WWF

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2017

SUSTAINABILITY, STABILITY, SECURITY

Why it is vital for global security and stability to tackle climate change and invest in sustainability

WWF

WWF is one of the world's largest and most experienced independent conservation organisations, with over 6 million supporters and a global network active in more than 100 countries. WWF's mission is to stop the degradation of the planet's natural environmental and to build a future in which humans live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption.

WWF France has been working since 1973 to guarantee a living planet to future generations. With its volunteers and its 220000 supporters, WWF France conducts concrete actions to safeguard natural spaces and species, promote sustainable lifestyles, inform decision-makers, support companies in the reduction of their ecological footprint and educate the youth. But for change to be acceptable, it has to be conducted with respect for everyone. That's the reason why WWF's philosophy is based both on dialogue and action.

Since 2009, the sailor Isabelle Autissier is President of WWF France and Pascal Canfin became CEO on January 2016.

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Writing by: Antoine Meunier *(WWF France)* supervised by Pascal Canfin *(WWF France)*
Graphic design by: Laura François *(WWF France)*
Traduction by: Philippe Aronson

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WWF France, 35-37 rue Baudin - 93310 Le Pré Saint-Gervais.

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EDITORIAL

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If you are under the impression that extreme weather events are more and more frequent, you are not mistaken. In fact, "the probability of having extreme temperatures has been multiplied by ten or even more, between 2011 and 2015" according to a 2016 report by the World Meteorological Organization.

Extreme weather events can destroy a city or even an entire country, and should alert us to the necessity of changing our way of thinking and acting. Security and defense are now as dependent on environmental factors as energy, food, and travel. Climate change and its impact on the environment (desertification, rising sea levels, migrations, etcetera) make it vital for us to reevaluate our approach to security, by factoring in a new component: global warming.

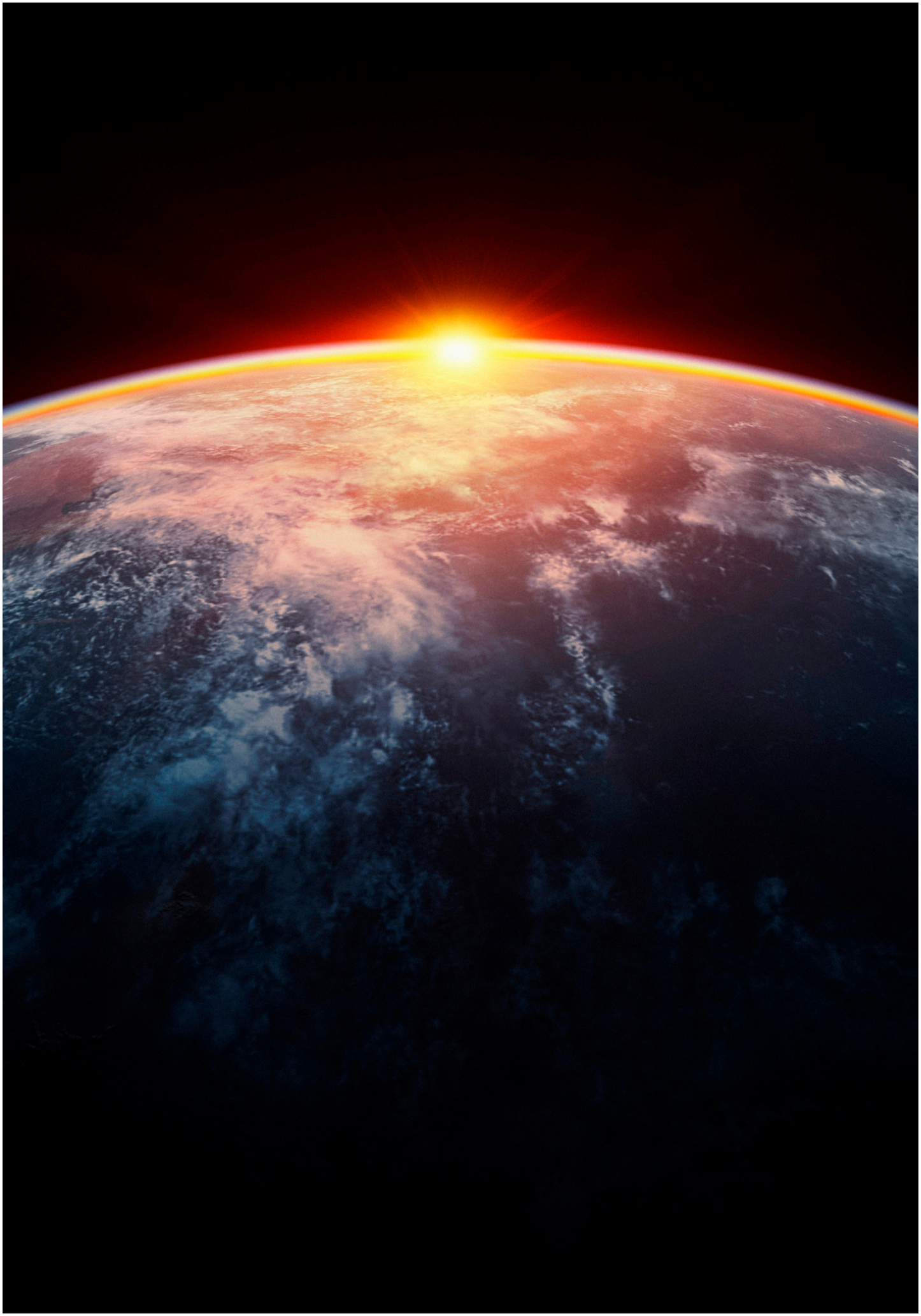
This report does not present a new theory; it combines the conclusions of several scientific studies and the opinions of numerous researchers and specialized organizations that have focused these past few years on the link between climate and security. It highlights the essential contributions of a collective group of experts in order to concentrate on this issue and encourage institutions such as foreign and defense ministries to adopt new approaches.

This report presents several solutions, some of which can be set in motion immediately. For example, systematically adding experts on environmental issues to the crisis management departments of diplomatic missions and defense ministries, and stress testing in terms of conflict a world with a 1.5°C-, 2°C-, 3°C-, or 4°C-increase in temperature, in order to better anticipate and prevent those potential conflicts.

WWF France is committed to a world in which humanity and nature live in harmony, which is why it has decided to tackle the problem head on and present a new doctrine — sustainability, stability, security — to policymakers active in the fields of security, diplomacy, geopolitics, development, and environmental protection. Without overlooking the political, ethnic, religious, social, and economic sources of conflicts, we believe one should — when possible and when it makes sense — identify environmental degradation and poor access to natural resources (arable land, water, livestock feed) as part of the underlying causes of an ever-worsening situation. That is why raising awareness among those tasked with improving global security is of utmost importance.

Thanks to its holistic vision and international network, WWF, the world's foremost NGO dedicated to nature conservation, active in over 100 countries, is prepared to work hand in hand with all those who want to commit to acting in favor of a modernized vision of the security issues facing our planet.

Pascal Canfin
CEO, WWF France



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EXECUTIVE SUMMARY

For several years now researchers and organizations the world over have analyzed the relationship between foreseeable climate change impacts and the geostrategic issues they raise. At the 1992 Earth Summit 178 governments signed the Rio Declaration on Environment and Development, Principle 25 of which states that "peace, development and environmental protection are interdependent and indivisible." Later on in the 90s, the US military took up the issue of climate change, and just a few years later, in 2003 the Pentagon confirmed the existence of a link between national security and climate change, which it described as a "threat multiplier."

In a world in which security is of ever-greater importance, all parameters must be taken into account to analyze problems and come up with the most effective responses. The first requirement is to recognize that climate change and the risks it poses are a threat to stability and security. An environmentally unsustainable system produces instability, which inevitably leads to insecurity.

AN ENVIRONMENTALLY UNSUSTAINABLE SYSTEM PRODUCES INSTABILITY, WHICH INEVITABLY LEADS TO INSECURITY

This problem concerns all areas of the world, though naturally some are more vulnerable than others. For example, certain parts of Africa and Asia are already suffering from the effects of weather events, and several current conflicts have discernible environmental roots. The most notorious example is the war in the Darfur region of Sudan. As United Nations Secretary General Ban-Ki Moon wrote in 2007, "amid the diverse social and political causes, the Darfur conflict began as an ecological crisis, arising at least in part from climate change." The growing number of areas destabilized by climate change makes it imperative for governmental and nongovernmental organizations to meet the challenge head on, and begin to find solutions.

The present report, — "Sustainability, Stability, Security" — is an analysis of concrete situations based on existing sources. Drawing on the most recent IPCC report on climate change, it highlights the many consequences of climate change: rising sea levels, extreme weather events, water stress, land degradation and desertification, increased competition for resources, health hazards, and increased migrations. These hazards have historically destabilized entire regions, and will in the future continue to weaken the most vulnerable areas of the globe.

Climate change and security concerns are increasingly interlinked, and demand that appropriate policy responses and frameworks be adopted. Too often seen as a purely environmental issue, climate change tends to be filed away in the category of environmental risks. This report demonstrates that it is a global problem that impacts not only the environment but also the economy, the institutions, and society as a whole. It is therefore time to rethink security in a world in which climate change is a fact of life. This is the true meaning of the Sustainability-Stability-Security doctrine at the heart of this report.

Several States and international organizations (UN, NATO, G7, EU, etc.) recognizing the connection, have published and are continuing to publish scientific studies on the subject. Think tanks, researchers and specialists are working to build expertise among concerned parties and find solutions going forward. This is the goal of the PSI (Planetary Security Initiative), a consortium of think tanks launched in 2015 to enhance awareness of the problems by the players involved and increase cooperation between policymakers and experts.

States and international organizations must act now to develop appropriate responses, first and foremost by complying with and implementing two historic 2015 plans: the Paris Climate Change Agreement and the 2030 Agenda for Sustainable Development, adopted

in New York and structured around Sustainable Development Goals (SDG). By "holding the increase in the global average temperature to well below 2 °C above preindustrial levels and pursuing efforts to limit the temperature increase to 1.5 °C" (Paris Agreement, 2015) and meeting the seventeen goals for sustainable development, we can considerably diminish the risk of insecurity and conflict worldwide.

CLIMATE CHANGE AND SECURITY CONCERNS ARE INCREASINGLY INTERLINKED, AND DEMAND THAT APPROPRIATE POLICY RESPONSES AND FRAMEWORKS BE ADOPTED

Since climate change is already happening and mitigation policies, no matter how crucial, are insufficient, it is important to take the coming effects of climate change into consideration, and help people adapt to them. In this context, and given the information presented above, only integrated responses make sense. Internationally, States and supranational institutions need to integrate climate/security thinking into diplomatic strategies, and promote adaptation and resilience. According to a recent UN Environment Program report the true cost of adapting to climate change in developing nations could range between $140 to $300 billion per year in 2030, and between $280 and $500 billion per year in 2050. And yet, international funding for climate change adaptation in developing countries reached $22.5 billion in 2014, that is to say 1.38 percent of worldwide military spending that year. By under-investing in adaptation to climate change in developing countries, international policymakers betray a lack of awareness of the relationship between sustainability, stability, and security. And yet, investment is necessary for the stability of our planet.

