allowing a disorganized influx of significant numbers of immigrants, puts in doubt the territorial sovereignty of the state to the degree that it weakens its ability to limit access to its labor markets or public assets and, in some cases to maintain internal security [2]. Although it is usually flows toward the interior of the state that causes security problems, on occasion the difficulties come from uncontrolled outbound flows: for instance, the massive exodus of East Germans to the West through Czechoslovakia, Hungary and Poland led to the fall of the Berlin Wall in 1989.

In general, highly permeable borders are characteristic of weak or failed states. There are numerous examples: post-Gaddafi Libya, for example, in which various militias control parts of the territory with no consolidated central authority, has been experimenting a chronic problem controlling its borders that are crossed by numerous groups of African migrants and refugees on their way to Europe; similarly, the weak control of the border between Afghanistan and Pakistan has notably reinforced the ability of diverse groups related to the Taliban to act. But even developed countries that have been able to develop solid security institutions and agencies are sometimes faced with pressure on their borders from migration that they have trouble controlling.

The phenomenon of migratory pressure on borders appears whenever the number of foreigners who wish to settle in or cross a country exceeds the perceived capacity to receive or integrate them, a situation that is relatively common in areas of the world with stark differences in income that lead to migratory flows; in these cases, the cost of completely sealing the borders can be prohibitive or very difficult to assume. The application of more and better surveillance instruments and the militarization of border controls are possible responses, although they don't always produce the foreseen results. Bilateral agreements with emitting countries often help to alleviate tension. The border between the United States and Mexico is a clear case of migratory pressure that is difficult to control, despite the increase in resources dedicated to supervision and surveillance [15]. On the other hand, a recent report of the European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union estimates more than 107,000 illegal entries between border crossing-points in 2013, an increase of 48% from the previous year [19]. The highest pressure is put on the Central Mediterranean zone (above all, from Libya to Italy), followed by the Eastern Mediterranean and Balkans. Figures corresponding to the first four months of 2014 tripled those of 2013, pointing to a persistent problem of border control and regulation in Southern European countries brought about by the growing political and social instability in Middle East and North Africa (MENA) region[8].

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[8] Defective border controls often offer big opportunities to criminal networks and mafias for people smuggling to satisfy the demands of illegal migrants trying to deliberately evade immigration laws. The hateful practice of human trafficking is also facilitated by faulty border controls.

A not immediate but even so important connection between international migrations and security appears when one adopts the perspective of societal security [54].

From this standpoint, it is society —primarily conceived à la Giddens as a framework of institutions plus a collective feeling of common identity— that becomes a referent object of security and thus a security issue. Although proponents of the idea of societal security have not delivered a clear cut operational definition of the concept, embracing this point of view usually leads to the perception of two main types of possible risks or threats. Firstly, international migrants can be perceived as an excessive social or economic burden for the receiving society. In developed societies, international immigrants can be considered a threat to the socioeconomic status quo if natives are convinced that the immigrants compete in the labor markets, lowering salaries or raising prices in the housing markets. Another source of migratory threat emerges when immigrants, due to their large volume or abusive behaviors, make disproportionate use of education and public health welfare institutions, or even transportation facilities. These threatening perceptions can be even more negative if natives assume that immigrants are likely to fall into criminal activities. Although the overall impact of immigration on the economic balance of developed host societies —including alleged costs to taxpayers— is hard to estimate with accuracy and a matter of bitter debate, it produces resentful attitudes among local populations that are exploited by political parties with xenophobic platforms. Secondly, international migrations have also been judged as a threat to the cultural cohesion and national identity of host societies [2, 55, 58]. This sort of threat emerges in cases where international migrations promote the formation of ethnic communities, sometimes with powerful transnational links, whose lack of identification with or loyalty to the receiving nation and its institutions can be troublesome. This second possibility leads us straight to the issue of identity in host developed societies.

THE INCREASING ETHNIC HETEROGENEITY OF DEVELOPED SOCIETIES: FROM SECURITY TO IDENTITY

Most experts on migrations agree that one of the main challenges that will arise from recent global migration tendencies is that it will inevitably cause populations in developed societies to grow progressively more heterogeneous in terms of ethnicity over the next decades. This is mainly because the flow of international migrants will most likely continue to intensify as the world becomes increasingly globalized. First of all, the basic pushing factors that have promoted and accelerated international migrations over the past decades have not abated. Even if developing countries experience higher growth rates than developed countries, as is expected to happen, the differences in income and wealth between them will still be maintained for decades; and the salary gap between rich and poor countries will continue to feed migration flows that cross the development line, as migrants search for better life opportunities in a prosperous and safe setting. Secondly, powerful pulling factors in rich societies will continue to attract international migrants. It is known that the costs involved with migrating and settling in a receiving country are reduced in direct proportion to the size of the immigrant community already present in that country; for various reasons, migrating to a country where there is already a large community of countrymen is simply easier and less expensive. The evidence available shows that developed countries in Europe, North America

and Oceania are the favorite destinations of migrants who abandon developing countries. At present, many of the developed countries that receive immigrants have absolute and relative foreign populations that have rarely been seen in recent history. If the tendencies observed over the past few years are projected into the future, the native populations in these countries are destined to live with communities of foreigners that continue to grow in absolute and relative terms.

What we can reasonably anticipate, while keeping in mind the volatility and somewhat unpredictable nature of international migrations[9], is that the demographic futures of native and immigrant populations which coexist in developed countries will have highly divergent trajectories. The native populations of rich receiving societies generally have low fertility rates, aging demographic structures and very low growth rates; in fact, in some countries natural growth has already stopped and only migrations contribute to population increases.

However, demographic projections reveal a very different scenario for immigrant populations, which generally have larger growth rates than native populations. Two demographic characteristics will lead to the growth of immigrant communities in developed societies: the net contribution of immigration that reaches the receiving country and a higher fertility rate than the natives, at least during the initial period of settling.

As we have seen, by 2010 the immigrant populations in rich countries of North America and Europe represented around one tenth of the total population (and more than one fifth in the cases of Canada and Switzerland). Almost all Western countries have sub-replacement fertility rates and positive net migration and, therefore, the proportion of natives in the total population is set to diminish (unless their fertility rate rises or immigration is reduced). According to Coleman's [13] analysis of the different demographic projections for these countries, foreigners will account for between one fifth and one third of the total population by 2050. In 2000 between one third and one half of the immigrant population in European receiving countries were of Western origin, principally European.

However, it is expected that the new migration dynamics will greatly alter this tendency in the future, with non-Western populations gaining more weight within immigrant communities. It is estimated that the non-Hispanic white population in the United States will become a numeric minority around the middle of this century, which would be the only case in which the dominant ethnic population peacefully loses its condition as the majority since the founding of the country, a situation with no recent historical precedents. In some districts of large European cities like London or Amsterdam this transition has already occurred [13]. Even though it is true that not all immigration results in greater diversity, if these tendencies consolidate and continue in the future, the receiving societies of developed countries will have to manage unprecedented levels of internal ethnic heterogeneity.

The growing ethnic variety in receiving societies could lead to important challenges to their cultural cohesion and collective identity. Although the ideas of cohesion and identity are elusive, cultural cohesion can be understood as the degree to which members of a society share a basic set of values, rules, customs and lifestyles; identity refers to the level at which people define themselves as members of a society to which they belong. Therefore, whether or not receiving societies consider some immigrant communities a threat to their collective

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[9] Possibly the most surprising recent example of the unpredictability of migrations can be found in Spain, which received more than 6 million immigrants in the first few years of this century. In just ten years immigrants went from representing around 2% of the total population of the country to 13%. Nobody could foresee the magnitude of these migratory flows.

identity depends on to what degree the natives identify with their own culture and how much cultural distance they perceive between themselves and the immigrants [57].

In any case, and as a general criterion, once immigrant communities have reached a certain size, the cultural cohesion of receiving societies will experience tensions derived from coexisting with alternative sources of cultural identity, especially if those alternatives are defined as ethnically different from the dominant sources of the receiving society. Obviously, diversity does not only depend on the relative quantities of natives and immigrants, but also on the cultural distance between these communities. Possible identitary tensions will also depend on the ethnic origin and cultural background of the immigrant communities. In this sense, the case of Muslim immigrants settled in European countries, which we will return to later, is paradigmatic. But whenever they are perceived as a threat to the society's cultural cohesion and identity, those cultural tensions will become the subject of intense debates. In fact, they already are in practically every developed society which has accepted a large community of immigrants that is culturally different from the dominant ethnic nucleus. In many European countries —France, the United Kingdom, Sweden, Denmark, Finland, the Netherlands, Belgium, Austria or Greece— the politicization of these debates has led to the emergence of xenophobic movements and parties that react to the perceived threat of ethnic diversity with programs that are explicitly opposed to immigration.

Migration-induced ethnic heterogeneity is the primary challenge to the sociocultural cohesion of immigrant receiving societies when high levels of diversity are associated with a loss of social trust and solidarity; that is, when it inhibits the formation of social capital or destroys that which already exists. This is Putnam's [45] main argument in his empirically detailed study of the impact of ethnic diversity on the United States. Putnam shows that, despite the doubtless advantages in terms of creativity, contribution to domestic economic growth, demographic balance and the impact of remittances in the countries of origin, immigration has increased the social heterogeneity of American society and, as a result, lowered the social trust not only among but also *within* the different ethnic communities, which is much more surprising. In the ethnically fragmented settings that are increasingly widespread in the United States thanks to residential segregation, people are not only more likely to mistrust those who are unlike themselves, but also those who are similar.

In other words, immigration reduces the aggregate social capital of countries that receive it and generally elevates levels of interpersonal distrust; at the same time, the lack of trust inhibits cooperation, gives incentive to opportunistic behavior and undermines the social foundation of economic prosperity [14].

The destruction of social capital is almost directly tied to the weakening of social identity. According to Putnam, increased levels of in-group and out-group social distrust associated with the ethnic variety produced by immigration causes people to withdraw from social life and 'hunker down': social interactions diminish and there is a growing retreat to solitary activities in daily life. When this occurs, social relations become more distant and the social fabric becomes less dense. At the same time, when social distance grows it becomes more difficult to perceive the other as a member of the same group or community and to emotionally identify with him. The feelings and emotions that feed social identity weaken if we are not able to bridge the structural cracks imposed by socially segregated ethnic communities. In a nutshell, the deficit of social capital undermines social identity. And, ironically, the effects of immigration on developed receiving societies tend to bring them

closer to developing emitting societies, which suffer from a dearth of social capital, a generalized lack of interpersonal trust and fragile collective feelings on social identity.

The connection between immigration and a deficit of social capital and diminished cultural cohesion has very clear political implications. If immigration receiving societies are destined for ethnic diversity —especially if their current ethnic majorities see themselves become minorities— they will have to face the possibility that there will be substantial changes to, or even a total redefinition of, their current national identities. As Coleman writes [12], 'the character, identity, and cohesion of countries that formerly regarded themselves as nation-states could be profoundly altered'. National identity could become a much more complex and controversial issue than it is today.

For example, national histories that are taught in school, as well as foundational myths and shared symbols of national identity could be inadequate or even offensive for ethnic communities whose traditions do not coincide with the dominant traditions in the receiving society. In one way or another, multicultural societies may end up undermining the shared images and representations that are currently the basis of the political identity of nation-states of ethnically heterogeneous developed countries. Weak or debatable national identities will make it more difficult to perceive or define national interests [34, 2].

Such scenarios would be more probable if immigrants in multicultural societies were organized as transnational communities with diasporic identities, networks of active connections with their countries of origin and divided political loyalties [48, 57].

Understandably the weakening of the political identity will be more clearly appreciated when it rests on an ethnic nationalism. But even if the identity is based on civic nationalism, the fight to protect the group identity of ethnic immigrant communities can conflict with the dominant notion of identity, which is based on the acknowledgement of individual rights, as is common in liberal democracies.

In the United States, conservatives such as Huntington [30] have expressed their concern that the waves of immigrants will end the inherited 'Anglo-Protestant' tradition that according to him defines the national identity of the country. In Europe the fundamental concern in this regard focuses on Muslim immigrants.

The potential eclipse of the national identities of developed countries that receive immigrants has led to bitter and highly emotional political and moral debates. What for some is a dreadful loss that puts the very essence of Western societies in danger, for others represents an opportunity to create more inclusive identities or citizenship.

Either way, it is clear that the impact of cultural diversity and the weakening of national identity associated with ethnic heterogeneity will depend on the capacity of the receiving society to integrate immigrants, to make them participants in dominant cultural values, thereby incorporating them into the predominant identity.

In this process the frequency of intermarriage between people of different ethnic origins and the development of mixed forms of identity will play a relevant role [41].

But the definition of cultural identity itself and the distance it establishes with immigrant communities of different ethnic origins is decisive; therefore, how the collective identity is defined is vital, because it translates into criteria for belonging to the receiving society and serves as the basis of the measures taken to integrate immigrants into receiving societies.

POLITICAL RESPONSES TO IMMIGRATION: MIGRANT INTEGRATION MODELS

Starting in approximately the 1960s, receiving societies have had to establish a way to regulate processes through which immigrants could become part of the receiving society. Immigration rules and policies grant or deny rights to immigrants —such as admission, citizenship, work, family, education, healthcare, housing and culture— which define the ways in which migrants can be incorporated into the receiving society. The objective is to establish who is allowed entrance as an immigrant and what rights they are given once they have settled in the country, including total or partial citizenship. The need to articulate coherent public policies to regulate integration processes did not seem as urgent in the past, when migration flowed predominantly from the Old World in Europe to the new immigration countries in North America or Oceania[10]. Later, when the trend began to reverse itself, it was thought that the number of immigrants arriving at rich countries would not be large enough to form culturally diverse ethnic communities, and therefore managing diversity still did not seem like a political priority. However, in the current era of global migrations, creating policy to manage ethnic diversity and the integration of immigrants into the cultural mosaics that have emerged in receiving countries has become an obligation that is difficult to avoid. According to experts [9], these public policies are among the factors that most affect the integration of immigrants into receiving societies.

When minimally coherent, immigration policies establish models to manage diversity that shape a substantial part of the context in which immigrants are integrated, affect their life experiences in the receiving countries and guide the ways in which they are incorporated into the receiving society. There are currently three main models to manage diversity that are usually distinguished. These three models are ideal types that are never perfectly replicated in practice; the models employed in different countries more or less approach one of the ideal types, but do not coincide exactly with it. Furthermore, the models are the product of complex historical processes in which great importance is given to the experience of establishing nation-states, their national identities, the prominence of their cultural traditions, the legacy of their colonial pasts and migratory antecedents and their levels of ethnic homogeneity.

The first can be denominated as the 'guest workers' (*gastarbeiter*) model and is well represented by the German case (the Austrian and Swiss cases also approach this model). Starting with the programs designed to regulate immigration at the end of the 1950s, Germany has viewed immigrants as temporary foreign workers, denying them the status of permanent residents and not granting social rights to those living irregularly in their country [6]. Given that immigrants were expected to only be temporary workers in the country, family regrouping was not guaranteed or facilitated. Moreover, in countries like Germany the basis for citizenship was fundamentally ethnic: the acquisition of nationality was based on *ius sanguinis* (that is, having parents who were already citizens of the country), not on *ius soli* (which gives anyone born in the territory of a state the right to citizenship); and the periods of residence necessary for naturalization were very long. The guest workers model has been qualified as 'differential exclusion': its objective is to facilitate the incorporation of the

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[10] Even so, to ensure that immigrants culturally and ethnically identified with receiving populations, in the United States, Canada, New Zealand and Australia filters were put in place and quotas established that selected the flows into the country according to race (white) or nationality.

immigrant into the domestic labor market, but not in other areas of social and political life. It should be noted that the German model was changed recently due to the undesired results that it produced. When it became clear that many immigrants (especially Turkish) were not really temporary guest workers, but rather stayed in the country with their children and reunified with their family members, forming very large ethnic communities, the model was substantially altered at the end of the 1990s: the acquisition of dual nationality was facilitated to the children born of parents who had previously resided in the country for various years and the periods required for naturalization were shortened.

The second model is represented by France and it is usually referred to as the 'assimilation' model, since its objective is not for immigrants to be incorporated, integrated or adapted into the receiving society, but rather for them to be completely absorbed by the dominant culture of the country. Many believe that the assimilation model tries to imprint a predefined character on immigrants, in the sense that it wants them to acquire all the cultural trappings (e.g., linguistic, social and political) that will turn them into genuine French men and women; in other words, to make them indistinguishable from natives. The ideological basis of this model can be traced back to the days of the French Revolution and its political basis can be found in a civic (not ethnic) conception of national identity and republican citizenship. According to this conception, for immigrants to become part of the political community of the nation they must adhere to the basic values of the republican democracy and adopt its national culture. Needless to say, France is one of the paradigmatic cases of the application of *ius soli* in the acquisition of nationality. Under the assimilation model immigrants can opt to remain foreigners or to become citizens, therefore, French, as long as they adopt and respect the civic values of the Republic. Naturalization acquires a voluntary nature in accordance with that universal interpretation of citizenship and the rights of citizens. Those who wish to become French citizens must adopt republican values that includes, for instance, embracing secularity. The French model does not acknowledge the rights of collectives; rights are reserved for individuals who have accepted the implicit commitment to the Republic to become one of its citizens [29].

The French assimilation model has far from produced expected results. In a generic sense, observers of the French case refer to the problems derived from the lack of integration by immigrants as the *maladie republicaine* (republican disease).

The third major model of managing cultural diversity is referred to as 'multiculturalism' (and sometimes as 'minority policies' or 'equality and freedom of choice'). Countries such as Canada, the Netherlands, the United Kingdom or Sweden fit this model. In contrast to assimilation, the multiculturalism model offers immigrants from other cultures (sometimes also non-immigrant minority communities) the option of maintaining their particular characteristics in a system that recognizes the identity of groups that form part of the receiving society even if they do not adopt the customs of the majority.

The most distinctive aspect of this third model is that the receiving society acknowledges cultural differences as one of its defining characteristics and the cultural diversity of immigrants is accepted as a basic right that should be protected by the state.

In countries that follow the multiculturalist model, the defense and maintenance of cultural diversity is a public policy. The origins of multiculturalism and the reasons why it has been implemented in certain countries does not have a simple historical explanation, although a tradition of ethnic, cultural, linguistic or religious diversity may have been an important factor.

The Netherlands, for example, in accordance with its communitarian tradition, has been very sensitive to the cultural differences of immigrants who have settled in the country[11]. One 'soft' variation of the multicultural model is represented by the United States, where the existence of ethnic communities and their associated cultural differences are perfectly acceptable; however, the state does not actively protect them. Because the United States has a long immigration tradition, to some degree connected to its foundation as a country, cultural differences are admissible as long as they lead to the formation of that 'melting pot' that is often used to represent its national identity.

The assessment of the effectiveness of these different models does not lead to conclusive results. As Castles et al. [9] have pointed out, 'all of the different approaches to incorporation have proved problematic in one way or another, so that by the early twenty-first century there appears to be a widespread "crisis of integration" '. On the one hand, it is not clear how well the three models coherently summarize all of the complex national variations of migration policies. For example, a recent study [35] shows how over the past few decades the process of attributing different citizenship rights to immigrants has not followed a consistent pattern across countries, but rather has tended to reproduce the preexisting differences between nations. On the other —and putting aside the heuristic value of the triple typology—, the practical results of these models have been subject to two kinds of substantial criticisms. The first has to do with the relative failure of integration processes; to be more specific, the inability of the receiving countries to substantially neutralize the immigrant disadvantage [18, 27, 37, 53]. In receiving societies, immigrants and descendants continue to live in segregated communities, experiencing higher rates of unemployment and school failure than natives, to mention just three important indicators. This disadvantage is often transmitted to the second generation. In this sense, the results of every model in terms of integration are disappointing. Second, events such as the murders in the Netherlands of the ultra-right wing leader Pim Fortuyn in 2002 and the filmmaker Theo Van Gogh (2004) by Islamic extremists, the immigrant riots in the periphery of large French cities (2005) or the crisis provoked by the publication of caricatures of Mohammed in the Danish newspaper Jyllands-Posten (2005) have devalued both the image of multiculturalism and assimilation, as well as their ability to establish stable systems of coexistence and manage diversity.

MUSLIM MIGRANTS IN EUROPEAN COUNTRIES: A CASE IN POINT

Possibly the most interesting current example of the tensions that can be provoked by cultural diversity in developed societies that receive immigrants is that of the Muslim communities settled in Western Europe. First of all, they are one of the largest ethnic minorities brought about by the migratory flows toward Europe over the last half century; furthermore, they are expected to grow at a faster pace than the native populations over the neext few decades. Second, there tends to be a large distance between Muslim immigrants

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[11] Before the Netherlands began to receive immigrants, it was organized in a system in which Catholics and Protestants coexisted known as pillarization (*verzuiling*). Each of the pillars that integrated its society had its own communitarian representation and even its own institutions and areas for interaction. When in the 1960s immigrants began to arrive from non-European countries, their representatives included the recently formed communities in the system of pillars, adding complexity to it and institutionalizing the growing diversity of its society.

and the dominant cultural core in host countries due to differences in language, religion, family structures and behavior, sexual mores, artistic tastes, dietary habits and sometimes their mode of dressing. Further proof of this large cultural distance is the powerful feeling of rejection that native populations manifest toward Muslim immigrants. The visibility of many of these ethnic identifiers on a daily basis reinforces that antipathy and widens the culture gap. Third, Muslim immigrants in Europe have low levels of social integration in receiving populations when compared to other immigrants, as well as a relatively low level of adhesion to the basic symbols of identity in those societies. Fourth, the distance that separates Muslim immigrants from the dominant culture of the receiving countries has dramatically increased in recent years due to the development of Islamic terrorism. The 9/11 attacks in the United States, the Madrid (March, 2004) and London (July, 2005) bombings, and other foiled terrorist operations since then, have converted Muslim communities into the primary target for surveillance by law enforcement agencies and has established in the European imaginary a powerful link between Muslim immigration and insecurity. And as if that were not enough, the concern over the social conditions of Muslim immigrants and the levels of cultural tension have increased further with the perception that radical Islam is the result of flawed approaches to incorporating Muslim immigrants into European societies —and the inability of these societies to integrate them— rather than the specific product of the traditional communities of the countries of origin.

Starting with demography, the first thing to point out is that estimates on the size of Muslim communities in Europe are necessarily imprecise. In contrast to Anglo-Saxon world in which censuses routinely collect information on ethnicity or religion, in many European countries these kinds of questions are not permitted, so indirect estimation procedures that produce variable results are used. Despite these inevitable imprecisions, different estimates indicate that the Muslim populations are very large in Europe and have been the main source of immigration and the largest diasporas in various European countries. A Pew Research Center report [42] revealed that 18.1 million Muslims were living in the EU15 plus Switzerland in 2010, representing around 5% of the total population of these countries. Unlike those residing in Russia or other countries of Eastern Europe[12], the vast majority of the Muslims in Western Europe are immigrants or children or grandchildren of immigrants. In 2010 these Muslim communities contained more than one million people in five countries — Germany (4.7), France (4.1), the United Kingdom (2.8), Italy (1.5) and Spain (1)— and the Netherlands (0.9) also came very close to this number. Eight of every ten Muslims that live in Western Europe reside in those six countries, although Austria, Belgium, Greece, Sweden and Switzerland also have relatively large communities. Of these EU15 countries plus Switzerland, the largest proportion lives in France (7.5%). Muslim populations in Germany, Greece, the Netherlands, Switzerland, Sweden and the United Kingdom represent approximately 5% of the total population. In Southern Europe, in countries such as Italy or Spain, the proportions are smaller (around 2.5%) due to their brief histories as immigrant receiving countries, although they have grown more quickly over the past few decades.

Just as interesting as the demographic size of these communities, or perhaps more so, is the impressive rate at which they have grown over the past several years. The number of Muslims who lived in these countries in 1990 was estimated at 6.8 million, which means that

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[12] In accordance with the same estimate by the Pew Research Center, if Russia and the other Eastern European countries are included, the total number of Muslims in Europe would increase to 44 million [42].

between 1990 and 2010 it increased around 11.3 million or multiplied 2.6 times, that is, it grew at an annual rate of nearly 5%. Although the rate of growth predicted for the next twenty years is lower than what has been observed over the past decades, it is estimated that 30 million Muslims will live in Western Europe by 2030. In some countries, such as Austria, Belgium, France or Sweden, the proportion of Muslims will approach or surpass 10%. A large part of this growth can be explained by the contribution of migration flows; but even in the absence of large inflows, it has to be taken into consideration that on average these Muslim populations are younger and have higher fertility rates than natives, which means that their growth will greatly outpace that of the native populations, which will increase more slowly or simply diminish.

One of the most distinctive characteristics of these growing communities of Muslim immigrants settled in Western European countries is their relatively low levels of social integration in their host countries. All the indicators commonly used to measure the level of integration show the difficulties that these Muslim immigrants face in their incorporation into the receiving societies. Thus, the educational achievements of Muslims are inferior to those of other immigrants [16]; their employment rates are lower (due to low levels of economic activity among the women); their unemployment levels are higher and their salaries lower [60]; and their levels of ethnic exogamy are lower than those of other groups of immigrants [33, 10]. An indicator that provides a good synthesis of the integration difficulties of these Muslim immigrants is their high residential concentration in the poor neighborhoods of European cities. In some of them the numbers of Muslims are much larger than the aggregate proportions in each country would indicate. Residential segregation of Muslims is a constant concern for experts [39, 43] because it can lead to 'ghettoization' and reduce their opportunities to interact with native populations. A study of Moroccans living in France, the Netherlands and Spain [11] shows that these immigrants are a particularly disadvantageous group (in education, work, segregation and ethnic exogamy) in comparison to not only natives of those countries, but also other immigrants. Furthermore, this disadvantageous situation occurs independently of the receiving context, which does not appear to have a systematic effect on the opportunities for social integration of these Moroccan immigrants. In summary, although Muslim immigrants in Western Europe are not a monolithic block —there are significant national, ethnic and sectarian differences among them— they all appear to share low levels of social integration that establish barriers through which interethnic social capital is unable to circulate. And what is more surprising, their levels of integration do not appear to improve over generations, but rather it is a highly persistent trait of these communities. In fact, integration problems may be even more notable among second or third generation youths than among their parents or grandparents.

This systematic deficit in the integration of European Muslims not only leads to social isolation, but perhaps also to a defensive self-encapsulation.

It also promotes powerful feelings of cultural alienation among youths who barely identify with the major national symbols of the country in which they live, a problem that cannot be corrected simply by acquiring citizenship. An analyst has described the condition of these Muslims in the following terms:

> Younger Muslims are adopting attributes of the European societies in which they were born and raised… Yet, generally they do not feel part of the larger society nor that they have a stake in it. Conversely, even though they may be third-generation citizens,

they often are not viewed as fellows citizens by the general public but are still identified as foreigners and immigrants instead [47].

Although in reality this is only half the story of the process of alienation, because these young Muslim immigrants alienated from the native cultures in which they live also do not identify with the traditional Islam of their parents or grandparents. It is true that they travel with some frequency to their places of origin, as they maintain connections there through satellite, cell phones and the Internet. Even so, their countries of origin no longer serve as valid references and symbols of cultural identification. This lack of solid references seems to bound them to oscillating between a painful cultural schizophrenia and the alienating feeling of not belonging to any culture in particular. At the same time, these processes of cultural alienation have a significant political derivation. In religious terms, many of these young Muslims have abandoned the traditional Islam of the diaspora and experienced a Universalist re-Islamization whose ideal is a global community of the faithful —the Muslim umma. And this transnational and Universalist Islam is one of the factors fomenting the political radicalization from which many of the terrorist activities of European Muslims have emerged [46].

It is possible that Muslim immigrants in Western Europe are simply experiencing the same identity conflicts and cultural tensions as other diasporas that have occurred over the history of international migrations. If this was the case, perhaps the problems would be limited to the speed and pace of incorporation. However, the demographic, sociological and cultural characteristics of these communities argue against optimism. The rapid growth, large relative size, and future demographic perspectives of Muslims in Western Europe make it highly doubtful that their situation is comparable to that of other migrant communities. The low levels of social and cultural integration that persist over generations in these communities, and the fact that the religion is their basic common identifier despite their different national origins, also advise against easy comparisons. For example, comparing them with Muslims in the United States is probably not very useful because they constitute a much smaller portion of the population there (less than 1%). In contrast to Europe, the absorption of immigrants in the United States has been a persistent historical characteristic and one of the most distinctive traits of this country; and the distinctive signs of national identity in the United States do not include the same level of religious homogeneity as in European societies.

As a consequence of these factors and processes, Muslim immigration is testing the capacity of Western European societies to coexist with diversity while maintaining their own cultural identity. Possibly the most visible effects of the tensions produced by diversity have to do with security and violence: European —or radicalized during their stay in Europe— Muslims taking part in terrorist activities and murders of notable public figures. But other events also point in the same direction: the public threats to activists who criticize Islam, such as the Somalian Ayaan Hirsi Ali in the Netherlands, the recurring crises caused by female students wearing the headscarf in public schools or the disturbances in predominantly Muslim neighborhoods on the periphery of various French cities in the fall of 2005, and the controversy over the caricatures of Mohammed in Denmark.

All these phenomena have sparked a wave of xenophobic feelings rejecting Islam[13], a clear manifestation of the tensions caused by cultural diversity that has already crystallized into the programs of various political parties and that obviously only serves to fan the flames of hostility and conflict between natives and immigrants. But the difficulties involved in managing ethnic differences in multicultural European societies are not just a manifestation of prejudice, they also lead to reasonable disquiet in the political, journalistic and academic spheres; and they have led to justified concerns about the limits of civic tolerance [7] and the degree to which acceptance of certain forms of diversity is a threat to the political identity of liberal democracies. As Timothy Garton Ash [21] has put it, speaking of the increasing alienation of European Muslims, 'If things continue to go as badly as they are at the moment, this alienation, and the way it both feeds and is fed by the resentments of mainly white, Christian or post-Christian Europeans, could tear apart the civic fabric of Europe's most established democracies'.

CONCLUSION

Whenever social and economic inequality between countries, political oppression, insecurity and natural disasters have existed in the world, people have migrated in search of better living conditions and opportunities than those that exist in their places of birth. But although population movements have continuously affected human history, today they occur on a larger scale. Over the past sixty years international migrations have intensified and accelerated, coinciding with —in fact, forming part of— the multiple changes and transformations associated with globalization. Our globalized world, with its vibrant and continuous transnational flow of information about living conditions in other countries and the opportunities they offer, and with fast and inexpensive modes of transportation, has enormously facilitated international population movements that, until now, were directed from developing to developed countries. Some authors believe that our historical era should be called the 'age of migration' [9] due to the magnitude of the migrations, as well as their economic, social and political relevance. It is highly probably that all of this will continue occurring in the future. As globalization advances, it is expected that international migrations will accelerate even more, although its origins and destinations may diversify and the migrants may become more heterogeneous. In one way or another, the need to regulate these growing flows of population will also become more urgent.

The need to regulate international migratory flows is due to, among other reasons, the possibility that they suppose a security threat to the states involved. In the past, concerns about the insecurity that could be caused by migrations were limited to how to impede the flow of unwanted immigrants at borders. In this sense, the security threats that could be provoked by migrations fit in well with the conception of security as state security. But lately the conceptual content of security has been extraordinarily broadened. The tangible and intangible entities that the new ideas of security —e.g., human security, societal security— believe must be protected include much more than just the physical integrity of the state's

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[13] An extreme and ultimately delirious version of Islamophobia can be found in two books that announce the next transformation of Europe into 'Eurabia' [4, 59]. On the other hand, Caldwell [8] offers a much more nuanced interpretation of the impact of the Islam on Europe.

territory in the face of military aggression from rival states. When this broader perspective of security is adopted, objects of protection that were once ignored or barely relevant have become part of the security agenda.

From the point of view of societal security, one of the objects threatened by migrations is the cultural cohesion and identity of societies that receive them. Therefore, security problems associated with migrations have become problems of identity.

The basic process by which international migrations put the cultural identity of host societies at risk is the increase in ethnic heterogeneity that they produce. The growing ethnic diversity in developed societies —to date the main receivers of international migrations— is a well-documented tendency that will very probably continue in the future. One of the basic mechanisms that explain the weakening of cultural identity and cohesion in ethnically diverse societies is the destruction of social capital —that is, interpersonal trust— caused by growing heterogeneity. This is because the feelings of mutual trust that are the foundation of social identity are weakened if they are unable to bridge the cultural gaps that separate segregated ethnic communities. In a nutshell, a deficit of social capital undermines social identity.

Moreover, the association between immigration and the decrease in cultural cohesion has very clear political implications: multicultural societies can undermine the shared images that are the basis of the political identity of the nation-states of developed receiving countries. The different political models that have been used to manage diversity —guest workers, assimilation, multicultural— have attempted to facilitate the integration of ethnic immigrants in host societies, but the results have been to some degree disappointing in that they have not been able to avoid the disadvantages immigrants have and the levels of integration they have achieved have been lower than expected. The most visible manifestations of these integration difficulties appear among Muslim immigrant communities settled in Western European countries. Both the problems of terrorist violence originating in Muslim communities and the bitter debates on the public protection (of some elements) of their way of life clearly reveal the difficulties involved in managing diversity in the multicultural environments produced by immigration.

As Fukuyama [20] pointed out, the poor results achieved when trying to integrate Muslim communities in receiving societies in Western Europe reveal the basic tension faced by liberal democracies that must manage cultural diversity: on the one hand, to maintain their own political identity based on a civic tradition of respecting individual rights and, on the other, acknowledging the group rights of ethnic minorities in order to achieve greater integration.

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Chapter 5

RECONCEPTUALIZING THE HUMAN RIGHTS HERITAGE: CHALLENGES AND PROSPECTS ON THE RESPONSIBILITY TO PROTECT

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ABSTRACT

This chapter aims to provide an overview of Human Rights' four generations and explore the required balance between intervention and protection in order to safeguard fundamental and basic living conditions. Moreover, it will highlight Canada's and United Nations pioneering role and focus on the current challenges and prospects within the debate on the Responsibility to Protect. For that purpose, we will show some empirical dilemmas - "Tell me something new Vs. the need for a new narrative"; "Legitimating to intervene Vs. License to kill"; "Narrow Vs. broad scope"; "Double standards Vs. International Community awareness" – and conclude how this emerging label urges clear guidelines if it wants to give a step further in the traditional right/duty to intervene patterns.

INTRODUCTION

Inspired by the French Revolution virtuous triangle of "Liberty, equality and fraternity", we owe to the Czech Jurist Karel Vasak the first proposal of the Human Rights division into three generations. Vasak's theory [16] was rooted in the representation of the potential claims of individuals or groups towards the State, both *for* the State (as the second generation claims the interference of a Welfare State) and *against* or *beyond* the State (as the first generation specifically asks the noninterference and the third generation agrees upon the idea that the State is no longer able to assure certain Human Rights).

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Moreover, some authors accept a fourth generation of Human Rights [6] even if they both lack legal and political recognition in the main International Treaties and Conventions.

Besides the traditional debates on Rights vs. Duties and Universality vs. Western Imperialism, this article attempts to rethink the Human Rights heritage, questioning some of its philosophical and normative assumptions, namely between (humanitarian) intervention and protection (of Human Rights) in what regards the legitimacy and morality of the Responsibility to Protect.

In fact, in the last few years, the "Responsibility to Protect" (R2P or RtoP) became one of the most "trendy" or "buzz" words ever and it was soon welcomed by the academic literature as a moral duty to protect those who need support and are in situations of compelling need for humanitarian protection.

This concept was first labelled in the 2001 Report of the International Commission on Intervention and State Sovereignty (ICISS) and set out in the Final Document of the UN Summit in September 2005, in which the States committed to protect their populations from genocide, war crimes, ethnic cleansing and crimes against humanity.

In addition, in January 12th 2009 meeting of the General Assembly, Ban Ki Moon's Report on implementing the Responsibility to Protect moved forward with concrete proposals to implement the concept through three pillars: first, State's responsibilities on protection; second, international assistance and national capabilities building; and third, the International Community's response.

However, if for some [19] the concept was already implemented in Libya and Syria, others [14] highlight that the concept is still in process of recognition given the side debate of the right of intervention (even if the former would be driven by the prospect of the object of the action, requiring a "protection" in the broader commitment of the "human security").

We will conclude that the "Responsibility to Protect" is a useful paradigm to rethink international law [10, 13] but we should be aware of the ethical boundaries that underlie the acknowledgment of rights and responsibilities. Moreover, we will outline one of the most interesting paradoxes of a globalized era: concepts like RtoP (that we would place beneath the third generation of HR) deal both with the acceptance of the "retreat of the State" [15] in its ability to act in the name of Human Rights, as well as with the need to reinforce the State's role as a welfare player and security provider.

HUMAN RIGHTS GENERATIONS – TIMELINE

Like all normative traditions rooted in the International Law, the Human Rights speech is a product of human history. Therefore, if we want to trace a timeline and agree upon four generations of Human Rights, it is rather useful to note the mainstream debates, schools of thoughts and priorities, since the 13th century to modern times (Table 5.1).

Although the four generations framework seeks to be a valuable conceptual tool for thinking about Human Rights in a globalized era, it is worth questioning some of its assumptions before moving to the Responsibility to protect paradigm. Therefore, does this timeline suggest a progression of rights based in the "generations" metaphor, presuming that the first rights' generation created the background conditions necessary for the exercise of the second rights' generation, and so on?

Table 5.1. The four generations of Human Rights – Historic background, legal principles and moral features

Generation and principles	Historic background	Main legal diplomas	Assumptions and features	Right to…
First Generation Civil-political Rights "Liberty"	1215 Magna Carta 1789 United States Bill of Rights 1789 French Declaration of the Rights of Man and of citizen.	1948 United Nations Universal Declaration of Human Rights 1966 United Nations International Covenant on Civil and Political Rights. European Convention on Human Rights	Strongly individualistic and mainly negative, the first generation is designed to protect the individual from the unrestrained behavior of the state interference. The first generation' rights include areas where governments refrain from certain activities and that the state should not intervene.	Physical and civil security (no torture, slavery, inhumane treatment, coercion or abuse; arbitrary arrest; to appeal; equality before/protection of the law; fair trial) Civil-political liberties or empowerments (freedom of thought; vote; free speech; conscience; religion; assembly and voluntary association; political participation at meetings of associations and unions; right to access information).
Second-Generation Economic, social and cultural "Equality"	19th Century, in response to widespread poverty, rise of the demands and ideals of the working class struggles and human dignity, in the wake of the industrial revolution.	1948 United Nations Universal Declaration of Human Rights 1966 United Nations International Covenant on Economic, Social, and Cultural Rights European Social Charter	Positive rights that compel national governments to take measures to promote, fulfil and improve rights that are not directly possessed by individuals but depend on the overall social situation. Those rights impose upon the state the duty to be a truly "welfare state" as it is the state that controls the availability of its own resources They are much more controversial than the first generation rights, since they take for granted a positive intervention by governments and entitle individuals to get protection from state if third parties interfere with their rights.	Are related to the way people live and work together and the basic necessities of life, such as: nutrition, housing, health care, education; employment, adequate income and fair wages; an adequate living standard, a social security net and unemployment benefits.

Table 5.1. (Continued)

Generation and principles	Historic background	Main legal diplomas	Assumptions and features	Right to…
Third Generation Collective-developmental "Solidarity"	Second half of the 20th Century, in response to a global awareness of human dignity in terms of threats that may come in the achievement of the previous generations of Human Rights.	1981 African Charter on Human and People's 1972 Stockholm Declaration of the United Nations Conference on the Human Environment 1992 Rio Declaration on Environment and Development 1994 Draft Declaration of Indigenous Peoples' Rights.	Remains largely contested and hard to enact in legally binding documents as they constitute a broad spectrum of rights that aspire a "soft law" dimension beyond the preponderance of the national sovereignty. The key idea behind this third generation of rights is solidarity, embracing the collective rights of people as a whole. It's upon the International Community and not the States that rely the responsibility to foster a more active and participatory citizenship in order to accomplish these rights.	People's autonomy (political status, economic, social, and cultural development); rights of ethnic and religious minorities (enjoyment of their own cultures, languages, and religions); economic development; prosperity; benefit from economic growth; social harmony; a healthy environment, clean air and water; participation in cultural heritage; intergenerational equity and sustainability; sustainable development, peace, humanitarian assistance, sharing of the common heritage of humanity.
Fourth Generation Bio-Life "Preservation"	21st Century	2000 Charter of Fundamental Rights of the European Union	These rights are also known as "emerging" as they are still completing the process of recognition and acceptance. They have a global dimension and are common to the entire International Community and its preservation.	Bioethics; preservation of genetic heritage: non-commercial exploitation of the human genome; preservation of natural bodies; non-privatization of plants and living organisms; regulation of transgenic; free access to information technologies; confidentiality of the contents of databases; privacy against electronic systems and surveillance; preservation of children to the threat of pedophilia on the Internet.

Source: Compiled by the author.

In other words, does a society that is now in condition to assure fourth generation's rights has already consolidated the three first generations, as if one generation takes precedence over another? How to deal with the fact that most of western societies are already in an advanced stage of Human Rights Generation, but its populations are struggling to recover the "welfare State" in their daily life?

In fact, the four generations framework surely encourages us to take a critical approach in challenging our own assumptions about Human Rights, especially regarding some of the real-world problems in the globalized era that involve Human Rights in practice.

RESPONSIBILITY TO PROTECT: THE ORIGINS OF THE CONCEPT

When the Rwandan (1994) and Bosnian (1995) Genocides dramatically revealed [11] the failure of the International Community to intervene for the sake of the protection of the Rwandese population in the mid 90´s, soon the International Organizations (such as the United Nations) realized that an answer should be given to the world.