WWF France is committed to a world in which humanity lives in harmony with nature, which is why it has decided to tackle the problem head on and present a new doctrine to policymakers active in the fields of security, diplomacy, geopolitics, development, and environmental protection. Without overlooking the political, ethnic, religious, social, and economic sources of conflicts, we believe one should — when possible and when it makes sense — identify environmental degradation and poor access to natural resources (arable land, water, livestock feed) as part of the underlying causes of an ever-worsening situation. That is why raising awareness among those tasked with improving global security is of utmost importance.

INVESTING IN SUSTAINABILITY IS A WAY OF ACTIVELY PROMOTING A SAFER, MORE STABLE WORLD; IT'S AN INVESTMENT IN WORLD PEACE.

WWF FRANCE RECOMMENDATIONS

1. IMPLEMENT TWO ESSENTIAL 2015 ACCORDS

In 2015 two unprecedented international agreements were adopted. **The Paris Agreement**, first universal agreement on climate change, sets a path to keep the increase in global temperatures "well below 2°C" while the UN's Sustainable Development Program proposes to meet seventeen Sustainable Development Goals (SDG). For the first time, member states adopted an integrated roadmap for a new global development model. Implementing these two historic agreements will greatly reduce the risk of conflicts and insecurity around the globe — the starting point for agendas of peace and their implementation, as well as one of the best investments that can be made in 21st century security.

2. PRODUCE A ROBUST, INDEPENDENT EXPERTISE

If these problems are to be given the central place they deserve both nationally and internationally, it is crucial that we be able to rely on studies emphasizing their importance. These examinations are also essential to setting up projects allowing us to better grasp the situation in each region, and adjust initiatives and adaptation plans accordingly. An ever-increasing number of think tanks are now mobilized (Clingendael Institute, Adelphi, SIPRI, Center for Climate and Security, etc.). The WWF recommends that these initiatives be adequately funded and relayed both to the media and to policymakers, in developed and developing countries.

3. STRENGTHEN INTERNATIONAL COOPERATION

Several initiatives have these past few years focused on promoting dialogue and action regarding climate, security, and development issues. A few examples come to mind: the **Planetary Security Initiative**, launched in 2015 by the Netherlands Ministry of Foreign Affairs, and the German Foreign Ministry's **Climate Diplomacy Initiative**. It is imperative to strengthen existing initiatives and foster relationships between various communities (military, ecological, diplomatic, economic, etc.), encouraging them to meet, review the issues at hand and take joint measures aimed at ensuring security through the fight against climate change. All parties involved (governmental and nongovernmental) need to participate in these exchanges and in the development of solutions. Deeply involved in issues of sustainability, climate, and adaptation, the WWF network also has a role to play in this new paradigm shift.

4. TRANSFORM ANALYSES AND INITIATIVES INTO CONCRETE ACTION FOR LOCAL POPULATIONS, ESPECIALLY YOUTH

In order to transform existing analyses, high-level initiatives, and global projects into grassroots movements, governments must take concrete action. Countries threatened by climate change and its consequences must immediately begin to implement schemes that will prevent risks from rising water levels, extreme weather events and desertification. Beyond exchanges, the best way to set such action in motion is to strengthen regional cooperation. Certain promising initiatives have emerged, such as the **3S Initiative** launched by several African leaders in concert with the United Nations Convention to Combat Desertification (UNCCD), at the COP22 in Marrakesh. This reflects the commitment of countries threatened by climate change and land degradation in Africa, as well as a determination to find real solutions to these problems.

5. PROVIDE TRAINING IN SUSTAINABILITY-STABILITY-SECURITY TO MILITARY AND DIPLOMATIC STAFF ON A NATIONAL LEVEL

Players at every level — international policymakers, simple citizens, diplomats, national authorities, the military — must be made more aware of security risks posed by climate change. A certain number of pioneer nations have implemented outreach and training programs for diplomats, to help them grasp the importance of environmental issues and apply the central concepts of climate diplomacy. The WWF recommends that sustainability, stability and security tutorials be compulsory in military schools and training courses for diplomats.

6. ADD SUSTAINABILITY EXPERTS TO THE CRISIS MANAGEMENT DEPARTMENTS OF DIPLOMATIC MISSIONS AND DEFENSE MINISTRIES

Far too often the relevant ministries analyze crises without taking into account the connection between lack of environmental sustainability and insecurity. This lack of an anticipatory response poses a clear and present threat to our planet. WWF France recommends that sustainability experts be systematically added to the teams analyzing the planet's "hot spots," and participate in crisis simulation exercises the world over.

7. STRESS TEST IN TERMS OF CONFLICT: A WORLD WITH A 1.5°C-, 2°C-, 3°C-, OR 4°C-INCREASE IN TEMPERATURE

To prevent risk, anticipate crises and improve operational responses, WWF France recommends that Defense and Foreign Ministries join forces to reproduce IPCC scenarios, and stress test the possible consequences of unchecked global warming. The results of these analyses will consequently inform risk reduction efforts.

8. INCREASE FINANCING FOR RESILIENCE AND ADAPTATION TO CLIMATE CHANGE, CONSIDERING IT AN INVESTMENT IN LOCAL AND GLOBAL SECURITY

Financing adaptation to the consequences of climate change in developing countries is necessary to stabilize our planet. Current levels of investment — $22.5 billion in 2014 — are woefully inadequate. In fact, the World Bank estimated the cost between 2010 and 2050 at $70 to $100 billion; though a UN Environment report recently reevaluated the cost at $140 to $300 billion per year in 2030, and $280 to $500 billion by 2050. **World military spending rose to $1686 billion in 2016, almost 75 times more than contributions to the cost of adapting to climate change in developing countries** and they will no doubt continue to rise in rich countries, if for example NATO member states pledge **2 percent of their GDP to defense spending**.

To meet demands (between $140 and 300 billion per year by 2030 to adapt to climate change), keep their commitment to international climate solidarity (at least $100 billion per year for mitigation and adaptation to climate change in developing countries by 2020), while ensuring the effectiveness in terms of security that their investment is bringing to bear, developed nations must create a roadmap to progressively increasing adaptation financing. While numerous countries the world over have increased spending on security (example: NATO member states pledging 2 percent of their GDP to defense spending), it would make sense to allocate a portion of the budget to climate security. For instance, in 2016 France invested €606 million in adaptation financing and is on board to contribute €1.2 billion per year to adaptation starting in 2020. In order to keep those commitments, it could pledge part of its increased security budget (the objective set by the president being €50 billion in 2025 versus €34.2 billion in 2018), toward adaptation. In this scenario, the extra €600 million for adaptation to climate change would represent a negligible portion of the total security budget and would allow anticipated conflict risk reduction.

INTRODUCTION

This report is based on a two-fold observation. On the one hand, humanity as a whole has by now overwhelmingly accepted the urgency of meeting **climate and environmental challenges**; on the other hand leading a peaceful existence is one of the most basic human demands. In a world rocked by terrorism, epidemics, and natural disasters, this is ever more the case.

Our analysis is informed by rigorous definitions and conceptual frameworks.

THE INFLUENCE OF HUMAN ACTIVITY ON THE EVOLUTION OF THE CLIMATE HAS BEEN ESTABLISHED; SO HAS THE IMPACT OF CLIMATE CHANGE ON TERRITORIES AND POPULATIONS

We consider **security** to be a state in which dangers and conditions that can cause physical, psychological or material damage are controlled so as to preserve the health and wellbeing of individuals and the community (Romer, 1998). Several concepts spring forth from this generic term: national security (civil and military systems deployed by a State to defend its interests), civil security (means implemented to protect local populations), homeland security, economic security, food security, health security, etc.

Security becomes a problem when **tensions** emerge, when **violence** erupts, when **conflicts** flare up. To be sure, certain territories are characterized by the testiness of the relationships between different communities. In this context, when violence of natural or human origin is visited upon these populations, the possibility of exacerbated antagonism boiling over into mutually assured destruction increases.

Climate change is defined, in the United Nations Framework Convention of Climate Change, as "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" (UN, 1992). Through the work of the IPCC[1] the influence of human activity on the evolution of the climate has been established; so has the impact of climate change on territories and populations. Nevertheless, it should be noted that climate change affects different regions of the world in different ways, and these regions don't necessarily share the same adaptive capacities. The risk of rising sea levels is not the same for France as it is for Bangladesh; exposure won't be the same in New York and on an unpopulated island; the same can be said about the vulnerability levels of Japan and Sri Lanka.

1. Intergovernmental Panel on Climate Change

INCIDENTALLY, IN THEIR MOST RECENT 2014 REPORT, IPCC SCIENTISTS DREW ON THE FOLLOWING DEFINITIONS[2] :

HAZARD

The potential occurrence of a natural or human-induced physical event or trend or physical impact that may cause loss of life, injury, or other health impacts, as well as damage and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources.
In this report, the term hazard usually refers to climate-related physical events or trends or their physical impacts.

EXPOSURE

The presence of people, livelihoods, species or ecosystems, environmental functions, services, and resources, infrastructure, or economic, social, or cultural assets in places and settings that could be adversely affected.

VULNERABILITY

The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

IMPACTS

Effects on natural and human systems. In this report, the term impacts is used primarily to refer to the effects on natural and human systems of extreme weather and climate events and of climate change. Impacts generally refer to effects on lives, livelihoods, health, ecosystems, economies, societies, cultures, services, and infrastructure due to the interaction of climate changes or hazardous climate events occurring within a specific time period and the vulnerability of an exposed society or system. Impacts are also referred to as consequences and outcomes.
The impacts of climate change on geophysical systems, including floods, droughts, and sea level rise, are a subset of impacts called physical impacts.

RISK

The potential for consequences where something of value is at stake and where the outcome is uncertain, recognizing the diversity of values. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the impacts if these events or trends occur. Risk results from the interaction of vulnerability, exposure, and hazard. In this report, the term risk is used primarily to refer to the risks of climate-change impacts..

ADAPTATION

The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.

TRANSFORMATION

A change in the fundamental attributes of natural and human systems. Within this summary, transformation could reflect strengthened, altered, or aligned paradigms, goals, or values towards promoting adaptation for sustainable development, including poverty reduction.

RESILIENCE

The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.

2.IPCC, 2014: Annex II: Glossary [Mach, K.J., S. Planton and C. von Stechow (eds.)]. In: Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, pp. 117-130 https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_Annexes.pdf

ON THIS BASIS, AND FOLLOWING CLOSE ANALYSIS LED BY THE WORLD'S LEADING RESEARCHERS, THE FOLLOWING CONCLUSIONS WERE REACHED[3] :

- Warming of the climate system is unequivocal, and since the 1950s many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, amounts of snow and ice have diminished, and sea level has risen.

- In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. Impacts are due to observed climate change, irrespective of its cause, indicating the sensitivity of natural and human systems to changing climate.