So it began the debate on how to react effectively when citizens' Human Rights are grossly and systematically violated, if States have unconditional sovereignty over their affairs or whether the International Community has the right to intervene in a third country for humanitarian purposes.

Therefore, it is not surprising that in its 2000 Millennium Report[1], the United Nations Secretary-General Kofi Annan addressed the failures of the Security Council to act. At the time, Annan recalled the Member States to answer to one simple question: "If humanitarian intervention is, indeed, an unacceptable assault on sovereignty, how should we respond to a Rwanda, to a Srebrenica, to gross and systematic violation of Human Rights that offend every precept of our common humanity?"

The answer came from the Canadian government that, in September 2000, sponsored the establishment of the International Commission on Intervention and Sovereignty of the State (ICISS), aiming to reflect on how and when States and Intergovernmental Organizations should intervene for humanitarian reasons and concerns. This Commission soon started to meet in round tables format and, in February 2001, the co-founders Gareth Evans (International Crisis Group) and Mohamed Sahnoun (Berkley Center for religion, peace and world affairs) suggested the term "Responsibility to Protect" as a way to keep away from the "right to intervene" or "obligation to intervene" doctrines and yet carry on with a certain degree of duty to resolve humanitarian crises.

But it was only after the September eleven events, in December 2001, that the ICISS released the report "*The Responsibility to Protect*" [12], insisting on the idea that sovereignty remains the State's "realm" but the International Community has the responsibility to prevent mass atrocities if and when the State fails in that mission.

In fact, Gareth Evans argued:

> The dilemma of humanitarian intervention has been overtaken by other concerns since the terrorist attacks of September 11, 2001, but it was not resolved or disappeared. When, if ever, is appropriate countries, individually or collectively, exercise action enforced, in particular military action against another country - not the end self-defense, or to prevent a greater threat to peace and security internationally, as traditionally understood, but for the purpose to protect people at risk within that country? [5, 7, 8].

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[1] The full Report is available at https://www.un.org/millennium/sg/report/full.htm (accessed on 10/03/2014).

The answer to this challenge was then first provided by the Commission, in an attempt to create the first conceptual framework and normative reflection on the concept of Responsibility to Protect. In fact, according to the International Commission, all measures (economic, political and social) must be used along with diplomatic engagement in order to assure a long lasting peace and security, bringing justice to the victims and finding the root cause of the mass atrocities within a comprehensive approach. A military intervention might be possible, but only as a last resort or as an extraordinary measure of intervention, fulfilling the following six criteria [12]:

1   Just Cause - The cause must be fair and the threat must be a serious and irreparable harm occurring to human beings. As the report highlights, in order to justify military intervention for humanitarian protection, must be to be inflicted, or likely imminent being, serious and irreparable harm to humans, the following type: loss of lives on a large scale (actual or apprehended), with genocide (intent or not, that is, either from deliberate state action, or negligence or inability to act, or a failed state situation), or large-scale ethnic cleansing (actual or apprehended), carried out by massacres, forced expulsion, acts of terror or rape.

2   Right Intention - There must be a clear intention and the main intention of the military action must be to prevent human suffering. In other words, the primary purpose of the intervention, whatever other motives intervening States may have, must be to halt or avert human suffering.

3   Final Resort - Military action should only be a last resort after exhausting all political, economic or legal measures, so we must question if every other measure besides military invention has been taken into account, and even if they were not even applied, if only military action would work in that situation. In fact, military intervention can only be justified after all non-military options for the prevention or peaceful resolution of the crisis being explored, with sufficient reason to believe that less radical measures would not be successful.

4   Legitimate Authority - There should be an appropriate authority and the authority to employ the last resort and intervene militarily rests solely within the United Nations Security Council. In fact, there is no better or more appropriate *forum* than the Security Council to give permission to a United Nations military intervention for humanitarian protection purposes. For those who criticize the Security Council legitimacy, the challenge is not to find other institutional alternatives but make the Security Council work better than what has happened so far.

5   Proportional Means - The means must be proportionate in order to assure the minimum necessary military means applied to secure human protection. In fact, the size, duration and intensity of the planned military intervention should be the minimum necessary to achieve the defined objective of protecting humanity.

6   Reasonable Prospect - The prospects of success must be realistic and it must be likely that the military action will succeed in protecting human life, and that the consequences of this action are not to be worse than no action at all. There must be a reasonable likelihood to halt or prevent the suffering which has justified the intervention and the consequences of action should not be worse than the consequences of inaction.

Bearing those six criteria in mind, for the authors of the Report, the R2P would be, in fact, a three-phase process concerning:

− The responsibility to prevent: to address both the root causes and the direct causes of internal conflict and other man-made crises putting population at risk.
− The responsibility to react: to respond to situations of compelling human need with appropriate measures, which may include coercive measures like sanctions and international prosecution, and in extreme cases military intervention.
− The responsibility to rebuild: to provide, particularly after a military intervention, full assistance with recovery, reconstruction, and reconciliation, addressing the causes of the harm the intervention was designed to halt or avert [17].

Those "three responsibilities" have also been addressed by the United Nations since 2004, embracing a comprehensive protection approach based on the International law as the main added value of the concept.

THE ROLE OF THE UNITED NATIONS

When we needed to trace the origins of the concept, we highlighted the leading role of Canada who endorses R2P as a duty to protect those who need support and are in situations of compelling need for humanitarian protection. Although it was not formerly adopted by national governments *per se*, the 2001 Report is widely accepted as a common theoretical ground which was then followed by Regional and International Organizations worldwide.

In fact, in the founding charter of the African Union[2], the protection of human and people's rights is pursued as one of the main objective and the AU has the right to intervene in a Member State according to a Assembly decision in respect of grave war crimes, genocide and crimes against humanity. The African Union also welcomed the R2P as a tool to prevent mass atrocities as stated in the Ezulwini Consensus, also adopted in 2005[3].

But without undermining the importance of the African Union, it is widely accepted that the United Nations is "the" reference of the implementation of the concept. In fact, in 2004, the Report of High-level Panel on Threats, Challenges and Change[4], set up by Secretary-General Kofi Annan, endorses the R2P emerging norm and agrees upon the idea that the International Community has a collective responsibility to intervene in cases of genocide and other large-scale killing, ethnic cleansing and serious violations of humanitarian law. It also clarifies that the intervention is due in situations in which sovereign governments have proved to be powerless or unwilling to prevent crisis situations. Moreover, the 2004 Report insists that "protect" is a broader normative concept that aims to go further than "intervene", because it not only reacts but specially avoids a more severe crisis, covering all the dimensions from the "traditional" humanitarian intervention to post-reconstruction building.

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[2] "Constitutive Acts of the African Union", Documents and speeches, African Union Summit, South Africa 2002.
[3] "The common African position on the proposed reform of the United Nations: The Ezulwini Consensus". Executive Council, 7th Extraordinary Session, March 7-8 2005 Addis Ababa, Ethiopia, Ext/EX.CL/2 (VII).
[4] Report available at http://www.un.org/secureworld/ (accessed on 20/02/2014).

A year after, in the 2005 report "In larger freedom"[5] Secretary-General Kofi Annan "strongly agreed" with the approach outlined by the High-level Panel and suggested the need of setting basic criteria that would legitimize the authorization of the use of force by the UN Security Council. That would include seriousness of the threat, proportionality of the response and chance of success.

At the 2005 World Summit, the UN Member States included R2P in the paragraphs 138 and 139 (UN General Assembly 2005, Sixtieth session, A/60/L) of the Outcome Document and formally accepted the responsibility of each State to protect its population from genocide, war crimes, ethnic cleansing and crimes against humanity:

> 138. Each individual State has the Responsibility to Protect its populations from genocide, war crimes, ethnic cleansing and crimes against humanity. This responsibility entails the prevention of such crimes, including their incitement, through appropriate and necessary means. We accept that responsibility and will act in accordance with it. The International Community should, as appropriate, encourage and help States to exercise this responsibility and support the United Nations in establishing an early warning capability.
>
> 139. The International Community, through the United Nations, also has the responsibility to use appropriate diplomatic, humanitarian and other peaceful means, in accordance with Chapters VI and VIII of the Charter, to help protect populations from genocide, war crimes, ethnic cleansing and crimes against humanity. In this context, we are prepared to take collective action, in a timely and decisive manner, through the Security Council, in accordance with the Charter, including Chapter VII, on a case-by-case basis and in cooperation with relevant regional organizations as appropriate, should peaceful means be inadequate and national authorities manifestly fail to protect their populations from genocide, war crimes, ethnic cleansing and crimes against humanity. We stress the need for the General Assembly to continue consideration of the Responsibility to Protect populations from genocide, war crimes, ethnic cleansing and crimes against humanity and its implications, bearing in mind the principles of the Charter and international law. We also intend to commit ourselves, as necessary and appropriate, to helping States build capacity to protect their populations from genocide, war crimes, ethnic cleansing and crimes against humanity and to assisting those which are under stress before crises and conflicts break out.

These paragraphs are rather important, because they clarify that the scope of R2P applies to the four mass atrocity crimes and identifies nations first and regional and International Community's second as the main victim's guardians.

They also agreed that when the national authorities "manifestly fail" to protect their populations and all peaceful means (including diplomatic, humanitarian) are prove to be inadequate, all States (the "International Community") are responsible for helping to protect people threatened with such crimes.

Moreover, they should act collectively in a "timely and decisive manner" through the UN Security Council and in accordance with the UN Charter - on a case-by-case basis and in cooperation with regional organizations as appropriate.

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[5] Report available at http://www.un.org/largerfreedom/ (accessed on 20/02/2014).

A year later, in April 2006, the United Nations Security Council formalizes their support for the concept and makes the first official reference to the Responsibility to Protect civilians in armed conflict in the resolution 1674[6]. In 2008, the Secretary-General appointed[7] Edward Luck as his Special Adviser on the Responsibility to Protect[8], asking him to make all the efforts to the further development and refinement of the concept as well as for the continuation of the political dialogue with Member States and other stakeholders towards its implementation. In July 2009, UN Secretary-General Ban Ki-Moon releases the report "*Implementing the Responsibility to Protect (*A/63/677)*"*[9] and relaunches the debate within the General Assembly. The most important outcome of this discussion was the first resolution (A/RES/63/308) ever mentioning the R2P within the UN. This Resolution expressed the commitment of the International Community to continue the discussion on the Responsibility to Protect. It also highlighted the need for regional organizations (such as the African Union) to play a stronger role in implementing it, for stronger early warning mechanisms within the UN, as well as the need to clarify the role that the UN bodies would play in implementing it in crisis situations around the world.

Moreover, it allowed the outline of a strategy around three pillars:

1   The State carries the primary responsibility for protecting populations from genocide, war crimes, crimes against humanity and ethnic cleansing, and their incitement;
2   The International Community has a responsibility to encourage and assist States in fulfilling this responsibility;
3   The International Community has a responsibility to use appropriate diplomatic, humanitarian and other means to protect populations from these crimes. If a State is manifestly failing to protect its populations, the International Community must be prepared to take collective action to protect populations, in accordance with the UN Charter.

On October 2nd 2009, the General Assembly adopted a new resolution (A/RES/63/308) to continue consideration of the Responsibility to Protect[10].

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[6] "Resolution 1674 (2006), S/RES/1674 (2006)". General distribution to the media. United Nations Security Council. April 28, 2006.

[7] Earlier, in 2004, the UN Secretary-General appointed the first Special Adviser on the Prevention of Genocide, Juan Méndez, followed by Francis Deng in 2007 and Adama Dieng in 2012. The Special Adviser is responsible for collecting information on massive and serious violations of human rights and international humanitarian law; acting as a mechanism of early warning to the Secretary-General, and through him to the Security Council; making recommendations to the Security Council, through the Secretary-General, on actions to prevent or halt genocide and liaising with the United Nations system on activities for the prevention of genocide. The joint office on Genocide Prevention and on the Responsibility to Protect is tasked with preserving and enhancing existing arrangements, including for capacity building and for the gathering and analysis of information from the field, while adding value on its own in terms of new arrangements for advocacy, cross-sectorial assessment, common policy, and cumulative learning on how to anticipate, prevent and respond to crises relating to the responsibility to protect. ("Mission Statement", UN, Office of the special adviser on the prevention of genocide).

[8] His mission was about to end in June 2012, but until now no successor has been appointed.

[9] "Implementing the responsibility to protect. The 2009 General Assembly Debate: An Assessment". GCR2P Report. Global Centre for the Responsibility to Protect, Ralph Bunche Institute for International Studies. CUNY. August 2009.

[10] "Resolution adopted by the General Assembly, 63/308. The responsibility to protect. A/RES/63/308". General distribution to the media. United Nations General Assembly, Sixty-third session: Agenda items 44 and 107. October 7, 2009. Earlier was adopted the "Report on the General Assembly Plenary Debate on the

On August 9th 2010, the Secretary-General launches a report on "Early warning, Assessment and the Responsibility to Protect" (A/64/864)[11]. The purpose is to identify gaps, find ways to improve the UN's ability to use early warning mechanisms more effectively, including information from field operations, as well as improve early, flexible and balanced responses where there is risk of genocide, crimes against humanity, war crimes or ethnic cleansing.

On the 12th of July 2011, the Secretary-General presents a new report on "The role of regional and sub-regional arrangements in implementing the Responsibility to Protect" (A/65/877-S2011/393)[12] emphasizing the need for global and regional collaboration to help implement the Responsibility to Protect. The report suggests that the UN must strengthen its cooperation and draw on information from regional and sub-regional arrangements to identify signs of danger and undertake or support timely and effective preventive action at the sub-regional, regional or global level. While emphasizing that the Responsibility to Protect is universal and each region "must move forward", the report also acknowledges that "each region will implement the principle at its own pace and in its own way".

More recently, on the 5th of September 2012, the Secretary-General presented a report entitled "The Responsibility to Protect: timely and decisive response" (A/66/874-S/2012/578)[13] at the fourth annual informal, interactive, dialogue on the Responsibility to Protect in the General Assembly. In fact, Ban Ki-moon tried to explore the idea of a "timely and decisive response" when a State fails to protect its people. The report also examines the range of tools available under the third pillar of the Responsibility to Protect (response), partners willing to implement it and the close connection between prevention and response. A total of 58 Member States and one regional organization spoke during the debate.

Besides Canada, in the recent months Brazil is becoming one major activist within the United Nations in approaching the discussion with the emphasis on "Responsibility while protecting". In fact, on February 12th 2012, the Brazilian Foreign Minister António de Aguiar Patriota, has defended a shift from the Responsibility to Protect to the responsibility *in or while* protecting. With this approach, Brazil foresees six main principles: prevention is the best policy; collateral damages must be avoided (*primum non nocere*); civilians must be protected; the actors responsible for the use of force must be responsible; the use of force must be responsible, justified, authorized and legitimated by the Security Council; the assessment and evaluation procedures must be improved[14].

Thus, in the past months, the "emerging Latin America norm entrepreneur" [4] seems quite committed with this new approach, willing to gain its permanent seat in the Security Council with full support of the Portuguese diplomacy[15].

The most recent debate on the issue remains part of the Top 10 Conflicts Agenda: the United Nations welcomed, on the 9th of July, the statement of the UN Office of the High

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Responsibility to Protect". International Coalition for the Responsibility to Protect, New York, NY. September 15, 2009.

[11] Available at http://www.responsibilitytoprotect.org/N1045020(1).pdf (accessed on 20/02/2014).

[12] Available at http://www.un.org/en/ga/president/65/initiatives/Report%20of%20the%20SG%20to%20MS.pdf (accessed on 20/02/2014).

[13] Available at http://www.responsibilitytoprotect.org/UNSG%20Report_timely%20and%20decisive%20response (1).pdf (accessed on 20/02/2014).

[14] For further details, please access http://www.responsibilitytoprotect.org/index.php/ component/content/article/35-r2pcs-topics/4002-informal-discussion-on-brazils-concept-of-responsibility-while-protecting and http://www.un.int/brazil/speech/Concept-Paper-%20RwP.pdf (both accessed on 03/03/2014).

[15] http://www.responsibilitytoprotect.org/Portugal%2021%20Feb%20RwP.pdf (accessed on 03/03/2014).

Commissioner for Human Rights that "Criminalization of torture in the DRC is moving forward"; on 24 June 2013, the United Nations Security Council held an open debate on sexual violence in armed conflict, during which Council Members unanimously adopted Resolution 2106 (S/RES/2106); the current situation in Syria is reaching new levels of concern, according to the Special Adviser Adama Dieng; the Security Council is urged to take action to end impunity in Darfur and Mali.

A CRITICAL INSIGHT – 4 DILEMMAS IN PRACTICE

Because it is a quite recent concept, the R2P has not yet been mainstreamed as a formal principle of international law, nor truly consolidated in the practice of States or Organizations. The critics' scope is considerably extent: how do we recognize it when we see it? How to avoid double standards? Do we really need "new labels for old bottles"? We can summarize the main critics in four major dilemmas.

1. "Tell Me Something New vs. the Need for a New Narrative"

R2P provides a framework for using tools that already exist and are widely accepted and implemented by International Organizations. The United Nations charter explicitly addresses mediation, early warning or economic sanctioning as key mechanisms.

In fact, the chapter VII embodies the member States with specific powers to prevent mass atrocities. For instance, the principle that Sovereignty is no longer exclusive and no longer protects States from foreign interference (it is a charge of responsibility where States are accountable for the welfare of their people) is enshrined in article 1 of the 1948 Genocide Convention [13].

Moreover, some argue that R2P has no added value and represents the same as the "right to intervention" but under a new "umbrella". However, Holzgreve and Keohane clarifies that Humanitarian Intervention is

> the threat or use of force across state borders by a state (or group of States) aimed at preventing or ending widespread and grave violations of the fundamental Human Rights of individuals other than its own citizens, without the permission of the state within whose territory force is applied [11].

Therefore, we could argue that the question of the State's permission is apparently what distinguishes a humanitarian intervention from a R2P approach.

2. "Legitimating to Intervene vs. License to Kill"

This is the traditional debate that clashes with the national sovereignty: what is the legitimacy to intervene in a foreign country and who makes this decision on behalf of the so called 'International Community'?

The supporters of the concept advocate that the only occasions where the International Community will intervene in a State without its consent is when the State is either allowing mass atrocities to occur, or is committing them. In both cases, the State is no longer upholding its responsibilities as sovereign. But several States have argued that R2P should not allow the International Community to intervene militarily on States, because to do so is a violation upon sovereignty. Others argue that this is a necessary aspect of R2P, and is necessary as a last resort to stop mass atrocities.

A more balanced approach argues that more specific criteria should be developed to decide in what conditions the Security Council should allow a military intervention [17]. Those who oppose stress that the problems in a certain country are best resolved amongst the population and what those countries need is more Development and Cooperation to reinforce a state's sovereignty, not other State´s intervention on domestic affairs. And when intervention clashes with sovereignty the result is, they argue, a "license to kill".

3. "Narrow vs. Broad Scope"

Some argue that the scope of R2P should include other crimes beside genocide, war crimes, crimes against humanity and ethnic cleansing, like protecting civilians in peril following natural disasters [1, 9]. For others, the scope should remain narrow and well-defined, because broadening the applicability of R2P could diminish its effectiveness, especially because there are still some resistances to accept the current one.

Moreover, besides the debate on the scope of the concept, Bellamy poses some additional prudential considerations:

> Translating the promise of RtoP into decisive action to prevent atrocities and respond effectively to them will be no easy task. It involves preserving, marshalling and managing global consensus whilst maintaining forward momentum. It requires careful thinking about the causes of mass killing and the steps needed to prevent it and provide early warning. It demands the building of international capacities to respond effectively when mass atrocities break out. It requires political courage and consensus in the face of grave and complex emergencies. In short, implementing the RtoP requires nothing less than the reconfiguring of state identities and national interests so that the prevention of atrocities becomes habitual and decisive responses the norm rather than the exception [2].

4. "Double Standards vs. International Community Awareness"

When deciding to which crises R2P applies, the Security Council has been selective and is randomly used by the member States self-interests. It seems that there are double standards even in bringing up to the Security Council the concept to raise awareness and encourage a Resolution´s discussion. If we agree that the R2P concept was already used in Darfur, Côte d'Ivoire, South Sudan, Yemen and Libya, what about Syria [17]?

In fact, we should recall that the first time the Security Council referred to the Responsibility to Protect in a specific case was in August 2006, when passing resolution 1706 authorizing the deployment of UN peacekeeping troops to Darfur, Sudan.

But after 2006, the Responsibility to Protect featured in a number of other resolutions adopted by the Security Council.

Most of the literature agrees that the first test case was Libya in 2011. In fact, following "the gross and systematic violation of Human Rights" against the civilian population by the regime in Libya, the UN Security Council, on February 26th 2011, unanimously adopted resolution 1970, recalling the Libyan authorities' Responsibility to Protect its population and end violence. The Council also decided to impose a series of sanctions and submit the situation to the International Criminal Court.

On March 19th, the resolution 1973[16] reiterated the responsibility of the Libyan authorities to protect the Libyan population and demanded an immediate ceasefire in Libya, including an end to ongoing "crimes against humanity", authorizing Member States to take "all necessary measures" to protect civilians under threat of attack in the country. It also imposed a ban on all flights in the country's airspace, a no-fly zone, and tightened sanctions on the regime and its supporters. This resolution passed with ten in favour, none against and five abstentions, including China and Russia. A few days later, apparently encouraged by a broad interpretation of the UN resolution, NATO started striking at Qadhafi's forces.

Also in 2011, three other cases figured in the international agenda: Côte d'Ivoire, South Sudan and Yemen.

In the case of Côte d'Ivoire, the UN Security Council, on 30 March 2011, unanimously adopted resolution 1975 in response to the escalating, post-election violence against the population, condemning the gross Human Rights violations committed by supporters of both ex-President Laurent Gbagbo and President Ouattara.

This resolution also appealed to "the primary responsibility of each State to protect civilians", recognized the victory of President Ouattara and authorized UN Operation in Côte d'Ivoire (UNOCI) to use "all necessary means to protect life and property". In an effort to protect the people of Côte d'Ivoire from further atrocities, UNOCI began a military operation on the 4th of April 2011, and President Gbagbo's hold on power ended on April 11th. In November 2011, was transferred to the International Criminal Court to face charges of crimes against humanity as an "indirect co-perpetrator" of murder, rape, persecution and other inhumane acts. On the 26th of July 2012, the Council adopted resolution 2062 renewing the mandate of UNOCI until July 31th 2013.

In the case of South Sudan, on the 8th of July 2011, the Security Council, in resolution 1996, established a UN peacekeeping mission in South Sudan (UNMISS), in order to advise and assist the government in fulfilling its Responsibility to Protect civilians from the violent ethnic clashes between the Lou Nuer and Murle people of South Sudan's Jonglei state.

Regarding Yemen, on the 21st of October 2011, the resolution 2014 condemned Human Rights' violations by the Yemeni authorities, recalling that the "primary responsibility is to protect its population" and encouraged the Presidential elections holding.

In 2012, the most noticeable case was Syria. However, the Security Council members couldn't agree on a resolution, despite the Secretary-General Ban Ki-moon efforts for an urgent political solution to end the humanitarian crisis.

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[16] "Security Council Approves 'No-fly Zone' over Libya, authorizing 'all necessary measures' to protect civilians, by vote of 10 in favour with 5 abstentions. (Includes the full text of resolution 1973)". Security Council SC/10200. United Nations, Department of Public Information, News and Media Division, New York, NY. March 17, 2011.

Ki-moon aimed also to support the action of the Joint Special Representative of the United Nations and the League of Arab States (Lakhdar Brahimi) to help the Syrian people reach a political solution to the conflict.

Both the General Assembly and the Human Rights Council have strongly condemned the continued "widespread and systematic" Human Rights' violations in Syria and demanded that the government immediately ceases all violence and protects its people. The High Commissioner for Human Rights recommended referring the situation in Syria to the International Criminal Court and urged the Security Council to assume its Responsibility to Protect the population of Syria. The Secretary-General's Special Adviser on the Prevention of Genocide, Adama Dieng, also agreed in December 2012 that "The International Community must act on the commitment made by all Heads of State and Government at the 2005 World Summit to protect populations from genocide, war crimes, ethnic cleansing and crimes against humanity, including their incitement".

The most recent Press remarks on Syria from UN under-secretary-general for humanitarian affairs and emergency relief coordinator, Valerie Amos[17], reveals the need of urgent humanitarian assistance.

CONCLUSION

After being first labelled in the 2001 Report of the International Commission on Intervention and State Sovereignty and set out in the Final Document of the UN Summit in September 2005, in the last few years the "Responsibility to Protect" became one of the most "trendy" or "buzz" word in the academic literature with several criticisms on the ethical boundaries and motives that underlie the rights and responsibilities dilemma, questioning the philosophical and normative scope between (humanitarian) intervention and compelling need for the protection (of Human Rights) in situations of genocide, war crimes, ethnic cleansing and crimes against humanity.

In this chapter, we assumed the Responsibility to Protect both as an emerging norm and a set of moral and ethical principles to address mass atrocity crimes - genocide, war crimes, crimes against humanity and ethnic cleansing. Moreover, we argued that R2P is built in a "virtuous" triangle in which the three pillars or vertices are: first, sovereignty is no longer a right, but a state's responsibility in order to protect its population from mass atrocities; second, the International Community has a responsibility to assist the state to fulfil its primary responsibility; third, if the state fails to protect its citizens from mass atrocities and peaceful measures have failed, the International Community has the responsibility to intervene through coercive measures and military intervention.

In short, the Responsibility to Protect is, first and foremost, a responsibility of the State that is facing insecurity, but if that State is unable or unwilling to control the situation, the International Community must act in its place. In this perspective, the commitment is based upon a collective action authorized by a Security Council Resolution and only if all conflict resolution has peaceful means have been triggered and drained out and the national

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[17] Available at https://docs.unocha.org/sites/dms/Documents/ERC%20Amos%20Press%20Remarks%20on%20 Syria%20-%207%20June%202013.pdf (accessed on 20/02/2014).

authorities manifestly can't protect its populations. However, civil society, States, regional organizations, and international institutions all have a role to play in the R2P agenda.

For the International Community, R2P is a norm, not a law, enshrined more in a moral and philosophical perspective than a legal one. However, at the same time, R2P is apparently grounded in international law, which makes it more confusing to legislate on the concept.

Moreover, if the concept aims to distinguish from the "right to intervention", arguing that R2P would be driven by the prospect of the object action, within a "protection" requirement, surely needs to "be seen less as a normative vocabulary that can catalyze action, and more as a policy agenda in need of implementation" [3].

In fact, as a moral duty or obligation (and therefore as a responsibility), applauded by some and highly suspicious for others, R2P surely reminds us that all normative narratives are useless if not mainstreamed as part of a policy agenda and with very clear rules of engagement to be implemented by State's in their commitment to world peace, security and Human Rights in a globalized era.

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PART III: EXOGENOUS ISSUES

Chapter 6

CLIMATE RISKS: THEORY, DATA AND THE GLOBAL GOVERNANCE OF CLIMATE CHANGE

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ABSTRACT

This chapter will implicitly assume a weak constructivist perspective of risks in highlighting the potential impacts of climate change. It will analyse the vulnerabilities to climate change, the mitigation and adaptation options available for effective climate action as well as financial and technology transfer issues. A stable climate is a global public good that requires concerted action among sovereign nations for its provision. International Environmental Agreements (IEAs) have played a central role in the process of managing climate change, leading to the consensus that temperature increases above 2°C compared to pre-industrial levels will lead to dangerous climate change. While targets have been defined and commitments made, the trajectory of current climate action will not achieve this goal. Stronger action by the international community is therefore needed. Key economic sectors such as energy, building or transport, among other, will require both "soft" and "hard" Greenhouse Gas (GHG) emission mitigation technologies[1] and climate change adaptation technologies. However, whatever stabilization is achieved through mitigation, short-term and long-term adaptation strategies will be required. The current goal to jointly mobilize USD 100 billion a year by 2020 to address the needs of developing countries will require the broad participation of all stakeholders as well as much stronger efforts by all nations. The pending challenges to reduce climate risks are many and they need to be addressed in earnest in the very near future to avoid the worst consequences of unabated climate change.

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[1] Hard technologies sometimes referred to as capital goods, hardware or embodied technologies, include tools, machinery, equipment, and entire production systems. Soft technologies sometimes referred to as software or disembodied technologies, concerns the knowledge of methods and techniques for the production of goods and services, or for choosing optimal courses of action [88].

INTRODUCTION

This chapter, focusing on climate change risk, will implicitly assume a weak constructivist perspective of risks in highlighting the potential impacts of climate change, the vulnerabilities of our species and our societies to its effects, the mitigation and adaptation options available for effective climate action as well as financial and technology transfer issues.

From an economic perspective, a stable climate is a global public good requiring joint management by sovereign nations. IEAs such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP) have played a central role in this complex and arduous joint management process. The existing scientific consensus states that temperature increases above 2ºC compared to pre-industrial levels will lead to dangerous climate change. However, while international targets have been defined and commitments have been made, action is insufficient to ensure that the trajectory the world is on will lead to meeting its 2°C climate goal.

Since 2000 GHG emissions have increased 20% reaching 50.1 $GtCO_2e$[2], 14% higher that the 44$GtCO_2e$ needed to ensure a *likely*[3] chance of limiting global average temperature increases to 2ºC compared to pre-industrial levels. Given the fact that the emissions gap is widening, stronger action by the international community is necessary. Key sectors such as energy, building, transport and Land Use Land Use Change and Forestry (LULUCF), where emissions are most intensive, will require innovative approaches and hard choices to reduce their GHG footprint.

That also implies widening the participation of all stakeholders, making the process more inclusive and, in doing so, supporting international climate negotiators to provide creative solutions in future international climate negotiations.

Whatever the stabilization scenario achieved through mitigation, short-term and long-term adaptation strategies will nevertheless be required, as the inertia in the climate system will ensure that impacts resulting from current warming will be felt for decades or centuries.

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[2] Carbon dioxide equivalent (CO_2e) is the warming potential of the sum of GHGs emitted. The warming potential is analyzed using the IPCC global warming potential of each gas published in the second assessment report (AR2).

[3] Please note that throughout this chapter, when referring to data presented by the IPCC, the treatment of uncertainty and references to said uncertainty will refer to: a qualitative assessment of uncertainty which is 'characterized by providing a relative sense of the amount and quality of evidence (that is, information from theory, observations or models indicating whether a belief or proposition is true or valid) and the degree of agreement (that is, the level of concurrence in the literature on a particular finding). This approach is used by WG III through a series of self-explanatory terms such as: high agreement, much evidence; high agreement, medium evidence; medium agreement, medium evidence; etc. Where uncertainty is assessed more quantitatively using expert judgment of the correctness of underlying data, models or analyses, then the following scale of confidence levels is used to express the assessed chance of a finding being correct: very high confidence at least 9 out of 10; high confidence about 8 out of 10; medium confidence about 5 out of 10; low confidence about 2 out of 10; and very low confidence less than 1 out of 10. Where uncertainty in specific outcomes is assessed using expert judgment and statistical analysis of a body of evidence (e.g., observations or model results), then the following likelihood ranges are used to express the assessed probability of occurrence: virtually certain >99%; extremely likely >95%; very likely >90%; likely >66%; more likely than not > 50%; about as likely as not 33% to 66%; unlikely <33%; very unlikely <10%; extremely unlikely <5%; exceptionally unlikely <1%' (IPCC a, 2007, p. 27).

However, unlike mitigation, where action has measurable effects on GHG emissions, adaptation cannot be measured using such a single, commonly understood and accepted indicator.

Adaptation is fundamentally determined by the socio-economic context in which it is applied, making its implementation that much more challenging. Furthermore, there is a significant level of uncertainty in medium and long-term adaptation requirements.

If human beings are to limit temperature increases to 2ºC compared to pre-industrial levels, both "soft" and "hard" GHG emission mitigation technologies and climate change adaptation technologies will need to be deployed *en masse*. However, not all countries have the same capacity to respond to climate change. Industrial countries, by and large, can muster the resources necessary to cope, while most developing countries have limited capacity to take action. Here again, IEAs are expected to play a significant role in fostering the transfer of technology from North to South. However, many questions have been raised regarding the equity and efficacy of the process. Clearly, the private sector has and will continue to play a critical role in technology transfer, but Intellectual Property Rights (IPRs) issues will have to be addressed to ensure they are not stumbling blocks in the transfer of technologies to the developing world.

Last but not least, the financing of climate action is, as was the case in mitigation, based on the concept of common but differentiated responsibilities and respective capabilities. In essence, equity. Developed countries have historically emitted the largest amounts of GHGs, and hence, arguably, they should take the lead in financing climate action. While various stakeholders have advanced a range of divergent figures, developed countries have agreed to commit to the goal of jointly mobilizing USD 100 billion a year by 2020 to address the needs of developing countries. Progress as regards climate action has been, to date, inadequate, making current prospects for jointly achieving a stable climate in time to limit temperature increases to 2ºC compared to pre-industrial levels appear slim.

The remainder of the chapter is structured as follows. Section 3 will introduce the concept of risks and how climate change poses risks to current societies. Section 4 will briefly reflect on the key environmental, social and economic impacts of climate change. Section 5 will analyze the governance of climate change from a global perspective. Section 6 concludes.

RISKS: KEY CONCEPTS AND FEATURES
IN THE CLIMATE CHANGE ARENA

In a post-industrial revolution world, science through technological development and the industrial use of said technology, has contributed to increases in (unevenly distributed) welfare [24]. Welfare increases have not however been provided devoid of unprecedented risks. Beck [6] among others have argued that we live in a *risk-distributing society* where 'bads', environmental or otherwise, are disbursed, potentially undermining the development process that modernity has strived to promote. Therefore, parallel to the Marxist or Weberian class society, where unequal yet acceptable wealth distribution is conceptualized, the 'new' paradigm of the *risk society* seeks to prevent and manage hazards with the aim of not exceeding acceptable ecological limits, among others.

Traditionally, risks have been defined as the probability of harm taking place and the severity of its impacts [2]. More recently, risks have also been defined as a perceived hazard [24] occurring in social settings where more or less resilience to these can be observed.

Hazards in turn can be understood as 'a situation or intrinsic property with the potential to cause a problem' [61]. Loosely speaking then hazard will be understood as the potential to do damage and risk as the probability (and severity) of the damage materializing.

As regards risks, there are two main schools of thought [24]. The *realist* school states that scientific enquiry and calculations provide us with all necessary information about risks. This perspective assumes that 'experts' are right and other views are wrong. Additionally, it contends that it is ignorance and lack of information that explain differences in perception regarding risks. The assessment and management of risks from this perspective has, by and large, relied on a top-down, positivist approach whereby experts have 'objectively' analyzed risks, quantified these risks and suggested policy actions to minimize risks according to cost/ benefit analysis criteria. This technical perspective is criticized for ignoring the contextual dimensions of risk. It also tends to ignore equity issues and public participation processes [2]. The *constructivist* school of thought asserts that perceptions regarding risks are socially constructed. Risks, from a constructivist perspective, can be 'real' (weak version of the constructivist risk theory school of thought) or they can be constructed according to the social context (strong version of the constructivist risk theory school of thought).

Evidence indicates that risks are indeed interpreted in different ways by different people [24]. Along with this social construct of risks comes, according to the constructivist perspective, the social construction of knowledge and its validation as pillars of science. This means that experts do not act in a vacuum; their actions can reflect ideologies and interests that are determined by variables outside the scientific realm [6].

The remainder of this chapter will implicitly assume a *weak constructivist perspective* whereby risks are considered 'real', i.e., their knowledge derives from scientific enquiry despite inherent knowledge limitations and potential bias. The perception of risk is however assumed to be socially constructed. The impacts of climate change (see section 4 below) are therefore based on the latest available scientific knowledge. Governance of risk through regulation and climate management approaches (see section 5), we assume, reflect socially constructed perceptions of risk that permeate international climate negotiation efforts.

Given the above, it can be argued that climate change is a prime example of risk, which has been defined as 'a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer)' [30]. Where the Intergovernmental Panel on Climate Change (IPCC) considers both natural and anthropogenic factors driving climate change, the UNFCCC attributes climate change solely to anthropogenic causes. In its article 1, the UNFCCC defines climate change as 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods' [81].

Some of the key physical and management related features of the risks brought about by climate change include:

- *Complexity:* its analysis is complex with uncertainties arising regarding the exact magnitude and timing of occurrence of climate hazards;
- *Long time-scales*: the consequences of emitting GHGs are long-lived;

- *Lag times*: the effects of actions undertaken today are only discernible in the future;
- *Transboundary*: damages are not limited to the local scale. GHG emissions cause damages of varying severity in different geographical regions, on a planetary scale;
- *Harm results from a repetitive action or activity derived from the 'normal' functioning of society:* climate change derived hazards are not the consequence of a one-off activity but the product of continuous release of GHGs;
- *Government response tends to be reactive*: this is especially true in adaptation matters, both in developing as well as developed countries. For an empirical discussion of the latter see Lázaro-Touza and López-Gunn [40];
- *Collective action problem* where the *public seems ambivalent*: individuals state that their concern for climate change is significant [13] but actions depart from intentions [16, 17, 72];
- *Existing institutions and values are threatened*: climate change can be considered from a political perspective as a 'wicked problem' [34]. All sectors and activities produce GHGs, an externality in economic parlance. Hence, all production processes and consumption patterns must change, through for example choice editing [1], if the issue of climate change is to be effectively tackled.

IMPACTS OF CLIMATE CHANGE

Since the creation of the IPCC in 1988, its landmark reports have undoubtedly been the key source of information to turn to in order to stay abreast of the scientific *consensus* regarding climate change[4]. The IPCC's Fifth Assessment Report (AR5) was released in November 2013 in an unedited form[5]. Hence, the information provided in this section will be based on the AR5 Summary for Policymakers, the Fourth Assessment Report (AR4) released in 2007 in addition to key authoritative sources published since and up to December 2013.

As Richardson [56] states 'determining what is dangerous climate change is a societal value judgment, but must ultimately be based on a risk assessment informed by knowledge of potential impacts, vulnerability and adaptive capacity'.

It is to the impacts on a global scale that we now turn, focusing on temperature and sea-level rise, water, ecosystems, food, agriculture and food security, health and economics. The costs of these impacts will be succinctly discussed.

Temperature

According to the Potsdam Institute, as of 2012, the IPCC data on temperature increases has largely remained unaltered compared to the data published in the AR4 in 2007. Mean global warming since pre-industrial levels has increased by 0.8ºC [26, 44, 54]. Should no further action be taken to mitigate GHG emissions, the world is likely to warm more than 3ºC, and there is a 20% chance of exceeding 4ºC average temperature increases, compared to

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[4] It is important to note that the IPCC *does not produce primary research*. It reviews and assesses state-of-the-art knowledge regarding climate change and its impacts.
[5] See http://www.ipcc.ch/ for further information and details of the AR5.

pre-industrial levels, by 2100 [54]. According to the AR5 Summary for Policy makers, for a doubling of CO_2 the global mean surface temperature increase is likely to be in the range of 1.5ºC to 4.5ºC (*high confidence*).

This may not seem as a significant temperature increase, but the existing consensus states that any average temperature increase above 2ºC compared to pre-industrial levels should be avoided if we are to avert dangerous climate change.

We are already experiencing more frequent warmer days and nights and decreases in the frequency of cooler days and nights [44].

Increases in the frequency of extreme heat waves that have occurred during the last decade [54] are also expected to continue to occur in the future.

Sea-Level Rise

During the 20th century the average increase in sea level has ranged between 15 and 20 centimeters. Should a 4ºC warmer world materialize, we can expect a sea-level rise of 0.5 to 1 meter by the end of the century, with tropical regions experiencing larger sea-level increases in addition to more extreme weather events as well as more intense cyclones and droughts [54]. According to AR4, the expected sea-level rise is significantly higher than model predictions under different scenarios for 2090 to 2099, which range from 0.18 to 0.59 meters [28].

According to the AR5 Summary for Policymakers, the range of sea level rise has been narrowed down ranging from 0.4 to 0.63 meters for 2081 to 2100 [27]. Low-lying islands and developing countries with large populations living along the coast are most vulnerable to these impacts as their adaptive capacity is either physically or economically limited.

Water

The key insights from the AR4, and the AR5's Summary for Policymakers, tell us that, despite the inherent uncertainty in predicting rainfall patterns and water availability, existing trends will be exacerbated. This means that moist tropics and high latitudes will experience an increase in water availability while mid-latitudes and semi-arid regions will be affected by reductions in water availability. Southern Europe, most of the American continent, southern Australia and Africa (except for the north-eastern region) will become drier.

These trends are expected to result in hundreds of millions of people being exposed to water stress, an impact that will be more severe as temperatures rise [28]. Northern Europe, Northern America, Siberia and some monsoon regions will become wetter [54].

In fact, the AR4 states that it is *likely* that 20% of the global population will live in flood prone areas by the last quarter of the century.

In countries with a significant agricultural activity relative to other economic sectors, e.g., Sub-Saharan Africa, water availability has been shown to affect GDP growth rates.

Developing countries in Asia and South America that are heavily dependent on water from glaciers are also particularly vulnerable to diminishing water supplies.

Developed regions such as the Mediterranean, Southwest US and Australia are also affected, with agricultural production and urban areas being particularly vulnerable [56].

Ecosystems

The AR4 reported that between 20% and 30% of plant and animal species were *likely* to experience increased risk of extinction for rises in global average temperatures greater than 1.5ºC to 2.5ºC [28]. The 4ºC scenario envisaged by the Potsdam Institute [54] depicts a world in which climate change is the key stress factor causing ecosystem changes and biodiversity[6] losses. These losses endanger key ecosystem services such as fisheries or coastal protection from extreme weather events such as tsunamis and cyclones, among other.

While self-adaptation is expected, with some species moving to more climate benign areas, there is a limit to this adaptation which is argued to be in the range of mean global temperature increases above 2ºC compared to pre-industrial levels [28].

Agriculture and Food Security

Despite the fact that climate change can provide new opportunities for agricultural activity in certain areas in mid to northern latitudes [28], e.g., Northern Ireland and Scotland [44], mean global temperature increases above 4ºC compared to pre-industrial levels could potentially threaten global food security [54].

Food security is not expected to be a problem for regions that have low levels of undernourishment, long term expectations of economic growth, despite the current economic downturn, and strong positions in world food markets coupled with considerable adaptation capacity [44]. In countries where the above conditions are not met, food security is expected to be a significant concern.

Health

The impacts of climate change on health will vary geographically. Overall, the AR4 report expected negative health consequences from climate induced malnutrition, death and injuries from extreme weather events, increases in infectious diseases and heart and respiratory illnesses in densely populated areas with high ground level ozone concentrations. The above negative impacts contrast with the expected benefits of warmer temperatures regarding the reduction of cold-related deaths. The above subsection on food and agriculture stressed the potential reduction in global food production. Linked to potential food insecurity, nutritional deficits may hinder the ability to cope with epidemic diseases.

Healthy ecosystems also provide disease control services and these can be compromised by climate change. Cesario et al., (2009) in Richardson et al., [56] illustrate this by providing information about the resurgence of two infectious diseases[7] in the Amazonian region as a consequence of biodiversity loss. The knowledge of the direct links between changes in ecosystems and human health is however still limited.

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[6] According to Richardson et al. [56] 'Biodiversity represents the fabric of life itself. It is comprised not only of numbers of species, but also includes the variety of all life forms and their genes as well as the communities and ecosystems of which they are a part'. Traditional sources of ecosystem losses have been habitat encroachment and human use of ecosystems.

[7] The American Mucocutaneous leishmaniasis and the Bartonellosis.

Economics

This subsection will very briefly reflect on the relationship between climate change and economic growth in the past. It will then provide some recent estimates of the different costs of stabilizing GHGs.

Development and climate conditions have been of interest to scholars since at least the 14th century [11]. Large uncertainties and heated debates remain however regarding the economics of climate change. Economic modelling of the costs associated with protecting the climate system requires decision-makers to make a number of value-based assumptions in a very uncertain climate future. According to Garnaud [18] there are four types of costs of climate change: type 1 costs include data that is precise enough for quantitative analysis through general equilibrium modelling; type 2 costs comprise data that is not sufficiently precise to be modelled and must therefore be estimated; type 3 costs include data on extreme outcomes; and type 4 costs comprise non-market benefits lost in the absence of mitigation, such as species lost. Many economic models of climate change only capture type 1 costs, and none cover the entire range of impacts within each type [56]. In addition, defining what is the appropriate discount rate to use in comparing climate change impacts in the future with climate mitigation actions today is also fundamentally a value-based choice [56].

Bearing in mind the above limitations, recent empirical studies use both *past* temperature and precipitation data in examining their effects on economic performance. Their results indicate that in poor countries, temperature increases of 1ºC have resulted in economic growth reductions of 1.3%. The effects of past precipitation data are milder and possibly positive for poor and agricultural dependent countries. Agricultural as well as industrial output and political stability in poor countries are all said to have been affected by rising temperatures. For rich countries however the analysis of past temperature increases does not show significant variations in GDP [56].

As regards *future* actions to curb GHG emissions, Nordhaus [47] states that moderate action followed by increased efforts in mitigation strategies, the so called *climate policy ramp,* is the most reasonable strategy given the opportunity cost of capital spent on mitigation policies. Stern [63] contends, in stark contrast to Nordhaus, that urgent and significant action is needed if the most serious consequences of climate change are to be avoided. Stern concludes that unabated climate change will imply GDP losses of 5% to 20% *ad infinitum*, depending on the damages included in the calculations.

The AR4 report presented the consensus peer reviewed range of GDP variation estimates for different GHG stabilisation levels, see Table 6.1. According to the table below, for different GHG stabilization pathways, the economic impacts may range from 1% gains in GDP to losses of less than 5.5% in the two time horizons studied, 2030 and 2050.

Overall, the IPCC concludes that climate change impacts will most likely impose net annual costs, especially as temperature increases. The international community has yet to devise the specific pathway that will ensure policy actions to tackle climate change yield net benefits.

Table 6.1. Estimated changes in global GDP for different stabilization levels

Stabilization levels (ppm CO_2e)	Mean GDP reduction (%)		Range of GDP reduction (%)		Reduction of average annual GDP growth rates (%)	
	2030	2050	2030	2050	2030	2050
445 – 535	Not available		<3	<5.5	<0.12	<0.12
535 – 590	0.6	1.3	0.2 to 2.5	Slightly negative to 4	<0.1	<0.1
Stabilization levels (ppm CO_2e)	Mean GDP reduction (%)		Range of GDP reduction (%)		Reduction of average annual GDP growth rates (%)	
590 – 710	0.2	0.5	-0.6 to 1.2	-1 to 2	<0.06	<0.05

Source: IPCC [28].

THE GOVERNANCE OF CLIMATE CHANGE: INTERNATIONAL ENVIRONMENTAL AGREEMENTS

'Regulation can be seen as being inherently about the control of risks' [2]. Regulation can also be understood as steering, controlling or influencing [48]. When regulation is dispersed to decision levels other than national governments, to institutions that include private firms, international institutions or NGO's, and when policy instruments include not only traditional command and control, but extend to economic instruments, allocation of property rights, voluntary agreements and moral suasion, we can speak of governance, even if no agreed definition exists yet in the literature [35].

An exhaustive analysis of climate governance mechanisms, although desirable, is beyond the scope of this chapter. This section will mainly focus on international climate negotiations while also briefly reflecting on the need to consider polycentric collective action for climate change in order to effectively reduce climate risks [46, 52].

So far, as we will see in the next subsection[8], progress has been made in creating the framework for managing climate change. This progress has however clearly been insufficient to avoid the risks posed by the dangerous anthropogenic interference with the climate system.

a. Negotiations and Shared Vision

From an economic perspective, a stable climate is a global public good. Its benefits are non-rival and non-excludable. *A priori*, a world used to unilateral (national) management of environmental resources will underprovide a stable climate that requires joint management of public goods [64]. In order to provide a stable climate, we need to move from unilateral decision-making, whereby countries have little incentives to reduce GHGs, to joint decision-making among sovereign countries. Said joint management of a stable climate can be

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[8] Please note that the structure of the remainder of this section on the governance of climate change mirrors that of the Bali Action Plan that was structured around five key areas: shared vision, mitigation, adaptation (that includes risk management and risk reduction strategies), technology development and transfer and provision of financial transfers. For further information please refer to: http://unfccc.int/ resource/docs/2007/cop13/eng/06a 01.pdf.

articulated through IEAs. Mitchell [45] defines IEAs as 'legally binding intergovernmental efforts directed at reducing human impacts on the environment'.

Negotiating IEAs is no easy task, as countries have to voluntarily change their behaviour given the lack of a global government to ensure participation in IEAs and compliance with the commitments made. There are however certain elements that can be said to be conducive to IEAs. These are summarized in Box 6.1.

Box 6.1. Elements that facilitate an International Environmental Agreement

1. Net benefits of the accord
2. Fair burden-sharing arrangements
3. Allowing for adaptation by countries with less ability to mitigate
4. Existence of scientific certainty with regards to the problem
5. Existence of close and cheap substitutes
6. Existence of a reduced number of countries to negotiate (bilateral or "mini lateral" accords)
7. Similarity in the level of development, capabilities and resilience to the threat
8. Negotiations that are repeated over time so as to establish trust
9. Sanction measures that the parties accept, aimed at preventing non-compliance
10. Mechanisms to dissuade free riders
11. Using flexible mechanisms which increase static and dynamic efficiency
12. Consider compensation to those who lose out from the agreement
13. Limited cession of sovereignty by the countries that ratify the agreement

Source: Adapted from Barrett [5], Bretteville-Froyn [8] and Sandler [57] in Lázaro-Touza [39].

Beyond the above mentioned facilitative elements, in order for IEAs to be successful, *participation* needs to be broad (inclusion of main emitters[9] is paramount), parties to the agreement must *comply* with their voluntarily undertaken commitments and the *behavior* of emitters needs to substantially change, i.e., significant action to reduce GHGs needs to happen [3]. The ultimate goal in joint climate change action is to achieve reductions that will ensure humans avoid dangerous interference with the climate system.

Climate change is said to be a 'wicked problem' [34] as most of the above facilitative elements and requirements for a successful IEA are elusive. Net benefits of joint mitigation are not always clear from the perspective of short term political cycles, equity issues have not been resolved, scientific certainty is still work in progress and no close substitutes exist for GHGs produced by virtually all human activities.

Not all main emitters are part of the KP, countries such as Canada have withdrawn from the KP arguing their commitments are too costly, and globally, behaviour has changed little. In sum, the current prospects for jointly achieving a stable climate in time to limit temperature increases to 2ºC compared to pre-industrial levels appear slim.

The existing barriers to a successful agreement have not however halted international negotiation efforts.

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[9] Please note that main emitters refer to China, the US, the EU, India, Japan and Russia [43].

International climate negotiations and actions are taking place across a number of institutions. The key international institutions[10] established in the 1990's by the international community to fight climate change are: the UNFCCC and the KP[11]. Parties to the UNFCCC and the KP have undertaken continuous work that is showcased to the world in annual mega Conferences of the Parties (COP) and Meetings of the Parties (MOP).

These macro events help advance commitments in mitigation, adaptation, technology transfer and finance, among others. Table 6.2 presents the key milestones in the international climate negotiation scene since the late 1980's.

Table 6.2. Key milestones in climate change negotiations

Timeline of the international negotiation processes			
1988	IPCC established		
1989			
1990	*First IPCC Assessment Report (AR1) is published*		
1991			
1992	Adoption and open for signature		
1993			
1994	Entry into force		
1995		COP1	*Berlin Mandate* : agreement on willingness to reduce GHGs. Establishment of the Special Group on the Berlin Mandate that will result in the KP. Developing countries are exempted from mitigation commitments. *Second IPCC Assessment Report (AR2) is published.*
1996		COP2	*Geneva:* Anthropogenic CC is acknowledged and non-uniform commitments are accepted.
1997	Agreement	COP3	*KYOTO PROTOCOL* : First global agreement that limits GHGs (5.2% below 1990 levels).
1998	Open for signature	COP4	*Buenos Aires Plan of Action* : The rules for the implementation of the KP are negotiated. Developed and developing countries differ in their views regarding acceptable Burden Sharing Agreements (BSA).
1999		COP5	
2000		COP6	*The Hague* meeting ends without agreement. US withdraws from the KP.
2001	Open for ratification	COP6-bis & COP7	*Bonn: 'The triumph of multilateralism'* meant the world continued negotiating without the US. *Marrakech Accords* : Legal rules for the implementation and interpretation of the KP are adopted. *Third IPCC Assessment Report (AR3) is published.*
2002		COP8	
2003		COP9	
2004	Russia ratifies Entry into force	COP10	
2005		COP11 - MOP1	*Montreal Action Plan* : The goal was to extend the first commitment period and to commit to greater emission reductions.
2006		COP12 - MOP2	
2007		COP13 - MOP3	*Bali Action Plan* : *Frouth IPCC Assessment Report (AR4) is published.* The AR4 is key in the COP13 where governments agree to engage in a new negotiating process that focuses on: shared vision, mitigation, adaptation, technology and financing.
2008		COP14 - MOP4	
2009	KP First commitment period	COP15 - MOP5	*Copenhagen Accord* : Outside the UNFCCC but establishes key elements for the COP 16 including: limiting temperature increases to 2ºC, endorsement by developed and developing countries, new and additional funding commitments, Green Climate Fund & progress on verification.
2010		COP16 - MOP6	*Cancun Agreement* : Enshrined the Copenhagen Accord within the UNFCCC framework.
2011		COP17 - MOP7	*Durban Platform for Enhanced Action* : A new process is launched to develop 'a protocol, another legal instrument or an agreed outcome with legal force under the Convention applicable to all Parties' to be negotiated by 2015 and entering into force by 2020. In the interim, the KP will remain in force in its second commitment period.
2012		COP18 - MOP8	*Doha Climate Gateway (DCG)* : The DCG is responsible for defining the future climate agreement that will replace the KP.
2013		COP19 - MOP9	*Warsow International Mechanism for Loss and damage.* Addresses the loss and damage of climate change in especially vulnerable developing countries. Release of the Fifth IPCC Assessment Report
2014	KP Second commitment period		Finalising the release of the Fifth IPCC Assessment Report
2015			New Climate Agreement to replace the KP should be agreed on in COP 21, Paris
2016			
2017			
2018			
2019			
2020			Entry into force of the New Climate Agreement that will replace the Kyoto Protocol

(Left vertical labels: UNITED NATIONS FRAMWORK CONVENTION ON CLIMATE CHANGE (UNFCCC); KYOTO PROTOCOL (KP))

Source: Adapted and updated based on: Secretaría de Estado de Cambio Climático [59], Vrolijk [85], Blanchard et al. [7] and UNFCCC website: http://unfccc.int/2860.php.

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[10] Institution in this context is defined as 'the prescriptions that humans use to organize all forms of repetitive and structured interactions including those within families, neighborhoods, markets, firms, sports leagues, churches, private associations and governments at all scales' [53].

[11] Other key institutions where climate negotiations and actions are taking place at an international level include: the GEF, WTO, G8, MEF, IMO, ICAO, OECD, among other.

Over two decades of international climate negotiations and assessment of existing peer reviewed scientific literature by the IPCC have helped develop a top-down negotiation framework that could provide the institutional space for effective climate action. The efforts made so far have to be evaluated against the goals the world strives to achieve in terms of limiting global average temperature increases.

The following subsection will tell us that we have, so far, failed in this endeavor and it will suggest how our goals could be advanced in the future.

b. Mitigation

Mitigation can be loosely defined as the array of actions that reduce human influence on the climate system. These actions include reducing the amount of GHGs released or enhancing the GHG absorption capacity of sinks such as forests and oceans[12].

The opening statement of the World Energy Outlook's (WEO) special report on climate and energy states that 'there is a growing disconnect between the trajectory that the world is on and one that is consistent with a 2°C climate goal' [26], with May 2013 hitting a record high in the concentration of GHGs in the atmosphere (equal to 400 ppm[13]). Similar statements have been issued by UNEP since it first published its emissions gap report in 2010, subsequently updated in 2011, 2012 and 2013 [71-74].

Pledged emission reductions have been stated in ways that have not been easy to compare with countries using ranges, some pledges being unconditional and others conditional upon the actions of other countries, with said pledges being referenced to different baseline years and under lenient or strict implementation rules[14] [56].

The UNEP reports have helped clarify the extent to which current pledges will lead to limiting global average temperature increases to 2°C.

The first emission's gap report [74] stated that, in the aftermath of the Copenhagen Accords, the pledges made by both annex-I and non-Annex-I countries would not be enough to ensure the avoidance of dangerous anthropogenic interference with the climate system. A likely chance of avoiding this interference would imply emissions of 44 gigatonnes of carbon dioxide equivalent ($GtCO_2e$) by 2020. Business as usual (BAU) projections would rise to 56Gt CO_2e, leaving an emissions gap of $12GtCO_2e$. However, as shown in table 6.3 below, depending on the scenario, the emissions gap could theoretically range from $5GtCO_2e$ and $9GtCO_2e$. But even if emissions remained on the lower part of that range, the world community would be 60% on track to limiting temperature increases to 2°C compared to pre-industrial levels.

UNEP's 2011 [73] report included updated information from countries on commitments, changing baselines, effects of the economic crisis in increasing surplus emissions available under various scenarios. The report concluded that the emissions gap had widened and could

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[12] Please refer to http://www.ipcc.ch/publications_and_data/ar4/wg2/en/annexessglossary-e-o.html for a complete glossary of climate terms used by the IPCC.

[13] ppm means number of parts of a chemical found in one million parts of a particular gas, liquid, or solid. Please refer to http://www.epa.gov/climatechange/glossary.html#PPM for a complete glossary of terms used by the US Environmental Protection Agency.

[14] Note that the UNEP defines lenient rules as 'pledge cases with maximum Annex I "lenient LULUCF credits" (credits given for carbon removals from existing forests or other sinks that would have occurred without policy intervention) and surplus emissions units' [74].

range between 6GtCO$_2$e and 11GtCO$_2$e even though its BAU projections remained at 56GtCO$_2$e. While it stated that there was still room for bridging the gap, under the most favorable case, pledges would still be 50% on track to meeting the 2ºC target.

The 2012 UNEP report stated that, since 2000, GHG emissions increased 20% reaching 50.1 GtCO$_2$e and being 14% higher that the emissions needed to ensure a likely chance of limiting global average temperature increases to 2ºC compared to pre-industrial levels. The gap in this report was believed to range between 8GtCO$_2$e and 13GtCO$_2$e, as economic growth was expected to return and the calculations were inclusive of potential double counting[15]. Expected business as usual GHG emissions according to this report would amount to 58GtCO$_2$e. Under the most favorable case, commitments would imply only 40% of the road to limit temperature increases to 2ºC would be travelled.

The UNEP 2013 report points out that the pledges stated by countries have not changed significantly since the 2012 report, despite some tighter accounting rules. The BAU scenario has increased, reaching 59GtCO2e. The gap, according to this latest UNEP emissions gap report can range between 8GtCO$_2$e and 12GtCO$_2$e. Current commitments would limit the mitigation of GHGs to less than 50% of what is needed to stay within the 2ºC mark. Table 6.3 summarizes the main data from the UNEP's reports.

Table 6.3. GHG emissions and gap under different conditionality and implementation scenarios

	Emissions 2010 (GtCO$_2$e)	Gap 2010 (GtCO$_2$e)	Emissions 2011(GtCO$_2$e)	Gap 2011 (GtCO$_2$e)	Emissions 2012(GtCO$_2$e)	Gap 2012 (GtCO$_2$e)	Emissions 2013(GtCO$_2$e)	Gap 2013 (GtCO$_2$e)
Business as usual	56		56		58		59	
Unconditional pledges, lenient rules	53	9	55	11	57	13	56	12
Unconditional pledges, strict rules	52	8	53	9	54	10	55	11
Conditional pledges, lenient rules	51	7	53	9	55	11	54	10
Conditional pledges, Strict rules	49	5	50	6	52	8	52	8
Road travelled to meet the 2ºC target	~60%		50%		~40%		~45%	

Source: UNEP [71-74].

As was stated at the outset of this subsection, the pledges made in the aftermath of the Copenhagen Accords afford us only part of the fuel needed to travel down the winding road leading to the increasingly elusive 2ºC target. According to Table 6.3, the gap can be partially bridged by implementing conditional pledges, applying strict rules to LULUCF and surplus

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[15] Double counting means that 'emission reductions are counted towards meeting two countries' pledges' [73].

credits, and avoiding double counting. But even these positive steps in the right direction will not be enough. More needs to be done.

Additional efforts need to be aligned with economic development priorities [72]. Key sectors in which further action is suggested are related either to *energy use or to GHG absorption capacities*. As an intensive energy consumer (and GHG producer), the *building sector* for example could aid mitigation initiatives with the expansion of building codes, the use of appliance standards or the development of energy efficiency finance initiatives such as the PACE model [72-83]. The *transport sector* could also apply more stringent fuel standards and public transport could be improved in many countries. Better public transport systems could be coupled with better land-use policies that could facilitate the development of multi-functional cities conducive to the reduction in transport needs. Companies could increase home office working arrangements, reducing work-related transport [40].

Another promising area in which GHG emission reductions are possible is the *forestry sector*. Increasing the protection of certain areas, while allowing indigenous communities to benefit from ecosystem services[16], could help reduce GHG emissions from this sector. Paying for said ecosystem services could be another way of avoiding land use change [73], although issues of additionally[17] would have to be addressed.

How could the above-mentioned mitigation actions be included in a future climate architecture? One promising approach would be to increase the legal status of lower echelons of government in international climate negotiations [46, 52]. This is so as subnational and local levels of government are where GHGs are emitted and they are the institutional structures that are closer to emissions. These lower government levels also have the power, in many cases, to regulate emissions. Cities for example produce between two thirds and three fourths of GHG emissions and consume similar amounts of energy.

Additionally, two thirds of global mitigation potential is held within city boundaries [63]. Yet, city representation has been limited at the global level until COP 16 [84]. Difficulties in this polycentric approach to climate governance are expected, as it is countries, and not cities, that are the subjects of international law. Despite the difficulties, the need to engage actors at all levels might help international climate negotiators provide creative (and increasingly inclusive) solutions in future international climate negotiations.

c. Adaptation

No matter how successful mitigation efforts are in reducing GHGs, the effects of climate change will continue to be felt in the coming decades due to the delayed effects of emissions.

This reality requires an additional response to climate change, based on the implementation of adaptation measures to manage the consequences of climate change on ecological, social, and economic systems.

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[16] Ecosystem services are the benefits derived from ecosystems by humans. See: http://www.iucn.org/about/union/commissions/cem/cem_work/cem_services/

[17] According to Gillenwater (2012, p. 4) 'additionality is a determination of whether a proposed activity will produce some "extra good" in the future relative to a reference scenario, which we refer to as a baseline. In other words, additionality is the process of determining whether a proposed activity is better than a specified baseline'.

While adaptation has been defined in various ways [58], the IPCC's AR4 [29] defines it as an 'adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities'.

Adaptation is not new to the human species, as it has had to respond, throughout its history, to various short and long-term changes in its environment. However, what is new is the anticipation and incorporation of future climate risk in policy making [41].

The UNFCCC describes the adaptation process in five stages (Figure 6.1):

'**Observation**: observation and monitoring of climatic and non-climatic, socio-economic and environmental variables'
Assessment of impacts, vulnerability and risks: identify options to adapt to climate change, and evaluate them in terms of (various) criteria
Planning for adaptation: identify and prioritize urgent and immediate needs with regard to adaptation to the effects of climate change
Implementation of adaptation measures: implementation of national adaptation plans and work programs
Monitoring and evaluation of adaptation interventions: regular monitoring, evaluation and revision, 'both in terms of the validity of the underlying scientific assumptions and the appropriateness of projects, policies and programs'
*'The findings from the last stage **feed back** into the first, ensuring that the adaptation process is iterative and dynamic over time'*

Figure 6.1. The Adaptation Process

Source: Adapted from UNFCCC [75] and UNFCCC [78].

In adapting, policy-makers and other stakeholders are confronted with a number of uncertainties that stem from the limitations of our scientific knowledge of the climate system, future levels of GHGs, the impact of future climate on the environment, society or the economy [86]. Nevertheless, they are expected to assess the implications of climate change

for natural systems and human society, whether detrimental or beneficial, and develop appropriate adaptation measures.

While mitigation and adaptation were, for years, considered alternative strategies to climate change management, there is today a growing recognition that mitigation alone cannot avoid all climate change impacts.

Whatever the stabilization scenario achieved through mitigation, short-term and long-term adaptation strategies are required, as the inertia in the climate system will ensure that impacts resulting from current warming will be felt for decades or centuries. Even so, numerous barriers to successful adaptation exist, while in some cases adaptation will simply be ineffective (e.g., disappearance of mountain glaciers or significant sea level rise). The challenge is therefore to integrate mitigation and adaptation measures in a synergistic way so that they complement each other to significantly reduce the risks of climate change [28, 40].

However, unlike mitigation, where action has measurable effects of GHG emissions, adaptation cannot be measured using such a single, commonly understood and accepted indicator. Adaptation is fundamentally determined by the socio-economic context (institutional, cultural, equity, economic, social and governance) in which it is applied. Therefore, to be successful, adaptation has to be considered within a broader set of national policy objectives. Consequently, there has been a significant push for mainstreaming[18] adaptation policies into development policies, especially sustainable development policies.

As with mitigation, the main institutional settings for international adaptation negotiations and financing are the UNFCCC and the KP. However, while mitigation has been central to the Convention since its inception, the recognition of the importance of adaptation to global climate change has been much slower. It could be argued that adaptation only began to be perceived as an important and equal complement to mitigation after the IPCC'S AR3 and the subsequent adoption of the Marrakesh Accords at COP7 in 2001, where new funding and planning tools for adaptation were put in place. The Bali Road Map adopted during COP13 in 2007 further highlighted the importance of adaptation when it was included with mitigation as one of five key elements required for a more robust response to climate change.

The challenge today for policy-makers and stakeholders is to translate the political momentum in support of adaptation into operational success [18].

While impacts, vulnerability and adaptation to climate change are inextricably linked, there are differences in the way they are studied. The *impacts-oriented approach* to climate change first endeavors to construct a climate scenario, from which a number of potential biophysical impacts will emerge, stimulating individual and societal responses (i.e., adaptation). However, the inherent level of uncertainty, especially in downscaling global climate model information to short time and small spatial scales, limits the usefulness of this approach for on-the-ground adaptation [56]. On the other hand, the *adaptation-vulnerability approach* to climate change focuses on the socio-economic context (institutional, cultural, equity, economic, social and governance) to help define vulnerability, as well as the range of external factors that affect people's livelihoods and well-being. This approach considers

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[18] Mainstreaming: 'The iterative process of integrating adaptation considerations into policy-making, budgeting and implementation processes at national, sector and subnational levels. It is a multi-year, multi-stakeholder effort that entails working with government actors (head of state's office, environment, finance and planning bodies, sector and subnational bodies, political parties and parliament, national statistics office and judicial system), non-governmental actors (civil society, academia, business and industry, general public and communities, and the media) and development actors' (UNDP, 2007 in UNFCCC [82]).

climate change as an additional external factor often interacting with other stressors instead of impacting individuals and society in isolation [56].

Whatever the approach, four major questions at the heart of any strategic approach to adaptation should be considered: *Where to adapt*, *When to adapt*, *How to adapt*, and *Who should adapt*? [15]. Answering these questions is especially challenging for developing countries as they are the most vulnerable and the least prepared to deal with climate change induced impacts and risks. Additionally, the poorest countries with the most vulnerable populations amongst this group are usually disproportionally affected by climate change [49]. Recognizing that providing vulnerable populations in developing countries with better protection against loss and damage caused by climate change was needed, the parties established at COP19 (November 2013) the Warsaw International Mechanism for Loss and Damage associated with climate change impacts. The mechanism is expected to become the Convention's primary vehicle through which loss and damage will be addresses in a comprehensive fashion[19].

d. Technology Transfer

Technology transfer in the context of climate change is defined by the Global Environment Facility as:

> A broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change amongst different stakeholders such as governments, private sector entities, financial institutions, non-governmental organization (NGOs) and research/education institutions… the broad and inclusive term 'transfer' encompasses diffusion of technologies and technology cooperation across and within countries. It covers technology transfer processes between developed countries, developing countries and countries with economies in transition, amongst developed countries, amongst developing countries, and amongst countries with economies in transition. It comprises the process of learning to understand, utilize and replicate the technology, including the capacity to choose and adapt to local conditions and integrate it with indigenous technologies [20].

'To a large extent, the state of the environment today is the result of the technological choices of yesterday. Similarly, the state of the environment in the 21st century will be determined largely by the technologies we choose today' [66]. Therefore, a broad range of technologies, particularly environmentally sound technologies (ESTs)[20], will have to be deployed if human beings are to limit temperature increases to 2ºC compared to pre-industrial levels, entailing GHG reductions in the range of 25–40% below 1990 levels by 2020 for developed countries and 15–30% by 2020 for developing countries [14]. These mitigation

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[19] For the UNFCCC Secretariat press release subsequent to COP19, please see: http://unfccc.int/ files/press/news_ room/press_releases_and_advisories/application/pdf/131123_pr_closing_cop19.pdf.

[20] Environmentally Sound Technologies (ESTs): technologies that protect the environment are less polluting, use all resources in a more sustainable manner, recycle more of their wastes and products, and handle residual wastes in a more acceptable manner than the technologies for which they were substitutes and are compatible with nationally determined socio-economic, cultural, and environmental priorities. ESTs in this report imply mitigation and adaptation technologies, both "soft" and "hard" [31].

efforts coupled with the necessary adaptation to unavoidable global climate change will have to include both GHG emission mitigation technologies and climate change adaptation technologies, both "soft" and "hard".

However, countries clearly do not have the same capacities to address climate change. Generally speaking, developed nations have the means to meet the challenges of climate change, while many, if not most, developing nations lack the capacities to act effectively. Additionally the majority of technology transfers occur within the countries that generate them, an outcome of the tendency of nations throughout history to ensure that technological know-how remains in country, as military and economic power is technology driven. That being said, there has been growing momentum, through intellectual property legislation, multilateral organizations as well as private sector entities, for greater technology transfer [33].

In line with this trend, the Technology Transfer Framework was agreed during COP 7 (2001) under the Marrakesh Accords and was comprised of five key 'themes' which included: *Technology Needs Assessment (TNA)* aimed at assessing technology priorities for developing and non-annex II countries, *Enabling* (policy) *Environments* that facilitate technology transfer, *Technology Information* that may facilitate the development of said technology, *Capacity Building* that will be conducive to gauge and implement technology, and finally *Technology Transfer Mechanisms* that include finance, cooperation, endogenous development of technologies and joint research initiatives.

Later, as part of the Cancun Agreements signed at COP 16 in 2010, a Technology Mechanism was established. It is comprised of[21]:

1   A Technology Executive Committee (TEC) tasked with further implementation of the Technology Transfer Framework. TEC is intended to provide support to all relevant stakeholders in their mitigation and adaptation activities through the promotion of technology development and transfer
2   A Climate Technology Centre and Network (CTCN) mandated to assist developing country Parties, encourage technology cooperation as well as technology development and transfer.

In addition, the market-based Clean Development Mechanism (CDM), established by the Kyoto Protocol, while not having an explicit technology transfer mandate, has contributed to the sustainable development of developing countries by supporting the transfer of technologies to projects aimed at reducing emissions [79]. Through the CDM, such projects can earn certified emission reduction (CER) credits, each corresponding to a ton of CO_2, which under the Kyoto Protocol can be traded and sold to developed countries to meet their emission reduction targets. The CDM is also the primary financing mechanism for the Adaptation Fund[22], via a 2% levy on CERs.

A number of studies have attempted to establish the degree of technology transfer taking place through the CDM [10, 60]. The results indicate that there is much disparity in technology transfer between countries as well as insufficient volume and reach in CDM

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[21] For more information, please see http://unfccc.int/ttclear/pages/home.html.
[22] 'The Adaptation Fund was established in 2001 to finance concrete adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change'https://www.adaptation-fund.org/about.

projects to create the necessary momentum towards cleaner technologies. Amendments to the CDM, such as sectorial or technological benchmarks, have the potential to improve technological standards [69].

However, while many delegates during COP19 in Warsaw expressed concern over the state of the CDM, further discussions on the topic, including possible amendments to the CDM, were referred to a subsidiary body for consideration in 2014 [67].

Another important multilateral body responsible for technology transfer is the Global Environmental facility (GEF). Since its inception in 1991, the GEF has been the largest source of public finance for ESTs [21] and is mandated by the UNFCCC to finance their transfer in the context of both mitigation and adaptation. GEF supports the transfer of a full range of emission reduction technologies, from pilot projects to commercially viable systems. The GEF Trust Fund is primarily programmed to support mitigation measures while its two special funds under the UNFCCC, the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF), also address adaptation [20].

The GEF is said to have made progress in the reduction of GHG emissions primarily through the support of projects in energy efficiency and renewable energy [22]. Reproach of the GEF approach includes its reactivity in responding to opportunities, the lengthiness of its approval process and the fact that it is underfunded (Marcellino, 2010). These weaknesses are important barriers to technology transfer and often discourage private actors in participating in GEF projects (Chuffart, 2013). Lingering issues regarding governance structure and operational principles are still being raised by developing nations, especially small island developing states (SIDS) that are concerned over its system for allocating its climate change funds as well as its limited funding for adaptation [42].

While multilateral organizations and governments can act as catalysts in support of technology transfer, it is predominantly private companies that are the producers and owners of ESTs. It is therefore relevant to identify the private sector pathways that can facilitate technology transfer. These pathways may involve international trade in hard and soft technologies through foreign direct investment (FDI), license or royalty agreements, turnkey projects, joint ventures, technical agreements, or other forms of cooperation arrangements. These pathways provide commercial and trade linkages between companies and need to be taken into consideration in the broader debate on the role of trade and technology transfer in mitigating and adapting to climate change [88].

A persistent hurdle on the path to technology transfer, and a hotly debated issue involving all stakeholders, is the issue of intellectual property rights (IPRs). The debate has mostly been framed in a developed vs. developing nations context. For some, IPRs are considered essential for fostering innovation in ESTs, making IPRs a must for any subsequent technology transfer. For others, IPRs are perceived as a barrier to rapid access and widespread dissemination of ESTs. A range of measures and options have been advanced to further the issue, including the 'expanded use of flexibilities in international intellectual property instruments; the exclusion of climate change technologies from patentability; and the consideration of arrangements such as patent pools to facilitate access to these technologies' [37]. However, it has been argued that the UNFCCC is not the appropriate forum to negotiate these issues, which are considered by many to be better addressed at the World Intellectual Property Organization (WIPO) or under the TRIPS Agreement as some of the above options may require changes in global intellectual property rules [37, 55]. The COP19 climate talks in

Warsaw resulted in no significant advance in either IPRs or ESTs, recommending the issue to be further discussed by a subsidiary body in 2014 and results reported at COP20 [65].

e. Financing

'Climate finance refers to local, national or transnational financing, which may be drawn from public, private and alternative sources of financing. Climate finance is critical to addressing climate change because large-scale investments are required to significantly reduce emissions, notably in sectors that emit large quantities of greenhouse gases.

Climate finance is equally important for adaptation, for which significant financial resources will be similarly required to allow countries to adapt to the adverse effects and reduce the impacts of climate change' [76].

The underlying premise for climate finance is based on the concept of equity. Article 3 of the Convention states that the

'Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities. Accordingly, the developed country Parties should take the lead in combating climate change and the adverse effects thereof' [81].

The 1998 legally binding Kyoto Protocol also based the implementation of the Convention on the same principle of common but differentiated responsibilities and respective capabilities [36]. Table 6.4 shows the wide range of figures that are put forward regarding annual estimated costs of climate adaptation in developing countries that range from USD 4 billion to USD 105 billion in the short-term and from USD 15 billion to USD 100 billion in the medium-term.

Table 6.4. Estimated costs of climate adaptation in developing countries

Agency	Annual financing requirements (US$ billions)
SHORT-TERM ESTIMATES (2010–2015)	
World Bank	9 – 41
Stern Review	4 – 37
UNDP	83 – 105
MEDIUM TERM (to 2050)	
UNFCCC	28 – 67
World Bank (EACC)	75 – 100
Project Catalyst	15 – 37

Source: Spratt and Ashford [62].

In spite of these divergent figures, developed nations party to the UNFCCC agreed in the 2009 Copenhagen Accord to provide new financing approaching USD 30 billion for the period 2010-2012 to be allocated in a balanced way between adaptation and mitigation (fast-start finance). They also agreed to commit to the goal of jointly mobilizing from multilateral, bilateral, public and private sources USD 100 billion a year by 2020 to address the needs of developing countries. Furthermore parties to the Convention agreed to establish a Green Climate Fund in support of developing countries' mitigation and adaptation efforts [80].

Following the Copenhagen Accord, the Secretary General of the United Nations established in 2010 a High-level Advisory Group on Climate Change Financing.

The Advisory group was tasked to report on the various sources of revenue susceptible to contribute to meeting the USD 100 billion a year by 2020 goal, which can be summarized as follows [68]: 'public sources for grants and highly concessional loans, development bank-type instruments, carbon market finance and private capital'.

The conclusion of the Advisory Group was that while meeting the US$100 billion per year by 2020 goal would be challenging, it was feasible [68].
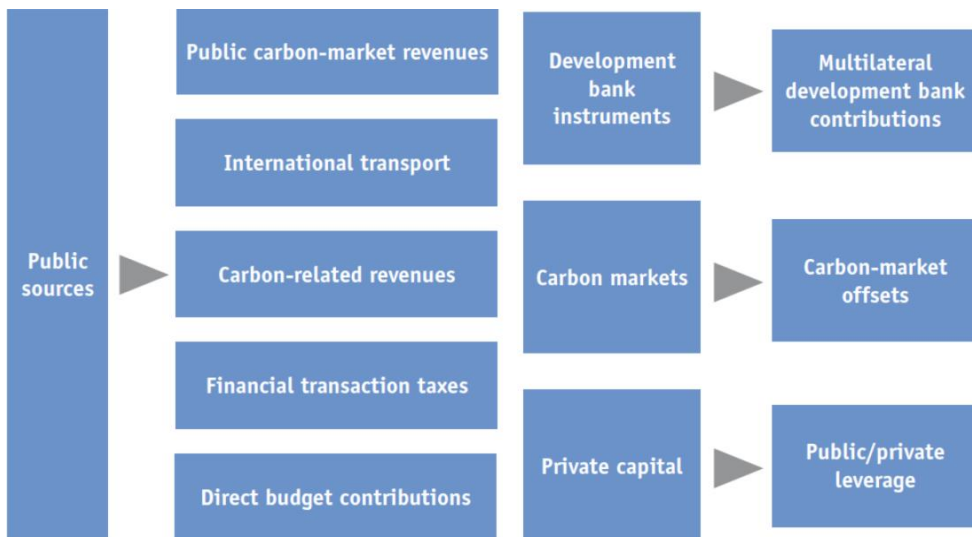
Figure 7.2. Potential Sources of Finance.

Source: UN [68].

These potential finance sources were analyzed based on [68]:

- *Revenues*: revenue potential;
- *Efficiency*: carbon-related efficiency and overall efficiency;
- *Incidence*: 'who really pays' for revenue;
- *Equity*: in terms of the distributional impact of different measures;
- *Practicality*: in terms of the feasibility of implementation;
- *Acceptability*: whether a revenue source is politically acceptable;
- *Additionally*: whether a revenue actually provides new resources;
- *Reliability*: whether the finance source will lead to a predictable revenue stream.

Table 6.5. below summarizes the financing sources identified by the Advisory Group.

As of the end of 2012, developed countries self-reported the delivery of more than $33 billion in fast-start finance for the period 2010-2012 [87]. However, reporting and accounting issues make it difficult to say how much funding has been disbursed or where it is going. As Parties have outlined during UNFCCC's COP17 and COP18, there is a continuing need for developed nations to improve reporting on their fast-start finance commitment as well as to expedite its full disbursement [77].

Table 6.5. Potential Sources of Finance

PUBLIC SOURCES	Revenues from the international auctioning of emission allowances (such as assigned amount units (AAU) under the Kyoto Protocol)
	Revenues from the auctioning of emission allowances in domestic emissions trading schemes (as in the European Union Emission Trading Scheme phase III)
	Revenues from offset levies
	Revenues generated from taxes on international aviation and shipping
	Revenues from a wires charge
	Revenues generated by removing fossil energy subsidies in developed countries
	Revenues from fossil fuel extraction royalties/licenses
	Revenues from carbon taxes
	Revenues from a financial transaction tax
	Direct budget contributions
DEVELOPMENT BANK INSTRUMENTS	Resources generated via multilateral development banks using current balance sheet Headroom (i.e., the amount of money the multilateral development bank can raise on the capital markets given the assets on its balance sheet)
	Resources created via potential further replenishments and paid-in capital contributions by countries to multilateral development banks (i.e., generating new cash resources for multilateral development banks)
	Potential contribution to a fund dedicated to climate-related investment financed on the back of commitment of existing or new special drawing rights
CARBON MARKET FINANCE	Carbon market finance refers to transfers of resources related to purchases of offsets in developing countries. Presently, the majority of resources are generated via private entities and Governments in developed countries purchasing project-based offsets from private entities in developing countries through the CDM. The potential scale of resources is dependent on the stringency of the emissions reduction commitments of developed countries, on carbon market design and on the availability of eligible emissions reductions in developing countries.
PRIVATE CAPITAL	Private capital refers to flows of international private finance resulting from specific interventions by developed countries. This includes the use of risk mitigation or revenue-enhancing instruments that compensate private investors for otherwise lower than risk-related required rates of return (also referred to as "crowding in") as well as capacity building for adaptation and implementation of climate policies in developing countries.

Source: UN [68].

Since 1998, OECD's Development Assistance Committee (DAC) has monitored climate change related aid through its 'Creditor Reporting System' (CRS) using the four 'Rio markers', which cover biodiversity, desertification, climate change mitigation, and climate change adaptation (the latter having been introduced in 2010). Data for 2011 show that total bilateral climate change-related aid by DAC's OECD members was USD 17.1 billion in 2011, of which two-thirds was for mitigation, and one-third for adaptation. Multilateral climate change-related aid was USD 894 million in 2011 [50].

Disappointingly, these numbers reflect a nearly 6 billion decline in climate change-related aid in 2011 compared to 2010 [51]. While data for two consecutive years cannot be interpreted as a trend, the overall numbers seem to suggest that the world is far from being on track to meet its USD 100 billion a year by 2020 goal.