- Changes in many extreme weather and climate events have been observed since about 1950. Some of these changes have been linked to human influences, including a decrease in cold temperature extremes, an increase in warm temperature extremes, an increase in extreme high sea levels and an increase in the number of heavy precipitation events in a number of regions.

- Impacts from recent climate-related extremes, such as heat waves, droughts, floods, cyclones and wild fires, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability (very high confidence.

- Continued emission of greenhouse gases will cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems.

- It is very likely that heat waves will occur more often and last longer, and that extreme precipitation events will become more intense and frequent in many regions. The ocean will continue to warm and acidify, and global mean sea level to rise.

- Climate change will amplify existing risks and create new risks for natural and human systems. Risks are unevenly distributed and are generally greater for disadvantaged people and communities in countries at all levels of development.

3. IPCC, 2014: Climate Change 2014, Synthesis Report, Summary for Policymakers
http://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf

THUS,
SEEING AS CLIMATE CHANGE
CREATES TENSION, STRIFE AND CONFLICT,
ITS CONNECTION TO SECURITY ISSUES
CANNOT BE DENIED.

EXPOSED, UNPREPARED
AND/OR VULNERABLE REGIONS
ARE AT A HIGH RISK FOR IMPACTS.

CHAPTER 1 :
AN EVER-EXPANDING NUMBER OF WORRYING SITUATIONS

Several examples from past and/or future situations can be put forward to illustrate the afore-mentioned conclusions: climate change influences on environmental events that are destabilizing ecosystems and human organizations.

ARCTIC

"Manmade climate change has a
earlier than previously thought.
manmade climate change is alre
important systems in the Arctic
the Greenland ice cap and mour
(WWF, 2009, report published
Arctic Program).

DEVELOPED COUNTRIES

In economically successful regions (Europe, North America),
impact of environmental problems is less systemic it exists n
and sometimes on a large scale. Hurricane Katrina, in the Un
in 2005, and Xynthia in Europe in 2010 showed that develop
were not immune to environmental catastrophes.

LATIN AMERICA AND THE CARIBBEAN

Climate change might well cause social and political upheaval in a region rife with weak structures of governance. El Niño is one of the main threats of the region.

affected the Arctic
Consequently,
eady destabilizing
such as sea ice,
ntain glaciers”
for the International

ASIA

Along with Africa, the Asian continent is one of the most impacted by climate change. With millions of inhabitants in high-risk areas, the region is one of the most vulnerable in the world.

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onetheless,
nited States
ped nations

NEAR- AND MIDDLE-EAST

In a tumultuous region, global warming and its consequences increase the risks of conflicts.

AFRICA

Few places are more subject to risks linked to climate change than the African continent (especially the Sahel countries), and this vulnerability is exacerbated by the fragility of its institutions and poor resilience.

ISLAND TERRITORIES

Rising sea levels imperil the sovereignty and very existence of island territories; in the near future some atoll nations may simply cease to exist. (IPCC, 2014).

AFRICA

Few places are more subject to risks linked to climate change than the African continent, and this vulnerability is exacerbated by the fragility of its institutions and poor resilience. Various regions of Africa are subject to multiple phenomena: drought, water stress and land degradation in the northern part of the continent, lower yields and food insecurity in the east and west. A temperature rise of 1.2°C to 1.9°C by 2050 will exacerbate the food problem and increase the number of undernourished inhabitants (an increase of 85 percent in the east and 95 percent in the west) (Royal, 2016). Access to water resources and food are also the cause of health disturbances and migrations.

Hindou Moumarou Ibrahim, president of the Pan-African Alliance for Climate Justice (PACJA) and member of the executive committee of the Indigenous Peoples of Africa Coordinating Committee (IPACC) has for several years been explaining at international climate change conferences, the influence of environmental problems on the stability of certain African territories, notably in the Sahel region. During an interview with WWF France, the Chad specialist said that competition for access to water and natural resources was the cause of rising tensions between various communities. For example, as recently as a few years ago Lake Chad provided water to people in Niger, Nigeria, Cameroon, and Chad, but it is slowly drying up, forcing entire populations to migrate to Chad for access to water. The more natural resources dwindle, the more intense the struggle to access them becomes. Another pretext for conflict in the Sahel region is the drastic loss of arable land and the environmentally induced migrations of cattle breeders this has set off. Oftentimes they settle on land belonging to nomadic farmers who find themselves unable to follow the traditional, seasonal pastoral movement. Sometimes, to prevent their livestock from dying, breeders take over private or protected property. The Sahel region is emblematic of the hazards caused by increased competition for access to resources: conflicts between nomadic farmers and breeders, migrations, radicalized elements of the population, exploitation of resources by non-state groups, etc.

• Focus on the Darfur region

The Darfur region has for the past forty years had major problems with drought, increasing temperatures (0,7°C between 1990 and 2005), and precipitation deficits. Jérôme Tubiana, researcher and author of Chroniques du Darfour, wrote that "climatologists have proven that the region's rainfall deficits are linked to a warming of the Indian Ocean, which is also the result of climate change." (Tubiana, 2009). In this region, the connection between the consequences of climate change and the appearance of tensions is very clear. The scarcity of resources makes competition for arable land and water resources increasingly fierce. According to UN Environment, environmental degradation is among the root causes of more than thirty conflicts in the Darfur region (UN Environment, 2007). In a region historically scarred by ethnic conflicts and hampered by a fragile system of government, the slightest spark can create tensions. Furthermore, when humans can no longer depend on the land to feed their cattle and themselves, they go elsewhere to survive. This is what occurred when thousands of breeders from the north migrated south to find work on more welcoming land. "In 1986, not long after the great famine, nearly four hundred thousand migrants had made their way from the north of Darfur to the south (Tubiana, 2009), wrote Jérôme Tubiana.

War has raged in the Darfur since 2003, with violent clashes opposing rebel groups (MLS, MJE) and forces loyal to the government, including the Janjaweed militia. According to Josep Maria Royo Aspa, armed groups control and distribute international aid, which makes it easy for them to recruit combatants within a

resource-deprived population. (Aspa, 2011). This is why Ban-Ki Moon referred to the "first climate war" when speaking of the conflict in Darfur, before examining whether a green helmet force should intervene in climate-caused conflicts. (Garric, 2011).

NEAR- AND MIDDLE-EAST

The region is characterized by instability. Though this is due to many different factors (economic, religious, ethnic), tensions sometimes stem from environmental issues. For example, water stress is extremely common, a problem exacerbated by global warning.

In Jordan available water supplies should dwindle to 900 m3 of renewable water available per capita per year by 2025, while the World Bank situates the water poverty threshold at under 500 m3 (Venot, 2004). Managing water supplies in an age when industry and intensive farming deplete them, is also an issue. By increasing water scarcity, climate change will hinder the development of local populations; water rights could also ignite existing tensions between Israel and Palestine (Vivekananda L. R., 2015).

The Iraqi and Yemeni presidents' stance at the COP21 sent a strong message about the awareness of risks posed by environmental insecurity in the region. As Kishan Khoday, UNDP Regional Team Leader for Climate Change and Resilience in the Arab Region, put it, "the two biggest world hazards are climate change and the evolving nature of conflicts, and both hazards converge in certain parts of the world, notably in the Middle-East." (Longeray, 2015).

• Focus on Syria

Syria has over the last few years been the scene of ever-increasing violence, and if multiple factors explain the conflicts in existence today, climate change is a non-negligible part of that equation. According to an American study (PNAS, 2015) published by the National Academy of Sciences, drought in Syria from 2007 to 2010 contributed to the conflict. Faced with a catastrophe of seldom seen proportions, partly caused, according to the NOAA (NOAA, 2011), by human activity, farmers lost their harvests and were obliged to migrate along with their animals to towns that were already in the grip of unemployment and poverty. Francesco Femia and Cailin Werell, who head the Center for Climate & Security, highlighted the Syrian government's incompetent management of the crisis (Werell, 2012); after years of subsidizing water-intensive crops, it was woefully unable to face the food crisis. Faced with the build-up of problems and the absence of adaptation strategies and efficient crisis management units, Bashar al-Assad's regime soon faced an uprising in the broader context of the "Arab Spring." Pacifistic at first, the demonstrations rapidly degenerated, and combined with other upheavals (economic, political, religious) the country was experiencing, the situation created a major conflict that continues to cause casualties to this day.

ASIA

Along with Africa, the Asian continent is one of the most impacted by climate change. A report on Climate Impact Research prepared for the World Bank by the Potsdam Institute offers an analysis of the major challenges South Asia will soon face (Potsdam Institute for Climate Impact Research and Climate Analysis, 2013). Researchers highlighted water scarcity soon to be exacerbated by climate change, sparking shortages in certain regions and surpluses in others. Erratic rainfall and tremendous heat waves will wreak havoc with harvests. Furthermore, as has been shown in numerous studies over the course of several years (Nawa, 2010), melting glaciers in the Himalayas and depleted rivers such as the Indus, the Ganges, and the Brahmaputra might well deprive hundreds of millions of habitants of water, food, and energy. Increasingly extreme weather events should also be expected in India, Bangladesh, and Pakistan; according to the Global Climate Risk Index 2017 these last two countries respectively rank sixth and seventh among nations most affected between 1996 and 2015 by extreme weather events (Melchior, 2016). In Pakistan twenty million people were impacted by the 2010 floods (Vivekananda M. A., 2013), reigniting existing tensions between ethnic groups, making it increasingly difficult for local populations — especially those who suffered losses in the disaster — to trust their governments, and giving rise to demonstrations, protests, and clashes. Similarly to Africa, alternating droughts and floods have deteriorated the land, creating tensions. For example, in the Pakistani region of Badin, frequent floods (2010, 2011, 2012) killed vegetation; now the indigenous people no longer allow Thar cattle breeders access to their lands, where they would traditionally graze their herds in summer. Tensions sparked by fishing resources are also becoming more and more frequent (Schilling, 2013).

The World Bank report also emphasized dangers to come in Southeast Asia, where a thirty-centimeter rise in sea levels is set to occur by 2040, causing dramatic crop losses in countries such as Vietnam; rising water temperatures will result in a decrease in fish off the Philippine coast (Potsdam Institute for Climate Impact Research and Climate Analytics, 2013). In countries where tensions are already high, these phenomena are likely to worsen the situation.

• Focus on Thailand

In 2011 Thailand was hit with severe flooding triggered by several tropical storms and spread through the Mekong and Chao Phraya river basins. Hundreds of people lost their lives; millions of Thais were directly affected. The catastrophe also sparked numerous conflicts between local populations, and anti-government demonstrations (Pongsudhirak, 2011). The Center for Climate and Security points out that during the disaster hundreds of people demonstrated against unequal distribution of resources, and that these protests culminated in the May 2014 coup d'état. In a politically unstable country rocked by years of violent anti-governmental demonstrations, the floods were the perfect excuse to vent frustrations. In a 2012 article, Santi Nendang and Teigan Allen described the aftermath of the floods, with inhabitants outraged by the authorities' lack of preparation, poor crisis management policies and a recovery plan they found discriminatory, inequitable, unfair and opaque (Allen, 2012).