CONCLUSION

As stated by Richardson [56], while determining what is dangerous climate change is a societal value judgment, it must be grounded on a risk assessment informed by knowledge of potential impacts, vulnerability and adaptive capacity. This chapter on climate change risk has highlighted that:

- Mean global warming since pre-industrial levels has reached 0.8ºC. Without significant climate action, this is *likely* to lead to a 3ºC world, with a 20% chance of exceeding 4ºC by 2100.
- In the last century, sea-level rise has ranged between 15 and 20 centimeters. According to the AR5 Summary for Policymakers, the range of sea level rise will spread from 0.4 to 0.63 meters for 2081 to 2100.
- Despite the inherent uncertainty in predicting rainfall patterns and water availability, existing trends will be exacerbated. Hundreds of millions of people will be exposed to water stress, with agricultural production and urban areas being particularly vulnerable.
- Between 20% and 30% of plant and animal species are *likely* to experience increased risk of extinction for rises in global average temperatures greater than 1.5ºC to 2.5ºC, causing ecosystem changes and biodiversity losses.
- Mean global temperature increases above 3ºC compared to pre-industrial levels are expected to reduce food production capabilities. A 4ºC warmer world, however, could potentially threaten global food security.
- Negative health consequences from climate induced malnutrition, death and injuries from extreme weather events, increases in infectious diseases and heart and respiratory illnesses in densely populated areas are expected.
- In poor countries, temperature increases of 1ºC have resulted in economic growth reductions of 1.3% in the past. Some argue that unabated climate change will imply GDP losses of 5% to 20% *ad infinitum*.

While the science of climate change is becoming clearer, climate change is nevertheless a 'wicked problem' as most facilitative elements and requirements for successful IEAs such as

the UNFCCC and the KP are elusive. Net benefits for nations of joining said IEAs are not always clear from the perspective of short term political cycles, equity issues have not been resolved, scientific certainty is still work in progress, no close substitutes exists for GHG produced by virtually all human activities, and not all main emitters are parties to IEAs creating free-rider incentives.

Since 2000 GHG emissions have increased 20%, 14% higher than what is needed to ensure the world's 2ºC goal. Additional efforts need to be aligned with economic development priorities. Key sectors such as energy, building, transport and LULUCF where emissions are most intensive will require innovative approaches to reduce their GHG footprint. However, no matter how successful mitigation efforts are in reducing GHGs, the effects of climate change will continue to be felt in the coming decades due to the delayed effects of emissions on the climate system. Adaptation will become critical for many countries, no matter the uncertainties involved.

A great deal of effort is still needed to ensure IEAs are inclusive of all stakeholders and are delivering as designed. As COP19 in Warsaw has shown, the bridge between developed and developing countries is still wide. In the wake of typhoon Haiyan, the latest achievements of this interim conference have fallen short of the initial expectations, which were already low. The main outcomes of this conference are as follows. First, a loss and damage mechanism to compensate for climate change consequences has been established. Second, delegates have been sent back home with the mandate of producing information on their mitigation 'contributions' for the first quarter of 2015 and finally, REDD+, the mechanism for reducing deforestation and deforestation, has finally been completed.

Both "soft" and "hard" GHG emission mitigation technologies and climate change adaptation technologies will need to be deployed *en masse*. The private sector must be a part of that process and Intellectual Property Rights (IPRs) issues will have to be addressed to ensure they are not stumbling blocks in the transfer of technologies to the developing world.

In terms of finance, the current goal by developing nations to jointly mobilizing USD 100 billion a year by 2020 to address the needs of developing countries will require the broad participation of all stakeholders as well as much stronger efforts by developed nations. Data by the OECD for 2011 suggests that bilateral and multilateral climate change-related aid was below 20 billion, reflecting an overall decline compared to 2010. In sum, progress to date has clearly been insufficient to avoid the risks posed by the dangerous anthropogenic interference with the climate system. The prospects for jointly achieving a stable climate in time to limit temperature increases to 2ºC compared to pre-industrial levels appear slim.

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Chapter 7

FIGHT FOR NATURAL RESOURCES: THE GEOGRAPHY OF WARS

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ABSTRACT

Researches into the relationships between environmental factors and violence or environmental related conflicts constitute a much debated research field nowadays. Over the past two decades much attention has been paid to the role of natural resources in post-cold war conflicts, particularly in Africa. Several authors think that environmental scarcity, which is scarcity of renewable resources, can contribute to generate violence or social unrest, particularly within states scarcely endowed with technical know-how and social structures, such as developing countries. On the other hand, several African countries, firstly in West Africa and afterwards in East Africa, have demonstrated a 'paradox of plenty', in which dependence on the extraction of and trade in high-value natural resources has contributed to economic and state decline and aided rebel group mobilization. While it is debated to what extent and under which conditions abundant resources in Africa increase the risk of conflict, it is clear that resource governance should form an intrinsic part of peacemaking and development building on the continent. Both Geographies, of civil war and conflicts, coincide and reinforce theories that associate the wealth of natural resources and conflict.

INTRODUCTION

The end of the 20th century was marked by the fall of the Berlin Wall in the late 1980s, by the fading of bipolarization and the dawning of a reconfigured political map of Europe. The political and social instability has been spreading across the Middle East, North Africa

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and Southeast Asia. The most affected countries by this growing violence have several main features in common: inequality and disparity in access to wealth, absence of democracy, challenging states legitimacy, lack or weakness of public institutions, strong informal or illegal economy, high rates of violence, forced displacements and political marginalization of sectors of the population (see e.g Jensen and Wantchekon [28] and Schafer [51]).

Contrastingly, most of the above described situations are found in countries where natural wealth is abundant, so as the dependence on the exportation of these resources.

According to resource pessimists, as revenues generated by extractive industries rise, the quality of governance inevitably declines, reducing economic competitiveness and leaving the poor behind.

In theory, natural resource wealth should strengthen economic growth, provide governments with an opportunity to support human development, and create employment. In practice, it has often led to poverty, inequality and violent conflict. These are symptoms that have been widely attributed to a *resource curse* or to *mineral-based poverty traps*[1].

The *Oil World* is increasingly fussing with the worsening of the internal tensions in several of the countries producers of oil and gas – from the Middle East to Latin America and Brazil, North and West Africa, and emerging oil countries of East Africa. Even the Eurasia is going through difficult times – aggravated by the Ukrainian crisis – which may jeopardize the energy security of many European countries[2]. Given this status of instability, affecting the oil's economy, is it plausible to expect a future escalation of tensions between European countries, on the energy subject?

History has shown that the disruption in oil or gas flows shakes the world's economy, as it is easily concluded from the analysis of the past oil clashes (see, e.g., Hamilton [20])[3]. Today, more than in a not so distant past, energy security is a pressing concern of developed countries and of growing economies, as well as an inseparable subject from homeland security policies.

This chapter explores the recent trends and connections between violent armed conflicts and natural resources, in the age of globalization. It results from the author's research project *Geopolítica dos Recursos Naturais e dos Conflitos Armados*[4] and it is structured in two parts. In what concerns future developments, the author aims to advance a methodology supported in multivariate analysis and in GIS spatial analysis, having for purpose the early identification of potential conflicts triggered or aggravated by the abundance or lack of natural resources, which are vital to the sustainability of human life.

Thus, the first part revisits the major analytical perspectives on the links between resources and conflict. Firstly, it discusses the recent trends of the world's population evolution and the growing demand for natural resources.

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[1] The theoretical possibility of poverty traps in the neoclassical growth model is briefly approached in the economic growth textbook by Barro and Sala-i-Martin [1], which also discusses shortly the possible case for large-scale development assistance to overcome such traps.

[2] For the concepts of energy dependence and security of energy supply, see ''Member States' Energy Dependence: An Indicator-Based Assessment''. European Commission, Occasional Papers 145, April 2013. Available at: http://ec.europa.eu/economy_finance/publications/.

[3] Key post-World-War-II oil shocks reviewed include the Suez Crisis of 1956-57, the OPEC oil embargo of 1973-1974, the Iranian revolution of 1978-1979, the Iran-Iraq War initiated in 1980, the first Persian Gulf War in 1990-91, and the oil price spike of 2007-2008. Other more minor disturbances are also discussed, as are the economic downturns that followed each of the major postwar oil shocks.

[4] Geopolitics of Natural Resources and Armed Conflicts.

Secondly, it introduces the main theories and concepts about resources and conflicts, namely resource scarcity, resource conflicts, resource curse, among others.

The analysis was carried out at a national level and applied, fundamentally, to the case of North, West and East Africa. A first phase of the work included a careful selection of databases related to renewable resources (PRIO – Diamond Dataset and Petroleum Dataset)[5] and databases related to conflicts (UCDP/PRIO Armed Conflict Dataset)[6].

The results enabled the identification of areas suffering from scarcity of one or more renewable resources and/or suffering from the resource curse, indicating different levels of gravity. Accounts from West and East Africa countries seem to confirm our results, reporting struggles between internal groups over access to scarce resources in areas that our work showed to be at high risk.

Finally, the second part consists on a brief geopolitical analysis on the global energy sector, highlighting the demand and the increasing consumption of oil and gas, the geographical allocation of the production and the main threats that the oil and gas transportation face between the production and the consumption site.

Data for the first part was found with ESRI as well as the Department of Peace and Conflict Research at the Uppsala University and the Conditions of War and Peace Program at the International Peace Research Institute, Oslo (PRIO). My goal is to use easily available spatial databases to map the various sources of valuable resources in a correlation with recent or current conflicts through geographic information systems, in order to locate the areas apparently most at risk of suffering negative social effects and their consequences in terms of internal security.

The statistical component of the second part is mostly supported by the data of the International Energy Outlook 2013 – US Energy Information Administration (EIA) – and from BP Statistical Review of World Energy, June 2013 [6]. The data related to sea shipping come from the Review of Maritime Transport 2013 [61].

RESOURCES AND CONFLICT – LITERATURE REVIEW (A SYNOPSIS)

According to the Uppsala Conflict Data Program (UCDP)[7] an armed conflict "is a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths in one calendar year".

The heated academic and institutional debate over the security dimension of non-traditional threats is fairly recent and its decisive start may be dated by the end of the Cold War.

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[5] The diamonds dataset offers a comprehensive list of all known diamond deposits throughout the world. The dataset is available as GIS shapefiles as well as in spreadsheet (Excel) format. The petroleum datasets contain information on all known oil and gas deposits throughout the world. Two datasets are available: one for on-shore deposits and another for off-shore deposits.

[6] The codebook for the UCDP GED Point Dataset: Sundberg, Ralph, Mathilda Lindgren and Ausra Padskocimaite, 2010, "UCDP GED Codebook version 1.0-2011", Department of Peace and Conflict Research, Uppsala University.

[7] The UCDP is a Program of the Department of Peace and Conflict Research of the Uppsala University. This program collects data and information on armed conflicts and on a large number of aspects of armed violence since 1946 (http://www.pcr.uu.se/research/UCDP/).

Both political science and critical geopolitics have discussed the role of natural resources upon governance and conflict [9, 18, 33]. Oil and diamonds are frequently reported as cause of violent conflict. Analysis of diamond wars suggests that "conflict commodities" are not only financing hostilities, but also shape the motives of violence and behavior of armed parties [33]. Since the late 1990s, many scholars have studied the relationship between natural resource wealth and civil war, and found a positive relationship between resource scarcity and conflict. Most of them have been motivated by a series of violent resource conflicts – in Angola, Colombia, the Democratic Republic of Congo, Liberia, Sierra Leone, and Sudan [47]. However, critics of the neo-Malthusian approach either argue that there are too many intervening non-environmental variables to establish a direct link between population growth and scarcity-induced conflicts [7, 19, 33, 57].

Actually, there has been renewed and increasing interest in the two central theoretical approaches focusing on the topic of resource abundance: the *rentier state theory* and the *resource curse thesis*. Both argue that resource-exporting countries are negatively affected by political, economic, and social distortions.

The concept of the rentier state was particularly expanded by Hazem Beblawi and Giacomo Luciani [34], who classified a rentier state as a state in which at least 40 percent of the global government revenue consists of economic rents [38]. According to this theory, the three central effects of dependence on economic rents are economic inefficiency, the obstruction of socioeconomic development, and the use of resource revenues by governments for costly policies such as large-scale re-distribution and security apparatuses, buying off potential dissidents or effectively suppressing rebellion [34].

Several studies show, against nature, that the discovery of a natural resource may be a curse rather than a blessing since resource-rich countries grow slower than others. According to recent quantitative studies, oil is, perhaps, the only resource that is robustly linked to civil war onset [12, 48]. Looking back in time, resource abundance has been a main driver of growth rather than the opposite. In, for example, Finland, Sweden, Norway, Australia, Canada, and the United States, there is little doubt that resources have historically promoted growth and industrialization (see, for example, David and Wright [10]). "Contrasting the literature in economic history with the literature on the resource curse, one is led to question whether the effect of resource abundance has changed over time—and, if so, why?" [58].

Basedau and Richter [3] argue that debates around the nexus of oil and civil war have neglected two fundamental considerations: "there are a number of peaceful oil-rentier states, and there have been few efforts to explain why some oil-exporting countries have experienced civil war and others have not". According to these authors, "methodologically the debate has been dominated by research using either quantitative methods or case studies, with little genuine medium-N comparison".

As Torvik [58] exemplifies, in early 1900s, Norway was (together with Ireland) one of the poorest countries of Europe and today is one of the richest countries in the world. "This remarkable transition has been driven by exploitation of natural resources (…) and since the 1970s oil and natural gas have been key sectors." Oil and natural gas from the North Sea, in the late 1960s, proved to be a *blessing* and made the great economic and social development of Norway[8] possible.

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[8] See, for example, Larsen, Erling R. [32].

On the reverse side, Nigeria's oil has proved to be a *curse* for the bulk of the Nigerian population, since the wealth generated by the oil exploration was suitable for a small elite associated with power. Moreover, the majority of the population is confronted with the darker side of the unregulated exploitation of oil, particularly with the heavy pollution in the Niger delta and habitats' destruction, with serious losses for the small local economy and livelihood [50]. Similar trend to the *resource curse* also noted in countries rich in precious stones, gold and other valuable metals, *rare earth* elements, and timber. "The 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" [43].

Another research pathway, more recent, and, in a way, influenced by the climate change sets of the IPCC[9], aims to relate the repercussions of climate change over the spreading of civil violence. The climate, migration, and security nexus is a key test case because it is likely to exacerbate all of these existing risk factors [63].

The Quadrennial Defense Review Report (QDR), February 2010, emphasized the importance of addressing such non-traditional threats to the US and international security:

> The rising demand for resources, rapid urbanization of littoral regions, the effects of climate change, the emergence of new strains of disease, and profound cultural and demographic tensions in several regions are just some of the trends whose complex interplay may spark or exacerbate future conflicts [59].

The vast body of literature about the relationship between resources and conflict can be broadly divided into two groups: studies which focus on resource scarcity and conflict, and studies that explore the relationship between resources' abundance and conflict. The methods applied vary from vast quantitative efforts (econometric modeling and statistical regressions, cross-country and time-series analyses), to qualitative analyses.

Summarizing the varied approaches that relate to resources and conflicts highlight that natural resources can trigger violence through three main causal mechanisms [24, 33, 47]: a) motivation to take up arms may result from resource-related *grievances*, such as ecological damage or the withholding of resource revenues, costs and benefits related to resources are the driving forces of conflict; b) resources also provide the opportunity for conflict by making rebellion or warfare financially (or militarily) feasible, particularly through the "lootability" of resources; and, c) resources may make indirect mechanisms work, directly providing neither motive nor opportunity but exerting a detrimental influence on other areas such as state institutions (the "weak state") and socioeconomic development ("Dutch disease"), which in turn makes civil war more likely [3].

URBAN POPULATION GROWTH, CLIMATE CHANGE AND CONFLICT NEXUS

At the turn of the last century, the World's Economic Center of Gravity accentuated its displacement to southeast due to the strong demographic and economic growths in China, India and the rest of East Asia.

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[9] IPCC (Intergovernmental Panel on Climate Change). http://www.ipcc.ch/.

These emerging economies have maintained high levels of economic growth, unparalleled in Western economies, and have accentuated the strong tendency for the increasing density of population around large cities and the brutal augmentation of consumption of goods. The distribution of global political, economic, and military power is becoming more diffuse.

The seven largest megacities (defined as areas of continuous urban development of over 10 million people) are located in Asia. More than half of the population of large urban areas (500,000 and over) is in Asia, living in 473 of the 922 largest urban areas. China and India alone bear more urban concentrations over 500,000 habitants (respectively 194 and 93) than North America and Europe together (268). In the beginning of the 21st century, for the first time in history, urban population exceeds the rural population.

Nowadays there are 29 megacities in the world (Table 7.1).

China has the most megacities than any other country, four. The second fastest growing megacity over the past decade, Shenzhen (historically called "Bao'on"), was a small fishing village. In 1979, Deng Xiaoping established Special Economic Zones (SEZs) in the Pearl River Delta region, with Shenzhen being one of the zones receiving the same economic treatment as its peers. Shenzhen soon stood out among the SEZs not solely due to the growth of its population or economy, but also due to the amount of constructed landscape that totally changed the geography of the region.

In 1989, Shenzhen already had an ambitious plan to grow from 30,000 to 1 million in 10 years. By 2000, the official population was 10 million. Its rise has been so quick that the Asia Society has labeled it "a city without a history"[10].

Figure 7.1 represents the population's distribution – rural and urban – since the middle 20th century and the projection period to 2050. The intersection between the two lines occurred in the beginning of the 21st century, significantly increasing the number of people living in urban settlements from about 1.5 billion in 1990s to 3.6 billion (more than 50 per cent of the world's population) in 2011. Estimates suggest that this population may achieve 4 billion in 2030.

The large cities are vastly concentrated in coastal zones, which put a large portion of the urban population at risk from rising sea levels and intensifying storm surges. Areas of high population growth and high vulnerability to climate change impacts overlap.

Table 7.1. Urban Areas 500.000 and Over Population

Geography	Cases	Population	Average Density: Square Kilometer	% of Urban Areas	% of Population
Africa	103	198.429.000	7.000	11,2%	10,3%
Asia	473	1.073.840.000	7,000	51,3%	56,0%
Europe	144	209.505.000	3,200	15,6%	10,9%
North America	124	259.238.000	1,600	13,4%	13,5%
Oceania	7	14.357.000	1,400	0,8%	0,7%
World	922	1.917.558.000	4,300	100,0%	100,0%

Source: Demographia World Urban Areas [11].

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[10] "A city without a history" in http://asiasociety.org/business/development/history-city-without-history.
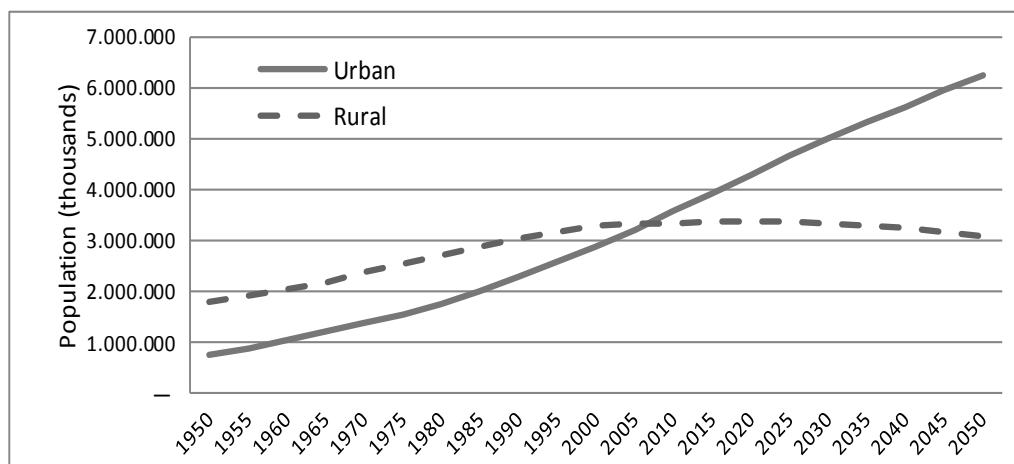
Source: United Nations [62].

Figure 7.1. Urban and Rural Population of the World, 1950-2050.

**Table 7.2. Cities in Coastal Zones. Share of Urban Settlements Whose Land Area
Intersects the Low Elevation Coastal Zone (LECZ), by urban Settlement Size, 2000**

Region	<100K (%)	100-500K (%)	500K-1M (%)	1-5M (%)	5M+ (%)
Africa	9	23	39	50	40
Asia	12	24	37	45	70
Latin Europe	11	25	43	38	50
Australia and New Zealand	44	77	100	100	N/A
North America	9	19	29	25	80
Small island States	51	61	67	100	N/A
World	13	24	38	44	65

Source: McGranahan, G., D. Balk and B. Anderson [41].

Facts suggest that the poorest countries and poorest groups within a population are most vulnerable to climate-related hazards such as floods, droughts, and landslides[11].

More than a third of the world's total population lives in urban areas in low-and middle-income nations[12] and they are at risk from direct and indirect impacts of climate change (Table 7.2). Much of this population resides in the world's 30 largest cities, including Jakarta, Shanghai, Mumbai (Bombay), Bangkok, London and New York. Even in Europe, 70% of the largest cities have areas that are less than 10 meters above sea level [41].

Climate change has the potential to increase flooding risks in cities in three ways: from the sea, from rainfall, and from changes that increase river flows.

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[11] The affectation intensity and the climate change potential consequences on violent events (e.g., earthquakes, tsunamis and tornadoes), take on very different dimensions depending on the level of development of the regions or countries affected. Considering two recent examples, the violent Haitian earthquake (7.0 Mw) in 2010 triggered high levels of violence on the streets and looting after the natural disaster, and the even more violent earthquake in Japan (9.0 Mw) followed by a tsunami did not.

[12] United Nations, Department of Economic and Social Affairs, Population Division (2012). World Urbanization Prospects: The 2011 Revision.

For instance, last January (2014), England has been hit with the heaviest rainfall in 250 years, causing widespread flooding in the south west and near London. Water levels have risen across the country's south, causing flood waters to inundate parts of West London as the River Thames reached its highest level in 60 years.

The scale of the devastation to urban populations and economies caused by extreme weather events in recent years highlights their vulnerabilities. Too little attention has been given to the vulnerability of urban populations to climate change – and especially to the vulnerability of their low-income populations [44].

Population growth and scarcity of natural resources are often perceived as severe threats to sustainable development. World population is confronted with a natural resource supply that is limited in the end. Population growth is already putting a strain on the world's limited supply of freshwater. More than 45 countries are currently experiencing water scarcity or stress, with the majority of these countries in Africa [62, 17]. Cities generally rely on their immediate surroundings for water. While the effect of climate change on water resources of a particular city cannot be predicted at this stage, the competition for water can be expected to intensify in the areas that will become dryer than they are now [29].

The last century has seen unprecedented growth in human population and economic wellbeing for a huge portion of the world. This growth has been fed by equally unprecedented natural resource consumption and environmental impacts, including conversion of large portions of the natural world to human use, which have prompted recurring concern about whether the world's natural resources' base is capable of sustaining such growth. Access to natural resources is increasingly perceived as the security risk of the 21st century.

According to the WTO[13], natural resources are "stocks of materials that exist in the natural environment that are both scarce and economically useful in production or consumption, either in their raw state or after a minimal amount of processing" [65]. In another definition, according to the Organization for Economic Co-operation and Development (OECD), natural resources are "natural assets (raw materials) occurring in nature that can be used for economic production or consumption". One way to classify natural resources is based on their renewability. Natural resources can be renewable if after exploitation they "can return to their previous stock levels by natural process of growth or replenishment", such as trees, water, grass, solar and wind energy. Conversely, natural resources which cannot be regenerated after exploitation are considered non-renewable, like mineral resources, fossil fuels, oil, diamonds, and gold, among others[14].

The ancient negative [39] perception of population growth is well represented in the literature; see e.g., Meadows et al. [42] and Ehrlich [13]. The Club of Rome published The Limits to Growth [42], which predicted dire consequences by the early part of the twenty-first century, unless population and economic growth were significantly curtailed.

According to Homer-Dixon [22], the environmental effects of human activity are a function of two factors: the vulnerability of the ecosystem and the product of the total population and population's physical activity per capita in the region.

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[13] The World Trade Report 2010 [65] focuses on trade in natural resources, such as fuels, forestry, mining and fisheries. The Report examines the characteristics of trade in natural resources, the policy choices available to governments and the role of international cooperation, particularly of the WTO, in the proper management of trade in this sector. Available at: http://www.wto.org/english/res_e/booksp_e/ anrep_e/ world_trade _report10_e. pdf.

[14] See OECD, Glossary of Statistical Terms, available at https://stats.oecd.org/glossary/index.htm.

Homer-Dixon uses the term "environmental scarcity" to refer to scarcity of renewable resources, and he identifies scarcities of agricultural land, forests, water, and fish as the environmental problems that contribute the most to violence (Figure 7.3).

These social effects, both singly or in combination, can produce and exacerbate conflicts between groups. Most of such conflicts are sub-national, diffuse, and persistent [23].

The genocide in Rwanda, which started in April 1994, sparked a heated debate about the underlying causes at its origin, and, in this research approach, some analysts stated that environmental and demographic factors were the major trigger for violence.

Even though it is true that such factors were important to the conflict, since Rwanda is predominantly a rural-based society and is consequently vulnerable to the effects of environmental stress, subsequent studies revealed that environmental factors *per se* do not provide a suitable explanation for the genocide of Rwanda.

Environmental degradation and high population levels contributed to migrations, declining agricultural productivity, and the weakening of the legitimacy of President Juvenal Habyarimana's regime. At rest, a correlation between the scarcities of renewable resources and the outbreak of violence is not adequate proof that the violence was caused primarily by resources' scarcity [45].

Northwest Africa is crisscrossed with climate, migration, and security challenges. The rising coastal sea level, desertification, drought, and numerous other potential effects of climate change have the capacity to increase the numbers of migrants and make these routes more hazardous in the future. For example, from Nigeria to Niger, Algeria, and Morocco, this region has long been marked by labor migration, bringing workers from sub-Saharan Africa to the Mediterranean coastline and Europe. The climate, migration, and security nexus is a key test case because it is likely to exacerbate all of these existing risk factors [63].

As the 2013 Heidelberg Institute for International Conflict Research Conflict Barometer [21] shows, resource conflicts are a serious phenomenon across the world. Conflicts concerning resources, i.e., natural resources, raw materials, or the profit generated thereof, amounted to 90 cases. Of those, 59 displayed violence and nine conflicts reached the intensity level of war. Six of these wars took place in Sub-Saharan Africa and one war each in the Americas, the Middle East and Maghreb, and Asia (Figure 7.4).
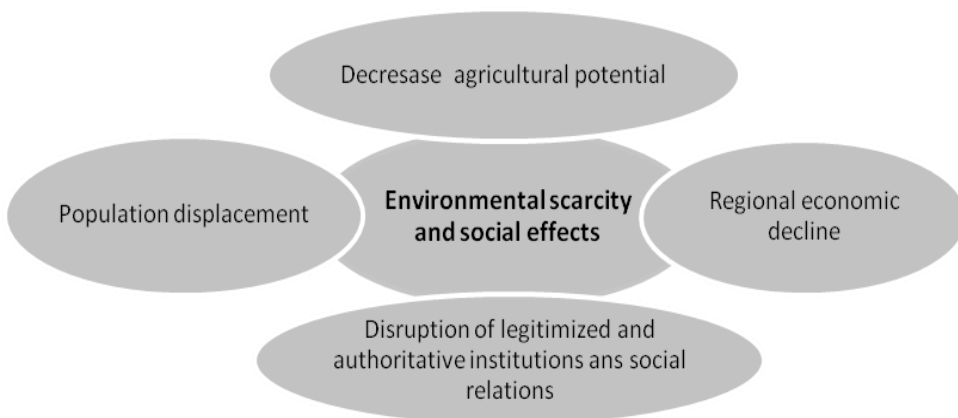
Source: Adapted from: Homer-Dixon [22].

Figure 7.3. Environmental Scarcity and the Four Principal Social Effects.
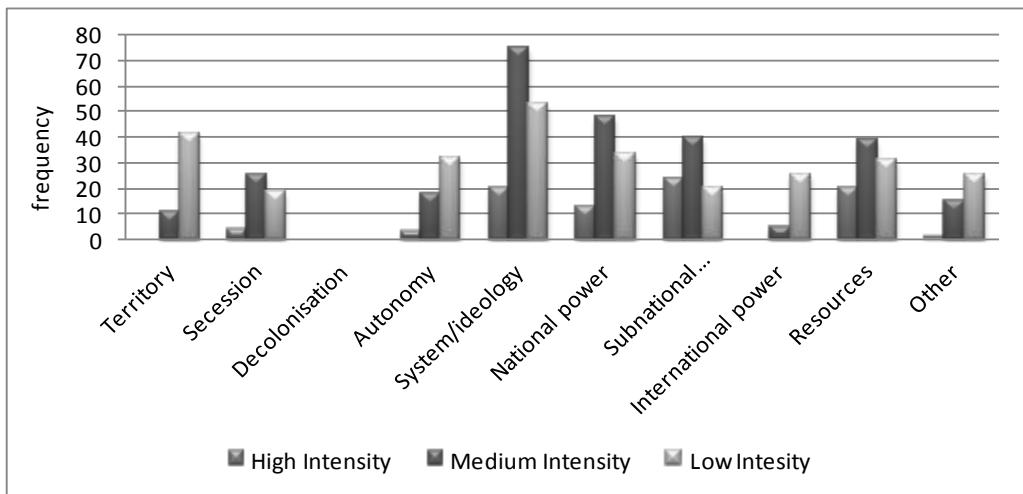
Source: Conflict Barometer 2013 [21].

Figure 7.4. Global Frequencies of Conflict Items in 2013 by Intensity Groups.

In the Americas, about 80 percent of the 26 conflicts pertain to resources such as coca, illicit drugs, and arable land included violent means, with drugs being part of highly violent conflicts in Mexico, Colombia, and Brazil. In total, almost half of the conflicts observed in this region had resources as at least one of their items. In 30 percent of all conflicts in Sub-Saharan Africa, e.g., arable land, cattle, minerals, and oil, were contested.

In nineteen of the region's 31 conflicts related to resources, the conflict parties resorted to violence (61.3 percent). Almost similar results were found for Asia with 63.6 percent and the Middle East and Maghreb with 57.1 percent. The latter region thereby accounted for four violent conflicts of its seven conflicts regarding this item. In Europe, four conflicts concerned resources (i.e., 6.3 percent), with only one involving violence.

Europe, after almost two decades of relative calm, contrary to what could have been predicted given the implosion of the former Soviet Union and the independences of the former Soviet Socialist Republics, faces serious challenges imposed by natural causes - storms, floods, desertification – and by causes induced by the fierce and growing struggle for energy resources.

Russia, a global player in the energy market, has seen its ancient boundaries retreating to East and is losing its regional leading role against the influence of the European Union in its former republics. However, the Russian Federation owns a powerful unconventional weapon, the oil and gas weapons. Given the current scenario of energy dependence of most Member States of the European Union and some former Soviet Republics, that weapon can be a strong enough argument to shake the *Transatlantic* relationship, particularly in view of the atmosphere of friction created by the growing Russian-Ukrainian crisis.

The serious cooling of East-West relations is not yet foreseen, but it is not unreasonable to highlight the influence of the potential Russian energy weapon in the relations with European states and future outcomes in the web that has been weaving with neighbor China. The use of energy resources for retaliation or conflict resolution is not unprecedented, as has already been noticed in recent situations in relations with former republics (e.g., Georgia, 2008; Ukraine, 2006, 2009 and 2014).

FIGHTING WITH OR FOR RESOURCES?

Scarcity of natural resources represents the limited availability of, or limited access to, a particular natural asset. It can be a function of environmental change, resource depletion or degradation (and it can be absolute or relative)[15].

Access to natural resources is the key that underlies all livelihoods.

> Livelihoods are the mechanisms through which people translate natural resources into the things they need to survive and thrive. A failure to ensure sustainable and equitable resource use, over-consumption of resources in support of particular livelihoods, or the impacts of a sudden shock such as war or disaster on natural resources or their rate of consumption, can lead to a loss of livelihoods [40].

Dependence and abundance have different implications for the likelihood of civil war [2]. Resource dependence may be especially violent enhancing at higher levels. Countries are vulnerable to price shocks, which in turn create economic crisis and (thus) make conflict more likely.

The petroleum sector is increasing world-wide – the number of relevant producer countries is growing, including in poor states with weak governance systems – and prices remain high. The threat of the "oil curse" where private companies and corrupt elites capture most of the benefits for themselves is posing global challenges, including to democracy and gender gains (see, e.g., Basedau and Mähler [4]).

Based on the International Energy Outlook 2013 [26] reference case, world liquids consumption increases by about one-third (28 million barrels per day), from almost 87 million barrels per day in 2010 to 115 million barrels per day in 2040. Petroleum and other liquids remain the world's dominant fuel source through the projection period, although their share of global primary energy consumption has decreased.

The growth in non-OECD liquids demand is led by the countries of non-OECD Asia (particularly, China and India). Non-OECD Asia accounts for almost 70 percent of the increase in global liquids demand, rising by more than 19 million barrels per day from 2010 to 2040. Demand growth in China and India surpasses the combined liquids demand growth of the rest of the world [26].

According to the Oil and Gas Journal[16] (cited by EIA [26]), proved[17] world oil reserves were estimated at 1,638 billion barrels, about 7 percent higher than the estimate for 2012, and approximately one-half of the world's proved oil reserves are located in the Middle East, and more than 80 percent are concentrated in eight countries. Figure 7.5 illustrates the major urban concentrations and the main concentrations of large oilfields.

The largest increases in non-OPEC supplies come from the nations of non-OECD Europe and Eurasia.

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[15] See, for example, Baumgärtner, B. and Faber, M. [5]. Relative and absolute scarcity of nature. Assessing the roles of economics and ecology for biodiversity conservation. Available at: http://bscw-app1.ethz.ch/pub/bscw.cgi/d239215/baumgartner_2006.pdf.

[16] "Worldwide look at reserves and production," Oil and Gas Journal, Vol. 110.12 (December 3, 2012), pp. 28-31, http://www.ogj.com (subscription site).

[17] Proved reserves of crude oil are the estimated quantities that geological and engineering data indicate can be recovered in future years from known reservoirs, assuming existing technology and current economic and operating conditions (EIA, *IEO 2013*, p. 37). Available: http://www.eia.gov/forecasts/ieo/pdf/0484(2013).pdf.
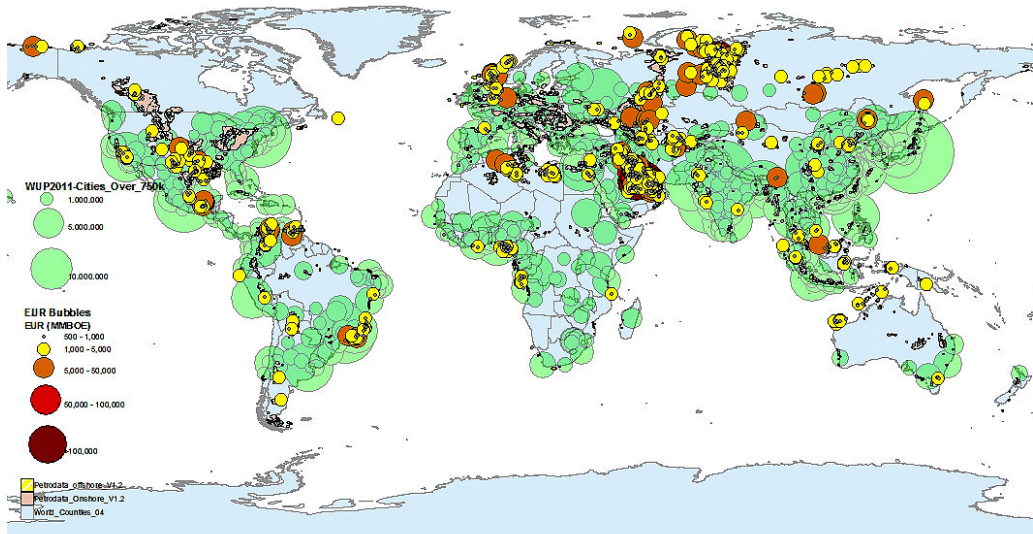
Source: Oil data [37]; Cities [61]; Base Map [16].

Figure 7.5. World's Urban Population and Oil. Cities Over 750K habitants and Giant Oil Fields – EUR.

Liquid fuels production in Kazakhstan grows by an average of 3.0 percent per year, from 1.6 million barrels per day in 2010 to 3.9 million barrels per day in 2040 [26].

Central Asia and the Caspian region, bridging the gap between the abundant energy resources of the vast territory of the Russian Federation and the avid markets of Southeast Asia, are fundamental pieces in the complex chessboard of geopolitics of energy[18]. The wide reserves of oil and natural gas deposited under and around the Caspian Sea, in addition to the major transport of oil and gas infrastructures crossing those territories, redoubled the geostrategic importance of this region. According to M. Klare [31], energy prominence of Central Asia have induced a rare change in the geography of the US military in October 1991 to protect the normal supply of vital resources, especially oil and natural gas.

Over the past several decades, globalization contributed to a phenomenal increase in the volume of seaborne trade: in 2012, about 9.2 billion tons of goods were loaded in ports worldwide, with tanker trade (crude oil, petroleum products and gas) accounting for less than one third of the total and dry cargo being responsible for the remaining lion's share [61].

In 2011, total world oil production amounted to approximately 87 million barrels per day (bbl/d), and over one-half was moved by tankers on fixed maritime routes. By volume of oil transit, the Strait of Hormuz, leading out of the Persian Gulf, and the Strait of Malacca, linking to the Indian and Pacific Oceans, are two of the world's most strategic choke points[19] (see Figure 7.6).

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[18] In 2004, China surpassed Japan, the second largest consumer of oil in the world after the United States of America. Additionally, the lessons received from the Angarsk struggle and the Iraqi War determined China to diversify its energy supplies. In this context, the economic relations with the Central Asian republics, mainly in the energy field, have been developing faster. For more detailed information see, for example, Peterson and Barysch [46].

[19] Choke points are narrow channels along widely used global sea routes, some so narrow that restrictions are placed on the size of the vessel that can navigate through them. They are a critical part of global energy security due to the high volume of oil traded through their narrow straits. EIA, 2014, available: http://www.eia.gov/countries/regions-topics.cfm?fips=wotc&trk=p3.
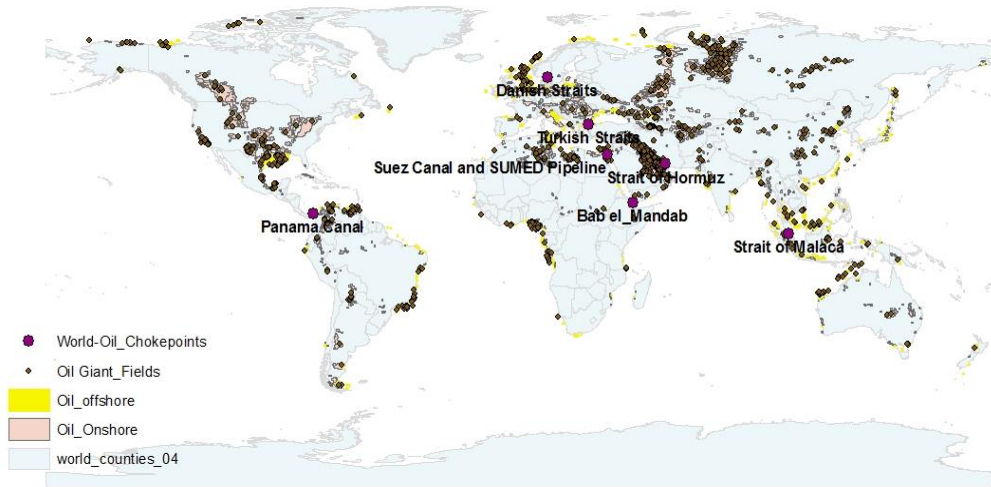
Source: Oil data [37]; Oil Chokepoints [15]; Base Map [16].

Figure 7.6. Giant Oil Fields and World Chokepoints.

Maritime security has attracted a great deal of attention from scholars, analysts and journalists over the past decade and especially since the Al Qaeda attacks in the United States on September 11th 2001 (9/11). Salient issues under examination include incidents of piracy and sea robbery[20], the threat of maritime terrorism, illegal trafficking in weapons, people and narcotics, territorial and maritime boundary disputes and the transit by sea of weapons of mass destruction (WMD).

The waterways of the Middle East and North Africa (MENA region) and Southeast Asia are among the most important in the world. They facilitate the export of large volumes of oil and natural gas from the region, while also bridging traders in the Eastern and Western worlds through the Red Sea, Suez Canal, Strait of Malacca and South China Sea [53].

The Suez Canal is a vital waterway for bridging trans-hemispheric ocean freight, and is particularly important given its location near key oil-producing states. Egypt plays a vital role in international energy markets through the operation of the Suez Canal and Suez-Mediterranean (SUMED Pipeline). In 2012, about 7% of all seaborne traded oil and 13% of liquefied natural gas (LNG) traded worldwide transited through the Suez Canal. The majority of crude oil transiting through the Suez Canal was destined for Europe and North America markets.

A large portion of the world's natural gas exports are also shipped through the canal. In 2012, roughly 13% of the world's exported LNG transited the canal – 1.5 trillion cubic feet worth [14]. The Suez Canal creates an essential link between the Mediterranean and the Red Sea, shaving off nearly 10,000 km by saving tankers from a 10-to-15 day trip around the Cape of Good Hope, the southern-most tip of Africa. The violence in Egypt could lead to the closure of its Suez Canal trade routes.