LATIN AMERICA AND THE CARIBBEAN

Several Latin American and Caribbean nations have already seen extreme weather events, most often brought on by the meteorological phenomenon known as El Niño. Climate change is going to hit this area hard, causing rising sea levels and temperatures, land degradation, salinization, extreme precipitation and increasingly frequent and powerful natural disasters. In countries like Guatemala, Mexico and Nicaragua, frequent droughts have sapped the economic development of populations whose revenues are dependent on rain-fed farming (Piguet, 2011). Increasingly frequent and devastating hurricanes have rocked the Caribbean and Gulf of Mexico. On the Global Climate Risk Index 2017 Honduras (first), Haiti (third), and Nicaragua (fourth) are ranked among the ten countries in the world most affected by extreme weather events. The Global Canopy Programme is a UK-based NGO whose Amazon Security Agenda approaches the issue of security from a non-traditional standpoint, focusing as it does on the influence of ecosystems on the life of local populations and regional economic development. It has also outlined how the effects of climate change, by creating unequal access to resources (water, food, energy...), might destabilize the entire region. Climate change might well cause social and political upheaval in a region rife with weak structures of governance.

• Focus on El Niño

El Niño is a climate event occurring on average every three to seven years, one of the consequences of which is rising water temperatures off the coast of Peru and the Equator (UN OCHA). This disturbance is responsible for devastating weather events in several regions of the globe. In Latin America, the phenomenon has caused extreme precipitation followed by flooding and landslides, putting biodiversity and the Pacific Ocean's marine ecosystems at risk. Meanwhile, this region also offers unequal access to water resources; the United Nations has recognized that variations in the quantity and quality of drinking water — that are due to climate change — will increase the risk of conflict over land use, given that one-sixth of the population shares cross-border river basins (UN Chronicle, 2009). Though El Niño is not a direct result of climate change many scientists agree that climate change might very well increase the frequency of extreme events El Niño; a 2014 paper published by several researchers in *Nature Climate Change* even goes so far as to assert that, if nothing is done, this century will see extreme El Niño events double in frequency (Nature Climate Change, 2014).

THE ARCTIC

"For several decades now the Arctic has been warming at about twice the rate of the rest of the world. Manmade climate change has affected the Arctic earlier than previously thought. Consequently, manmade climate change is already destabilizing important systems in the Arctic such as sea ice, the Greenland ice cap and mountain glaciers" (WWF, 2009, report published for the International Arctic Program). Generally speaking, climate change affords new opportunities and broadens the scope of possible human activities in the Arctic.

To begin with, the rapid melting of polar ice caps opens new navigational and international trade routes. In effect, technological advances coupled with melting ice caps makes passage easier and has been attracting massive interest from various industries and sectors of activity (tourism, fisheries, etc.). The lack of international regulations concerning the region might well ignite tensions, with each country vying for a piece of the cake.

Climate change is also responsible for the increased availability of hydrocarbon resources in the region. According to an International Institute for Strategic Studies report (IISS,

2011), 20 percent of world hydrocarbon resources are situated under the rapidly melting ice caps. This includes 30 percent of the world's unexplored gas and 13 percent of its unexplored oil reserves (Vivekananda L. R., 2015): geographically isolated oil and gas deposits in regions beset by extreme weather events. While costs associated with exploration are already colossal, the return on investment remains a mystery. In these conditions, it is utterly absurd to take the risk of destabilizing unspoiled nature in the hope of consuming oil for a few more years. Shell's decision to pull out of the region shows that it is just not worth it (Macalister, 2015). What we know today makes it imperative to reduce greenhouse gases, leave behind fossil fuels and most of all not embark on new drilling operations.

Beyond energy resources, several research studies (Foley, 2014) have attested to the presence of other natural resources (gold, nickel, cobalt, zinc, etcetera) that might very well attract to the territory a variety of operators. The changes mentioned above have altered the region's geostrategic dynamic and might very well imperil international stability. In truth, increased activity might well create new conflicts linked to this or that country's greed for previously unavailable resources. In a 2013 article (Mikkola, 2013), two researchers from the Finnish Institute of International Affairs, Juha Käpylä and Harri Mikkola, asserted that the increased potential for conflicts is greatly exaggerated, because of the strength of political institutions in place. And it is true that regional and international governing bodies have heretofore managed to handle divergent interests, thanks in part to the creation in 1996 by Canada, Finland, Denmark, Iceland, Norway, Russia, Sweden, and the United States, of the Arctic Council[4]. This intergovernmental forum allows the different states to reflect on the best ways to counter the problems faced by the region and to implement preventive co-management. It is in this spirit that in 2008 five states[5] signed the Ilulissat Declaration (Arctic Ocean Conference, 2008) with the aim of protecting the marine environment, ensuring maritime security and divide emergency responsibilities if new shipping routes are opened. Yet, certain signs make it imperative to remain vigilant. In 2007 Russia planted its flag on the Arctic seabed (RFI, 2007); in 2013 Greenland ended the ban on mining radioactive materials, opening the country to investors (France Info, 2014). To this day, several controversial drilling projects are in progress in the Shtokman field and the Chukchi Sea (WWF, 2015).

Which goes to show that the vulnerability of Arctic ecosystems and the risk of land and water contamination have been insufficiently taken into account. In truth, large-scale resource extraction presents considerable environmental risks. WWF France believes that oil spills caused by explosions, pipeline leaks or shipping accidents pose a huge hazard for Arctic ecosystems; in the case of an accident, oil spill cleanup is impossible (WWF). The consequences for local communities, who would thus lose their means of subsistence, would be devastating. If the actions of energy companies were to destabilize the living conditions of local populations, many environmental and social conflicts between these companies and the local populations might well erupt. Because of the nature and extent of risks, the potentially high cost of cleanup efforts, uncertainty and most of all the importance of preserving this unique ecosystem, WWF recommends that the natural resources present in the Arctic not be exploited.

4. On which the WWF holds observer status

5. Canada, Norway, Denmark, the United States, Russia

REST OF THE WORLD

In the rest of the world, and notably in economically successful regions (Europe, North America), though the impact of environmental problems is less systemic it exists nonetheless, and sometimes on a large scale. Hurricane Katrina, in the United States in 2005, and Xynthia in Europe in 2010 showed that developed nations were not immune to environmental catastrophes. In 1999 the Bordeaux region was hit with a violent storm, with rising waters partially flooding the Blayais nuclear power plant. All of the active reactors immediately and for various reasons shut down (electricity network breakdown, obsolete cooling systems...) and France barely avoided a major nuclear catastrophe (L'Expansion, 2011). Climate change and its consequences (notably the increasing frequency and intensity of extreme weather events) could destabilize certain developed regions. And yet on the whole these regions tend to remain less vulnerable, with a capacity for adaptability far greater than that of Southern nations, allowing them to avoid major damage, and hone their resilience (even if there are inequalities inside the countries to face these impacts, with more vulnerable populations than others).

Though these areas of the globe are better equipped to react to the direct consequences of climate change (higher temperatures, and sea levels, natural disasters, etc.), they are also faced with the indirect consequences of the destabilization of other parts of the globe. For in a truly connected, interdependent world, upheaval in one region impacts neighboring regions, industrial partners, business partners, the military — the entire human community. This becomes apparent when a catastrophe in one region affects yields and prices globally, when drought forces entire populations to migrate and even more so when climate change increases competition for access to resources, exciting the covetousness of numerous neighboring nations.

ISLAND TERRITORIES

The IPCC has for several years recognized that rising sea levels imperil the sovereignty and very existence of island territories (IPCC, 2014); in the near future some atoll nations may simply cease to exist. Before that, extreme weather events will have rendered most of them entirely uninhabitable; seawater infiltration of arable land and public health issues will force inhabitants and authorities into exile (Park, 2011). Numerous migratory movements are expected and if these are not necessarily synonymous with tensions, they do tend to raise many questions: about the level of bitterness of these future climate exiles; and about the welcome they might receive from populations which — as is clear today in several parts of the world — are often ambivalent if not downright hostile. In an informed world where each party's responsibilities are known facts, indigenous people are not pleased with being forced to leave their land because of a manmade calamity — global warming — they had no part in creating. If the host areas happened to be among those responsible for global warming and yet were loath to accept the consequences, tensions might emerge.

Kiribati is emblematic of the problems facing island nations, as its very survival is threatened by climate change. This situation was highly publicized in 2012 when Kiribati president Anote Tong announced he was in talks with the Fijian government to buy as much land as possible to relocate his constituents (The Telegraph, 2012); the following year Kiribati man Ioane Teitiota applied to New Zealand for refugee status due to global warming; application was denied in 2015. He claimed that the increasing intrusion of salt water on the land had contaminated drinking water — access to which is a human right recognized by the United Nations (UN News Centre, 2010). Given the unequal responsibility different countries bear for accelerating climate change

and the unequal distribution of the burden of its effects, upcoming events might well be perceived as unfair by those directly impacted by them; a global effort on behalf of this worldwide problem is therefore necessary to avoid the emergence of tensions.

This non-exhaustive presentation of potentially conflictual or risky situations shows that destabilization caused by climate change and its consequences impact countries the world over. Certain territories, in Africa and Asia, are particularly vulnerable given their geographic location and limited capacity to react to weather events.
Poor countries are particularly exposed, though richer nations will also face the effects of climate change and its consequences on security. Moreover, they will be held accountable by neighboring populations made to suffer from the consequences of a situation — climate change — they had almost no part in creating.

IN VIEW OF THE FOREGOING, THE INTERNATIONAL COMMUNITY AS A WHOLE SHOULD CONSIDER CLIMATE CHANGE AND ITS CONSEQUENCES A STRATEGIC THREAT TO SECURITY, AND ACT ACCORDINGLY, BY TAKING HEED OF THE THREAT AND PUBLICLY ENCOURAGING POLICYMAKERS TO ACT.

THE DOCTRINE — SUSTAINABILITY, STABILITY, SECURITY — SHARES THIS PERSPECTIVE AND SEES THE FIGHT AGAINST CLIMATE CHANGE AS AN INVESTMENT IN PEACE.

CHAPITRE 2
SUSTAINABILITY, STABILITY, SECURITY

The 3S doctrine can be summed up in the following formula: a system that is not environmentally sustainable creates instability that inevitably devolves into insecurity. When the balance between man and the ecosystem that provides him with key resources (nourishment, drinking water...) is upset, instability takes over; and in areas unprepared for these situations, the threat to security and peace increases.

Several international organizations have these past few years turned their attention to this problem. In 2007 UN Environment explored links between climate change and violent conflict. Several COP21 side events were devoted to raising awareness of this problem. On October 12, 2015 the UN Parliamentary Assembly adopted a resolution (NATO Parliamentary Assembly, 2015) inviting all of its member nations to work toward a strong agreement during the COP21 and recognize that climate change was a "threat multiplier" to foreign policy and security. Two days later ministers and high-ranking defense officials met in Paris for the first international conference on the theme: "The Implications of Climate Change for Defense." A report published in 2016 by the PNAS[6] confirms that "twenty-three percent of conflict outbreaks in ethnically highly fractionalized countries robustly coincide with climatic calamities." (Schleussner, 2016). Economists have now joined the diplomatic, political, scientific and military communities in recognizing the existence of this link. According to the Global Risks Report 2017 (World Economic Forum, 2017) extreme weather events are the top-ranked global risk; natural disasters rank third; and among the top five risks in terms of impact, extreme weather events ranked second, natural disasters fourth and failure of climate change mitigation and adaptation fifth.

All of these initiatives indicate a growing awareness of the consequences of climate change on security and peace.

6. National Academy of Arts and Sciences

Changes in the climate are already taking place, upsetting our economic, political, social and environmental balance, and posing a threat to stability and security worldwide.

Several issues dependent on climate conditions are likely to generate conflict.

- RISING SEA LEVELS AND COASTAL EROSION
- EXTREME WEATHER EVENTS AND NATURAL DISASTERS
- WATER STRESS AND MANAGEMENT OF CROSS-BORDER WATERS
- DESERTIFICATION AND LAND DEGRADATION
- INCREASED COMPETITION FOR NATURAL RESOURCES
- HEALTH EFFECTS OF CLIMATE CHANGE
- MIGRATORY CONSEQUENCES OF CLIMATE CHANGE

RISING SEA LEVELS AND COASTAL EROSION

Two of the principal consequences of global warming are rising sea levels and coastal erosion. According to the latest IPCC report, rising sea levels should reach 0,36 m yearly in a world with an increased average temperature of 1,5°C, and 0,58 m in a world with an increased average temperature of 4°C (IPCC, 2014). In light of these IPCC projections, in 2016 the NGO Christian Aid carried out a study that concluded that 824 million people will be directly threatened by rising sea levels by 2030, and 1.22 billion by 2060 (Christian Aid, 2016). Asian nations (China, India, Bangladesh, Indonesia, Vietnam) alongside many large cities are most exposed, which explains the high number of persons at risk. On top of the great danger to the security of local populations, the economic security (property, companies) of the concerned regions might also be imperiled. The report made an estimate of assets directly threatened by 2070; twelve cities stood to lose in excess of $1,000 billion, including Miami ($3,513 billion), New York City ($2,147 billion) and Calcutta ($1,961 billion)[7]. Rising sea levels caused by global warming might also worsen the effects of storm surges and tsunamis (Worldwatch Institute, 2016).

EXTREME WEATHER EVENTS AND NATURAL DISASTERS

IPCC projections show that climate change will cause ever more frequent and extreme weather events. In the fourth assessment report "Climate Changes 2007" (IPCC, 2007), the IPCC was already predicting an increase in the frequency and intensity of heat waves, droughts, and heavy precipitation events — analyses both confirmed and emphasized in the fifth report, "Climate change 2014" (IPCC, 2014), in which scientists insisted more explicitly on coming trends. For example, heat waves in Europe, hurricanes in the United States and in the Caribbean, droughts in West Africa and flooding in Asia.

These are the most notorious consequences of climate change; they make an impression and are publicized. Their randomness and harshness have very grave effects on lives, property, resources — on communities and their means of subsistence. When fragile territories are hit with events such as these, the effects often prove to be devastating. Instability caused by the disaster often gives rise to demonstrations protesting the authorities' lack of a preparation and inadequate response (the unequal distribution in Thailand of relief goods after the 2011 floods underscores this risk). Nevertheless, rich and/or prepared nations are not immune to possible destabilization following such events; in point of fact this is an issue that concerns all the nations of the globe.

• Focus on Hurricane Katrina

Hurricane Katrina was an extreme weather event that affected the southeast of the US in 2005. In Climate Wars Harald Welzer points out that its being a catastrophe foretold did not prevent it from wreaking devastating destruction on the region. An American scientific journal had predicted the flooding in 2001, yet emergency responders were quickly overwhelmed by the magnitude of the catastrophe and the violence that it immediately engendered (assaults, firefights, raping, pillaging, etc.), to such an extent that authorities almost declared martial law. Analyzing the situation, the sociologist asserts that "from the ignorance of the dangers to the woeful inadequacy of the flood defenses, from the barely controllable outbreak of anarchy to the extreme reactions of the security forces, from the social inequality in the aftermath of Katrina to the creation of a new category of refugee and a new social demography of the city: the whole concatenation of events would be much more accurately described as a social disaster." The example of Katrina perfectly illustrates how an environmental disaster can destabilize a region and create insecurity.

7. These figures are based on a 2010 study ranking world port cities based on population and asset exposure to current and future extreme water levels. They assessed exposed or at risk populations using a widely held assumption in the insurance industry: each person in a city has assets that are five times the annual GDP per capita. http://www.lse.ac.uk/CATS/Publications/Publications%20PDFs/83_Ranger_GlobalRanking_2011.pdf

WATER STRESS AND MANAGEMENT OF CROSS-BORDER WATERS

Climate change is going to exacerbate water stress and increase the possibility of violence in regions where water resources are shared by several countries or communities that are loath to cooperate. We have already mentioned the example of shrinking Lake Chad, causing populations to "follow the lake" and migrate toward Chad and its water resources.

Which brings to mind the tragedy of the commons, the economic theory of a situation within a shared-resource system where individual users acting independently according to their own self-interest behave contrary to the common good of all users by depleting or spoiling that resource, causing a lose-lose situation. Violence and hostility between communities are caused by this lack of cooperation. And yet, according to the UN, 9 percent of the world population lives in countries that share one or several river basins with their neighbors and many cross-boundary basins are situated in regions rife with armed conflict and strong inter-state tensions (Royal, 2016).

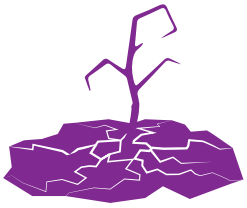
As we have previously seen, the latest IPCC report discusses future consequences of climate change. Concerning this question, we learn that an increase in temperatures will cause considerable losses of renewable water resources, while the water security of about 80 percent of the world population is already seriously threatened. In regions where demand is high (because of demographic and economic growth), the risk of conflict increases.

• Focus on the Nile and Indus basins

The Nile is the world's longest river and traverses many African nations with high population growth rates and increased demand for water. A report on the consequences of climate change in the Nile region (Nile Basin Initiative, 2012) emphasized the fact that global warming has caused rising temperatures and increased precipitation, making the basin vulnerable for diverse reasons (loss of water storage capacity, higher evapotranspiration levels, ever-increasing demand for water, increasingly frequent droughts and flooding, the spread of disease etc.).

As for the Indus, it flows in Asia and most notably traverses India, Pakistan and China, a region that is both very exposed to climate change and historically scarred by conflict.

The report "A New Climate for Peace" (Vivekananda L. R., 2015) offers an analysis of how climate change in these two regions might lead to violent conflict. Drawing on studies of the Nile river basin, the authors of the report point out that as demand for water grows in a region whose population is set to increase from 424 million to 648 million in 2030 and is already beset by instability and rampant poverty, risk is rife. Lack of cooperation makes it probable that each country will simply attempt to take whatever resources are available, creating inter-state tensions. In 2011, after the Ethiopian president announced the construction of the Grand Ethiopian Renaissance Dam the Egyptian government directed belligerent rhetoric toward Ethiopia. With increased pressure on Egypt's food and water security and the risks of fragility, the Egyptian government may take refuge in nationalism and seek to prevent further upstream water infrastructure development by force, such as supporting rebel groups or fostering political destabilization. (Vivekananda L. R., 2015). Concerning the Indus, in Pakistan, 90 percent of the country's food and 65 percent of its employment depends on agriculture in the Indus River basin. Thus, despite the 1960 Indus Waters treaty (signed by India and Pakistan), the risk of conflict persists and climate change that has already caused glaciers to melt and unprecedented flooding, might well cause upheaval in these regions whose growing populations need increasing quantities of water. The authors believe that as pressure on the river basin increases, competition will lead to instability and violent conflict.



DESERTIFICATION AND LAND DEGRADATION

Climate change causes land degradation and drops in crop production while increasing the risk of drought, supply difficulties and food insecurity. In numerous regions production disruption leads to tension and conflict. Much like the other consequences of climate change, land degradation will occur in a global context of increased water demand, and population and economic growth, and will lead to food insecurity and fluctuating prices. Lower production rates and high prices in certain vulnerable regions will initially lead to destabilization linked to food insecurity, followed by conflict and violence. Many recent examples illustrate this. For example, in 2007-2008 high food prices set off riots in over forty countries worldwide (UN, 2008), essentially in Africa, Asia, and South America. These uprisings underscored the risks of exacerbated tensions and violence, notably in poor regions, dependent on food imports, where institutions are weak.

• Focus on slow onset events

Land desertification and degradation are long processes that slowly destabilize regions and whose negative impacts are felt over a lengthy period. Unlike fast onset events (such as extreme weather) that force certain populations leave their homes immediately, the effects of slow onset events are more subtle and indirect. Desertification for example has a negative effect on jobs (notably in the agricultural sector) in developing nations. The steady increase in joblessness, in particular among young rural populations, forces certain individuals to seek options far from their communities, increasing the probability of their coming into contact with extremist groups and becoming radicalized. These effects are not immediately felt, though the desertification process is a threat to the stability of entire regions, and therefore to security.

• Focus on land-grabbing

The African nation of Mozambique is particularly vulnerable to climate change and future events might create tensions linked to land distribution. According to the respective analyses of the PNUD and the FAO, Mozambique is one of the world's poorest nations; its inhabitants are among the most malnourished (Thaler, 2013). In this context, any weather event (drought, flooding) is devastating for its inhabitants, leading to questions about land use. Several biofuel development projects were developed in Mozambique. Procana — a British company that turned sugar cane into ethanol — comes to mind, for it was symptomatic of the land-grabbing problem: the company claimed to be involved in food production, while causing the displacement of several communities; it was later proven that the land in question was used by local communities for farming and grazing (Thaler, 2013). Common in many African states (Ethiopia, Ghana, Mali, Tanzania, etc.), land-grabbing occurs when governments and/or foreign companies take possession of arable land (Kachika, 2010). Beyond economic development, sometimes certain well-known figures (from the military, political, or economic spectrums) acquire many acres of land to build palatial properties. Whatever its cause, food insecurity brought on by climate change will push local populations to search for new land and to contest the exploitation of arable land by private citizens or corporations. Nobody can deny the fact that if nothing is done to prevent them, situations such as these might increase in years to come.

INCREASED COMPETITION FOR NATURAL RESOURCES (FOSSIL FUELS AND AGRICULTURAL RAW MATERIALS)

The demand for natural resources — whether agricultural raw materials, minerals or fossil or renewable fuels — helps explain several long-standing conflicts, but the association of growing demand (notably in developing countries) and climate change is an additional threat to peace. As a matter of fact, in a context where several actors are struggling over the control of the same resources, climate change and its consequences might create conflicts over supply, notably in dependent nations.

Let us now distinguish competition for energy resources from competition for raw and agricultural materials.