According to EIA, the Egypt's 2011 revolution and the unrest that has followed have not had any noticeable effect on oil and LNG transit flows through the Suez Canal or SUMED Pipeline.

The Strait of Hormuz occupies a fundamental geostrategic position in the Persian Gulf.

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[20] See IMB Piracy Reporting Centre http://www.icc-ccs.org/piracy-reporting-centre.

The strategic importance of the Gulf will increase significantly in the decades ahead. The Energy Information Administration's International Energy Outlook 2013 estimates that Middle East oil production will reach approximately 25.4 million barrels per day in 2011 to 35.8 million barrels per day by 2040. Using the Reference case assumptions, the implied combined production of Saudi Arabia, Iran, and Iraq rises from 17.9 million barrels per day in 2011 to 25.1 million barrels per day in 2040 [26].

The Strait of Hormuz is located between Oman and Iran, and connects the Persian Gulf with the Gulf of Oman and the Arabian Sea. Flows through the Strait in 2011 were roughly 35 percent of all seaborne traded oil, or almost 20 percent of oil traded worldwide. More than 85 percent of these crude oil exports went to Asian markets, with Japan, India, South Korea, and China representing the largest destinations.

Supply issues are the most strategically significant element of China's energy security dilemma. Substantial oil demand growth and geopolitical uncertainties have increased pressure on China to import greater volumes of oil from a wide range of sources. The Chinese energy matter is a relevant issue in the analysis of oil's global geopolitics. In 2009, China became the second-largest net oil importer in the world behind the United States (Figure 7.7).

In 2013, an estimated 75% of the country's oil imports came from the Middle East or Africa. A growing majority of Chinese's oil imports are therefore coming from potentially unstable regions in a political or security sense.

In addition, the supply of oil to China also means depending on international sea lines of communication (SLOCs) and a number of geographical constraints. The Strait of Malacca is vital to China´s growing dependence on energy imports.

The Strait is a narrow passage situated between Malaysia, Indonesia and Singapore linking the Indian and Pacific Oceans, "with no real viable maritime alternative" [52][21].
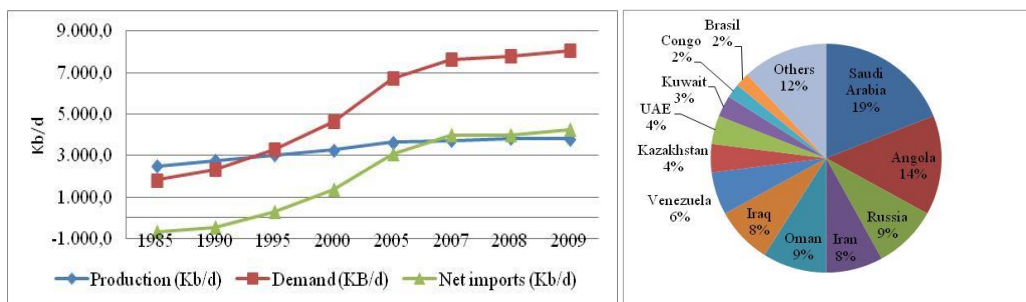
Source: [15].

Figure 7.7. China Oil Data, Production, Demand and Net Imports, 1985-2009 (Left) and China's Crude Oil Imports by source, 2013 (Right).

For China, Russian oil and gas reserves and the Central Asian reserves – a neighbor region, rich in oil and natural gas – represents a strategic diversity in the face of Middle Eastern and African oil imports, given their geographic proximity. China inaugurated its first transnational oil pipeline in May 2006, when it began receiving Kazakh and Russian oil from a pipeline originating in Kazakhstan. China also revived its plans to construct an oil import

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[21] According to John Seamman [52], "Alternative passages do exist further south and east, such as the Straits of Sunda and Lombok, but the added distance makes them economically unviable and doesn't adequately resolve the problem of strategic vulnerability".

pipeline from Myanmar through an agreement signed in March 2009. With this pipeline, China intends to have an alternative for oil coming from the Middle East that would bypass the Strait of Malacca. Actually, about 80 percent of Chinese oil imports traverse that potential choke point. The current Ukraine crisis and the crescent tensions between Russia and the West could strengthen Russia-Iran-Chine ties, namely in terms of energy agreements.

THE COMING RESOURCE WARS?

Michael Klare [30] considers that we have entered a new age, the Geo-Energy Age, in which disputes over vital resources will dominate world affairs. According to this author, "in 2012 and beyond, energy and conflict will be bound ever more tightly together, lending increasing importance to the key geographical flashpoints in our resource-constrained world"[22]. The author highlights that in the next few years the location of energy sources and energy transportation routes - pipelines, oil ports, and tanker roots – will be pivotal landmarks on the global strategic map. Therefore, on the global strategic map, the Strait of Hormuz[23], the Strait of Malacca, the East and South China Seas, the SLOCs, the Caspian Sea Basin, and the Arctic stand out.

Looking closely to the pivotal landmarks noted by Michael Klare [30], they are all indeed central in the Global Geo-energy. The Strait of Hormuz occupies a key geostrategic position in the maritime transport of liquid fuels on routes between the Persian Gulf to markets in the West and East. Any disruption in the normal flow through this strait will have repercussions worldwide. Iran is perfectly aware of the strategic importance of potential "weapon" Strait of Hormuz, as well as the United States, which therefore maintain a strong military presence in that region.

The South China Sea is also a critical and favorable region to the outbreak of conflicts between states nowadays. Besides being an important fishing ground, the Strait of Malacca is a fundamental passing point to the commercial routes between East Asia and Europe. More recently, it acquired significance as a potential source of oil and natural gas. The disputes are ancient and arose after World War II when the littoral states – China and four countries of the Association of Southeast Asian Nations (ASEAN), Indonesia, Malaysia, Philippines and the Vietnam (joined later) scrambled to occupy the islands there.

Currently the issue has gone beyond territorial claims and access to energy resources, as the South China Sea has become a focal point for the US - China rivalry in the Western Pacific. Since around 2010, the sea has started to become linked with wider strategic issues relating to China's naval strategy and America's forward presence in the area [8].

The Caspian Sea Basin is in the center of a complex web of interests and disputes that involve the former Soviet Socialist Republics, China, the Russian Federation and the United States. Those enclosed waters and their surroundings contain valuable energy and mineral resources and are crucial to the energy infrastructure (pipelines and gas pipelines) network. This territory is highly disputed, both internally and externally, and violent conflict is a likely scenario.

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[22] Danger Waters, The Three Top Hot Spots of Potential Conflict in the Geo-Energy Era, http://www.tomdispatch.com/blog/175487/, posted by Michael Klare, January 10, 2012.

[23] According to Klare [30], the Strait of Hormuz is, however, is only one of several hot spots where energy, politics, and geography are likely to mix in dangerous ways in 2012 and beyond.

Finally, the instability that may be installed in the Artic is closely related to climate change and the menaces and opportunities created by changing natural conditions[24]. As the Arctic becomes more accessible and competition for resources and territory accelerates[25], the risk of oil spills and other catastrophic accidents, territorial disputes, and security challenges will rise.

The pressures caused by climate change will influence resource competition while placing additional burdens on economies, societies, and governance institutions around the world. These effects are threat multipliers that will aggravate stressors abroad such as poverty, environmental degradation, political instability, and social tensions – conditions that can enable terrorist activity and other forms of violence [59].

In conclusion, population, natural resources, climate change and conflicts are related in numerous ways and interact with each other. Several authors argue that natural resources rarely are the only cause of a conflict, however recent research suggests that the linkages here are real and important. Population growth, environmental degradation, and natural resource competition have interacted in many instances to produce or exacerbate civil and ethnic violence. The energy sector, for example, reached a dangerous boiling point and we live in a nervous world where "a single incident at an energy" choke point could set the region in flames, provoking bloody encounters, boosting oil prices, and putting the global economy at risk" [30].

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[24] See, for example, National Snow and Ice data Center https://nsidc.org/.

[25] The Arctic could hold about 22 percent of the world's undiscovered conventional oil and natural gas resources. EIA, Release date: October 19, 2009, http://www.eia.gov/oiaf/analysispaper/arctic/ (consulted 27 March 2014).

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Chapter 8

ENERGY SECURITY: CONCEPTS, SHIFTING ENERGY LANDSCAPE AND MAIN PLAYERS IN THE 21ST CENTURY

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ABSTRACT

In the 21st century, energy issues have a central role on the international agenda. These are global issues creating interdependencies between producers/suppliers, transporters and consumers, affecting both States and individuals. This chapter focuses its attention on energy security issues (namely those arising from oil and natural gas) in a globalized world. It is divided into three parts, with a large commented bibliography. Firstly, it begins by analyzing the main energy risks, some concepts about energy resources, the strategic-institutional aspects of oil and natural gas, emphasizing the reorganization of oil and natural gas companies and its consequences in geopolitics. Secondly, presents an outlook of the present energy landscape (either, conventional, either unconventional): reserves, producers, consumers, flow trades and future trends. Thirdly, it focuses on the present structural changes and future main geopolitical challenges on energy. In final remarks, it stresses, on the one hand, the current major energy game changers that will shape energy world in the near future of this century; and, on the other hand, it underlines the implementation of some solutions.

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ENERGY RESOURCES FRAMEWORK – MAIN CONCEPTS, KEY PLAYERS AND SECURITY RISKS

Main Concepts

Currently, we witness the reconfiguration of a new international order, no longer the post-Cold War, nor the post-09/11, but the post-2008 financial crisis. We are the stage of an international system characterized by the emergence of new actors, powers, threats, risks, conflicts and challenges. This new order was and is marked by the intensification of the globalization process - as a fundamental shift or transformation in the spatial scale of human social organization that links distant communities and expands the reach of power relations across regions and continents.

After the end of the Cold War, the concept of security has been rethought and extended to non-military dimensions. Since then, security has been interpreted as an integrated concept, with different levels of analysis – the individual, the state, regional and systemic -, and with different dimensions - political, military, economic, societal and environmental.

The birth of international energy security concerns began before the 1st World War. After 1906 the oil concession of William K. d'Arcy was put under British soldiers' protection in order to replace coal by oil as English war navy ships' carburant. In 1912, Winston Churchill took the decision to switch the entire Royal Navy to oil. The strategic advantages of oil were multiple: ships were faster, more easily refueled, and enjoyed increased range due to oil's high thermal content. A year later the British acquired 51% of the stakes in Anglo-Iranian Oil Company and, as W. Churchill said, "for the victory, His Majesty has its owns carburant resources" [13].

Since then, energy has been steadily gaining importance within security circles in recent years due to the military and security dimensions of this mainly economic issue.

As a concept, energy security has been progressively defined as a sharing of interests among several actors of the oil world system, more than a game, in which producers' victory means the defeat of consumers and vice-versa [17].

Just after the end of the Cold War, researchers like Michael Klare [9], argued that the international post-1991 would be characterized by conflicts between nations for basic reasons of sustainability and survival, i.e., conflicts arising from disputed natural resources.

Nowadays, the world has a new geo-economical division – on one side, the exporters of fossil fuels that dominate the market for oil and natural gas (Russia, former colonies and medium regional powers) that can capture huge inflows of dollars and acquire geopolitical projection; and, on the other side, importers of those strategic raw materials - chronic deficit countries in the energy balance (most OECD powers and two emerging powers - China and India - the vast majority of countries of intermediate development and a wide range of poor countries).

In a multipolar world with scarce resources, we will inevitably assist to unbridled competition. M. Klare [9] notes that the shortage of resources led to a change in military strategy of some countries and the ideological conflicts of the Cold War are giving rise to conflicts that are based on the energy security concept. Thus suggesting a kind of baseline below which the state goes to conflict for the achievement of the needed resource.

The only possible solution to these problems - the ecosystems and environment degradation, and the upward pattern of regional conflicts by energetic reasons - will be a drastic a shift in western lifestyle, in order to reduce the levels of energy consumption, and adoption, by developing countries of a more clean model, adopted by the developed West.

However it should be noted that M. Klare's [9] theory does not consider, on the one hand, the historical-civilizational elements of political communities - the historical and cultural heritage of a people by their religion, the collective natural predispositions - and, on the other hand, neglects the phenomenon of regional integration and competitiveness advantages.

To sum up, in the 21st century we are assisting to the redefinition of the energy security concept [21], with wider challenges and multiple threats. They can be summarized as follows: terrorism, piracy, internal destabilization in producing countries, erosion of the "spare capacity", increasing dependence on OPEC, disruption of production and distribution power networks, emergence of hurricanes (like Rita and Katrina), black-out's, extreme price volatility, climatic threat, demographic factor, unsustainability of the existing energy model.

Energy Market: Key Players and Functions - Free Market vs. Mercantilism

The oil market is a stage where a range of actors, both public and private, are involved with different dimensions that dominates all or part of the sector (upstream and/or downstream). Although there is a wide open market for oil, we are gradually seeing an evolution towards the establishment of an increasingly mercantilist model in this sector.

The offer of this hydrocarbon depends on the geography and history of the country (where the production areas are localized), of Governments and of oil players. The richest area in this energy resource is the Persian Gulf, which concentrates two thirds of conventional oil reserves, followed by the former Soviet Union, North America, South America, and the Gulf of Guinea. Within the oil market, two major groups of companies arise: the National Oil Companies (NOCs) and International Oil Companies (IOCs). In addition to these two groups, there are oil companies which focus only on a part of the oil business (mainly from the US), as can be seen in Table 8.1.

Increasingly the oil and natural gas sectors become politicized. The NOCs have become key players, either nationally, either in the international oil market. Indeed, a set of events led to its emergence: since the wave of nationalizations cross the oil-producing countries like Angola to Venezuela in the 1960s and 1970s; the consolidation of state control over the oil companies and gas in Russia and Central Asia; the dynamic growth of Asian states, such as China and India; and volatility of oil price. Commonly described as oil and gas companies largely owned by governments, NOCs now control most of the world's most lucrative oil reserves. In case of major oil consuming and industrialized countries, NOCs have been empowered to ensure access to the production of reserves in order to meet the growing needs of oil among populations. The following graphic (Figure 8.1) clearly shows the increasingly importance of NOCs in terms of access and production, since the 1970s.

NOCs control 80% to 85% and 60% to 70% of oil and gas respectively which are controlled by governments or public enterprises. IOCs (which only control 7% oil reserves) have difficulty in accessing new reserves.

Table 8.1. Energy Market Players

National Oil Companies (NOCs)		International Oil Companies (IOCs)			Specialized Oil Companies
Companies owned wholly or mainly by the respective State.		Oil companies mostly private			Oil companies engaged in only a part of the chain of the oil business
Examples	New "Seven Sisters"	Majors	Supermajors	First "Seven Sisters"	Examples
Adnoc (UAE), CNOOC (China), EcoPetrol (Colombia), ENI (Itália), Gazprom (Russia), INA (Croatia), INOC (Iraq), KMG (Kazaquistan), KPC (Koweit), MOL (Hungary) NIOC Iran), NOC (Lybia), ONGC (India), PEMEX (Mexico), PDVSA (Venezuela), Petrobras (Brazil), PDO (Oman), PetroChina (China), PNC (Nigeria), Petronas (Malaysia), Sinopec (China), Sonangol (Angola), QP (Qatar), STATOIL (Norwege), Saudi Aramco (Saudi Arabia), ...	In an article published on March 11th, 2007, the Financial Times has identified the "New Seven Sisters". That is, the oil companies and gas from non-OECD countries most influential (which are mostly held by the states). (1) Saudi Aramco (Saudi Arabia); (2) Gazprom (Russia); (3) CNPC (China); (4) NIOC (Iran); (5) PDVSA (Venezuela); (6) Petrobras (Brazil); (7) Petronas (Malaysia)	Companies which have a high dimension, but not so high as the Supermajors: ConocoPhillips (US); Occidental (US); Unocal (US)	Within the international companies there is a "hard core" formed by a large vertically integrated companies operating in the crude oil production. They have the largest network of refining capacity, distribution networks in developed economies. They are important Customers of OPEC crude oil producers: ExxonMobil; Royal Dutch/Shell; BP Amoco; TotalFna Elf; Chevron/Texaco; ENI	This designation was given by Enrico Mattei to seven oil companies that controlled oil production, refining and distribution, being able to take advantage of the growing demand for oil and obtaining high profits. These companies were very organized and formed a strong cartel, having a strong influence on the major oil producing countries. The power of the seven sisters began to decline when the Arabs began to take control over prices and production, through the creation of OPEC, in the early 1960s. Companies that still exist today are: ExxonMobil, Chevron, Shell and BP - currently members of the supermajors; Standard Oil of New Jersey (Esso); Royal Dutch Shell; Anglo-Persian Oil Company (APOC); Standard Oil of New York (Socony); Texaco; Standard Oil of California (Socal); Gulf Oil.	ALONUSA (US), Amerada Hess Corp. (US), Anadarko (US), Apache (US), BG (UK), Burlington (US), Cairn Energy plc (Scotland), Chesapeake Energy (US), CNR (Canada), Devon (US), Encana (Canada), EOG (US), Maersk (Denmark), Marathon (US), Maurel et Prom (France), Nippon (Japan), Newfield (EUA), Nexen (Canada), Novatek (Russia), Santos (Australia), Sibneft (Russia), SOCO Internacional (UK), Talisman (Canadá), Transmeridian (US), Vintage (US), Woodside (Australia), XTO (US)

Source: Leal [12].

1970   **1980**

13%   1%
86%

12%
6%
59%   23%

1998   **2005**

8%   11%
64%   17%

7%   12%
65%   16%

LEGEND:
- Full IOC Acess
- NOC Reserves (Equity Acess)
- Soviet Reserves (1980-1980) / Reserves Held by Russian Companies (1998-2005)
- NOC Reserves (Limited Equity Acess)
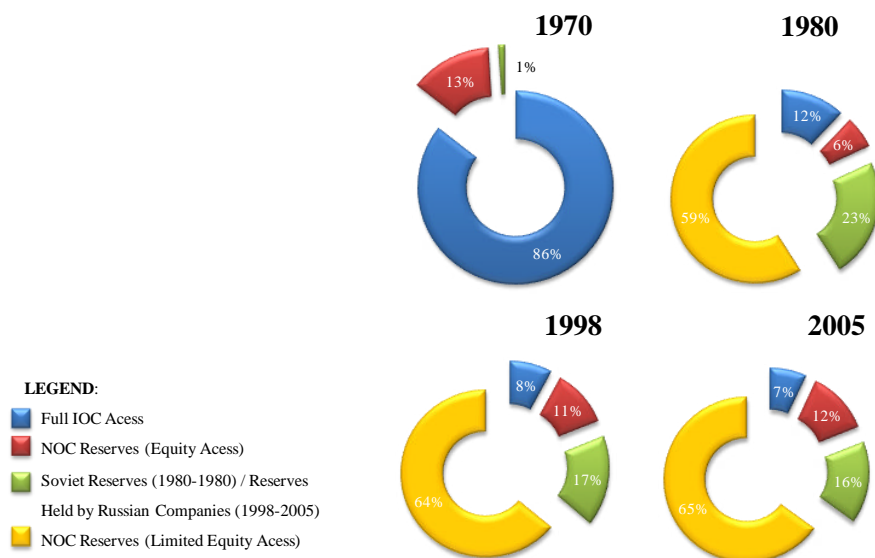
Source: Produced by Catarina Mendes Leal (based on NPC, "Global Access to Oil and Gas", 18/07/07, p. 11).

Figure 8.1. NOC-IOC: Access and Reserves *versus Production,* Evolution from 1970 to 2005.

In similar terms, it can be considered that the "New Seven Sisters" have natural resources, while the Western majors have the financial resources and technical know-how and management. Cooperation between the "New Seven Sisters" and Western majors will be required for the development of reserves.

To conclude, in the world energy system we can identify a set of functions played by distinct actors – private and public (already identified), namely:

- Generation of demand led to the world market for oil and natural gas;
- Production offer for the world market of oil and natural gas;
- "Production" of new reserves of oil and natural gas by the discovery of deposits;
- Generation of new technologies;
- Short-term regulation of world oil market from the physical point of view (quantity traded);
- Security's offer of supply services, either by providing military protection to the producer countries, either by ensuring the security of Sea Lanes of Communication (SLOC);
- Technologies generation that obviate the use or reduce the need for use of oil and natural gas;
- Use oil as a financial asset and a valuable reserve by intervening in energy financial markets (e.g., spot markets and futures market);
- Control over reserves of other fossil fuels partially competing with oil and/ or natural gas.

ENERGY CURRENT OUTLOOK

In order to understand the energy current outlook, we should begin by analyzing the non-political issues that are behind it and have an important impact on the energy's trends, namely: population, economic growth, energy prices, CO_2 emissions and technology.

A rapidly rising global population and growing prosperity are putting unsustainable pressures on resources. Demand for energy is expected to rise by 30% to 50% in the next two decades, while economic disparities encourage short-term responses in production and consumption that undermine long-term sustainability. Significant long-term trends continue to shape the modern energy economy: industrialization, urbanization and motorization. These trends are associated with increasing amounts of energy consumption; increase the efficiency of energy use, production and consumption. In 2008, energy markets experienced extreme volatility and the crossing of a landmark. Despite their rapid growth, non-OECD economies still account for only 25% of global GDP. But this 25% is produced by 82% of the global population. And because of the importance of industry in growth, and also because of inefficiencies, it takes more energy to produce one unit of GDP in the non-OECD than in the OECD. 2008 was the first year that non-OECD countries consumed more energy than the OECD [20].

Several factors explain the extreme volatility of energy prices[1]: such as supply disruptions[2], economic growth, OPEC spare capacity quotas limitations, increase on world oil stockpiles, developed countries shift to unconventional gas production.

The last decade has seen unprecedented rise in energy prices. From 1998 (when oil prices were below 10 US$/bbl) until July 2008 (when they reached 147 US$/bbl), the tenfold increase was followed by a decline, with prices reaching 32 US$/bbl at the end of 2008; the price volatility had major implications for business and investment planning activities.

Regarding natural gas there is no global price. Therefore Regional price changes provide a first glimpse of the underlying forces of demand and supply and the patterns of change in any given period. Annual average spot prices for LNG can be driven by a combination of higher oil prices pushing up oil-indexed contract prices, and strong additional demand for LNG (for example, from Japan, to displace losses in nuclear power).

The strong energy growth translates negative consequences for carbon emissions. Over the past decade emissions grew 2,8% per annum (faster than primary energy consumption). With coal consumption growing at the highest rate among fossil fuels, global CO2 emissions from energy − measured by standard conversion rates have been growing faster than total energy consumption. Emissions are growing strongly either in the OECD either non-OECD (which is higher than in the OECD).

Finally regarding technology, some important progresses are happening allowing a maximization of recovery factors and delaying the "Peak Oil". At the exploration level, a tool called Seabed Logging (SBL) based on electro-magnetic methods, with a integration with 3D Seismic allows a better resolution; at the development/production level, a new approach in

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[1] Oil is priced in markets completely liberalized. Consequently, price evolves as function of supply and demand. Schematically, the international trade of crude is organized in two modalities: short-term (spot market) and long term (around two financial markets - International Petroleum Exchange (IPE) and Nymex).

[2] OPEC action to restrain production, political unrest and violence caused outages in oil and gas production in parts of the Arab world, The shut-down of Fukushima and earthquake related damage to Japanese coal-fired power stations, plus the subsequent closure of additional reactors in Japan and Europe.

gathering and processing data called Digital Field Concept, detects what is happening in the reservoir (allowing a better placement of wells, steer and complete wells through different zones of the reservoir, remote gathering of well and field data and an optimized decision process). However, these technologies will require substantial investments.

Energy Landscape: Oil and Gas Reserves, Production, Consumption and Global Trade

In the future, fossil fuels will continue to have a central weight in energy demand (over the Outlook period, as we can see on Figure 8.2). Oil will remain the dominant fuel in the primary energy mix until 2035 (in the New Policies Scenario), but its share drops to 27% in 2035, from around 32% on 2011 with demand increasing from 87 million barrels per day (mb/d) in 2011 to 99.7 mb/d in 2035. The increase in non-OECD energy consumption is led by brisk growth in China. India is the second-largest contributor to the increase in global demand.

After a modest increase to 2020, the aggregate energy demand in OECD countries stagnates. Nonetheless, by 2035 the United States is still the world's second-largest energy consumer, well ahead of India, which is a distant third [15].

Although, oil is still the main source of energy on the planet, it's a richness that is not evenly distributed among countries and is a non-renewable resource. Hence it has become an important raw material traded between countries.

In the last century it has become an important political factor, having already been at the root of crises between governments, often triggering wars and disputes.
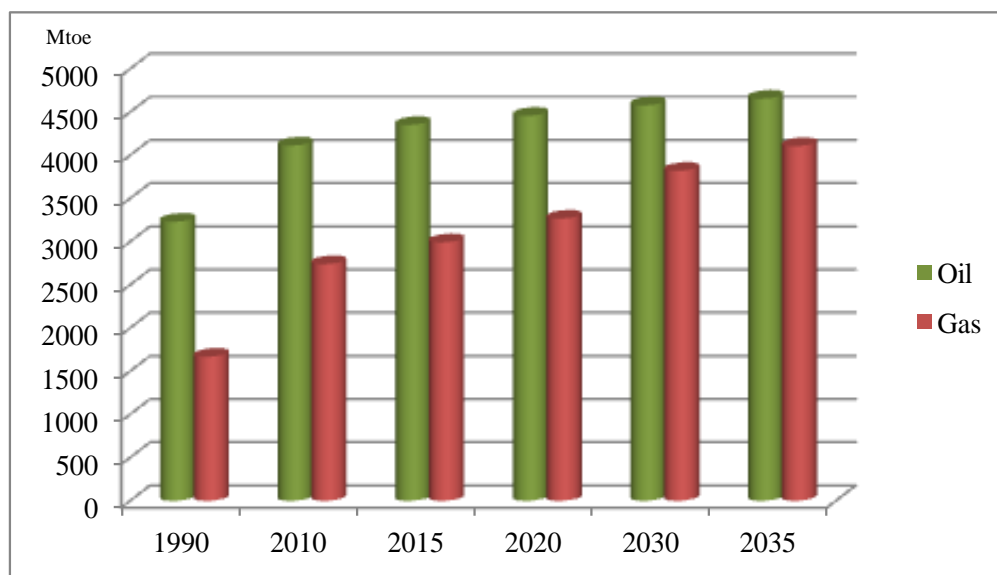
Source: Produced by Catarina Mendes Leal (based on OCDE/IEA [15]).

Figure 8.2. Oil and Natural Gas World Primary Energy Demand in the New Policies Scenario (1990-2035).

Due to economic and ecological advantages, natural gas has become very attractive to many countries. Indeed, the product has characteristics that transform it in one of the safest energy sources of our times. Similar to what occurs in relation to oil, natural gas reserves are also geographically unbalanced allocated.

Despite globalization promotes economic interaction between different players, in what concerns the access to resources[3], those are mostly located on states that do not follow Western norms (Table 8.2 ex-Figure 8.4).

Two-thirds of the conventional oil reserves are in the Persian Gulf, Russia (Caspian Sea) and in the Gulf of Guinea. Currently, NOCs hold more than 75% of proven oil reserves, while IOCs control less than 10%. In terms of production, NOCs also have a dominant position. Of the 25th largest oil companies' world producers, 16 are NOCs. However, little is known about the NOCs in the Middle East and North Africa.

World proved oil reserves at the end of 2012 reached 1668.9 billion barrels (against 1652.6 billion barrels on 2011), sufficient to meet 52.4 years of global production. The continuing increase in official Venezuelan reserves pushed the South and Central American R/P ratio above 100.

The large increase in Middle Eastern production reduced the region's R/P ratio despite an increase in reserves; the region holds 48.1% of the global proved reserves [3].

Table 8.2 ex-Figure 8.4. Leaders in Oil and Gas Reserves in 2012

Oil				Natural Gas		
Ranking	Country	Thousand million tonnes		Ranking	Country	Trillion cubic metres
1	Venezuela	46.5		1	Iran	33.6
2	Saudi Arabia	36.5		2	Russia	32.9
3	Canada	28.0		3	Qatar	25.1
4	Iran	21.6		4	Turkmenistan	17.5
5	Iraq	20.2		5	US	8.5
6	Kuweit	14.0		6	Saudi Arabia	8.2
7	UAE	13.0		7	UAE	6.1
8	Russia	11.9		8	Venezuela	5.6
9	Libya	6.3		9	Nigeria	5.2
10	Nigeria	5.0		10	Algeria	4.5

Source: Produced by Catarina Mendes Leal, 2013, (based on BP [4]).

[3] We should have in mind the difference between reserves and resources. Mineral Reserves are identified resources-- the extraction of which is known to be economically and/or technically feasible at present prices and with the existing technology. There are Probable Reserves and Proved Reserves. Resources are portions of a mineral commodity which have been indicated, but whose extraction is not economically and/or technically feasible at present prices and with the existing technology, because they are often too deep, too low grade or too difficult to reach.

Table 8.3. Top 10 Countries with Technically Recoverable Shale oil and Shale Gas Resources ex-Figure 8.5. Shale Gas e Tight Oil

Technically Recoverable Shale Oil Resources			Technically Recoverable Shale Gas Resources		
Ranking	**Country**	**Billion barrels**	**Ranking**	**Country**	**Trillion Cubic Feets**
1	Russia	75	1	US	1,161
2	US	48	2	China	1,115
3	China	32	3	Argentina	802
4	Argentina	27	4	Algeria	707
5	Lybia	26	5	Canada	573
6	Australia	18	6	Mexico	545
7	Venezuela	13	7	Australia	437
8	Mexico	13	8	South Africa	390
9	Pakistan	9	9	Russia	285
10	Canada	9	10	Brazil	245
11	Others	65	11	Others	1,535
Total		**335**	**Total**		**7,795**

Source: Catarina Mendes Leal, 2013, (based on BP [4]).

World proved natural gas reserves at end-2012 were sufficient to meet 55.7 years of production. The Middle East still holds the largest reserves (43.0% of the world total, compared with 31.2% for Europe and Eurasia) and has a R/P ratio of over 150 years.

In terms of countries, the Russian Federation, Iran and Qatar (with 17,6%, 18%, 13,4% respectively) are the top three.

There is a Strategic Ellipse for both resources which encompasses the Persian Gulf area: inside the ellipse are 71% of the world oil reserves and 69% of the world natural gas reserves.

Simultaneously, we are assisting to an increase in the discovery of non-conventional resources[4] (Table 8.3 ex-figure 8.5).

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[4] Non-conventional resources are hydrocarbons (oil and gas) found under conditions that do not allow them to flow, because they are either trapped in low permeability rock or are very high viscosity oils. These resources require special technology to be extracted, be it due to the hydrocarbon's own properties or those of the rock that contains it. Currently, they are an interesting type of resource, since many of them lie in fields that were considered to be depleted. It is also estimated that the volume left in them could be large. Types of non-conventional crude: heavy oil; oil shale; oil sands or bituminous sands; tight oil. Types of non-conventional gas: shale gas; tight gas; coal bed methane; methane hydrates.

Table 8.4. Top Five Oil Producers and Top Five Gas Producers in 2012 (ex-Figure 8.6)

Oil				Natural Gas		
Ran king	Country	Tousand barrels daily		Ran king	Country	Billion cubic metres
1	Saudi Arabia	11.5		1	US	681.4
2	Russia	10.6		2	Russia	592.3
3	US	8.9		3	Iran	160.5
4	China	4.1		4	Qatar	157.0
5	Iran	3.7		5	Canada	156.5

Source: Catarina Mendes Leal, 2013, (based on BP [4]).

These findings will have important geopolitical and geo-economic consequences. Regarding the non-conventional crude, oil sands or bituminous sands it represents a potential roughly equivalent to the oil reserves of the Middle East, lying in Venezuela and Canada. Regarding gas, the exploitation of shale gas in the US will introduce profound changes in the energy landscape in this country with shifts in world markets.

In terms of production, positions correspond to the proven oil reserves (unlike what happens in the natural gas sector). Middle East is the region that has the largest reserves and is the region that produces more (32, 5%), highlighting Saudi Arabia (13.3%) (contrary to what happens in natural gas), followed by Europe and Eurasia (20.3%), highlighting the Russian Federation (12, 8%) [4].

Last year, natural gas production growth was moderated (1,9%). Global production was up 3.1% (98 bcm), slightly above the trend (2.8%). Growth originated in the Middle East (16,3%), North America (20,4%) (which recorded in 2012 the largest volumetric increase and remained the world largest producer) and the Former Soviet Union (17,6%). Major producers are the US and Russia, followed by Canada, Iran and Qatar [4].

Globally, oil consumption has a very uneven geographical distribution. The three areas that are consuming more are Asia/Pacific (32.4%), North America (25.38%) and Europe and Eurasia (22.1%). Not reaching 10% of oil consumption we find regional areas such as the Middle East (9.1%), Central America and South America (7.1%) and Africa (3.9%). If we look at countries individually, in terms of per capita consumption, the US is the largest consumer (20.9%), followed by China (11.4%), the Russian Federation (5%) and Japan (5%).

With the exception of the US and the Russian Federation, the major oil-producing countries, aren't important consumers. In terms of outlook, consumption will continue to grow steadily until 2030, following an average annual rate of 1.3%.

World natural gas consumption grew by 2.2% in 2012. Worldwide natural gas consumption presents an unbalanced geographic distribution. Two areas consume between 25-35% - Europe and Eurasia (32.6%) and North America (21.9%); other 2 between 10 to 20% - Asia/ Pacific (18.8%) and Middle East (12.4%); and two almost have no expression - Central America and South America (5.3%) and Africa (3.7%).

If we look countries' individually, in terms of per capita consumption, major consumers are the US and the Russian Federation. Nevertheless, non-OECD countries consumed more than OECD countries (52% and 48% respectively).

In terms of oil exporters, the main flows range from four main types of suppliers' zones, according to the diversification of consumer markets:

1   A Central Region - Middle East/Persian Gulf - which supplies Asia/Pacific, US and Europe;
2   A First Crown constituted by Eurasia, which supplies Europe and Asia (so far), with the predominance of the first, but evolving to become more involved with the supplies to Asia;
3   A Second Crown, which includes exporting countries that supply Europe, and to a lesser extent, the US and China (the case of West Africa);
4   A Third Crown composed by regional suppliers: Indonesia, Brunei and Malaysia for Asia/Pacific; Canada, Mexico and South America to the US, Africa (North Africa/ Mediterranean) to Europe.

Regarding natural gas main flows, we can also identify four main types of supplier's areas, according to the consumer markets diversification:

1   A Central Region, Middle East/Persian Gulf, which supplies Asia/ Pacific, US and Europe;
2   A First Crown composed by Eurasia, which supplies Europe and Asia, (so far), with the predominance of the first, but evolving to become more involved with the supplies to Asia, either by Russia, either by Turkmenistan, being China and in a lower scale Japan the shift motor towards Asia/ Pacific;
3   A Second Crown, which includes exporting countries that supply Europe, and to a lesser extent, the US (North and West Africa);
4   A Third Crown composed by regional suppliers: Indonesia, Brunei, Malaysia and Australia for Asia/ Pacific (although they may also come to export to the US), Canada and the Caribbean (Trinidad and Tobago) to the US

Regarding oil and natural gas transport infrastructure, those are extremely expensive and their constructions involve long periods and economic and political predictable contexts, so that investors have confidence in investing capital and know-how.

While the oil market is global, we cannot say the same about natural gas market, that is still regional. In both resources there is a long distance between producing centers and consumption areas (the US, Western Europe, China, Brazil, India). In this century, we will, inevitably, assist to the reshape of major oil and natural gas movements from producers to consumers. Indeed, given the new context, it will be necessary to redesign the entire infrastructure of energy supply as well as the functionality of supply routes.

In short, the current challenge lies not so much in terms of quantities available, but on how to conduct it to where they are needed to consume.

The relationships emerging among the major final key consumers will create new thoughts that will reflect on the high levels of economic policy and in security.

STRUCTURAL CHANGES

In a context in which oil geopolitics currently presents certain characteristics, the conception of energy security and the mechanisms to achieve it has to be rethought. As a matter of fact, today we are assisting to: the dependence of more developed economies from massive oil imports; concerted action between main producers (controlling the prices of crude oil); the Persian Gulf as a strategic region; states' instability (at political, social and economic levels) which have the largest oil reserves and simultaneously remain important producers; challenges that affect their internal stability and can cause interruptions in production.

Since the first oil shock that energy security has been linked to economic growth and the increasing standards of living of the population of the more developed states. Energy security has assumed an increasing importance on the international agenda and has been placed on top of the strategic priorities of the US and several European countries. With the growing power of NOCs it becomes essential to create a new geopolitical energy balance.

The world oil should increase investment in order to diversify supply. The change of the energy behavior of developed countries and of some emerging countries - China and India - is a need that has to be answered.

In the future, the geopolitics of oil and natural gas is expected to face many challenges that can be summarized as follows:

Continued growth in oil and natural gas demand - essentially explained by the growth of emerging economies (especially China, and to a lesser extent, India). The major oil-importing countries are the US and China (which has over passed Japan), which is now the second largest consumer in the world. In 2030, China and India will import four times barrels of oil per day (equivalent to today's US consumption). We are assisting to an ongoing structural shift in consumption patterns worldwide.

Unbalance between demand and supply - Growing gap between available supply from current production base and demand, the continued decline in the world's production that may lie in the range of 4% to 6% worldwide. Nowadays, the world oil is facing internal instability in many key producers, such as Nigeria, Iraq and Venezuela, and uncertainties surrounding Iran. Some countries or regions may become challenging after trade or political battles (Gulf of Guinea, Algeria and Libya).

US investments' wave in the exploration of shale gas/tight oil - or the US "return" to the "natural gas age". The US, thanks to technological innovations (horizontal drilling and hydraulic fracturing), established a new frontier in the use of unconventional energy resources, with the onset of large-scale exploitation of shale gas, which not only will allow the United States to be self-sufficient in the coming decades in less polluting fossil fuels, as well as, in short-term, becoming an important exporter.

Discovers and potential reserves of oil and natural gas - in the Eastern Mediterranean - Israel, Cyprus and Greece.

In 2010 the independent North American NOBLE Energy Company announced a very significant discovery of natural gas in the concession area of the Leviathan. In that year, the US Geological Survey (USGS) published a new report about the province's energy Levant (including Israel, the Palestinian territories, Lebanon and Syria), pointing to reserves of 3.5 trillion cubic meters of natural gas (in deposits onshore and offshore); in 2011 the same Noble Energy company announced the discovery of natural gas in the offshore of the Republic of

Cyprus with estimated reserves of 0.2 trillion cubic meters. Later, Israel and Cyprus have agreed in the delimitation of their exclusive economic zones. Israel is analyzing the construction of an underwater pipeline connecting the Israeli fields to Cyprus and from Cyprus to Greece, allowing the interconnection with other European gas pipelines. The discovery of this field sparked new tensions between the Republic of Cyprus and Turkey.

Investment rhythm- Since 1999, investments in the oil world remain insufficient for several reasons: shutdown of oil activities of the upstream of producing countries, capitalists' concentrations in progress, problems and/or conflicts in the production areas. NOCs (PEMEX, PDVSA, NIOC, KPC ...) which together hold 80% of world oil reserves invest little, requiring technology available to the Western private companies (particularly in offshore technologies and technologies of advanced exploration of deposits), with which, however, want to share as little as possible of the oil revenues. It is also important to underline the global crisis on investment within refining, especially in North America.

Peak Oil[5] fears? – If the world's lifestyle doesn't change, oil is expected to continue to be the main energy source in the future. We are closer to the peak production of conventional oil and natural gas in non-OPEC energy provinces and constraints on the availability of spare capacity from Saudi Arabia.

Risk factors in the Middle East – we must distinguish two types of shock, namely, the short-term shock (temporary breakthroughs in supplies) and a long-term shock with serious geopolitical implications. Middle East is the heart of the oil world with 48.4% of proven reserves and 32.5% of the world's production. Saudi Arabia is the largest producer in the world and the country with the largest reserves (almost a quarter of the world). Iran holds 18% of gas reserves and 9.4% of oil reserves worldwide.

The hydrocarbons of the Caspian and Russia - Russia holds 17.6% of the world proven reserves of gas and 5.2% of world oil reserves. Heiress of hydrocarbons' deposits, infrastructure and procurement of the former Soviet Union, today Russia is the world's largest oil producer and the second gas producer. Main supplier of Europe, Russia is responsible for 34% of the supply of natural gas and 33% of oil.

Currently, the Russian energy diplomacy is structured around three main axes, namely: access to resources (especially natural gas from Central Asia), the security of export routes (those that pass through the transit countries considered politically unreliable by Moscow) and strengthening the presence of Russian groups in the West, particularly through the acquisition of stakes in European energy companies. In all these areas, the Russian Federation has been adding triumphs.

The displacement of the former Soviet Union led to the emergence of a new zone as a potentially major producer of hydrocarbons - the Caspian region. This region could become itself as a major competitor of Russia and even of the Middle East and redraw the map of supplies to Europe and Asia. States that are part of the region - outside Iran and Russia - are Azerbaijan, Kazakhstan and Turkmenistan - which have 2.9% of oil reserves and 10.5% of natural gas. However the Caspian Sea is a closed sea, whose legal status (sea versus lake) is

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[5] Peak oil or Hubert's theory was created by the North-American geologist M. King Hubert, in the early 50's. This theory foresees the inevitable decline and subsequent end of oil production in any geographical area. According to the theory, either it is just in an oil well or either in the entire planet; the production rate tends to follow a regular curve. At the beginning of the curve (pre-peak), production increases with the development of productive infrastructure. In the latter stage (post-peak) the output decreases due to the gradual depletion of the resource.

uncertain, and has been the subject of numerous conflicts and disputes by coastal states on account of sharing territorial waters. In this context, the future development of gas and oilfields is dependent on the choices of export routes, as well as from the priority export markets, Europe or Asia.