Concerning energy resources, in the course of history numerous conflicts have broken out over production and control of oil and gas, and today still tensions exist in a world in which fossil fuels represent more than 80 percent of global energy production (World Bank). Competition is centered around non-renewable fossil fuels, and notably the world hydrocarbon reserves situated in regions exposed to climate change and therefore vulnerable, because of instability — political, economical, demographic, and religious. Within this framework, if energy insecurity or increased competition for resources is added to an already explosive cocktail, the risk of seeing conflicts escalate is multiplied. Industrialization, urbanization and modernization efforts consume a lot of energy, which is why numerous developing countries see annual increases in electricity consumption. Taken together, these tendencies increase vulnerability worldwide and justify investments in renewable energy sources. As early as 2008, in a document entitled "Climate Change and International Security," the European Commission recognized the possibility that the most dangerous conflicts would stem from increased competition for access to and control of energy resources, and that since in large part the world's hydrocarbon reserves are situated in regions vulnerable to the impacts of climate change, an upsurge in instability might very well occur (European Commission, 2008).

The same is true regarding raw materials. Competition for access to water resources, arable land, fish, and cereal exists and has for quite some time been the source of tensions. Even more flagrantly, climate change and its consequences will likely increase competition, provoke instability and lead to violent conflicts. The example of the Amazonian pioneer fronts and conflicts between hunters-gatherers and recently settled farmers shows how the struggle for control of land can create tensions within local populations. Competition for resources that are increasingly scarce in certain regions because of climate change will only become more prevalent and lead to more numerous and intense conflicts: demand is on the increase in regions where populations are on the rise in the face of rapid economic development. These inherent contradictions (increasing demand, decreasing resources) might well create chronic instability in these territories, especially those where communities have a history of feuds and where resources are dwindling.

Several studies have also established the link between over-fishing by foreign fishermen and pollution (reducing fish stocks available to local populations) and the development of piracy. In the same way, a reduction of fish stocks caused by climate change will bring about the loss of the principal source of food and revenue for entire populations who will have to find other activities, criminal if need be, to survive.

• Focus on piracy

Somalia occupies a strategic position with a vast coastline that brings work to its fishermen and feeds part of its population. Yet, for several years now its waters have been pillaged and polluted by foreign ships preventing the local populations from plying their trade. An article on the consequences of Somali piracy on international business (Johnson, 2014) notes that, according to UN reports, an estimate of $300 million worth of seafood is stolen from Somalia's coastline annually. For many years trawlers from northern countries (South Korea, Spain, etc.) have fished illegally and have also been accused of dumping toxic and nuclear waste off the Somali coast: dumping this type of material costs $2.50 a ton off the coast of the Horn of Africa, versus $250 a ton to do a proper clean-up in Europe. This situation has turned many Somalis, sons or grandsons of fishermen no longer able to practice their trade, into pirates. The world was briefly stunned to hear one of the accused of the "Tribal Kat[8]" say during his trial: "I used to be a fisherman, when there was still fish in the sea." (Le Monde with AFP, 2016).

Ocean acidification and marine biodiversity depleted by climate change will cause a 40 percent reduction in fisheries catch in the tropical regions by 2050 (IPCC, 2014), while numerous coastal African countries depend on fishing resources to feed their populations. This is the case in Sierra Leone where fish accounts for 80 percent of total protein animal consumption per capita (FAO). In regions affected by dwindling fish stocks, loss of activity and means of subsistence might lead to increased criminal activity (piracy, terrorism, etc.), and create global destabilization by having a negative impact on international commerce.

8. Seven Somali pirates attacked in 2011 a boat belonging to a French couple, killing one.

HEALTH EFFECTS OF CLIMATE CHANGE

For several years now, numerous articles, studies, and reports have been attempting to show the connections between climate change and human health. In 2009 journalist Sonia Shah contributed to the democratization of this question through a well-documented article (Shah, 2009). These studies clearly show how the environmental consequences of climate change affect human health (National Institute of Environmental Health Sciences, 2010).

According to the most recent IPCC report, climate change will continue to influence human health until the middle of the century, mainly by exacerbating existing health problems (very high confidence), and it will cause throughout the 21st century, a deterioration of health conditions in numerous regions, most particularly in poor, developing nations (very high confidence) (IPCC, 2014).

Climate change and its consequences have an influence on jointly shared elements (air, water, earth); lack (or poor quality) of air, water, or food contributes to health problems. As usual, it appears that all countries are not equally prepared to face these hazards, and the worst affected are those devoid of a healthcare infrastructure with the capability of facing such crises.

The WHO analyzed the impacts of climate change on health and highlighted its risks (WHO, 2016). For example, expected rising temperatures and repeated heat waves will cause illness and death in large numbers (much like the 2003 European heat wave and its 70,000 deaths) (JM Robine, 2007), natural disasters will destroy health care infrastructures, forcing populations to migrate, causing epidemics; floods and water stress will make drinking water scarce, and more generally, drops in agricultural production will cause malnutrition.

In all the WHO estimates there will be approximately 250,000 additional deaths due to climate change per year between 2030 and 2050, essentially attributable to malnutrition, malaria, diarrhea, and heat stress (WHO, 2014).

Here we see that climate change poses a direct threat to human security and wellbeing by causing illness and premature death. Furthermore, when faced with epidemics and large numbers of deaths and illnesses, countries unable to take on these issues will find themselves faced with protests and demonstrations.

• Focus on viruses

Some researchers believe that climate change and its consequences could spawn pandemics. There are several reasons for this. First of all, experts fear that melting ice caps might wake up ancient frozen viruses; since 2003 several large viruses have already been found in the permafrost (Griggs, 2015); for the moment they don't appear to be harmful to humans. Global warming could accelerate the process, since about 75 percent of new human diseases are caused by microbes that originate in animals (USAID, 2016), and climate change influences animal life as well, notably migratory birds with a lack of tolerance of temperature and moisture variation (Duncan, 2007). For all of these reasons, we should expect an increase in epidemics and new viruses threatening the existence, means of subsistence and standard of living of entire populations.

MIGRATORY CONSEQUENCES OF CLIMATE CHANGE

One of the main effects of climate change is migration, the massive displacement of people. Indeed, whether a natural disaster or a long drought, when a weather event destroys living spaces or the means of subsistence, people have no other choice than to migrate in hopes of surviving elsewhere. Migratory movements caused by environmental problems are already common currency, and "environmental" or "climate" migrations are going to be more and more common in years to come. In some cases it is inevitable. The inhabitants of island states destined to be submerged by rising sea levels will have to move to neighboring islands or countries. In other territories the risk of migrations is a reality, without being entirely predictable.

Globally, dwindling resources will accelerate the migrations of several million people toward extremely populous urban areas, cities such as Mexico City or New Delhi. There, local authorities will be obliged to provide resources (lodging, energy, jobs...) to the newcomers when they are barely able to manage previous arrivals — fertile ground for conflicts between old and new inhabitants facing the hostility of part of a host population that is dealing with its own problems — ill health, joblessness, homelessness — and feels underprivileged and excluded.

In 2008 the United Nations High Commissioner for Refugees stated that estimates on the total number of people likely to be displaced by climate change between now and 2050 varied from 250 million to a billion (Johnstone). These numbers take into account international and domestic migrations. Indeed, certain countries mainly experience migration between different regions. Such is the case of Chad where populations tend to migrate from north to south because the south is greener and offers more opportunities. According to Hindou Oumarou Ibrahim, of the Association for Indigenous Women and Peoples of Chad (AFPAT), these migratory movements are the cause of inter-community conflicts.

Though it is not the case everywhere, it is plain to see that the current flux of refugees (weak in comparison to what climate change will soon be causing) has fueled discussions and opposition all over the West. If the number of refugees were to increase dramatically, it is probable that opposition would crystallize, creating tensions between refugees and pro- and anti-migrant inhabitants.

This trend has been universally recognized, and more and more states have come out in favor of recognizing internationally that these migrations are caused by the environment, and protecting migrants who truly are "climate refugees."

• Focus on climate refugee status

As early as 1985 UN Environment defined climate refugees as "people who are forced to leave their home region due to manmade or environmental disasters that compromise their well-being or secure livelihood" (McAdam, 2011), but this is a loose definition, and the breadth of the situations it covers imprecise.
The term "climate refugee" has no legal standing. For it to become a recognized status it would have to be covered by the Geneva Convention regarding refugee status, defined as someone with a "well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership in a particular social group. Most likely, they cannot return home or are afraid to do so." (UNHCR).
And yet, as we mentioned before, in 2013 an inhabitant of Kiribati, strongly impacted by rising sea levels, appealed to New Zealand for refugee status, blaming global warming for his plight. His request was turned down by the New Zealand authorities (Sciences et Avenir avec AFP, 2013). Many NGOs and certain governments have spoken out to bemoan the fact that the situation has not been

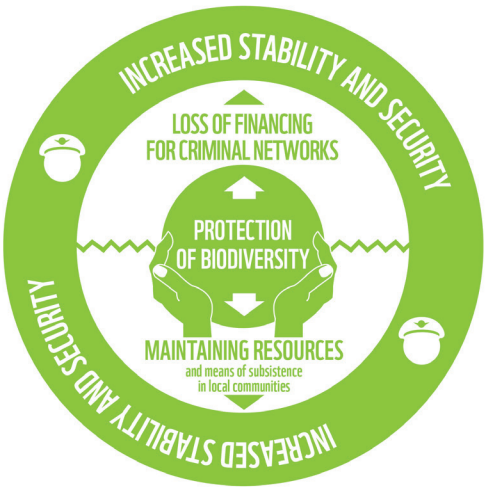
taken into account, and to stress the necessity of bringing appropriate responses. Within this framework, the Nansen initiative, launched in 2012 by Switzerland and Norway, sought to build consensus on an Agenda addressing the needs of people "forced or obliged to leave their homes or places of habitual residence as a result of a disaster or in order to avoid the impact of an immediate and foreseeable natural hazard." (The Nansen Initiative, 2015). It was endorsed by 110 states in 2015. For several years the WWF has been committed to setting up an international framework to deal with "loss and damage" stemming from climate change; in fact as 2012 the WWF stressed the importance of meeting the challenge of migrations through greater coordination at regional and international levels (WWF, Care, Actionaid, 2012).

THE CLIMATE… AND BIODIVERSITY!

The present report highlights the fact that the future consequences of climate change increase the risk of conflicts, and reveals connections between climate and security. Nevertheless, it is important to keep in mind that biodiversity damage — whether caused by climate change or not — is a real threat to the stability of these regions. We have already showed through piracy and land-grabbing that access to environmental resources is generating conflict. We should expect the worst as the effects of climate change are exacerbated. Fighting against climate change is imperative, though other measures should also be immediately implemented to combat criminal attacks on biodiversity.

The illegal wildlife trade is the fourth largest transnational criminal activity in the world (by value), following drug trafficking, counterfeiting and human trafficking. Wildlife trafficking, as a transnational crime of this scale, also has broad implications. The degree and extent of violence perpetrated by armed groups and wildlife traffickers currently endangers peace, security and the state of law. These large scale organized crime groups are not only involved in wildlife trafficking, but also in trafficking drugs, weapons, and people, and are engaged in fraud, tax evasion, extortion, corruption and money laundering. The organized nature of these crime syndicates involved in wildlife crime undermines economic, social and political development. Fighting against wildlife criminality is a major conservation, security, socio-economic and political development issue (WWF, 2015).