Latin America's role - Latin America holds 9.2% of the world's oil production and 7.3% of the world's consumption and has 19.7% of the world's conventional oil reserves. Much of these reserves are concentrated in Venezuela and Mexico.

Meanwhile, Brazil has been discovering significant oil reserves in the Tupi area (estimated over 5-8 billion barrels of oil, equivalent to 55% of Brazilian reserves), the pre-salt layer (more than 5000 meters deep). This discovery is so enormous that could be equivalent to the Mount Everest under water - and on the high seas.

The Arctic and the "Great Game" - Five Arctic countries - Norway, Russia, US, Canada and Denmark - claim to the UN the ownership of the Arctic, encouraged by snowmelt (which will allow the Northwest Passage, a route that shortens the path between Tokyo and New York in 23% - (providing an alternative to the Panama Canal and there is still the possibility of opening the path that connects Northeast Siberia with Alaska in the Bering Sea) and the huge reserves of oil and gas located there. According to a report by the US geological Survey, in 2008, the Arctic has 22% of unknown reserves of oil and gas.

The South Atlantic Basin's reemergence -In the future the South Atlantic, will have a central role due to four main reasons:

1   Energy resources - Due to the continuous and massive oil discoveries in Brazil, Argentina and the West Africa coast, along with the giant reserves of unconventional oil in Canada and in the US, the Atlantic will become a key area for energy policy in Europe. The impact of the re-emergence of the Atlantic Ocean as an energy province is significant: 91% of the world oil reserves located in the offshore are situated in the Atlantic Ocean.

2   Sea lanes - 90% of the trade is done by sea. The sea routes have a key role in a globalized world. The new transport technology, the expansion of the Panama Canal and the piracy in the waters leading to the Suez, could encourage the revival of the Cape and the Atlantic routes.

3   Security Risks - Europe has a vital interest in the economic growth of this transcontinental area and together with the South Atlantic coastal states they could contribute to create a maritime control of threats such as drug trafficking, piracy and looting of resources.

4   Food - South America and Africa are the largest agricultural frontiers of the planet. Brazil is very advanced in agricultural research. Africa has the potential, but it lacks the infrastructure and research in this area.

The geopolitical consequences of the Atlantic Basin's reemergence will be very important to the operation of international energetic system and for mineral and agriculture products, as well as in terms of security. In the near future, the Atlantic Ocean could be transformed in a crucial platform for the flow of raw materials and energy. The role of offshore resources will be likely to grow, trade and energy routes will intensify in the Atlantic and the consequences for Europe can be multiple.

Chinese strategy - Given the growing energy dependency, China drew a "pipeline diplomacy" through a geostrategic approach. This diplomacy links closely foreign policy with energy interests, aiming to avoid a rupture supply and, simultaneously, ensure the energy conditions of economic expansion. Three groups dominate oil sector in China - CNOOC, SINOPEC and CNPC (the latter has the control of 70% of the country's oil pipelines). These groups are organically linked to the State Party, featuring up its activities with the outside through: (1) investments and agreements, (2) oil-for-loans, (3) construction of pipelines. To mitigate China's dependence on imports from the Middle East, Chinese groups are investing heavily in Africa (having become an important trading and diplomatic partner).

Passage from a natural gas regional market towards a global and interdependent. Indeed, a number of developments – increase of demand, technological advances, cost reduction in production and delivery of LNG to markets and the liberalization of gas are encouraging a trend of integration of natural gas markets. Such links between markets will have major ramifications for either consumers or producers.

Changing of Governments' roles - From builder to facilitator. The Governments' role in the development of natural gas market will change dramatically. As market liberalization advances in many key consuming countries and the global trade in natural gas expands, the role of governments is becoming less important as builders, or as operators, or as financiers of projects. Nowadays, governments are playing a bigger role, as regulators and the creators of "environments" for private investment.

Supply's Security - Constitution of a feasible cartel? - The creation of a cartel could reconcile supply and demand, anticipating the intervention of regulators that sometimes can be enemies of competition. Along with coordination among key players and, consequently, a more effective strategy of expansion to new markets, more stable prices and higher power. Nevertheless, it is difficult to follow the same path of OPEC due to differences on the gas market. At present, gas is sold through long-term contracts and most of its infrastructure is rigid.

The foregoing discussion suggests that any gas producer group is unlikely to exercise significant market power in the near term. While Russia currently has a large share of the export market, its sales are directed at Europe where there are several alternative sources of supply-especially from North Africa and Northern Europe. In the intermediate term, Russia's dominance is predicted to decline but a small group consisting of Russia, and several members of OPEC (Algeria, Nigeria, Indonesia, Qatar and Venezuela) could command as much as forty-nine percent of the export market by 2020 [23 ex-22].

Challenges for the future of gas - Potential obstacles – The fast change towards a global gas market is not certain. In part, it will depend on the context in which investors will have confidence in applying large amounts of financial and intellectual capital; it will require finding solutions to adverse social and political consequences of natural resources development in countries where governments are weak, and based on the assumption of a continued global growth in the electricity sector.

Other obstacles to overcome will be: coordination between actors and differences in markets; long-term contracts and a rigid transportation infrastructure. The growing geopolitical importance of gas will imply more attention to energy supply security.

CONCLUSION

We live in a globalized world that can be defined as the process of increasing interconnectedness between societies in such a way that events in one part of the world have effects on peoples in societies far away [2]. Globalization has several dimensions - economic, political, cultural, social,... - Not coincident in origin.

Table 8.5 presents the main dates/ events of globalization and in energy.

Naturally, the financial crisis that we are passing through is and will have important consequences, both in the energy world and in energy security.

Table 8.5. Globalization and Energy - Main Events

	Globalization	Energy
1960s	• Global Village (McLuhan)	• OPEC's creation • Six Day War between Israel and Arab countries
1970s	• "Global City" (Z. Brzezinski) • Beginning of the liberalization of capital movements	• Club of Rome Report's publication about the long term extinction of hydrocarbons reserves • First oil shock following the war of Yom Kippur • Saudi Arabia nationalizes Aramco • Second oil shock following the Islamic Revolution in Iran
1980s	• "Markets' convergence worldwide" (T. Levitt) • Internet • End of Cold War	• Energy market in New York launches oil long-term contracts • Fall in the barrel of oil price due to overproduction
1990s	• Enlargement of the concept "to the whole chain of value creation" (K. Ohmae) • Collapse of the USSR • Acceleration of globalization • ICT revolution • Unification of the World Economic	• First Gulf War • Price of oil dropped to $ 10 due to overproduction
2000s	• 9/11 Attacks • Invasion and fall of the regime of Saddam Hussein in Iraq. • Globalization: assumed dominance of market economy and private entities • Economic and financial crisis • Toxic debts rapidly infected the global financial system. • the end of one version of globalization, rather than the end of globalization • Responses to climate change are now a key driver of future shape of global economy	• Oil became a financial asset and has taken "a second identity" • Saudi erosion of spare capacity • Globalization of Oil Demand (from 2000-2007 85% of growth from developing countries; combined effects of income and population growth; global demand increased 33% from 2004/2008) • Oil price volatility (less than 40 US$/bbl in 2004 47 US$/bbl in July 2008; back to 32 US$/bbl in December 2008 • Sovereign-Wealth Funds: control Assets mounting to more than 2 200 billion US$ • Technology advances (deep shore/ digital fields) • Non-conventional discoveries

Source: Produced by Catarina Mendes Leal, June 2013.

In the first decades of the 21st century, six game challengers [21] can be identified, namely:

- Shale Gas - If the estimated reserves are confirmed they may range from 60% to 250% of the conventional ones and this may dramatically change US and Europe's landscape with implications for gas developments and supply in Europe. However, some obstacles related to the environment implications and costs need to be addressed.

- BP's Macondo Oil Spill - The Blow-Out that occurred in the Gulf of Mexico in the offshore Macondo well, in April 2010, led to serious implications on safety and environmental issues related to offshore operations. The accident was a wake-up call for the whole industry and the consequences are more tight regulations, impact on costs, implications on long-term supply for offshore production and new requirements for Risk Management and Deep-offshore Safety.

- Iraq's Upstream Potential: Iraq is with Venezuela the founder of OPEC but the country today is not encompassed by the quota's policy of the cartel. Given its huge reserves potential, Iraq announced a plan to increase oil production 6 times from current 2.4 mb/d to more than 12 mb/d in the next 6 years; it's a very ambitious plan implying enormous challenges, but the potential is there and the technical and political implications may be huge starting with the impact on OPEC policies and cohesion.

- Shifting of Power from Atlantic to Pacific Basin: the role of leading emerging countries like China and India in the world energy matrix and in the growth of energy demand is shifting power to the Indian and Pacific basins. This may trigger major implications on the world's balance of power; there are already significant changes in trade, finance and investment patterns and this raises issues about the replies in terms of European Companies, Corporate.

- The Japanese Earthquake and Tsunami (2011) and its Consequences - Another key event that emerged in 2011 and became a game changer. The power supply was disrupted with a likely permanent loss of a significant portion of Japan's nuclear power generation capacity. The energy market provided a strong answer to replace the failure of the nuclear power generation and the LNG market was instrumental to this response. The LNG gave birth to a very flexible and versatile market and this proved to be a strong competitive advantage providing Japan, already the top LNG consumer, with additional LNG volumes of 8 to 10 million tones. Key LNG producers like Russia, Indonesia, Qatar and Oman have been quick to offer LNG cargos to help Japan to restore and maintain power supplies. The LNG market will be totally globalized by 2022/2025, the flexibility in LNG transport responses quickly to shifts in demand and LNG will be the driving force for the Globalization of the Gas Market.

- "Arab Spring" - The situation in North Africa and Middle East with the Arab Regional upheavals eroded a good part of the strategic balance in the oil and gas markets and may have major consequences for the stability of the Region and for European oil and energy security. The case of Libya is critical because if a failed state emerges in the Mediterranean Basin, the impact for energy security in the whole area and for Europe may be dangerous. In terms of the oil and gas market, the rupture

of production in one important producing country leads to important increases in oil prices. The most critical issue is the spread of the revolt to the Arabian Peninsula with upheavals in Yemen, Bahrain and Syria. Saudi Arabia intervened military in Bahrain to protect the sunny monarchy in a country where 70% of the population are Shia. The key consequence for the future is that Saudi Arabia, the heart of the world oil system, is circumvented by an Arch of Instability that ranges from Yemen in the South to Bahrain and goes deep to the Saudi Eastern Province (Qatif). The geopolitical situation is quite unstable and the consequences are deep in terms of increasing oil prices, threats to the supply, disruptions in production and restrictions in the export quantities and problems in the energy security system. A specific illustration of this geopolitical uncertainty is related to the Hormuz Strait from where 19% of European oil supply flows every day.

Currently, in the energy sector, we witness a set of geo-economical and geopolitical changes in three dimensions: (1) structural changes in the energy markets, (2) strategic changes in international financial markets, (3) redistribution of power and wealth.

Power dispute is an economic struggle, of influence and resources. And control over energy supplies has become a central element of this competition; however, it is increasingly supported by military force. Because of the subventions and potential conflicts, it is undoubtedly relevant to policy planners that competition regarding energy suppliers can drive to bigger conflicts or even to global conflicts with critical military dimension, even though none of the global players is compromised with the unfolding of such events.

In this new context, marked by changes in the oil geo-economy, towards the unstable areas' strength of the power (Arabian Gulf and Caspian – e.g., OPEC countries and Russia) with reflections on geopolitics, given the emergence of two powers without energy resources (China and India) and a dominant power that is discovering resources (US), we face a situation that will lead to a players' reconfiguration in the international system. So energy security should be examined from a double perspective: economic strategy and strategic planning. In economics, the challenge is to unveil how to reduce the economic blackmail from suppliers on consumers. In the second case, we should know how consumer countries can be protected against possible turbulence arising from producing regions, which may lead to restrictions/breakthroughs in supply.

Summing up, nowadays in a globalized world the main energy security problems are the growing dependence on foreign energy resources; decreasing of fuel resources and vulnerability of energy transports. Simultaneously, we look for solutions that should be global, such as: local energy resources; increase of energy efficiency; increase in non-fossil energies and a decentralized energy supply.

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PART IV: NEW SECURITY THREATS

Chapter 9

CYBER THREATS, STRATEGIC IMPACT AND LEGAL FRAMEWORK OF CONFLICTS IN CYBERSPACE

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ABSTRACT

The rapid pace of technological development, recorded over the last three decades, largely concurred to expand the use of internet worldwide. Cyberspace, only accessible through the internet, has become a true mediator of social relations and a driver of economic development in most developed countries. This new virtual space came to promote and simplify the relationship between citizens, government and businesses assuming a central role in providing essential and critical services that support the functioning of Information Age societies.

Cyberspace, as a global common, has no physical borders and no spaces of sovereignty clearly defined. It makes it difficult to differentiate between what is public or private, civil or military, national or international. Leveraging existing regulatory difficulties that may arise, new threats emerged. They explore innovative virtual features and somewhat less traditional ways of thinking and acting, increasingly linked to cyberspace. Both the number of cyber-attacks and their disruptive impact have been experiencing a sharp growth over the past few years.

In a networked and hyper-connected world, this new global space has been transformed into a privileged vector for conducting attacks against individuals, enterprises, public or private networks, critical infrastructures or even against the very processes that control the information systems of states' electronic governance. In this context new social risks arise that have to be properly analyzed and managed.

The increasing number of cyber conflicts in general and the progressive militarization of cyberspace in particular, boost the probability of the "use of force" situations and the occurrence of armed conflicts in cyberspace. This calls for a concerted effort conducted by the international community in order to guarantee the convergence and to promote the adjustment of national legislation in order to facilitate the fight against cybercrime and reduce the number of cyber conflicts.

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Collective consciousness on the existing vulnerabilities, the increase in cyber threats impact and risks arising therefrom, has led to the development of national synergies and international cooperative efforts. The most recently issued national policies and strategies, specifically designed to cope with all forms of cyber-attacks, have already started to deepen a culture of cyber security and cyber defense at both national and international levels.

INTERNET: EVOLUTION AND FUTURE PERSPECTIVES

When the Internet was created in the 1960s, the challenge raised by the United States Department of Defense to the Advanced Research Projects Agency (ARPA), was to create a highly reliable and flexible network in order to ensure its availability in extremely difficult operating conditions. A fully distributed network management system was then adopted, in order to increase the network resilience and survivability.

Since the initial number of users was relatively low and most of them were associated with the academic community the Internet specific information security aspects didn't got great attention. Network designers were then mainly focused and concerned with ensuring the network availability and reliability.

Over the past few years, the increasing demand for information services and higher bandwidth communications have led to the development of infrastructures capable of supporting an increasingly high speed data transmission, paving the way to the so-called "information highways". Given the structural importance of these communication infrastructures it constitutes today a factor of development and progress of modern societies, shaping the "information and knowledge Society" in which we live in.

With the Internet widespread, the access to information and computational resources linked with this network became universally accessible. These resources are now available online at any time, regardless the user location and almost without restrictions, leading Thomas Friedman [4] to claim that "the world is flat".

Nevertheless, despite the apparent democratization of Internet access, the interaction context is substantially different from place to place and from user to user, generating thus clear asymmetries between the various actors who use cyberspace.

States are increasingly committed to ensure a sustainable social development in order to improve their framing structure and its overall economic competitiveness. They also decided to avail the benefits of the so called "new economy", focusing on the virtualization of administrative procedures and electronic governance. Internet has definitely benefited from this political-strategic vision, acting as a major strategic vector in support of the "digital economy" and the very governance of nation states.

The various stages that shaped the development and sustained the internet growth were marked by the progressive absorption of other telecommunications services, such as telephony, video streaming, and more recently, television. The need to ensure Internet compatibility and interoperability in the development of new equipment and services became mandatory since otherwise they incur the risk to face a possible market rejection. Internet is now a real integrating platform for electronic services and Information Communications Technology (ICT) equipment, creating the vision that everything should be connected and reachable using an internet unique reference (IP address).

The ability to uniquely referencing any object and to network it, in particular through the use of sensors, eventually also opens space for its integration and management through the Internet, allowing the discovery of the "internet of things".

Thus, we have witness a true revolution in the way ICT products and processes are being conceived, based on the attribution of electronic identities to objects of everyday use, which can be equipped with sensors, interacting with the physical environment around them.

Over the next few years mobile devices and their applications will increasingly continue to grow and influence our lives. Throughout the Internet and cyberspace, where everyone and everything is networked, we will have a growing "digital footprint" and we will inevitably be more intertwined and interdependent. Our future will be deeply influenced by the "things of the internet" but also increasingly by the "internet of things".

CYBER THREATS IMPACT AND RISK MANAGEMENT

Given the large number of interactions and the amount of overlays that information infrastructures present, cyberspace development requires a strong interdependence between the construction of a global network such as the Internet and the various National Information Infrastructures, where geographical boundaries are becoming less and less relevant.

The network dynamics associated with the Internet, mainly due to the existence of large asymmetries of knowledge among its users, can easily generate "black swans", as pointed out by Nicholas Taleb [12].

Taleb uses this metaphor to characterize the occurrence of rare events, difficult to predict, which invariably cause great impact, such as the terrorist attacks of September 11, 2001 or the designated "Arab Spring", where social networks like Facebook were instrumental in the evolution of the revolutionary processes taking place in the Middle East.

Since we are not usually prepared to deal with this kind of events and that reality presents an increasing complexity and uncertainty, these events are, according to this author, "increasingly common (and influential) in the future" [12].

Despite the undeniable value associated with networking, different actors have been maliciously exploring the existing asymmetries of knowledge to attack the availability and integrity of cyberspace, and the authenticity and confidentiality of data exchanged in integrated networked systems. Depending on their nature and the estimated degree of disruption, these attacks can affect the regular functioning and endanger state's critical infrastructures, considered vital to the safeguard of national sovereignty.

Taking into account the need to assure cyberspace security and mitigate social risks, a threat spectrum analysis is of particular importance and should be conducted since it allows the identification of potential sources of attack.

These can affect every information infrastructure, either individually or in an aggregated manner. Based on the motivations of each actor, assessing its capabilities and the likelihood of occurrence of a cyber-attack, we will inevitably verify, to a greater or lesser degree, the existence of a possible social risk.

Among the potential sources of cyber threats, it is possible to identify disgruntled employees, amateurs, hackers, crackers, cyber criminals, spies seeking commercial secrets, hacktivists, terrorists and even nation states.

Additionally these cyber threats [3, 8] can take the form of social intervention (Cyber activism and Cyber hactivism), criminal activities (hacking, cracking, Cybercrime, Cyber terrorism or cyber espionage) or even the form of acts of war (Cyber war).

Regardless the threat source, attackers motivations are quite variable and are inevitably associated with their abilities and the goals they want to achieve.

According to this rational, some authors [1] reported that cyber-attacks can be oriented to obtain: fame or revenge (hackers and disgruntled employees), economic benefits (cyber criminals, industrial spies and disgruntled employees), tactical or competitive advantages (nations and industrial spies), political dividends (terrorists, hacktivists and states) and destruction or damage (terrorists or states).

A first criteria for determining the level of impact of cyber-attacks can be set through the analysis of their level of organization, allowing to group such attacks as follows [1, 5]:

- Simple Attacks: have a low average impact. This type of attack is executed without coordination or with a very low level of organization, being led by one or several people but never forming an organization with its own identity;
- Organized Attacks: its impact is usually moderate but, depending on the goals they want to achieve, may become higher. These attacks are usually executed and coordinated by an organized group, composed of a significant number of people;
- Advanced Persistent Threats (APT): these threats have high probability of occurrence and their impact can be quite strong. The materialization of such threats often requires the existence of persons endowed with a very sophisticated level of knowledge and technical skills. These attacks remain over time and its development is precisely tailored. The fact that its design is customized and focused on a specific target, gives these attacks a very high precision;
- Large Scale Coordinated Attacks: its impact can be high or very high. These attacks have a high level of coordination and are performed and directed by an organization or a nation; they involve a large number of actors who may or may not belong to the organization/nation;
- Cyber-attacks coordinated with physical attacks: its impact is extremely high. The level of coordination needed to implement this type of attacks is very high; the combination and synchronization of cyber-attacks with attacks in different physical dimensions (land, sea, air and space) requires a very precise planning and execution.

Within this context, it is not possible to compare the effects of a simple "denial of service" attack, as the ones that daily affect many public websites, with a large-scale coordinated attack that has the power to affect a state's critical infrastructures, causing death and producing social chaos.

The cyber-attacks launched against Estonia (2007), Georgia (2008), Iran (2010) and Ukraine (2014), were quite sophisticated and should be seen as large-scale attacks. This kind of attacks has proven the need to protect and ensure the flow of vital information between governmental structures that are considered critical to the survival of a state during a crisis situation.

Given the disruptive and increasingly destructive impact of cyber threats, risk analysis and social risk management associated with cyberspace, increasingly influences the Security and Defense of Information Age states.

Whether or not we believe in the imminence of a large-scale cyber-attack, we cannot ignore the increasing disruptive power of cyber threats in our society. Sometimes this kind of attacks represents a situation of a possible "use of force" and even a potential act of war.

MODERN CONFLICTS AND THE MILITARIZATION OF CYBERSPACE

Violence and war are phenomena as old as man himself, leading some international relations researchers to consider its inevitability. The realist school, based on the affirmation and safeguard of states interests in the international arena, is opposed to an idealistic perspective that looks for a vision of world balance and prosperity, in order to avoid the risk of war. Realists (Maquievel, Thomas Hobbes, Edward Carr, Hans Morgenthau) accept the natural character of war and consider that, due to the different dynamics associated with States' exercise of power, one cannot ensure permanent cooperation and perpetual peace between the various actors (State and non-State) that interact in the international political system.

The resource to violence and the use of force are thus intrinsically linked to the human nature and cannot be decoupled from the safeguard of individual and collective interests, occurring at the different fields and levels in which the interaction takes place. In a networked world, cyberspace settles permanent virtual connections with all those linked to the Internet. This virtual space of global nature increases the probability of occurrence of conflicts and constitutes a potential risk to the desirable economic stability and international balance of powers. The use of cyberspace as a privileged attack vector is a major security concern and assumes today an increasing strategic importance to western societies and world peace.

In our days we live a new paradigm of modern conflict, which affects not only the military arena but also society as a whole. Despite the fact that so far it has not been possible to clearly identify the specific instances that may lead to cyber conflicts there are already strong indicators and national strategic visions that point to this strong future possibility. In this new kind of war, the final end state will be to defeat an opponent or limit its action, by affecting sensitive elements of its information infrastructures while protecting our ones.

Modern conflicts have in cyberspace an important attack vector, affecting all who use it, both in the private and public domains, for leisure or for work and in many spheres of interaction (social, diplomatic/political, economic and military). Cyber-attacks can be launched from anywhere in the world, being led from one or more locations simultaneously, and often it is not possible to detect the attacker true identity.

To develop and ensure the success of this type of actions it is only necessary to possess enough expertise and have access to easily available technology.

An attack launched through cyberspace can have virtual effects but can also potentially affect physical systems. If a cyber-attack exclusively strikes resources and information systems, we can say that this is a non-kinetic attack. However, in most cases, cyber-attacks also affect the functioning of systems and physical infrastructures that depend on these information resources and systems. In this case, although the cyber-attack has been virtually launched (using non-kinetic means), this can be considered as a kinetic attack as it leads to a greater or lesser extent to the disruption and destruction of physical systems.

According to an international study on cyber terrorism recently published by a group of researchers [6], it is clear that the exploitation of cyberspace by transnational terrorism may occur in different scenarios[1], considering the use of both kinetic and non-kinetic means.

The numerical values presented in Table 9.1 represent the percentage of responses associated with each of these specific scenarios. According to the collected data, it appears that there is a much higher probability of exploiting non-kinetic attack vectors (digital) at all levels (preparation phase, means and targets).

In line with this premonitory vision, the Internet has become an authentic digital battlefield, and the stage for retaliatory actions of hackers associated with various countries and strategic actors such as: US, China, Russia, Brazil, India, Pakistan, Israel, Iran, Syria, Palestine, or even North Korea. While in most cases this kind of activities do not constitute a direct involvement of nation states, several cases have already been detected were networks of hackers have been publicly associated with state actors.

Authors such as Thomas Rid [10] state that "cyberwar will not take place" and forecast that cyber conflicts should be seen as a permanent phenomena and that we have to deal with cyber-attacks not as acts of war but rather as acts of sabotage, espionage or subversion. Overall, although we tend to agree with many of this author's key ideas and arguments, which seem logical and well-articulated, we believe that we must assign to cyberwar at least the same probability of occurrence as to any other kinetic conflict.

Table 9.1. Scenarios associated with cyber terrorism
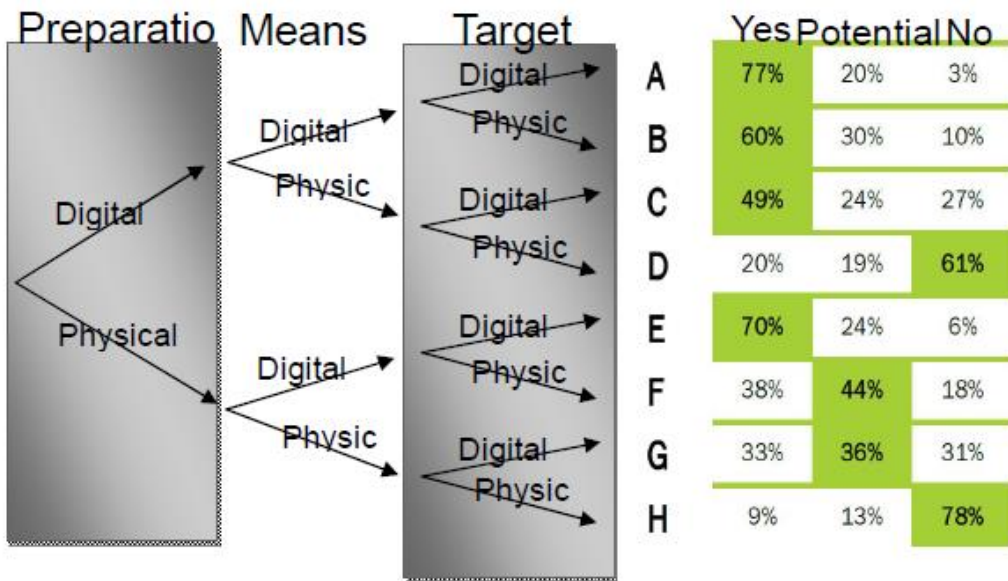
Source: MacDonald, Jarvis, Chen and Lavis [6].

[1] Eight distinct scenarios (AH) were presented to 105 international cyber security experts, each characterised by a combination of different types of preparation (digital or physical), means to be used and type of target. The question "According to your perspective, which of the following scenarios constitutes an act of cyber terrorism?" was then presented to the group of experts, and they were requested to select one of the following three options: "Yes"; "Potentially"; "No". In total, 92 experts completely answered the question (80% of response rate) and 13 only partially.

The recent occurrence of complex and sophisticated cyber-attacks, launched against sovereign states[2], led many of the major world powers (e.g., US, China and Russia) to develop specific capabilities aimed to collect and analyze information on a global scale, in particular, on the grounds that these capabilities have become essential for ensuring their security and national defense.

The PRISM[3] program, recently made public by Edward Snowden, a former employee of the National Security Agency (NSA), is a good example of this type of systems.

In order to counter a strategy of increasing assertion of power, followed by some States, it should be noted that the actions of "counter-strategy" perpetrated by State and non-State actors, are more and more frequent.

This type of actions, that should be seen as a result of existing competing interests that lead to confrontation between states, has been increasingly driven by non-State actors.

The WikiLeaks case study, where many classified US documents were revealed, and some of the attacks led by the hacktivist group "Anonymous", that ended up taking a remarkable media attention, can both be framed in this context.

Despite its global conventional military superiority, this kind of incidents led the US to develop new cyber defense capabilities in order to avoid what many authors call a "Digital Pearl Harbor".

With the recent establishment of the US Cyber Command, this country publicly assumed that cyberspace is a new operational domain where military operations will be conducted[4].

One of the major strategic advantages of cyber-attacks is related with the fact that they have a smaller impact on public opinion than traditional kinetic forms of conflict or war.

Unless a cyber-attack causes a strong psychological or physical effect *per se*, characterized by a significant degree of physical destruction and the existence of injuries or deaths, it is considered likely that such attacks will become increasingly operationally exploited as a "secondary attack".

A cyber-attack could thus be launched to create the ideal conditions or to maximize the effects of a conventional military attack, as happened in 2008 in the case of Georgia (2008) and in Ukraine (2014).

The increasing militarization of the Internet raised a major concern in this field because it is impossible to ignore that cyber-attacks launched or sponsored by states are those that have a greater disruptive power.

Within the current strategic environment, no war can be won exclusively with the military use of cyberspace (pure cyberwar). However, it is also true that no military campaign conducted in any other kinetic operational domain can be won without cyberspace.

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[2] The cyber-attacks conducted against Estonia (April/May 2007), Georgia (August 2008) and more recently against Ukraine (2014), are good examples.

[3] PRISM is the code name assigned to a secret program of data mining and massive electronic surveillance released in 2007 by the National Security Agency (NSA), which also involved the British Agency GCHQ.

[4] In June 2009, the US Secretary of Defence announced the creation of the US Cyber Command. This new military command claimed to have acquired its Full Operational Capability (FOC) on 03 November 2010. Military operations conducted in cyberspace can achieve goals only in cyberspace or in any other operational domain (sea, land, air or space). It is now assumed that cyberspace has a main role to perform in the accomplishment of military missions. To face the modern warfare challenges the Armed Forces need to protect the Communications and Information Systems (CIS) that support the Command and Control (C2) of their Forces. To achieve this objective they need to assure the Information Security of CIS Systems and conduct Computer Network Operations (CNO).

CYBER-ATTACKS: VECTORS OF
CYBER-VIOLENCE AND USE OF FORCE

A cyber-attack constitutes an act of aggressive contours, whose consequences are felt both at the virtual and the real/physical world. According with its effects, a cyber-attack may thus constitute an effective use of force and, therefore, be considered an act of violence.

It should be noted that since the end of the 2nd World War, in practice, there are essentially two legal reference documents that regulate conflicts between states: The United Nations Charter [9] and the Geneva Convention. The UN Charter, is the international law governing the resort to force by States (*jus ad bellum*), while the Geneva Convention, constitutes the main source of international humanitarian law that regulates the conduct of the participating parties in armed conflicts and is considered the law of war (*jus in bello*).

Within this legal framework, an attack conducted in cyberspace leading to injury, causing the death of people, that would cause damage or destroy resources, may be unambiguously considered a use of force. However, there are cases where this does not become so clear. The Tallinn Manual [11] considers that if a State provides sanctuary to a group that engages in cyber operations against another State this cannot be considered a use of force. In the opposite way if a State provides sanctuary and offers a clear and substantial support to that group, such situation can be set and assumed as an effective use of force.

Since it is not easy to derive clear eligibility criteria to define a situation of "cyber use of force", the Tallinn Manual [11] suggests eight criteria that should be clearly identified in such a situation: severity, immediacy, directness, invasiveness, measurability of effects, military character, state involvement, presumptive legality.

Despite its undeniable disruptive effect, in light of these criteria, the cyber-attack perpetrated against Estonia in 2007 is not considered an effective use of force due to both its consequences (non-lethal) and to the difficulties felt at the identification of its originator[5] (only non-state actors were identified). As a matter of law, given the available information, the conclusion that can be drawn is that this was a large-scale law enforcement issue that affected the state's national security. This massive attack derived from a concerted action orchestrated by several international criminal groups who violated the law and developed wrongful actions against the interests of Estonia.

On the other hand, regarding the use of the Stuxnet malicious code, which in 2010 affected the Iranian nuclear facilities, the Tallinn Manual [11] considers that this qualifies as an effective use of force if it can be proven that a State[6] (not officially identified) was its originator. Therefore, unless conducted in self-defense, this action should be considered illegal due to the absence of an UN Security Council authorization.

Underlying the difficulty of framing these two cases is the principle of conferral. In fact, due to concealment techniques used and the difficulty of defining the true identity of the attacker, the authorship of the action becomes very difficult to clarify. In this case, we could only unequivocally impute the cyber-attack to a State actor if it was possible to assign the actions conducted to: the organs of that State, people/entities responsible for the exercise of

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[5] The responsibility of this attack was not officially assumed but has been attributed to Russia. Supposedly this attack was launch in retaliation for the removal of a Russian soldier statue from one of the Tallinn squares in 2007.

[6] Although not officially confirmed, the responsibility for this attack was attributed to United States and Israel.

governmental authority, persons or groups acting in accordance with instructions or under the direction of a State.

More recently, in August 2012, a virus called Shamoon infected around 30,000 Windows-based[7] computers of the Saudi Aramco oil company. This malicious code changed the computer's hard drive, making it impossible to recover them and originating drilling and production systems data loss. The recovery of the systems took more than two weeks, yielding extremely high economic losses to Saudi Arabia. Again, despite the negative effects of by this cyber-attack, it was not possible to attribute this action to a specific state and to apply the internationally legal framework that regulates the use of force.

In the specific case of a large-scale cyber-attack, a State may invoke a reason of self-defense to undertake countermeasures against the responsible parties when threatened by operations conducted in cyberspace that constitute a "serious and imminent danger" capable of threatening the achievement of their essential interests and compromise national sovereignty. In this case, the injured State, in order to be able to defend itself, may violate the rights of other States. The need for this action does not require the attribution of the attack to a State. Rather it may be invoked only in exceptional circumstances and provided it does not harm the essential interests of other States. As previously mentioned, in this context applies Article 2 (4) and Article 51 of the UN Charter [9] which frame and legitimize the right to individual and collective self-defense of a UN member state (*Jus ad Bellum*).

ARMED CONFLICTS IN CYBERSPACE

Following the same legal principles that govern conflicts in the "real" world, conflicts in cyberspace are managed in accordance with the existing legal framework both nationally and internationally. Recognizing that cyberspace is a natural extension of the real/physical world and that people stand responsible for the actions taken place in this virtual space, it makes sense to assume that the same law applies to these two domains (physical and virtual).

Building on the legal framework of cyber conflicts, the NATO Cooperative Cyber Defense Centre of Excellence (CCD COE), located in Tallinn (Estonia), presented in March 2013 an interesting systematization of international law [11]. The Tallinn Manual, produced by an international group of experts of 20 scholars and practitioners, without the intention to develop a prescriptive document, prove itself to be extremely useful since it presented a set of fundamental principles of international law associated with cyberspace and cyber operations. This publication successfully builds the legal grounds that should be applied to international cyber conflicts, facilitating the creation of specific legislation by each state. Despite their specific differentiating aspects, it is expected that in the near future national laws will rely in the same basic principles and progressively converge towards the creation of a similar legal

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[7] This virus shows great similarities with the Flame malicious code. It was identified due to its characteristics and behavior distinct from another type of malware used in cyber espionage attacks [15]. The Shamoon virus is able to rapidly spread itself to all computers on a network, through the use of shared resources. Once a system is infected, the virus compiles a list of files residing in specific locations, deletes them and sends information about them to the attacker. Finally, the virus modifies the startup software system (boot sector) to prevent its boot. The Group "Cutting Sword of Justice" has officially confirmed the attack, but it is believed that it has been planned by Iran.

basis, thus facilitating the fight against cybercrime and reducing the number of cyber conflicts both at a national and international level.

Since there is no internationally agreed definition on what constitutes an armed attack in cyberspace, the Tallinn Manual [11] defines it as a "cyber operation that injures or kills persons or damages or destroys objects", but CCD COE also recognizes that the "law is unclear as to the precise point at which the extent of such consequences fails to qualify as an armed attack".

Concerning this point it is also important to recognize that an armed attack is the most serious form of use of force but that not all use of force situations constitutes an armed attack. Thus, a cyber-operation that causes brief or periodic interruption of non-essential services is not an armed attack. However, if this operation causes serious and long term damage to critical infrastructures or essential services, it may qualify as an armed attack in cyberspace.

When we consider the right to self-defense and the possibility of retaliation by the injured State, we again face an attribution problem, in particular because an armed attack in cyberspace could be considered a Casus Belli.

In such kind of situations, we have to clarify who carries the burden of proof (who is responsible to prove that a specific State was or not behind a cyber-operation), the degree of probability (how sure we need to be about the attacker identity) and the method of proof (how we can prove that a given state is behind a cyber-operation).

Since an armed conflict in cyberspace constitutes, for all purposes, a situation of war, the law governing the armed conflicts (*Jus in Bello*) also applies. The pertinent question that should be then raised is when will we be in the presence of a cyber-armed conflict?

To find a clarifying answer, taking into account the previous definition of a cyber-armed conflict, it is important to distinguish an international armed conflict from a non-international armed conflict, the latter naturally of less magnitude and conducted by one or more organized armed groups.

The best example of an armed conflict conducted in cyberspace we have so far occurred in August 2008, during the invasion of Georgia by Russian troops. Cyberspace Operations were articulated with traditional military kinetic operations, causing the unavailability of websites linked with government, media and financial sectors. Contrary to what happened in 2007, these cyber-attacks were directly associated with military operations, reflecting a better planning and organization than the attacks against Estonia.

The military or civilian nature of cyber-attacks (principle of distinction) is also an important factor conditioning the framework of cyberspace operations that should be taken into consideration. Under the Geneva Convention (1949), namely according with its Article 48 (Additional Protocol I), attacks may only be directed against combatants and military objectives. According to this article, "The Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives." The problem is that many of the attackers are not military and the resources used by the Armed Forces today are of dual-use (civilian-military). To highlight this fact, it suffices to note that if the national power grid is attacked the vast majority of the military systems will be affected, thus reducing their own operational capacity. According to Article 51 (3) of the Additional Protocol I and Article 13 (3) of the Additional Protocol II of the Geneva Convention, Rule 35 of the Tallinn Manual [11] conclude that "all civilians should enjoy protection against attack unless and for such time as they directly participate in hostilities".

Thus, "an act of direct participation in hostilities by civilians renders them liable to be attacked, by cyber or other lawful means" [11] (Rule 35 (3)).

Against this background, the level of negative impact caused by a cyber-attack unleashed by civilians is likely to trigger a military response when it adversely affect military operations/capacity or is likely to cause death, injury or destruction to protected persons/objects. Thus, the existence of a causal link between an action and its potential negative impact can grant the status of belligerent to individuals or civilian groups that conduct cyberspace operations.

The principle of neutrality, when applied to armed conflicts, allows a state not to take part in a conflict. A State declares itself neutral essentially in order to protect its citizens from the harmful consequences of a conflict, assuming before the belligerent parties that will not develop any action (or inaction) that could benefit its opponent/enemy. However, this principle is likely to be also seriously challenged by cyber conflicts since cyberspace operations are conducted in an open operational environment without physical boundaries where one cannot apply the traditional principles of national jurisdiction and guarantee the full exercise of State's sovereignty. If during a conflict a neutral state fails to prevent that one of the belligerents launches a major cyber offensive operation against another belligerent, using ICT resources located inside its own territory, its neutrality may be compromised. Namely, if this action constitutes a serious and imminent threat to the injured belligerent, a neutral state may lose its status and be directly involved in the conflict as another belligerent.

All States will thus have to have a credible cyber capacity in order to ensure the right to assert its neutrality. Failure to safeguard this pre-requisite, in this particular case, may be taken as a sign of favoring one party, compromising the status of neutrality that a State intends to assume and assert.

CONCLUSION

The accelerated pace of ICT changes and the growing importance of Internet shaped the strategic environment of the past three decades, making the world increasingly dependent on network interactions and intangible resources (information and knowledge).

In modern societies, Internet and cyberspace are seen today as important enablers of social inclusion, structural development and economic growth.

In a hyper connected world, cyberspace has emerged as a global interaction space where everything and everyone tends to be linked.

Cyberspace has no defined physical borders, making it hard to differentiate public from private sphere, governmental from nongovernmental, civilian from military and national from international. Cyberspace offers new opportunities but, due to its very nature, it also favors the development of new threats and largely expands the attack surface at both individual and collective levels. This raises new security challenges that may limit the state's ability to defend national interests and achieve its strategic objectives.

Cyber-attacks can be launch from anywhere in the world, can be led from one or more locations simultaneously, often without it being possible to detect the attacker true identity. The increasing Internet-based connectivity of critical information infrastructures and the high level of its information systems interdependence can very quickly widespread the impact of

cyber-attacks both at national and international level. The adoption of protection mechanisms and information security processes very often fails to keep the pace of the growing number of vulnerabilities. Emergent threats and risks associated with cyberspace cannot therefore be ignored or neglected. This is a privileged area of "asymmetric warfare" that could be explored by several malicious actors.

Cyber threats are transversal to all activities of modern societies, affecting many aspects of their "interaction spaces" not only at the social domain but also at the political, economic and military arenas. Given the emergent competitive and conflictive dynamics that currently take place in cyberspace, we will only be able to generate a "trust environment" if we will be able to properly build the foundations of an internationally accepted code of conduct.

Only then, it will be possible to establish a sustainable cyberspace model, increasingly free and open but also safer and more secure.

We have been witnessing a growing military exploitation of cyberspace. Although the violent pursuit of political goals using exclusively this new operational environment is not a current reality, that scenario should be forecasted because a large scale cyber-attack may compromise National Security and Defense.

In order to increase the protection level of information infrastructures and reduce conflicts, countries have to review their current legal framework, creating new doctrines, structures and means to implement its cyber security and cyber defense capabilities.