As for illegal fishing, it is a $23 billion industry, according to Interpol, financial manna for international organized crime (INTERPOL, 2013). Biopiracy, misappropriation of biodiversity or of traditional, indigenous knowledge of genetic resources — without consent and without sharing profits linked to resource optimization (France Libertés) — also contribute to tensions. This is the raison d'être of the Nagoya protocol, whose goal is the fair and equitable sharing of benefits arising from the utilization of genetic resources (Nagoya Protocol, 2010). Much still needs to be done to protect biodiversity and ensure stability. Banning the appropriation of living beings internationally, policing the seas and punishing illicit fishing practices, closing down the market for ivory or rhinoceros horn in Asia, and investing more in the fight against wildlife trafficking in Africa — all of this goes toward improving security, both locally and globally.



THE ENVIRONMENT... AND THE REST!

A controversy has for several years pitted scientists specialized in climate security issues against each other. On the one hand, the quantitatives believe in the existence of a connection between climate and security; on the other hand, the qualitatives criticize this thinking, preferring explanatory models (Observatoire Défense et climat, 2017).

Though there are several ways to prove and illustrate the existence of a connection between environmental and security issues, it is important to avoid explaining everything exclusively through the lens of the environment, and analyze situations by taking other factors (religious, economic, demographic, political...) into account. A report from the national observatory "Défense et climat" warns against the risk of depoliticizing conflicts, allowing certain policymakers to blame their incompetence and irresponsibility on weather events (Observatoire Défense et climat, 2017). Indeed, as has been previously noted, instability and insecurity are sometimes caused by government implementation of ill-adapted policies. For example, land-grabbing policies (associated with desertification), marginalization of certain ethnic groups (associated with a lack of resources) or unfair treatment (during a catastrophe) could foster conflict. And yet, recognizing the importance of the environment does not absolve politicians of their responsibilities. By increasing the possibility of conflict, climate change reinforces the necessity of good government, and inclusive policies... in order to deal with increased tensions.

The main pitfall to be avoided is leaving aside the explanatory dimension. The 3S doctrine totally recognizes the influence of other factors on conflicts, but would like to highlight the environmental factor, too often forgotten in public and institutional discussions. To say that the environmental consequences of climate change will play a destabilizing role in numerous regions and present security risks does not mean that we need to ignore the existence of other factors that also need to be acted on.

Based on the scientific observations of IPCC experts, the 3S doctrine recognizes that climate change will have many harmful consequences: rising sea levels, extreme weather, water stress, desertification, increased competition for resources, not to mention health and migratory issues.

On the whole, the opinions and examples presented till now prove the existence of a connection between climate change and stability in regions it affects. The relationship between environmental and security issues makes it necessary to develop appropriate policies to prevent the risk of destabilization and to develop a new approach to security.

CHAPITRE 3

RETHINKING SECURITY IN A WORLD AFFECTED BY CLIMATE CHANGE

While climate change is now recognized as a major threat by most countries around the world, a challenge demanding strong measures, as is apparent in the Paris Climate Agreement, it is still too often limited to the analysis of environmental problems, and largely absent from political, economic, military, security, and diplomatic considerations.

An article from the Center for Climate and Security (Femia, Werrell, 2015) attempts to explain why climate change is given short shrift in high level risk assessments and underscores the World Economic Forum methodology, that breaks down global risks into five categories (economic, environmental, geopolitical, societal, technological), with climate change listed in the environmental category, separated from related risks such as food or water crises (which are listed in the "societal" category).

Yet, and this report confirms it, climate change is a global risk, the main factor underlying several economic, societal, and security consequences. Rather than a simple "threat multiplier," it should be considered a full-fledged strategic risk that could destabilize every aspect of society. As the first two chapters have demonstrated, using numerous examples, climate change cannot be dissociated from energy supply issues, availability of resources or food security, for these issues are all interdependent. This also applies to health and population issues, for if migratory and/or health crises exist apart from random weather events, climate change and its consequences will intensify the frequency and intensity of these crises. It would therefore make no sense to analyze these risks and develop public policies to prepare for them without taking climate change into account.

Which is why we must adapt our view of security by taking into account a new given: climate change. This makes it imperative to rethink defensive military strategies, refresh diplomatic policies and reconsider the role and influence of environmental issues as regards security.

Several innovative solutions can offer a better grasp of the concept of security while taking into account the environmental dimension and better integrating environmental issues in the strategies and action plans of the defense community internationally.

WWF FRANCE RECOMMENDATIONS

The analysis of connections between environmental and security issues makes it imperative, if we want to create a more resilient world, to consider climate change as a strategic risk in its own right.

It is time to act, by prioritizing the right policies.

- IMPLEMENT THE TWO BASIC AGENDAS ADOPTED IN 2015
- PRODUCE A ROBUST, INDEPENDENT EXPERTISE
- STRENGTHEN INTERNATIONAL COOPERATION
- TRANSFORM ANALYSES AND INITIATIVES INTO CONCRETE ACTION FOR LOCAL POPULATIONS, ESPECIALLY YOUTH
- PROVIDE TRAINING IN SUSTAINABILITY, STABILITY, SECURITY TO MILITARY AND DIPLOMATIC STAFF ON A NATIONAL LEVEL
- ADD SUSTAINABILITY EXPERTS TO THE CRISIS MANAGEMENT DEPARTMENTS OF DIPLOMATIC MISSIONS AND DEFENSE MINISTRIES
- STRESS TEST IN TERMS OF CONFLICT A WORLD WITH A 1.5°C-, 2°C-, 3°C-, OR 4°C- INCREASE IN TEMPERATURE
- INCREASE FINANCING FOR RESILIENCE AND ADAPTATION TO CLIMATE CHANGE BY PLEDGING PART OF ITS SECURITY BUDGET TOWARD ADAPTATION

Key WWF France recommendations for changing the framework and thought processes concerning security in a world undergoing climate shock

IMPLEMENT THE TWO AGREEMENTS ADOPTED IN 2015

In 2015 two unprecedented international agreements were adopted. The Paris Climate Agreement, first universal agreement on climate change, sets a path to keep the increase in global temperatures "well below 2°C" while the UN's Sustainable Development Program proposes to meet seventeen Sustainable Development Goals (SDG). For the first time, member states adopted an integrated roadmap for a new development model worldwide. Implementing these two historic agreements will greatly reduce the risk of conflicts and insecurity around the globe — the starting point for agendas of peace and their implementation, as well as one of the best investments that can be made in 21st century security.

Two major agreements were signed in 2015. The Paris Climate Agreement, first universal accord on climate change, states in article 2 its intention to hold "the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change." (UNFCCC, 2015). 2015 also saw the birth of a new Sustainable Development Program, unanimously adopted by the 193 member states. Transforming our world: the 2030 Agenda for Sustainable Development (UN, 2015) is a set of seventeen Sustainable Development Goals (SDG) that replace the Millennium Development Goals (MDG).

These two agreements are both fundamental and historical and their implementation will greatly reduce the risks of conflicts and insecurity throughout the world.

The Paris Agreement is of utmost importance for many reasons. To begin with, it marks the first time countries throughout the world have agreed on a common roadmap and goals such as limiting global warming to well below 2 °C, the long-term goal being to achieve carbon neutrality by the second half of the century. Beyond its benefits to the environment, this transition improves human health and living conditions, both of which are crucial to stability. Furthermore, according to International Labor Organization estimates, the green economy could generate between fifteen and sixty million additional jobs, helping people out of poverty while bolstering integration (International Labor Organization, 2012). It is also true that a lack of economic opportunity contributes to instability in developing countries. Responding with green economy is a way of both increasing the environmental and social resilience of countries that are often faced with endemic joblessness among young people. Northern nations have also pledged at least €100 billion annually by 2020 to international climate solidarity, with a sizeable chunk of that set aside for adaptation. These financing schemes are essential tools to stabilize the world, helping the most vulnerable nations to face climate change by investing in adaptation and resilience and banking on a greener economy.

The Sustainable Development Program, unanimously adopted by the 193 member states (UN, 2015) contains Sustainable Development Goals — a roadmap for sustainable development in a world at peace.

The 2030 Agenda for Sustainable Development is a set of seventeen goals and 169 targets that integrate all the dimensions of sustainable development (economic, social, environmental) with the aim of wiping out poverty, protecting the planet, and guaranteeing prosperity for all (Ministère de la Transition écologique et solidaire, 2016).

The 17 Sustainable Development Goals

Examples cited in the first chapter of this report showed that climate change and its consequences, notably in terms of food security, health and inequality, were on track to destabilize regions and spark conflicts. Furthermore, meeting the SDG (tackling poverty and hunger, providing access to health services and employment, taking on climate change in the interest of a thriving terrestrial and aquatic life) goes hand in hand with implementing concrete actions such as the equitable sharing of energy resources, tackling over-fishing and deforestation — essential steps if we wish to preserve world stability and avoid armed conflicts.

For example, regarding desertification (about which we saw previously to what extent it can have a destabilizing effect), the 15.3 target is clear: "by 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world." (UN, 2015). In truth, since desertification is a slow onset event, able to gradually destabilize certain regions through the indirect consequences it provokes (hunger, joblessness...), attempting to restore degraded land allows us not only to meet the 15.3 target but also to move toward reaching goals #1 (no poverty), #2 (zero hunger), #8 (decent work and economic growth), and #11 (sustainable cities and communities). A virtuous circle of sustainability, prosperity, and stability will exist as efforts and investments meet important goals.

WWF supports these two essential agreements, as well as all measures that aim to strengthen our ability to act, whether through sharing information or financing mitigation and adaptation. It is impossible to stress enough the importance of certain mechanisms set in motion these past few years, including the implementation of Nationally Determined Contributions (NDC), allowing each country to present the mechanisms it plans to use in its attempt to contribute to the international effort to limit the increase in global temperatures to "well below 2°C."