Building an effective National Cyber Security Strategy inevitably involves the adoption of a new vision of the international security environment where cyberspace should be looked as a new important strategic vector that more and more assumes an essential role for the defense of national values and interests. To that end, national synergies and international cooperation should be explored in order to guarantee, at all times and with the available means, the right conditions to effectively ensure National Security and Defense in cyberspace.

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Chapter 10

TRANSNATIONAL TERRORISM AND DIFFUSED RISKS IN A GLOBALIZED WORLD

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ABSTRACT

The growing interconnection between globalization and terrorism is one of the main paradigms of the twenty-first century. Terrorism is not a new phenomenon, but the terrorist attacks in New York and Washington in 2001 gave it a new boost and international concern. Transnational terrorism has become a main idiosyncrasy of modern times and poses compelling challenges to international security.

It is our aim to take a closer look to the relationship between globalization and transnational terrorism, by: (a) analyzing the link between transnational terrorism and globalization; (b) exploring key trends in transnational terrorism; and (c) assessing the interconnection between new transnational threats and terrorism.

"Terrorism remains a complex phenomenon in which violence is used to obtain political power to redress grievances that may have become more acute through the process of globalization. Globalization has improved the technical capabilities of terrorists and given them global reach, but has not altered the fundamental fact that terrorism represents the extreme views of a minority of the global population. In other words, globalization has changed the scope of terrorism but not its nature."

Kiras [19]

SECURITY AND MOBILITY IN THE ERA OF GLOBALIZATION

The international system of the 21st century is characterized by its interconnectedness. This global interconnection takes place in different fronts: political, economic, social,

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cultural. The dynamic process of globalization has brought the world together, while deepening gaps and accentuating asymmetries.

The debate on globalization, on its benefits and opportunities but, at the same time, on its disadvantages and threats, is central to understanding the current international system and the society of risk in which we live. It is a dynamic process characterized by global circulation of goods, services and capital as well as people, information and ideas [24]. Globalization is a process of contradictions *per se*. Contradictions that generate problems and threats as well as opportunities, and dependencies as well as development [6].

The idea of time and space has changed. Our "old" ideas of geographical space and chronological time are eroded as distances are curtailed by new technologies. New technologies of information and communication have revolutionized the way we perceive the world. Technological innovation is responsible for greater access to information, easiness to communicate and contact with the world, reducing distances and the cost of trade. The global and local dimensions are closer than ever. The intensification of relations and the interrelation of different regions and social environments have brought individuals together while creating, at the same time, a sense of individualization and loneliness.

Economic progress, as a symbol of this new era, accentuated the gap between rich and poor countries. Uneven rhythms of economic growth, asymmetric human development patterns, imbalanced regional development, along with unequal demographic trends challenges geopolitical balances and motivates human mobility.

Globalization gave a new impulse to transnational movements and activities placing new challenges to Western societies. New atypical actors now play an asymmetrical chess in the international system. The erosion of physical borders and barriers provided by technological advances has brought populations and nations together.

Nevertheless, the intensification of human mobility fluxes questions the security of individuals, societies and states and strains the paradigm of human security [13].

The intensity of transactions has increased along with the amount of threats and risks. The local and identified enemy has been replaced by innumerable unidentifiable and hard to locate enemies. In this society of risk, states are confronted with faceless actors who seek geostrategic positions and regional power. With the appearance of new actors in the international system and the permeability of borders, new global and transnational threats and risks arise. Nowadays traditional threats and risks coexist with new ones. The attention is now focused in transnational threats, such as terrorism and organized crime. This greater number of vulnerabilities amplified the perception of threat and the feeling of insecurity.

Thus, conceptions of security have changed significantly in the past decades and the distinction between internal and external security is increasingly hard to make, given the conceptual convergence between these two dimensions of security [12].

Agamben [1] states that "security finds its end in globalization: it implies the idea of a new planetary order which is in truth the worst of all disorders". The end of the classical war and the new challenges posed by a post-Cold War world ask for new collective measures of security and defense. The international system after September 11th is made up of a net of global threats [2]. We witness a new era of violence, where violence has "become more globalized and fragmented at the same time" [4].

Terrorism is an international problem. It takes place everywhere and targets innocent people.

Terrorism is not a new phenomenon, yet nowadays it has a global reach and concerns everyone. Terrorists use terror as a strategic and political action [23]. The expansion of terrorist networks worldwide is a threat to security and international stability.

Globalization generates instability in societies. The globalization of terror is unprecedented and transnational terrorism has evolved by exploiting the avenues of globalization. Many authors have acknowledged the relationship between terrorism and globalization [1, 6, 8, 19, 20, 27], a widening nexus that poses significant challenges to the international system.

Terrorism can be seen as a reaction to globalization as some groups oppose to the "intrusion of foreign cultures that were seen as threatening their societies" [20], as an attempt to preserve national identities and values that feel threatened by social changes associated with globalization [19]. Moreover, as Lutz and Lutz point out [20], "globalization can also disrupt political systems and weaken states. Weak states do indeed provide opportunities for terrorists". Stevens [27] also argues that "globalization contributes to the creation of socio-cultural and psychosocial conditions from which terrorism may emerge". Furthermore, terrorist organizations have enhanced the "dark side of globalization" shaking the foundations of nation-states and their concepts of security [2]. Nevertheless, "globalization per se does not cause terrorism nor does it explain all forms of terrorism" [27].

In this globalized era states need to cooperate to face transnational threats. In a time when a myriad of non-state actors challenge international order and compete with states for power [1], it is up to the states to reaffirm their power by seeking their own voice in the international arena.

We live in "a time of seismic change" [29]. The international system is changing rapidly, dictated by new technologies, with new threats and challenges to security, economy, politics, society and culture. To understand transnational terrorism and the challenges it poses to international security we have to consider this phenomenon in the new international reality.

It is our aim to take a closer look to the relationship between globalization and transnational terrorism, by: (a) analyzing the link between transnational terrorism and globalization; (b) exploring key trends in transnational terrorism; and (c) assessing the interconnection between new transnational threats and terrorism.

NEW TRANSNATIONAL THREATS

In the last decades new actors emerged in the international system, as well as new regional dynamics, new security complexes and new threats, that deeply transformed international relations and particularly security studies. The concept of security has also suffered significant changes in the past years. New approaches to security aim to overcome the traditional (political-military) framework, by including new areas, such as the societal, the economic or even the paradigm of human security.

In the bipolar world of the Cold War, characterized by the constant nuclear threat, dynamics of securitization were under the influence of the US and USSR. The end of the Cold War brought significant changes to the international system. It is a new era of transition and uncertainty, with power *vacuums* ambitioned by regional actors, which require new collective measures of security and defense.

The end of the bipolar system, the turbulence and instability in the international system, and the high porosity of borders led to the emergence of new transnational non-military threats, that cross borders and threat the social and political integrity of states or even the security of their inhabitants [14]. As Garcia [14] points out, these threats are characterized by their "exterritorial, disseminated and individualized nature", their tendency not to take place in a single occurrence or period of time and also for, most times, not having a focal point, in which politicians can focus their attentions.

These threats are posed by new actors in the international system that can elude states, thus requiring a holistic and comprehensive approach to address them.

The paradigm of these new threats is "hybrid, inter-related and cross-cutting" [16]. Transnational threats are non-governmental, non-conventional, dynamic, asymmetric and unpredictable [14]. Among them we can find terrorism, organized crime, proliferation of weapons of mass destruction and energy and environmental security.

The global impact of these threats and their uncertainty makes them matters of high-politics. Hatzigeorgopoulos [16] claims that "although labeled 'new', it is actually their increasing prioritization as threatening challenges that is new".

But what are in fact transnational threats? The Congress of the United States adopted the following definition:

> [t]ransnational threats are defined in statute as: (A) Any transnational activity (including international terrorism, narcotics trafficking, the proliferation of weapons of mass destruction and the delivery systems for such weapons, and organized crime) that threatens the national security (…). (B) Any individual or group that engages in an activity referred to in paragraph (A) [7].

Transnational threats, particularly terrorism, for their random and asymmetric nature pose considerable challenges to international security. Greater attention has been paid to terrorism after the September 11th attacks to New York and Washington due to the terrifying characteristics of these attacks. But how does terrorism pose itself as a new transnational threat? We will assess this question in the following section.

TRANSNATIONAL TERRORISM – A NEW FRAMEWORK?

States confront a new *faceless* threat. Hoffman [17] claims that "we are at the dawn of a new era of terrorism violence". The attacks of September 11th, 2001 to New York and Washington are the epitome of this faceless threat, due to their size and unpredictability. The unique characteristics of these attacks have changed the international perception of terrorism.

The 21st century is witnessing a global development of terrorism. An international terrorism of anonymous and unpredictable nature [10] hence called "transnational terrorism". It is a terrorism with a set of specific characteristics: theocratic grounds, amorphous and diffused structure, based on a transnational network that operates with autonomous cells and uses methods and procedures of variable geometry [28].

Nevertheless, terrorism is not a new modern paradox. Yet, it was traditionally a domestic phenomenon and not an international problem.

Terrorism is in its essence a political concept, it is the use of violence to achieve a political goal. It is the struggle for power. As Hoffman [17] states,

> Terrorism is where politics and violence intersect in the hope of delivering power. All terrorism involves the quest for power: power to dominate and coerce, to intimidate and control, and ultimately to effect fundamental political violence.

Nonetheless, scholars and governments fail to come to an agreement on the definition of terrorism. Reaching consensus is difficult due to the nature and scope of terrorism. One thing is certain, as Kiras [19] points out, all definitions "start from a common point of departure. Terrorism is characterized, first and foremost, by the use of violence".

Yet, it is distinct from all other kinds of violence (guerrilla, ordinary criminals or a "crazy assassin"). It is violent and/or threatens violence, has political aims, is designed to have extensive psychological repercussions (beyond the victims themselves), is carried out by an organization or individuals motivated or inspired by ideological aims, and is perpetrated by a non-state entity or subnational group [17].

Kiras [19] interlinks the concept of terrorism with globalization, stating that "[t]errorism remains a complex phenomenon in which violence is used to obtain political power to redress grievances that may have become more acute through the process of globalization". Thus, globalization has altered the scope of terrorism by giving it global reach.

It is a global terrorism, not only due to the global geography of its network but also to the repercussions it has worldwide.

Traditional Versus New Terrorism

Terrorism is not a modern phenomenon yet it has significantly changed over time. Early forms of terrorism go way back to the Greek and Roman Empires, but they got a new dimension during the French Revolution, in the 18th century. In fact, during the French Revolution, terror was used by organs of power "to eliminate enemies and pacify the populace" [27]. Until the beginning of World War I, terrorism was mainly state-sponsored and had a revolutionary character.

After World War II, terrorism had a remarkable expansion and huge impact in the wars of independence from colonial rule, in third world countries, such as Kenya or Algeria. Also, during the same period, terrorist organizations such as the IRA in Ireland, redefined their methods and techniques [23].

In the 1960s terrorism becomes an international phenomenon as it goes beyond national borders and acquires global impact. Hijacking of airplanes, bomb attacks, murders and hostage situations are now used to cause terror and shock the international community. Kiras [19] identifies three elements that are at the genesis of transnational terrorism: "the expansion of commercial air travel; the availability of televised news coverage; and broad political and ideological interests among extremists that intersected around a common cause" [19].

This new terrorism has its origins in the Middle East. Indeed, a "more intense and protracted form of terrorism" emerged, as radical Palestinians (the Popular Front for the Liberation of Palestine – PFLP) targeted Israelis and Israeli institutions and "escalated their methods to include skyjacking, in part because of media attention given to their cause" [27].

This was the answer given to Israel's harshness of counterterrorism measures. As Hoffman [17] points out, these events changed dramatically the nature and character of terrorism as "their intent was to shock and, by shocking, to stimulate worldwide fear and alarm". Moreover, technological advances facilitated these technical changes in terrorism as they "transformed the speed and ease of international commercial air travel and vastly improved both quality of television news footage and the promptness with which that footage could be broadcast around the world" [17]. It is a new terrorism that knows no boundaries and targets innocent civilians from other countries.

The 1960s-1970s witnessed the proliferation of international terrorism in terms of state-sponsored terrorism as well as its evolution. During the Cold War period both superpowers (US and USSR) supported rival groups in third world countries (namely in Angola and Namibia). Despite officially condemning terrorism, they both sponsored terrorist movements in these countries.

The association between terrorism and organized crime also led to the transformation of international terrorism into transnational terrorism. Indeed, terrorist networks rely on organized crime to acquire weapons and equipment, financial resources and also to illegally move people across borders [23].

Terrorism evolved to include economic and religious motives along with political ones [27]. The connection between terrorism and religion goes way back in time, with *religious fanatics*. Modern religious terrorism is a "mixture of faith, fanatism, and violence" and embraces the world's major religions as well as cults and obscure religious sects [17]. Religious terrorist groups grew exponentially in the 1990s.

Hoffman [17] remarks that the ideological gap left by the end of the Cold War left space for religious terrorism to spread. A period of transition and uncertainty began with the end of the Cold War. The sense of insecurity due to the vacuum of power left by the end of the bipolar system, the fragmentation of power and the proliferation of regional conflicts raised fears and motivated religiously driven terrorism.

In the last decades, "religious terrorism has increased its frequency, scale of violence, and global reach" [21]. Still, it is not the only terrorist model; it coexists with other types and ideologies. Cronin [8] identifies four types of "terrorist organizations currently operating around the world, categorized mainly by their source of motivation: left-wing terrorists, right-wing terrorists, ethno nationalist/separatist terrorists, and religious or 'sacred' terrorist". These categories are not isolated, as Cronin [8] points out, there might be different motivating ideologies inside the same group, but usually one prevails.

The 21st century awakes with a terrorist attack to the heart of America (New York and Washington) on September 11th, 2001. September 11 was seen as a pivotal moment in the history of political violence and terror [21]. Since then, a series of terrorist attacks have taken place worldwide, from Spain to Afghanistan, from Egypt to Mumbai. Nevertheless, differences arose since then. "It was argued that within this new environment, terrorists were now quite capable of using - and very willing to use – weapons of mass destruction to inflict unprecedented casualties and destruction on enemy targets" [21].

Rapoport divided modern terrorism into four "waves", as follows (Figure 10.1): (1) the Anarchist wave, from the 1880s to the end of World War I; (2) the Anti-Colonial wave, from the end of World War I until the late 1960s; (3) the New Left wave, from the late 1960s to the 1980s; and (4) the Religious wave, from the late 1970s until the present. Yet Rapoport argues that "terrorism occurs in consecutive if somewhat overlapping waves" [8].
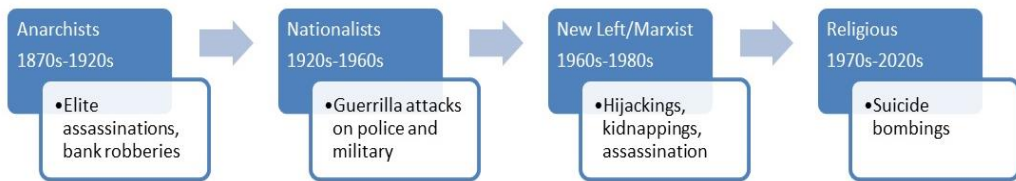
Source: Adapted from [25].

Figure 10.1. Rapport's four waves of terrorism

Regardless of different motivations to perpetrate terrorist attacks and the nature of terrorist attacks *per se*, they all have in common the use of violence and the killing of innocents, in the struggle for power.

Terrorism is one major threat in the 21st century. This so-called New Terrorism is mostly likely to remain in the near future, as Martin [21] points out, because:

1   People who have been relegated to the social and political margins - or who believe that they have been so relegated – often form factions that resort to violence;
2   Movements and nations sometimes adopt religious or ethno national supremacist doctrines that they use to justify aggressive political behavior;
3   Many states continue to value the utility of domestic and foreign terrorism.

Terrorism "is deeply woven into the fabric of social and political conflict" [21] and it challenges international security. Numbers show us that terrorist attacks have increased worldwide from 1,732 in 2001, to 4,993 in 2005, to 6,659 in 2006 [21].

This new terrorism that challenges modern societies is characterized by [21]:

● Loose, cell-based networks with minimal lines of command and control;
● Desired acquisition of high intension weapons and weapons of mass destruction;
● Politically vague, religious, or mystical motivations;
● "Asymmetrical" methods that maximize casualties;
● Skillful use of the Internet and manipulation of the media.

It contrasts with the so-called "traditional" terrorism, which was defined by Martin [21] (Figure 10.2):

● Clearly identifiable organizations or movements;
● Use of conventional weapons, usually small arms and explosives;
● Explicit grievances championing specific classes or ethno national groups;
● Relatively 'surgical' selection of targets.

As we can see from Figure 10.2 the "old" terrorism is more specific, as we move away from the centre we have a "new" terrorism with indiscriminate targets and higher casualties. Thus, as far as we move from the centre more disperse we may find a more disperse kind of terrorism.

Target Selection   **Casualty Rates**

Tactical/Weapons Selection   **Typical Motives**
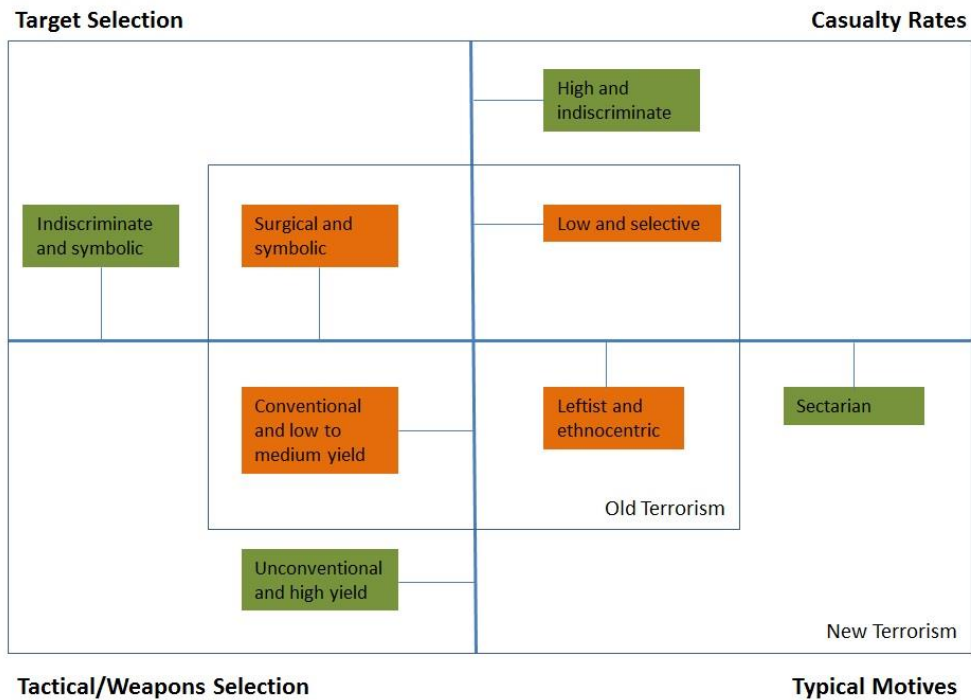
Source: Author's elaboration adapted from [21].

Figure 10.2. Old vs. New Terrorism.

The sources of terrorism (such as intolerance and resentment or even the search for power) have not changed significantly in the past years, nor will in the near future. What has considerably changed is the behavior and instruments adopted: the growing use of communication and information technologies; adaptations of cell-based organizational and operational planning by global revolutionary movements; the use of relatively low-tech tactics such as suicide bombers; and efforts to build or obtain relatively high-tech weapons of mass destruction or, rather, to convert existing technologies into high-yield weapons [21].

Despite its intrinsic nature, terrorism can be perpetrated by different actors. Thus, it can be state-sponsored or autonomous (Figure 10.3). Garcia [14] considers the latter to be the most dangerous one, as it is carried out by independent organizations, with no state connection, with high autonomy and flexibility, and with the necessary means to act.

In the past years terrorism has suffered significant changes and nowadays we talk of different kinds of terrorism: cyber-terrorism; bio-terrorism; narco-terrorism; and nuclear terrorism, among others. It depends on the actors involved, on the means and methods used, and also on the motives. September 11 awoke states to the need to deal with terrorism in an international basis. The threat it poses is now greater than ever. Cronin [8] claims that

> if there is a trend in terrorism, it is the existence of a two-level challenge: the hyperreligious motivation of small groups of terrorists and the much broader enabling environment of bad governance, nonexistent social services, and poverty that punctuates much of the developing world.

Transnational terrorist organizations have a 'horizontal' structure with autonomous cells operating independently "without reporting to a hierarchical ('vertical') command structure" [21]. They resort to asymmetrical tactics to perpetrate indiscriminate attacks against 'soft' targets [21].
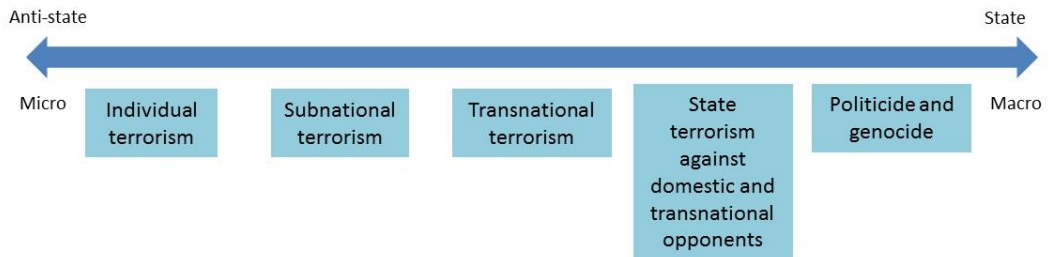
Source: Adapted from [9].

Figure 10.3. The spectrum of (terrorist) political violence, according to R. Dekmejian.

Al-Qaeda, a religiously motivated terrorist organization, epitomizes transnational terrorism, as an organization with a network of cells spread around the world and which gets support and sanctuary from regions that have not benefited from globalization [8].

In the last decades, there has been a dispersal in the geography of terrorist acts. The correlation between terrorism and human development is still unclear, but in regions with a deficit in terms of human development, where political discontentment rises due to the lack of freedom and justice, disappointment arises and may lead to the adherence to radical responses.

The Middle East has been the main focal point of terrorist activity, but over the past years, other regions, such as Central and South Asia, the Balkans, and the Transcaucasus have been growing in importance [8].

To sum up, transnational terrorism has both new and lasting features. The struggle for political power is a common feature to all phases of terrorism.

Cronin (2003, p. 42) acknowledges that religiously motivated terrorism is "the newest and perhaps most alarming aspect" of transnational terrorism.

Technologies and Terrorism

In this new era of communication, technologies and advanced communications such as the Internet are at the disposal of terrorists. They allow terrorists to communicate quickly, cheaply, and with little risk of exposure [21]. Transnational terrorism has evolved with the resource to new technologies and the ability to cross virtual and international boundaries.

The globalization of information and greater integration of societies had a 'spill over' effect to the globalization of violence and terror.

As Martin [21] points out,

Global trade and political integration permit extremists to provoke the attention of targeted audiences far from their home territories. In many respects, because of globalized information and integration, terrorists are able to operate on a virtual battlefield and cross virtual borders to strike their enemies. Globalized political and economic arrangements offer terrorists the capability to affect the global community much faster, and more intensely, than could previous generations of terrorists.

Communication technologies have become a main instrument of transnational terrorism. Through communication technologies terrorists can spread their message to a global audience and reach mass audiences. Publicity is a main feature in transnational terrorism; it allows terrorist groups to influence targeted publics and acquire power (at least perceived power). The use of digital technologies to broadcast events, such as hijackings, bombings, assassinations and others, give media exposure to terrorist attacks and may potentially attract certain viewers [21]. Moreover, new technologies are essential in establishing communication between terrorist cells. Semiautonomous cells that are spread around the world can easily and covertly establish communication and even plan strategic attacks via the Internet and other technologies [21]. It also allows terrorist cells to reinforce their presence worldwide.

Thus, new technologies enable terrorist groups to plan and conduct attacks in different countries. With fewer resources than in the past but with access to technology, terrorists can now plan far more devastating attacks.

As Kiras [19] enlightens "technologies have improved the capability of groups and cells in the following areas: proselytizing, coordination, security, mobility, and lethality".

Transnational terrorism is very flexible in terms of its organizational and communicational framework. Thus, in many terrorist organizations there are "sleeper" cells spread around the world, other groups travel to locations where an attack will be perpetrated, facilitated by low-cost travel and integrated economies and regional trade agreements. Technologies simplify communication, transportation and travel, weaponry trading, as well as the development of bomb-making techniques and strategic planning [21].

The technological enablers of globalization assist terrorist cells and leaders in preserving security in a number of ways, including distributing elements in a coordinated network, remaining mobile (…), and utilizing clandestine and/or encrypted communications [19].

Thus, making it even more difficult to monitor terrorist groups and predict when and where a terrorist attack will take place. Technological development has improved the effectiveness of terrorist groups, as they have adapted their techniques to make the most of modern technologies. The image of the modern terrorist reflects the reality of this era: technology and loneliness [15].

TERRORISM AND DIFFUSED RISKS

In this society of risk states are challenged by an array of transnational threats that are often interconnected. An example of which is "the merging of transnational organized crime and international terrorism is nonetheless on the rise" [26]. Transnational organized crime

places a threat to societies and states. These networks operate in a global scale and in different fields, from drug smuggling to trafficking of human beings.

Just like terrorism, organized crime is not a new phenomenon, yet it has bolstered in the last two decades. Globalization and economic, political, social and technological evolution have made it possible for organized crime to foster and become a transnational paradox. The porosity of borders facilitates the free (almost) uncontrolled circulation of goods, allowing illegal activities to cross national borders.

Organized crime has a network structure and criminal aims; it is violent and corrupt. It has a flexible structure that allows it to constantly adapt and expand its activity to new geographical areas and markets [14].

Technological development has also strengthened criminal activity, with the adoption of new, sophisticated and anonymous methods [14]. These are very profitable illegal activities, ideal for money laundering.

The constant changes in the international system in the last twenty years and the globalization of markets led to a convergence of transnational organized crime and terrorist groups. "Transnational organized crime and international terrorism increasingly share both organizational and operational characteristics, and at times even partner with one another" [26], as both groups operate outside the law and often need the same resources.

The duality of globalization, with increasing global integration and escalation of asymmetries within regions and states, has led to the growth of weak or failing states.

As Sanderson [26] points out "the absence of the rule of law in places such as Somalia, Kosovo, and Afghanistan provides ideal conditions for the blending of criminal and terrorist activities".

Nowadays, most terrorist groups rely on criminal activity for financial support. Thus, many terrorist organizations are engaging with organized crime to satisfy their financial and operational necessities. Furthermore, this connection with criminal groups enables terrorist organizations to have greater access to arms.

Asymmetric warfare is one of the main characteristics of transnational terrorism. "In the modern era of asymmetrical warfare, terrorists can theoretically acquire and wield new high-yield arsenals, strike at unanticipated targets, cause mass casualties, and apply unique and idiosyncratic tactics" [21]. Thus, through the use of high to low scale weaponry, terrorists can redefine international security.

Transnational terrorism is also typified by the threat of weapons of mass destruction (WMD). The proliferation of WMD itself is one major transnational threat. This is an issue that concerns the international community, as increasingly more countries aim to have their own WMDs and because of the increase of stocks of nuclear and radioactive material [14].

Nowadays, a terrorist organization can easily build its own WMD (some of the information is even available on the Internet) or have access to nuclear, radiological or biochemical material. The threats from "biological, chemical, radiological, and other nuclear weapons are unprecedented in the possible arsenals of terrorists" [21]. The impact of these different kinds of weapons differs greatly in the number of casualties, but they all have a huge psychological effect among populations and affect international security.

One of the main challenges posed by nuclear proliferation is the possible development of a regionally differentiated world, with some nuclear powers changing their strategic thinking and other regions exerting nuclear power [18].

With the end of the Cold War, terrorist groups have shown greater interest in acquiring WMDs and expressed their desire to use them, but they largely did not do so [19]. Nevertheless, the possibility of a terrorist attack using WMD threatens international stability.

Even in the absence of WMD, as Kiras [19] points out, "globalization has facilitated access to weapons, resources, and proficiency required to conduct smaller, but more lethal, attacks". Despite the possible use of WMDs by terrorist groups, most groups still rely on conventional weapons, as explosives and firearms. Nonetheless, the methods used are unconventional and unpredictable, and the targets are unexpected.

The future of the nexus between transnational terrorism and organized crime or even WMDs is still unclear, as it is in constant transformation. Yet, the convergence between these transnational threats places serious challenges to the international community, calling for unilateral, bilateral, regional and global measures.

CONCLUSION

The increase of terrorist attacks has made it clear that transnational terrorism will continue to pose challenges to national and international security in the coming decades. In this society of risk, globalization and terrorism are increasingly interconnected, which is one of the main features of this new century.

It is erroneous to advocate that globalization is accountable for terrorism, but it is deceptive to analyze terrorism separately from globalization.

Globalization has changed the scope of terrorism, giving it international reach. Terrorists have made considerable use of globalization, exploiting its communication technologies, economic integration, the increasing interconnection of societies and the free circulation of goods, services and people. We have identified three main connections between terrorism and globalization:

1   Use of communication technologies – the Internet and new information technologies have become important tools to prepare and perpetrate terrorist attacks; it eases communication between cells around the world; it is essential to spread terrorists' messages.
2   Erosion of physical barriers and porosity of borders – allows terrorists to reach across international borders; free circulation of goods, services and people between countries (such as the EU or NAFTA) allows terrorist cells to move and establish around the world; easier acquisition of weaponry and equipment.
3   Global financing networks – association with organized crime to finance terrorist activities; it allows to hide financial resources in different legitimate or illegal companies and businesses (from non-profit organizations to drug smuggling)

Transnational terrorism is also intertwined with other major transnational threats, namely organized crime and WMDs. The potential it can acquire from combining forces with these two threats makes it even more dangerous, with greater lethal weaponry and access to unlimited (illegal) financing.

Countering transnational threats will require collaborative efforts of all strategic actors. All of these threats offer new challenges for policy-makers about how to respond to them.

In the new international environment, transnational terrorism will continue to pose a serious threat in the near future. The response to transnational terrorism should be based on a comprehensive approach, from diplomacy to economic and social measures. It should be a global approach, involving all states, widening regional and international cooperation. A global strategy should include cooperation on law enforcement, employing international norms and the use of law, and intelligence services.

Combining military and non-military tactics is essential to eliminate terrorist threats while also dealing with the root causes of terrorism.

Transnational terrorism has become a main idiosyncrasy of modern times and poses compelling challenges to international affairs. This asymmetrical threat requires a joint response of all actors operating in the international system, in the name of the rule of law, while protecting civilian populations.

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Chapter 11

GLOBALIZATION AND THE THREATS OF WEAPONS OF MASS DESTRUCTION PROLIFERATION

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ABSTRACT

Globalization brought tremendous transformations to the international economy. But as these changes created benefits in several areas of economy, politics and science, they have also brought significant security challenges. As most publications address the strategic issues emanated from the proliferation of Weapons of Mass Destruction (WMD), few are those who explain the proliferation phenomenon from an operational perspective. This chapter intends to demonstrate that the same globalization mechanisms used every day by individuals and regular companies, have also been used to support the phenomenon of proliferation of WMD over the past few years. Furthermore, the chapter will also look into the threats that proliferation poses to regional stability as well as the risks emanated from non-State actors attempting to acquire such weapons. Finally, we also address the existing international mechanisms created to prevent the use of globalization channels for the purposes of WMD.

INTRODUCTION

According to Thomas Friedman [16], globalization is "the integration of capital, technology, and information across national borders, in a way that is creating a single global market and, to some degree, a global village." So, taking into account this definition we may consider that individuals, companies and States were allowed by the globalization process to extend their actions throughout the World in a more quick and profound way with smaller costs [9, 15]. This very same author, also talks about different waves of globalization and

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especially the events that made the last globalization wave possible (Globalization 3.0). Events such as the fall of the Berlin Wall that opened up borders, the implementation of a *World Wide Web*, the development of commonly adopted software, the extensive use of outsourcing and of international supply chains and other forms of the digital revolution helped to shape the global world in which we currently live in [16].

As these transformations created tremendous benefits in several areas of economy, politics and science, they have also brought significant security challenges. This chapter intends to demonstrate that the same mechanisms used every day by individuals and enterprises have also been used to support the phenomenon of proliferation of weapons of mass destruction (WMD). Furthermore, the chapter will also look into the threats posed proliferation to stability as well as the risks emanated from non-State actors attempting to acquire such weapons.

THE STRATEGIC IMPACT OF PROLIFERATION

Before we address the globalization mechanisms used by proliferation networks, it is important to define WMD as "any weapon or device that is intended, or has the capability, to cause death or serious bodily injury to a significant number of people through the release, dissemination, or impact of toxic or poisonous chemicals or their precursors; a disease organism; radiation or radioactivity". From this definition provided by the U.S. Code Title 50, Chapter 40, Section 2302, it is possible to understand that WMD proliferation intends to illegally smuggle these weapons as well as any related materials, technology and equipment especially those linked to its production, development or use.

One of the major problems surrounding the proliferation of WMD, and its parallel operations, is that it significantly derives from the current growth of world trade and technological and scientific developments, thus making the increasing volume of trade a catalyst for the wider diffusion of technology. Such reality makes it progressively more difficult to detect any illicit transfers of WMD related materials [31].

The perception of this recent challenge allowed policy-makers to summarize a number of important conclusions linked to international security. Firstly, the threats do not solely emanate from proliferation sponsor States but from non-state actors as well, both of which have shown little respect for the international norms regarding the use and nonproliferation of WMD. Secondly, the increasingly accepted belief in the vast majority of States in the international community that countries do not possess the right to pursue WMD programs and/or develop formal or informal relationships with recognized terrorist groups with this purpose. Third, States started to acknowledge that the shifts in the international system after the end of the Cold War made it increasingly difficult to control the flow of people, technology, money and materials, some of them linked to WMD programs. Fourth, the awareness that terrorists, especially after the attacks of 9/11, were taking full advantage of the constituent elements of globalization [31].

As these elements combined, countries understood that non-state groups were able to create high degrees of uncertainty in the international security system due to the difficulty of States in detecting harmful flows of WMD related cargo while trying – at the same time – to support the globalization efforts of their public and private enterprises.

Bearing in mind these conclusions, what are the most concerning strategic dangers posed by the proliferation of WMD? First, it jeopardizes any regional stability because WMD creates additional vulnerability in countries due to any destabilizing deterrence posture or coercive threats from rival States. Second, the interests in regional disputes are usually vital for the regional power, while the same cannot be said for extra-regional powers [27]. So if the interests of the regional power clash with the interests of international powers, the former might view WMD as more usable than those who only envisage these weapons as part of a last resource response. Third, the proliferation phenomenon "feeds" itself. If only one country develops or acquires WMD, especially biological or nuclear, it is enough to serve as a catalyst to increase the horizontal or/and vertical proliferation of these weapons throughout nearby countries. Obviously, this could lead to further regional instability [27]. The Iranian nuclear program is a textbook example of this. After the Iranian nuclear program became high profile, the strategic shockwave resulted in the announcement of new nuclear programs, all civilian so far, in countries such as Turkey, Egypt, Algeria, and Saudi Arabia [12]. Fourth, there is the possibility that States with capability to produce WMD may supply them to terrorists groups, so these may perform actions compatible with the supporting States' interests. Finally, there is the danger that a State with WMD capability collapses and non-State groups access this sort of weapons [16]. For instance, throughout the Syrian internal conflict this has been one of the biggest concerns of the international community, due to the chemical arsenal possessed by this country.

TRAFFICKING: TRENDS AND ACTORS

Although globalization is not the main reason behind proliferation, it has indeed altered its nature as trafficking networks became global, mostly supported by the wider availability of WMD related materials and technology. This happened not only due to the increase of traded volumes but also because civilian applications of these materials have allowed proliferation networks, an access previously impossible to the latter. As countries responded with the implementation of national and multilateral export controls, to prevent such transfers to unauthorized end-users, the networks have responded and evolved. Instead of buying complete WMD linked systems, they began purchasing single basic sub-components from different sources so Customs, Security and Intelligence services were unable to understand the authentic use and destination of such materials. One must highlight that materials or equipment procurement is one of the leading signs that allow security and intelligence services to have an early warning of any ongoing WMD proliferation activities.

So, to be able to further elude the security services, the proliferation networks structures have become more complex by increasing the number of actors involved in their operations, resorting to the trade of the already mentioned sub-components and opting for additional mechanisms that prevent detection. Additionally, other aspects have also changed. The WMD-related materials and equipment market was previously under control by the governments or State companies. With the expansion of globalized markets, the transactions became almost completely managed by private brokers and their networks of thousands of independent manufacturers, most of them with legitimate commercial activities. Furthermore, brokers are no longer just a small group. In the case of WMD material traffickers, they

became a global community that uses front companies and agencies for trafficking while trying to avoid governmental detection. There is also the possibility, which will be addressed later in this chapter, of brokers merging their activities with other sorts of illegal trafficking, by creating synergies with drug traffickers in order to take advantage of their routes and experience [25].

In order to carry on these activities undetected, proliferation networks usually work in different countries simultaneously, especially in free-trade zones with transshipment centers (cargo redistribution locations) or in countries with high volume of international trade so their shipments can elude detection methods. Other tactics include the use of front companies, brokers, fake end-user and re-export certificates. For example, front companies are entities established by the trafficking networks, with apparent legitimate activities, while simultaneously resorting to funds from legal and illegal sources. Usually located in a transshipment center (known as "Hub") or in a country with lax export controls, these companies can also have a fictitious nature and location to evade exposure. Besides, brokers are also hired to deal with the purchase, transfer or sell the WMD linked goods as well as to provide regular insurance and transportation services. Moreover, illicit brokers may support the proliferation networks by circumventing controls and camouflaging illicit trade activities. Some reports indicate that brokers have been involved in the illicit trafficking of chemical weapons precursors, including Frans van Anraat, a Dutch businessman; Q. C. Chen, a Chinese national; and Nahum Manbar, an Israeli citizen, all accused of supporting chemical weapons programs in Iraq and Iran by taking advantage of lax national controls [7,34,35]. Finally, these type of networks can also resort to financial institutions, such as subsidiaries of state-owned banks, to transfer funds of either legal or illegal transactions.

With these ideas in mind, it is possible to geographically profile places more "suitable" for these activities. They usually occur in countries that present certain characteristics like significant difficulties in the implementation of nonproliferation related domestic and international legislation, inefficient export controls or high corruption indicators. Other indicators include lack of ratification of WMD-related Conventions, presence of WMD "dual-use" industries in their territory, geographical proximity with a commercial hub and/or lack of coordination between customs and licensing authorities or other relevant national stakeholders.

One of the most notorious examples of a proliferation network can be found in the A.Q. Khan network. Established in the seventies, this network started to illegally supply information and materials from Europe to support the Pakistani gas centrifuge program, used to produce highly enriched uranium (HEU). As the years went by the network expanded so it no longer solely exported gas centrifuges but also weapons assigned to a number of different countries. This network supplied sensitive materials and information to numerous countries such as centrifuges to Iran and North Korea. It also provided significant support to Libya with ten thousand centrifuges. With over one hundred components per centrifuge, one could estimate that the A.Q. Khan network sent to Tripoli over one million centrifuge related components from all over the World. Equipment was sent, bought or transited from places such as Turkey, South Africa, Netherlands, Germany, Switzerland, Italy or Spain, usually through Dubai. The network also tried to explore places that poorly apply export controls or with industrial capabilities to produce nuclear related equipment or materials but without belonging to any nuclear export control regime.

Besides, the A.Q. Khan network – described by a former IAEA Director as a "Wal-mart of private-sector proliferation" [5] – knew how to explore the legal and administrative loopholes of the European export control systems by constantly changing routes and the identity of the end-users as well as taking advantage of other instruments of globalization, like the international financial system [4]. By having the ability to quickly transfer financial assets and doing business in high volume trade areas, the A.Q. Khan network was able to further camouflage its own activities. Other concealment tactics included the use of several import-export companies and ships with convenient nationalities. Furthermore, Khan's network had manufacturing facilities in Malaysia, for the production of centrifuge cascades with the technical guidance of a Swiss engineer [22].

Unfortunately, the A.Q. Khan network is far from being the only actor involved in nuclear trafficking. Such threat was also defined as a serious concern when the Soviet Union collapsed and the theft of nuclear materials in Russia and other former countries of the Soviet bloc started to be detected by security and intelligence services. Based on the information collected by the Database on Nuclear Smuggling, Theft, and Orphan Radiation Sources of the Salzburg University, the author Lyudmila Zaitseva [39] was able to identify three distinctive periods. On the first registered period (1991 to 1995) traffickers usually carried radioactive goods to Central Europe, hoping to find buyers. During this timeframe, Germany alone registered 75 incidents that led to the confiscation of nuclear materials, including plutonium and HEU. In the second period (1996-2000), the number of occurrences decreased probably due to the fact that traffickers feared getting caught or decided to explore new routes and search for new markets to sell their nuclear goods. Other regions appeared to be more appealing for nuclear smuggling such as the Middle East, South East Asia or even South Africa and other places of Africa. This period also shows us that criminals decided to put greater focus on radioactive sources instead of fissile material. The third and last period (from 2001 onwards) was marked by the events of September 11th and the increasing attention that governments started to dedicate to non-state actors. In the 21st century, available data shows that episodes involved more radioactive sources than weapons grade nuclear material, which accounted for less than 20% of the registered episodes. In order to understand the globalized and transnational nature of these organizations we can look at a 2001 nuclear trafficking episode, involving the capture of HEU. Even though the apprehension occurred in Paris it involved nationals from several countries like France, Cameroon, Portugal, Romania and Moldova. The involvement of the organized crime in nuclear trafficking can be understood mainly due to financial gains brought by the sale of the nuclear components to a third party. Another possibility could include the payment from a State or a terrorist organization to criminal organizations to fulfill a particular request associated with nuclear trafficking.

While the majority of nuclear related equipment and materials have a precise use and therefore make nuclear trafficking networks detectable, the same cannot be said about biological and chemical weapons related equipment. The chemical and biotechnological industries have become so present in our societies and economies that preventing illicit access to this "dual use" equipment (terminology applied to components that have a legitimate commercial or scientific use while simultaneously allowing the production of WMD) is a daunting task. This makes any evaluation of the real dimension of the existing biological and chemical "dual use" equipment and materials trafficking highly difficult to perform.

Globalization, Terrorism and Weapons of Mass Destruction

In 2009 NATO's "Comprehensive, Strategic-Level Policy for Preventing the Proliferation of WMD and Defending against Chemical, Biological, Radiological and Nuclear (CBRN) Threats" document, acknowledged that the proliferation of WMD and terrorist acquisition of WMD materials was the biggest threat to the Alliance in the next 10-15 years [26].

When debating the issue of WMD and terrorism, it is important to have in mind the technical characteristics of the different type of devices and substances involved in these weapons. For instance, historically we have witnessed terrorist attacks using chemical and biological weapons but not a single episode involving the detonation of a nuclear device. Even though, an incident involving radiological substances – known as radiological disperse device (RDD) or "dirty bomb" – is much more likely than a terrorist attack involving a nuclear device. Thus, it is important that countries address the reasons that can potentially make nuclear terrorism a reality, even if an improbable one.

In 2009, Graham Allison wrote an article on nuclear terrorism that mentioned factors that needed to be addressed while debating this type of terrorism. Motivation is an important aspect to take into consideration. Past examples from the Japanese cult Aum Shinrikyo and the use of chemical and biological weapons are true illustrations of how far terrorist organizations are willing to go to fulfill their objectives. Other evidence of the motivation can be found in the 9/11 Commission Report [32] that provided evidence of Al-Qaeda's efforts in the recruitment of Pakistani nuclear scientists. Moreover, with the increased use of conventional explosives in terrorist attacks, some terrorist organizations may look into the use of new tactics and new weapons in order to further publicize their efforts so to assist their recruitment and financial support.

Another risk factor is the theft or unauthorized access to HEU. The International Atomic Energy Agency (IAEA) reported 1266 incidents, between 1997 and 2009, from which 18 involved HEU or plutonium. Numbers that clearly demonstrate that this problem needs to be seriously addressed. For instance, in the International Conference on Nuclear Security, occurred in July 2013, the President's Conference Summary stated that "the use and availability of nuclear material and other radioactive material can be expected to grow, thereby increasing the risks of illicit trafficking and the potential for radioactive material to fall out of regulatory control."[18]

The hypothesis of a terrorist group building a nuclear device is another factor to take into consideration. Although such attempt requires highly specialized knowledge and it would significantly risk an early detection, a United States lawmaker asked three nuclear weapons laboratories to make a primitive nuclear device only by using commercially available components in the country. Curiously, all of the laboratories were able to do so without breaking any United States law. Finally, there is the issue of the delivery of the nuclear device. Building and using a missile to deliver a nuclear warhead requires massive amounts of expertise and money as well as proper infrastructure. In order to avoid this detectable scenario, terrorists might place a crude nuclear device inside a cargo container in the same way that legitimate trade arrives to thousands of ports every day. Even if the terrorists desire to place the nuclear device in a specific infrastructure other than a port, the device infiltration challenges would be similar to those that drug or human traffickers sometimes overcome when using their smuggling routes. In order to demonstrate the difficulty of detecting nuclear

materials with border controls, ABC's journalists smuggled (twice) 6.8 kilograms of depleted uranium through United States ports. In those two times the shipment was screened and it still remained undetected [5].

While there are reasons to worry about nuclear terrorism, we must bear in mind that the likelihood of biological and chemical terrorist attack is much higher than the latter. Several reasons allow non-state actors more opportunities for the acquisition and the use of chemical and biological weapons but it is also important to understand that the identified reasons are also being fueled by the globalization phenomenon. The globalized and easier access to relevant information and know-how as well as the worldwide expansion of chemical and biological industries has a fundamental role in the risk analysis of non-state access to biological and chemical materials.

The first relevant factor is linked, as the chemical and biotechnology industry globally expands, to the number of people who may possess the necessary information to produce and disseminate chemical and biological agents. In recent years the international number of students enrolled in higher-level graduate degrees of chemistry, biology or engineering is increasing in parallel with the number of people employed in either the chemical and bioscience industry. For example, Yazid Sufaat was one of the scientists working in Al-Qaeda's anthrax project who received his college degree from a United States university with a major in biological sciences and a minor in chemistry. In terms of human resources dimension, some reports state that biosciences, which include all life sciences, employed 1.3 million people in the United States alone in 2006. Similar trend was registered in Europe as some estimates indicate that there were nearly 1500 biotechnology companies in 2004 [12]. In the chemical industry the numbers follow the same tendency. In the European Union alone, in the first quarter of 2010, the chemical industry employed around 3.1 million people [20]. It is possible that terrorists who wish to use biological and chemical weapons may try to recruit highly trained scientists to get access to the required know-how or to steal the needed chemicals, precursors or pathogens. Additionally, the increasing use of cyberspace and the subsequent access to information allows more people to gather knowledge in chemical or biological agent production and dissemination topics [10].

Another factor identified, as already mentioned, is the "dual-use" problem. As the United States Commission on the Prevention of Weapons of Mass Destruction Proliferation and Terrorism noted in its report, equipment relevant to the production and dissemination of biological and chemical weapons in the legitimate market is largely available. For example, the required equipment to develop biological weapons is almost completely dual-use, so most components also have a legitimate commercial purpose. Fermenters that can be used for anthrax production can also be used to produce vaccines, vitamins or bio-pesticides. So, as globalization and trade volume expands, it is a highly difficult task to control and monitor transfers of dual-use equipment. Between 1999 and 2000 the Defense Threat Reduction Agency asked microbiologists and engineers from the pharmaceutical and pesticide industries to mimic the typical biological weapon production process solely using equipment and materials from commercial catalogues and suppliers. Without the presence of any biological warfare expert, this group was able to produce one liter of harmless bacteria (yet very similar to anthrax), which afterwards was milled to a 1-5 *microns* size, making it ideal for dissemination. The project failed to be detected by any United States law enforcement or intelligence agency.

Additionally, in 2005, an expert in laboratory equipment stated that it would cost US$7320 to equip a lab to produce finely milled anthrax or live virus, in kilogram quantities. The price was calculated based on second-hand equipment prices that are not only cheaper but whose transactions are more difficult to follow by the authorities [13]. Regarding chemical weapons, the "dual-use problem" is similar. Moreover, developing countries have acquired, in the last decades, domestic capabilities to produce their fertilizers and other chemical products. Multinational chemical companies have also been a part of this phenomenon by expanding their facilities to these same countries due to lower operational costs and less demanding environmental laws. By increasing the number of countries possessing relevant chemical facilities, the difficulty of controlling such substances grows considerably. Besides, such wider industrial implementation will not only allow more countries to possess the knowledge on how to produce chemical weapons precursors but will also avoid any need to deal with other countries' export controls [35].

The difficulty of controlling biological weapons-related pathogens or chemical weapons precursors can be considered as another factor when debating how globalized markets unwillingly allow non-state actors to access materials of concern. Most of the biological and chemical agents used in the incidents registered are either without legal control or available in nature and in the case of chemical agents some of the precursors are accessible through the commercial market, as already mentioned. Terrorists may also steal the pathogens, toxins or chemicals from those who acquired them for legitimate purposes, exploiting the fact that the physical security laws surrounding these substances differ from country to country [11].

We must also consider additional factors such as operational requirements. Terrorists attempting to use chemical and biological weapons, due to the purposes of the attack, may have a tendency to be less worried about their own safety or other technical requirements in chemical and biological weapons production and dissemination. For instance, bioterrorists do not need pathogens to survive long periods in the outside environment when they can disseminate the biological weapon in closed spaces or release an aerosol cloud with optimally sized particles [14]. Finally, due to improvements in recent years in communications and transport systems allowed by the mechanisms that also fuel globalization, non-state actors have gained increased flexibility, which makes detection by intelligence and security services more difficult[17].

PROLIFERATION PREVENTION MECHANISMS

Since the late 19th century that countries have been negotiating or ratifying different multilateral legally binding instruments linked to WMD nonproliferation or arms control treaties. There are three major nonproliferation treaties that cover most of WMD related substances: the Nuclear Nonproliferation Treaty (NPT), the Biological and Toxin Weapons Convention (BTWC) and the Chemical Weapons Convention (CWC). As these three multilateral Conventions allowed the creation of the most important legal cornerstones in nonproliferation efforts, countries have also understood the need for more operational mechanisms to control the flow of WMD related equipment and materials. One of those mechanisms includes multilateral export controls. These non-legally binding agreements are made of extensive lists (known as Trigger Lists that are constantly updated) with the

description of relevant components and sub-components that require authorization to be exported due to the risk of being used in a WMD program. One of the first WMD multilateral export controls created was the Nuclear Supplier Group (NSG) as a response to the first Indian nuclear test, in 1974. The NSG Guidelines are applied "to nuclear transfers for peaceful purposes to help ensure that such transfers would not be diverted to unsafeguarded nuclear fuel cycle or nuclear explosive activities"[3]. In the same year, the guidelines for the Zangger Committee [40] were agreed after three years of negotiations. The guidelines required, under NPT's article III.2, certain nuclear related materials or equipment to be subject to the IAEA's safeguards in case any NPT State party supplies them to a non-nuclear weapons State.

On the biological and chemical weapons front, States also decided to create specific multilateral export controls. The Australia Group has founded in 1984 after the Iraqi regime used chemical weapons on the Iraq-Iran War, whose precursors had been bought through legitimate trade operations. To prevent the purchase of chemical weapons' precursors or equipment, with hostile purposes, the Australia Group's countries decided to implement and harmonize export controls towards these specific goods. Six years later, in 1990, due to the transfer of "dual-use" materials to biological weapons programs, the Australia Group decided to implement specific export controls for biological weapons and related equipment as well [1]. This Group's annual meeting also includes information exchange sessions. Such sessions have proved to be very valuable as it allows countries to identify any entities or individuals that are seeking chemical or biological materials, equipment or substances in the international markets. Finally, there is also a multilateral export control regime for WMD delivery means. The Missile Technology Control Regime was created in 1987 with the intent to prevent the proliferation of ballistic missiles capable of delivering conventional and/or WMD payloads over a distance of 300 kilometers. It is similar to other multilateral export control agreements as it is constituted by lists of equipment and technologies that enable the production of rocket systems (space launch vehicles or ballistic missiles) and other systems such as UAV, cruise missiles and drones.

These multilateral export controls present one of the most effective tools for nonproliferation because they do not only prevent the access of WMD related materials to undesired destinies but they also allow security agencies to know which companies are seeking these materials and their details. But these export control mechanisms have their own downsides. On the one hand, all of these mechanisms are informal agreements, so their guidelines are not legally binding. On the other hand, as globalization keeps expanding, the task of controlling the transfers of dual-use materials will be increasingly harder to achieve. Other possible reasons for lack of compliance may be linked to the companies' need for additional income or the misevaluation that some export control officers may perform of a particular situation. The Syrian chemical weapons program is a sad example of this. According to official documents, between 2002-2003 and 2005-2006, the German government authorized the export of dual-use chemicals to Syria for 174 thousand Euros. These chemicals were sold for civilian purposes but they can also be used for the manufacture of chemical weapons, such sarin [30]. A similar situation happened in the United Kingdom. In 2012, the British government authorized a United Kingdom company to export two dual-use chemicals that could be used as precursors for chemical nerve agents. The licenses were later revoked due to European Union sanctions [24]. Later in 2014, British Foreign Secretary, William Hague, was questioned by the Committee on Arms Export Controls due to the

reports of granted export licenses for dual-use chemicals to countries such as North Korea, Libya and Burma since 2003 [28].

As 9/11 shifted the security focus from State centered actors to non-State centered actors, countries and international institutions felt the need to update some of the WMD legislation and initiatives. In 2004, the Security Council of the United Nations unanimously adopted resolution 1540. This resolution legally binds States to adopt all necessary domestic measures to prevent non-State actors from developing chemical, biological, nuclear and/or radiological weapons and their delivery means. The 1540 Committee, derived from the already mentioned resolution, facilitates the provision of technical assistance and cooperates with other international organizations in these very same areas. In 2011, the mandate of the 1540 Committee was extended until 2021[37]. Another State-led initiative is the Global Initiative to Combat Nuclear Terrorism (GICNT). This is a US-Russia joint initiative firstly organized in 2006, whose main purpose is to prevent terrorists from accessing, producing, transporting or using nuclear and radiological substances, materials or equipment. Another purpose of GICNT is also to avoid, through international cooperation, any attack against civilian nuclear facilities.

Efforts to combat WMD proliferation also have a more operational approach. Emanated from the 2002 US's National Strategy to Combat Weapons of Mass Destruction, the Proliferation Security Initiative (PSI) was born in 2003. Understanding the need to have faster and more efficient mechanisms to prevent WMD proliferation through individual and collective counter-proliferation efforts, PSI States pledge to interdict, or support the interdiction of, WMD related transfers (either by land, air or sea) to and from States and non-State actors of concern. The PSI also envisions exchanges of information and interdiction exercises among its members [29].

Even though PSI is a fairly recent initiative, it has already achieved some high-profile successes. In October of 2003, German and Italian cooperative efforts, under PSI auspices, allowed the successful interdiction of the *BBC China* vessel, which was transporting uranium enrichment technology to Libya. This shipment was a part of an A.Q. Khan operation and its interdiction led to Tripoli's intention of dismantling its WMD programs [22]. Other important PSI's achievements include the 2007 interdiction of ballistic missile components by four PSI members. These components were bound to Syria and could be used to test ballistic missiles [34]. Although PSI is a voluntary agreement that produces no legally binding regulations, it is supported by international law other than the already mentioned 1540 United Nations Security Council resolution. For example, the International Civil Aviation Organization's (ICAO), the Beijing Convention of 2010 mandates States to approve domestic legislation criminalizing air transportation of WMD-related goods [19]. Linked to maritime transports, the International Maritime Organization's Suppression of Unlawful Acts Convention prohibits the maritime transfer of WMD-related materials in its 2005 Protocol [21].

Although there is plenty of legislation surrounding WMD transportation, the biggest problems undermining nonproliferation and counter-proliferation continue to be connected to States' lack of capability to detect and interdict these sorts of transfers. Not only some transfers have dual-use sub-components (that can have a civilian and military use) but, as we mentioned earlier, the trafficking networks have devised structures and methods that prevent their early detection. Furthermore, some countries in the world lack adequate intelligence and operational means to intercept vital information and transfers, so it is easy to understand that

globalized efforts against WMD proliferation should have an additional emphasis on operational assets and information exchange instead of further legislation.

CONCLUSION

While debating proliferation we must consider the changes brought by globalization. One of the most relevant changes is linked to the increase of trade volume with the simultaneously and progressive dismantlement of traditional commercial barriers. Modifications such as those created new and beneficial economic dynamics but, at the same time, made governmental control of such transactions increasingly hard. Moreover, the higher amount of people travelling as well as improved communication technologies made it more complicated to notice the movement of terrorists. The same logic can be applied to the difficulty of monitoring any exchanges of relevant WMD information between individuals. One curious aspect is that while most countries acknowledge this threat, it has been noted that any attempt to control transfers of these goods or information, brings economic costs that most societies are not willing to endure. So, what is the balanced solution? In a globalized world, solutions must also be global. We know that there are numerous *fora* on disarmament and nonproliferation such as the Biological and Toxin Weapons Convention, the Nuclear Nonproliferation Treaty or the Proliferation Security Initiative. Some of these initiatives are legally binding while others merely bind countries politically. Despite the fact that some of these *fora* have a substantial number of members, others are of a more exclusive nature so when talking about the elimination of illicit transfers of WMD or their related materials it is of the essence that the membership of these multilateral export regimes is significantly increased and not dependent on political misunderstandings between a minority number of countries. Even if some countries do not meet the technical criteria to join export control agreements, other countries should do the utmost to upgrade the former's export control capabilities, in order to allow them to properly tackle current illicit transfers. Furthermore, while remembering that a hypothetical nuclear terrorist attack can profoundly change the world we live in, it is important to understand that biological and chemical terrorist attacks are much more likely. Besides the likelihood of such attacks, biological and chemical substances and equipment are also much more widely scattered in modern societies, so increasingly the effectiveness of export controls in this field is paramount.

As the world is acknowledging the "darker" side of globalization it is imperative that instead of creating further barriers, countries understand the supply and demand dynamics of this sort of goods as well as how trafficking networks operate. Only then is it possible to improve the current mechanisms that address this current threat without jeopardizing the prosperity simultaneously allowed by globalization.

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Chapter 12

GLOBALIZATION AND CHALLENGES FOR INTELLIGENCE ANALYSIS

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ABSTRACT

This chapter points out some aspects of a PhD thesis that intends to demonstrate that in an increasingly globalized and unpredictable world, which is under an accelerated pace of transformation, and characterized by technological advancement, intelligence analysts face particularly demanding challenges in order to achieve their goals. States' intelligence must be understood as a higher stage, which allows states to organize themselves, in order to survive and provide security and justice for their citizens. This implies their adaptive character and awareness regarding the interconnection between past and future phenomena. The science of complexity and its theory helps us to find new methods and challenge our perceptions, while analyzing such events and the world, as a whole. That is especially true when we think about the future, since nonlinearity emerges as the dominant pattern. While scenarization helps us to investigate the predictable future, we must also prepare for chaos. Changing the way of doing things implies both education and leadership. Education plays a critical role in the preparation for the future, which implies a holistic organization of knowledge, cross cutting methodologies and the use of appropriate tools. Consilience, or the convergence between sciences and humanities, will help us to create an integral vision of the world and to prepare the discovery of the needed answers to the whole set of challenges facing humanity. A collective mobilization will be needed so that states will survive and accomplish their mission. This will take place in an international arena, which is shared with other state and non-state actors, and under a new geopolitical framework, where cooperation, global justice and ethics must prevail. The intelligence analyst must up to date his knowledge constantly to fulfill his mission of supporting the decision maker for tactical and strategic issues of the State.

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> "We live not only in a world of thoughts, but also in a world of things.
> Words without experience are meaningless"
>
> Vladimir Nabokov

This chapter summarizes some topics of a PhD thesis (2013), around a fundamental question: "How intelligence analysts can help the State to choose the most appropriate way to deal with the current threats posed to its safety and survival" and paying a special attention to the impact of technology in intelligence skills.

The problem is to know how to think about the future, in order to comprise threats still not yet visible and usually not considered in a more traditional thinking (for instance, the consequences of the digital age). Anyway, which approach should guide the intelligence analyst, in order to give an effective contribution in the definition of the state's grand strategy[1].

The question naturally arises due to the fact that we have exercised this profession during the last 26 years and felt, throughout our professional lives, a series of difficulties arising from some preconceived images about the world of intelligence, or even a lack of knowledge regarding it, depending on each state.

We feel that this is one of the greatest challenges facing the world of intelligence in general and, in particular, in countries where there is still a long way to go in terms of culture of intelligence. The difference has to be made between what is secret and cannot be shared and what should not be seen as secret and, as such, should be shared in a democracy. We refer to the importance of transparency of methods, that is, the demonstration of the steps taken by the analyst to arrive at a conclusion in a specific subject. As with the scientific method, only by making this statement can the person who will use the information have confidence on it. Beyond the importance of the reports sent to the decision maker, it is necessary to broaden the knowledge of the methodologies used, especially the evolution of critical thinking. By better understanding the value of the product, it is possible to use it in the best way, while avoiding to lose important competitive advantages to other States or non-states actors. Many of the strategic surprises faced by states are a result of problems of understanding between intelligence and policy makers.

To know how to develop the ability to identify and exploit new types of analysis, to be imaginative and adaptive to support the policy maker may be the competitive advantage of the 21st century [4]. Despite the fact that we feel it difficult to have a profession and, at the same time, write about it, we decided to do it in the framework of the dedication and sacrifices inherent to it. We believe that only the articulation between the know how to do and the know how to think may benefit the State. We then considered which would be the first point of reference to develop an investigation and we realized that the State would be a good starting point. This is the framework of reference to the intelligence analyst, since he works for the State.

Since Aristotle, most authors conceive the state as a kind of permanent, necessary and, in general, useful and positive social organization.

Despite the crumbling of sovereignties, the evolution of geopolitics and the erosion of the state-centric conception of the world and of the territorial state, the state's organization is essential for the full development, realization and protection of mankind. We live in a new

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[1] We consider here the definition of General Beauffre, as refered by Couto [8].

geography of flows – in opposition to territories - and transnational threats. By using the purposes of the state as a point of departure, that is security, justice and the well-being of its citizens, we try to understand how this state can adapt to new challenges and ensure its survival. This kind of state is part of the international system, which should be seen as a complex system of global interdependence [24]. This implies, to some extent, its unpredictable nature and our limited capacity to control it. In turn, both states and the threats they face are also complex systems.

Both the international system and the elements that compose it are complex, since they include several independent parts, which continuously interact, spontaneously organize and even reorganize themselves in increasingly elaborate structures, as time goes by.

In order to make it clear, complexity is characterized by:

a) A great number of elements or similar agents, which are independent;
b) Movement and persistent responses of those elements regarding other agents;
c) System's adaptability that adjusts to new situations to ensure its survival;
d) Self-organization, so that the order of the system spontaneously emerges;
e) Local rules that apply to each agent, and
f) Progression in complexity, so that, over time, the system becomes larger and more sophisticated.

As a result from what was previously stated, the self-organized behavior of complex systems cannot be fully predicted or studied by the division of its parts, because it does not comply with the principle of addition. That is, the system is not the mere sum of its parts. The complex system naturally evolves to a state of self-organization, with a behavior that ranges between chaos and order. Although the complex system is unpredictable, it is possible to determine, through simulation, the control parameters under which it enters into a chaotic behavior. By chaotic behavior we do not mean that the threat will materialize but, due to the unpredictability of the system, that we cannot control it. Therefore this means that the mechanisms we have to prevent the threat may fail, leading to unpredictable results. Thus, a bipolar world is more stable than a multipolar world and democratic states are more peaceful than those that are non-democratic. A world where each unit manages its security is less stable than a world in which the states defend their security, whether collectively, or in an alliance of balance of power.

The more the parameters where chaos rules, the greater is the instability of the system. It became clear to us the need to find new tools for those who have to deal with this complexity, namely policymakers and intelligence analysts. Our aim is to find a way to turn the state as intelligent as possible, endowed with a broader view of the world's situation, in order to survive the emerging threats.

We discussed the importance of the intelligence in the context of the purpose of the state, namely using the Portuguese case and its history as an example. We were able to demonstrate that, in its most remarkable phase, policy was guided by intelligence (under the rule of King John II). The intelligent state demands intelligent people who know how to analyze and understand their context and act appropriately on it. Intelligence contributes to a more sound and reflected government decision-making process, which implies the use of a consistent theoretical framework and robust methodologies as guides to the strengthening of the state.

We realized that an interaction must take place between intelligence officers and policy makers, so that a truly effective support to decision emerges, whether in the case of diplomatic negotiations, military actions, or to alert companies regarding new problems and threats that lie ahead.

Taking this assumption, we developed our reasoning around the description of the daily challenges facing the intelligence analyst in the context of the intelligence production process, while being conscious of their role in support of the policy makers, diplomatic, commercial or police actions. This takes place in a complex world, often characterized by information overflow, which is very different from the world we had just some decades ago. Through a parallel with our brain, the biological intelligence, we designed the path for the analyst, sometimes revised, and based on the following principal steps:

1. We must be able to memorize experiences, while learning from the past, and in this sense, to be able to use all the knowledge acquired;
2. Given the unpredictability of the future, we must use imagination to usefully apply the experiences and knowledge acquired;
3. Overcome obstacles that arise, in order to achieve its purposes, with the selection of suitable processes, which implies being aware of all developments, while remaining flexible and adaptive;
4. Avoid errors that result from biases in cognitive processes of perception and reasoning [3], which are major causes of failures in the realm of the intelligence analysis.

Our PhDs work was then structured using this reasoning.

Given the importance of memorizing experiences and learning from the past, Jared Diamond [9] made us aware that all civilizations declined, except ours. Therefore, we focused on the underlying causes of their decline and the catastrophe patterns, based in four possibilities:

• They could not predict a problem before it happened (forecast);
• When the problem arises, it was not detected (misunderstanding what takes place but is not visible, that is, what we do not know that we do not know);
• Although detected, no action was taken to solve it;
• Despite action was taken to solve it, they were not able to do it.

The fact that several civilizations have collapsed due to their inability to perceive the surrounding environment or even the limit of their resources, shows us the importance of being aware that some factors can be replicated (like the scarcity of resources) and the importance of knowing how to think ahead, to be able to anticipate threats, and be prepared to face them. All collapses of civilizations have in common the inability of their rulers to pursue their primary mission, that is, to preserve and protect the society from internal and external attacks on its integrity. Many philosophers saw the cycles of rise and fall in terms of personal attributes of citizenship or of their leaders, such as Polybius. In his most simple, but perhaps reducing formula, he mentioned that people or rulers gained weight and became complacent due to success or that it led to imperial ambitions or overconfidence that exceeded their capabilities.

Disruptive events, such as earthquakes, volcanoes, financial crises and political revolutions destabilize States and have effects that go far beyond their epicenters. While in the recent past such events were relatively rare, their frequency may increase in the future. The years of 2010 and 2011 showed us just that. Some authors call these events "high impact low probability" (HILP) and others "future global shocks". Globalization, which increases global interconnections through economic integration, intensifies the risk of contagion of such an event to the whole world. We need appropriate tools, in order to prepare ourselves to the so-called "future global shocks", especially if we wish to understand the extent of the impacts of these events (structured analytic technics).

The analyst must be conscious regarding the challenges to the security of states and be imaginative and creative, so that he may respond to the unpredictability of the future, and make a constant effort to update himself in several areas. Technological advances represent a true revolution to the intelligence services regarding the way they develop their work. They pose new threats and flood us with an overwhelming amount of information, but also provide new working tools, which need to be known by the intelligence officers, in order to be used. New non-traditional threats affect national security in the 21st century, which must be seen as a multi-sum security, global security that includes five dimensions: human, environmental, national, transnational and cross-cultural security.

We looked at several phenomena that will change the balance of power of states: crises resulting from environmental problems, demographic issues, food shortages, the rise of the BRICS, the end of unipolarity, the impact of non-state actors, asymmetric wars and the impact of science and technology, especially strategic emerging technologies, which have an enormous potential to change our lives (nanotechnology, biotechnology, information technology, artificial intelligence and cognitive science). Our scientific discoveries and technological evolution affect our predictions about the future and what we do not know is a key issue in the preparation of these forecasts [2]. It is important to know the latest technology in order to guarantee security (cybersecurity) or wage war (cyberwar and new military technology, with non-lethal weapons), and above all to create an ethic for this new world.

We think it is not so much the method of science that is relevant to import to the humanities, but its findings. That is why we advocate a holistic view. Ultimately we sought to understand how human societies organized in territorial states may survive the impact of technology and consequent globalization and, specifically, how global security will be organized. The so-called emerging strategic technologies (EST) have an enormous potential to change the geopolitical environment and our existence. Without this awareness it is difficult to make medium- and long-term forecasts that may be useful in defining a national strategy.

Another example that challenges our daily life is the global urbanization. For the first time in history more than half of the world's population lives in urban areas. By 2050 it is predicted that 64% of people in the developing world will live in urban areas and 85-89% of the developed world's inhabitants will call urban areas their home.

Our ability to collect, store and process data has steadily, and in recent years, rapidly increased.

The internet and the mobile technology have turned the world's population into individual data factories. 90% of the world's data have been created in the last two years alone. We are in the digital revolution.

Urban informatics can turn data into solutions for the toughest problems faced by cities. Solutions are being explored in many application areas, such as mass transit, air quality, aging buildings and noise pollution.

Overcrowded subways affect the well-being of citizens. By using big data, urban scientists can maximize efficiencies overcrowding and cut operation cost.

Utilizing thermal imaging, buildings can be analyzed for energy efficiency and pollution, helping to cut greenhouse gases and dangerous emissions.

Smart buildings can be developed to use resources more efficiently and attract commercial tenants vital to the city's economy.

By using networked sensors and sonic analysis, researchers are exploring ways to bring down the noise pollution.

This example of the importance of urban informatics shows us the need of skilled practitioners with the ability to use large-scale data from a variety of sources, to understand and address real-world challenges in the urban context.

Also in this context, the European Forum for Urban Security organized in 2013 a survey on surveillance and security technology trying to create awareness on the subject.

Continuing the analyst steps, given the unpredictability of the future and the many challenges and obstacles faced by the analyst, we need to be able to select the processes and methods that are most adequate. This, in turn, implies being aware of all the technological advances and their impact on the diverse stages of the intelligence work. In the last decade, we moved from a paradigm of analysis that was based on the mental activity of a single analyst into one of collaborative group analysis. In *Vision 2015: a globally networked and integrated intelligence enterprise* [13] it is explained that the driving forces behind the need for this transition are: the increasing complexity of international affairs and the consequent need for multidisciplinary approaches in most analytical products, the need to share more information, both more quickly and internationally, and the need to identify and assess the validity of alternative mental models.

That is, assuming that the intelligence analyst bears in mind the updated geopolitical map as a guide, he then must choose the methodologies he will use. It is crucial to understand the factors that constrain the power of the states, at each moment. We have started with the classical equation of Cline, reflected on the one of Hans Morgenthau and considered recent formulas, from China and India, with the aim of approaching as much as possible a formula that can be adjusted to a fast evolving world. We made an attempt to define key areas to be considered in the summary description of the capabilities of a state, focusing on the Portuguese State, in the current geopolitical reality and future trajectories.

Given the context in which the analyst will have to operate, we concluded that trans-disciplinarity cannot be avoided if we want to better understand our complex world. To be aware of the shortcomings of the analyses based on the incompleteness of the part that is not known is of major importance. The holistic approach is critical in order to anticipate and respond to unforeseen situations. Also the chapter on methods demonstrated the importance of consilience, which is the junction of the two knowledges (sciences and humanities), since making predictions requires the use of several disciplines. Changing the scientific paradigm in the courses framework seems to us as essential as a sound intelligence analysis.

After considering all the methods, we tried to apply it to the Portuguese case, in order to test a hypothesis of matrix of interdependencies to better perceive threats and opportunities. Already after having done most of the research, we became increasingly sure of the

importance of knowing the different methods to analyze information (structured analytical techniques for intelligence analyses). This is particularly relevant since their underlying purpose is to think about the future, predict and prevent threats. The research regarding the future is still far from a scientific discipline, but it is an interdisciplinary effort to use the forecasting potential of various scientific disciplines.

COMPLEX
Cause and effect are only coherent in retrospect and do not repeat

Pattern management
Perspective filters
Complex adaptive systems
Probe-Sense-Respond

KNOWABLE
Cause and effect separated over time and space

Analytical/Reductionist
Scenario planning
Systems thinking
Sense-Analyze-Respond

CHAOS
No cause and effect relationships perceivable

Stability-focused intervention

Enactment tools

Crisis management
Act-Sense-Respond

KNOWN
Cause and effect relations repeatable, perceivable and predictable

Legitimate best practice

Standard operating procedures

Process reengineering
Sense-Categorize-Respond

Source: Kurz & Snowden [16].
Figure 12.1. Model of contextual complexity, David Snowden.

We realized that we do not always know all the inventions and discoveries that have an impact on people's lives and States. In this context, we remembered a book we read, in the past, 20 years ago, about the future, while attending the master program. In fact, Alvin Toffler [23] was right when he said that several fluctuations could lead to the disruption of the international system or its reorganization. The economic crisis shows us how interdependent we are and how the system is unpredictable and nonlinear. The ability to think in the long-run − to create scenarios - is a characteristic of a mature, robust and enduring civilization. The intelligence analyst must train and exercise this ability. Scenarization is essential for strategic planning. In our PhD we listed several methods for developing scenarios, namely systemic methods, which we consider to be more in line with our work.

We found and tested one, the "complexity manager", which was useful to understand and anticipate changes in complex systems.

The complexity manager is a simplified approach to understand complex systems- the kind of systems in which many variables are related to each other and may be changing over time. Government policy decisions are often aimed at changing a dynamically complex

system and it is because of this dynamic complexity that many policies fail to meet their goals or have unforeseen and unintended consequences [13].

This tool allows an identification of opportunities, what needs to be changed or to see potential unintended consequences from the pursuit of a policy goal.

With this help, we noticed possible interactions that must be taken into account when analyzing complex systems, namely the state, the international system or terrorist or criminal threats.

We included possible future scenarios as examples, which we collected from several authors. We felt the need to better explain the analysis of complex systems as a necessary methodology to address new threats. We consider them as a system of interdependent agents and therefore complex.

We realized that complexity theory is an analytical tool, which the state must adopt, in order to update and achieve adequate answers. Traditional intelligence analysis models were designed for a very different world than we have today. These hold some wrong assumptions that must be overcome and explained to the policymaker. This interaction benefits the state. Whereas several authors were revised about this subject, David Snowden was the one who called our attention to the model of contextual complexity, while approaching intelligence and the methodology of the analysis of complex systems. We perceive this as the way to improve the solutions to states' problems. The security of states is being threatened by networks of global terrorism, crime and insurgency, i.e., complex systems of multiple agents interacting with each other with non-linear consequences. This implies answers based on resilience and adaptive leadership, as well as the need to review some concepts that are considered to be true. Some bureaucratic lines that divide the study of some threats do not allow an efficient work.

To better demonstrate our conclusions, while facing an overwhelming amount of information, we realized that by associating art and technology we may benefit from the power of image, which is easily understood by our brain (visualization). We developed all the research bearing in mind a concern we felt through life. That is, we often deceive ourselves because our brain plays tricks (cognitive biases risk perception). Today, scientists know much more about the brain, but intelligence analysts do not know much. They tend to act intuitively and face human error. In our culture, as opposed to the Anglo-Saxon culture, error is perceived as something bad. However, mistakes are useful to learn and turn us into better listeners towards those who know more, just as we did while writing our thesis. Then, we listed several different ways of thinking, using Bloom's taxonomy (1956) of thinking skills, which demonstrates several layers of thinking, from the simplest to the most elaborate. From raw data to knowledge and wisdom. Thinking about our thinking emerges as a key task.

Becoming aware of these processes is essential for the intelligence analyst. To be conscious regarding the importance of changing the perspective when analyzing a situation, may change the final result. We used the "method of the six thinking hats", from Edward de Bono, to illustrate the importance of mental flexibility (Figure 12.2).

Finally, when describing the several risks faced by the analyst, we have decided to use a glossary of cognitive biases, which are patterns of deviant ways of judgment or analysis, where we draw conclusions based on cognitive factors in detriment of evidence or proof. These cognitive shortcuts make our life easier regarding the tasks we have to perform as persons, but cannot be relied upon in all situations. As such, we should avoid such biases when making intelligence analysis.

We finished with the possible answer to our initial question. The state can only be prepared for current and future challenges if the paradigm of knowledge is changed. States, through their security institutions tend to organize according to past experience. However, the present is always able to surprise us with something different. That was the case of Anders Breivik attacks (22 July 2011, Norway), since mental frames were built to deal with Islamist terrorist attacks and not otherwise. When the emerging reality was not even considered as a possible scenario by security structures, the result is always more catastrophic, with greater psychological impact. Models for interpreting reality are extremely important because if they are wrong, the whole building is wrong.
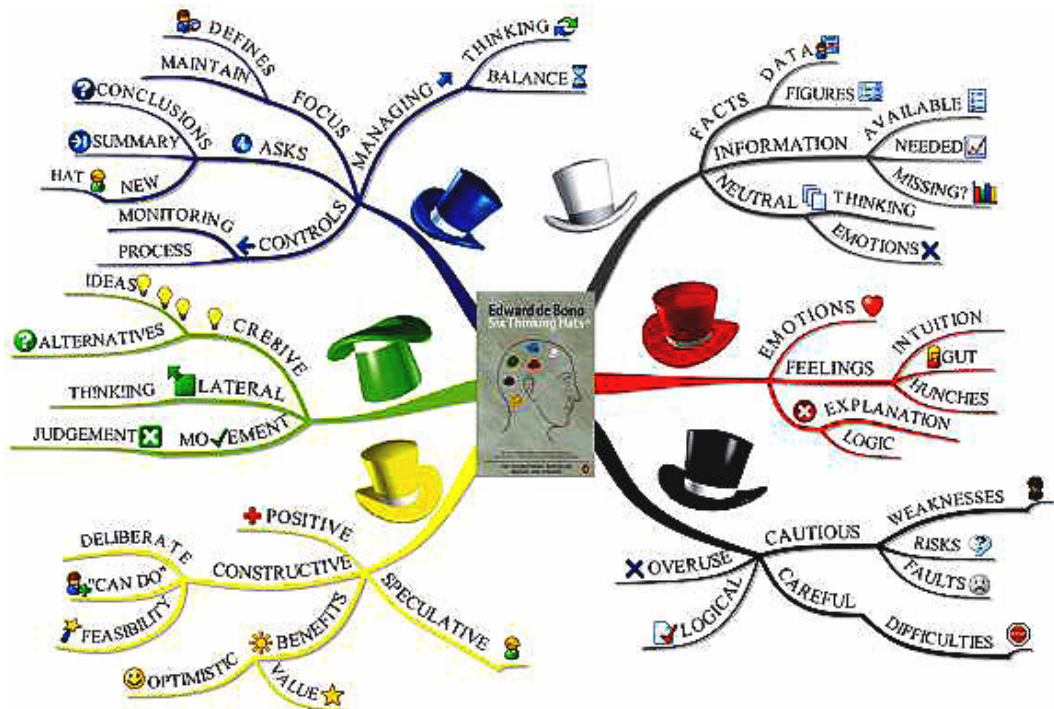
Source: Spear [22].
Figure 12.2. Six Thinking Hats of Edward de Bono.

The narratives tend to be stronger than history. If we take terrorism as an example, we see that, due to its general criminal character, it is adaptive and always "one step ahead", avoiding the scheme set up by security forces. Usually, its successes lie in surprise. For that it is necessary that states implement more agile structures able to quickly adapt to threats. These should be able to act as mirrors of the organizations they fight. Institutional bureaucracy is averse to this type of solutions, but raising awareness of the problem and its diagnosis constitute a step towards healing. Our mind mapping has to be redone with the help of technology. It is indeed an area of great and positive developments, since it allows large amounts of data to be organized in a visually accessible form. Changing the way of doing things implies both education and leadership. Hence the intelligence of states relies on the way we educate our youth. At this point we should be aware of who, in recent years, has achieved top positions in global education rankings, based on the Program for International

Student Assessment (PISA). These tests, which focused on reading, mathematics and science and had 15 years old students as targets, were won by China in its three criteria. In previous years, Finland had always been able to win one of the criteria.

Change can only take place through the education system and has to be nurtured from an early age in school. Intelligence must help in this process, but school is the primary responsible for this. If intelligence can contribute to the articulation between theory and practice, it should help in this desideratum. We conclude that all this can only be achieved with a change of the educational paradigm crosscutting all the needs that have been listed. Globalization, with the rise of global interconnections generated by economic integration increases the contagion of risks of an event in the world. So, we need adequate tools, in order to be prepared for the so-called "future global shocks", especially to get a better understanding of the extent of the impacts of these events.

One of the common principles of risk management is to avoid the assumption that the future will be similar to the past, while being aware of the danger of mental models in the assessments. Computerized simulation models help to understand which conditions and variables turn the consequences of an event more prone to contagion. Meanwhile, maps or complex systems mapping is useful to identify the hubs that will promote the dissemination of the effects of disruptive events[2]. The visualization of the structure of a complex system and its interdependencies in just one page – that is, in one single map - is of paramount importance for policy makers, since it immediately allows to get their focus on the essential. The traditional notion of maps as simply geographical should be broadened in the minds of policy makers to improve understanding of complex systems.

Whether we think of international think tanks, or in the national reflection done at several institutes and universities, we realize that there is an abundant and rich reflection, although dispersed and it rarely turns into a political mechanism (in some countries). It is imperative that it becomes an effective tool, so that the state can be prepared for constant challenges, or else it risks not fulfilling its mission, that is, the security of its citizens. This will only happen if the state itself promotes, supports and ensures continuity, validation and the permanent improvement of reflections and used tools, as well as the testing of these security mechanisms. States that are currently aware of the paradigm shift are already adjusting their fundamental guiding concepts.

Adaptability is key to the survival of states, just as it is for the survival of the species. Both only survive when they adapt themselves to the changes of the environment. The importance of the holistic view of governance regarding the several characteristics of the different types of emergencies, disasters and global shocks is critical [19]. The strategy to manage events or future global shocks relies on strengthening the capacities of governance through international cooperation, partnerships and standards, while building a resilient society, able to adapt under adverse conditions and to restore a sense of normality after a shock. Intelligence analysis is fundamental in this context.

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[2] See OCDE [19] which discusses in detail different kinds of maps and their advantages.

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