PRODUCE A ROBUST, INDEPENDENT EXPERTISE

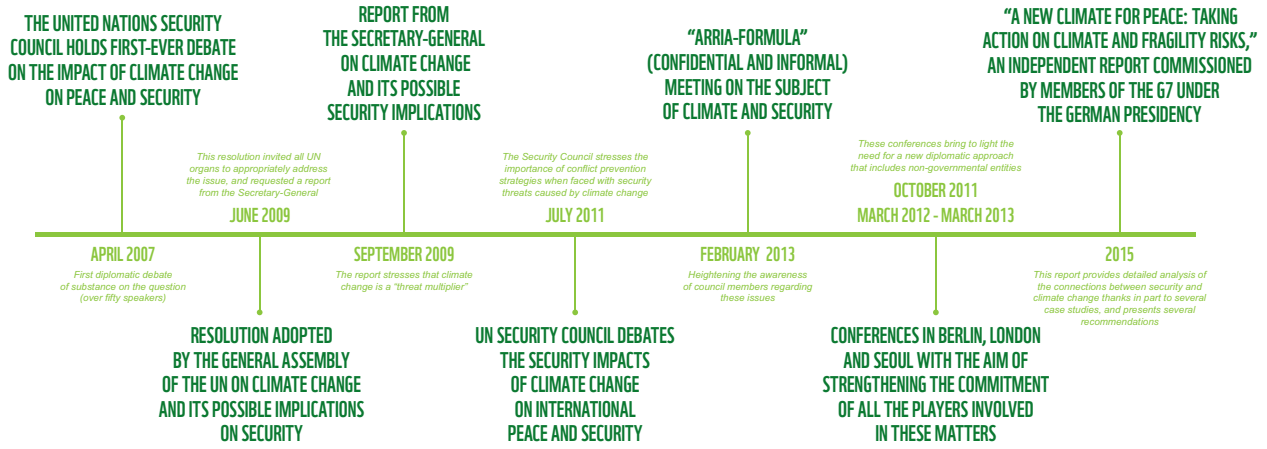
If these problems are to be given the central place they deserve both nationally and internationally, it is crucial that we be able to rely on studies emphasizing their importance. These examinations are also essential to setting up projects allowing us to better grasp the situation in each region, and adjust initiatives and adaptation plans accordingly. An ever-increasing number of think tanks are now mobilized (Clingendael Institute, Adelphi, SIPRI, Center for Climate and Security, etc.). The WWF recommends that these initiatives be adequately funded and relayed both to the media and to policymakers, in the North and the South.

Studies, reports, and research are all necessary to grasp the importance of the issues at hand, and highlight worrisome situations as well as actions to be carried out, and sound practices adopted. According to the Adelphi think tank, numerous papers highlighting the link between security and the environment have brought about a consensus among members of the scientific community and policymakers the world over, that climate change will act as a multiplier of threats to world peace and security, a claim confirmed by numerous official declarations of the United Nations, the European Union and other international and regional organizations (Adelphi, 2013).

In order for this newfound consciousness to continue to foster concrete measures, several initiatives have emerged, based on scientific expertise, with the aim of including all concerned parties.

Timetables (The Center for Climate and Security, 2016) and maps (Adelphi, 2013) emerging from specialized think tanks itemized events (conferences, meetings, reports) that had positive effects on research into needed solutions.

All of these appraisals heightened the awareness of actors nationally and internationally to the link between security and climate, inciting them to back actions that prevent the risks of insecurity brought on by climate change. Independent analysis is of utmost importance to grasp what makes each situation, conflict, and community unique and prepare an appropriate response. Guaranteeing independence and subsidizing quality analyses of these subjects is therefore crucial to setting in motion intelligent and integrated policies for preventing risk and insecurity.



Momentous moments in the recognition of the climate-security connection, and the emergence of preventive diplomacy

STRENGTHENING INTERNATIONAL COOPERATION

Several initiatives have for several years focused on promoting dialogue and action regarding climate, security, and development issues. A few examples come to mind: the Planetary Security Initiative, launched in 2015 by the Netherlands Ministry of Foreign Affairs, and the German Foreign Ministry's Climate Diplomacy Initiative. It is imperative to strengthen existing initiatives and foster relationships between various communities (military, ecological, diplomatic, economic, etc.), encouraging them to meet, review the issues at hand and take joint measures aimed at ensuring security through the fight against climate change. All parties involved (governmental and nongovernmental) need to participate in these exchanges and in the development of solutions. The WWF network, deeply involved in issues of sustainability, climate, and adaptation, also has a role to play in this new paradigm shift.

These past dozen years, a number of initiatives aiming to strengthen international cooperation and heighten awareness of international players regarding the necessity of acting against climate change for security reasons have emerged. This momentum must be maintained, and concerned parties made to meet. Going forward, formal declarations as well as informal encounters (such as Arria-formula meetings[9]) between different players will be necessary.

Several programs have emerged these last few years, with the objective of producing expertise on climate-security issues and to initiate meetings between the different actors.

• Focus on the "Climate Diplomacy Initiative"

Following the afore-mentioned observations, the German Foreign Affairs Minister launched the "Climate Diplomacy" initiative with the aim of promoting preventative diplomacy by leaving traditional realms behind, since it is open to collaborating with NGOs instead of relying solely on States, and takes a non-exclusive, global approach to interdependent issues (security, international cooperation, development support, conflict prevention, humanitarian aid, crisis management, mitigation and adaptation to climate change, etc.).

The "Climate Diplomacy" report, result of a collaboration between the German Federal Foreign Office and the Adelphi think tank, retraces steps leading up to the birth of the Climate Diplomacy Initiative (adelphi, 2013). Since 2007 when the UN Security Council held its first-ever debate on the impact of climate change on peace and security (UN, 2007), much has happened. The UN, in concert with different States and through formal statements (resolutions[10], reports of the Secretary General[11]) and informal meetings[12] has been active in raising awareness of the link between climate change and insecurity.

This program seeks henceforth to embrace a greater role in the analysis of international debates on climate diplomacy and security, while raising awareness through regional cooperation throughout the world. Adelphi and the German Minister of Foreign Affairs have also developed a platform for exchange on environment, conflict, and cooperation (ECC Platform).

9. The "Arria-formula meetings" are very informal, confidential gatherings which enable Security Council members to have a frank and private exchange of views, within a flexible procedural framework, with persons whom the inviting member or members of the Council (who also act as the facilitators or convenors) believe it would be beneficial to hear and/or to whom they may wish to convey a message.

10. http://www.un.org/w/ga/search/view_doc.asp?symbol=A/RES/63/281&referer=/english/&Lang=E

11. http://www.un.org/ga/search/view_doc.asp?symbol=A/64/350

12. https://www.climate-diplomacy.org/events/security-council-arria-formula-meeting-security-dimensions-climate-change

• Focus on the Planetary Security Initiative (PSI)

The PSI initiative was launched in 2015 by the Netherlands Ministry of Foreign Affairs, and is now operated by a consortium of leading think tanks working on links between climate and security:

- **Clingendael Institute:** Netherlands Institute of International Relations, the premier Dutch think tank on international affairs
- **Adelphi:** leading German think tank and public policy consultancy firm specialized in climate, environment and development
- **Center for Climate and Security:** American institute composed of security and foreign policy experts exploring the links between climate change and security throughout the world
- **Hague Centre for Strategic Studies:** independent think tank that produces reports and recommendations on questions of risk and security
- **Institute for Environmental Security :** international NGO that seeks to raise awareness of environmental security
- **Stockholm International Peace Research Institute (SIPRI) :** international institute dedicated to research into conflict, armament, arms control, and disarmament

The goal is to help the traditional spheres of foreign policy and defense better grasp these connections, and heighten awareness of these subjects, developing policies and good practice guidelines to help ensure peace and cooperation in a world rocked by climate change.

Since 2015 the Institute for Environmental Security has been holding bi-annual roundtable discussions on the theme “climate and security” with the aim of bringing together experts, policymakers, and representatives of embassies. The fifth edition of this roundtable was held on April 19, 2017, with representatives of over a dozen embassies as well as specialized organizations and research institutes (French Embassy at The Hague, 2017). This type of initiative allowing policymakers and experts to meet and exchange views, is essential to spreading awareness of the problem throughout society.

• Focus on the Global Military Advisory Council on Climate Change (GMACCC)

The Global Military Advisory Council on Climate Change is a global network of serving and retired military officers, and associated institutions, committed to highlighting the potential security implications of a changing climate and advocating action, including by the military, to minimize the risks. Created in 2009 by the IES, it swiftly recognized that "failure to recognize the conflict and instability implications of climate change, and to invest in a range of preventative and adaptive actions will be very costly in terms of destabilizing nations, causing human suffering, retarding development." (Institute for Environmental Security, 2009).

A true international cooperation initiative bringing together officers from vastly different countries (Bangladesh, Australia, Denmark, Nepal, USA...) and that carries out studies on different regions of the world. For example, the committee published reports on the consequences of climate change on security in specific regions such as Africa and/or South Asia, inviting players from southern nations to join in the discussion.

As these three examples show, numerous initiatives have emerged with the goal of bringing concerned parties together to work on solutions. This is also true of the most prestigious research institutes, who are embracing the subject and organizing roundtable events to pursue the discussion; for example in December 2016, the Chatham House Royal Institute of International Affairs held a panel discussion on the subject, featuring several prominent policymakers and experts (Chatham House, 2016).

Much like energy transition and the fight against climate change, preventive climate diplomacy should not be seen by players as constraining but rather as an opportunity to develop international cooperation and sustainable development. Events such as the European Climate Diplomacy Day, last celebrated on June 17, 2015, are great ways to heighten awareness of these issues and share a positive and unifying message with humankind as a whole (France Diplomatie, 2015).

TRANSFORM ANALYSES AND INITIATIVES INTO CONCRETE ACTION FOR LOCAL POPULATIONS, ESPECIALLY YOUTH

In order to transform existing analyses, high-level initiatives, and global projects into grassroots movements, governments must take concrete action. Countries threatened by climate change and its consequences must immediately begin to implement schemes that will prevent the risks of rising water levels, extreme weather events and desertification. Beyond exchanges, the best way to set such action in motion is to strengthen regional cooperation. Certain promising initiatives have emerged, such as the 3S Initiative launched by several African leaders in concert with the United Nations Convention to Combat Desertification (UNCCD), at the COP22 in Marrakesh. This reflects the initiative and commitment of countries threatened by climate change and land degradation in Africa, as well as a determination to find real solutions to these problems.

As we have seen in the first chapters of this report, the consequences of climate change will not affect each place in the same way; and everyone is not equally prepared to face the predictable consequences of future weather events. History, geography, economy, and religion are all factors that change from one region to the next, making it impossible to come up with universal solutions.

IPCC research informs local players of the risks they will be confronted with in coming years, so that they may reflect upon what actions need to be taken in order to best adapt to these risks. Consequently it is important to bring different players from the same regions together, in order to heighten the awareness of all parties involved regarding instability linked to future weather events, and favor development of policies aimed at mitigating the effects of climate change and adapting to its consequences. These groups should include both governmental organizations and nongovernmental organizations, for without the latter it is much more difficult to implement policies locally that were put in place by regional cooperation agencies. It is of utmost importance to organize local meetings, and avoid developing projects in which local populations will not feel compelled to participate.

• Focus on the 3S Initiative

The 3S Initiative was launched by several African governments in 2016 in Marrakesh, at the first African Action Summit, a COP22 side event. This regional cooperative initiative aims to promote stability and security in the face of migrations caused by land degradation and climate change (UNCCD). Besides showing African policymakers the connections between weather events caused by climate change and security risks in several African nations, it has several concrete and ambitious goals. For example, the initiative hopes to “create two million green jobs for youth, women and migrants; to rehabilitate ten million hectares of degraded land in 250,000 villages by 2025; and to enhance early warning systems to predict drought and other natural disasters, and strengthen land tenure,” according to the Secretariat of the Convention to Combat Desertification, associated with this project.

This initiative is exemplary in many ways. First of all it is an international cooperation project focused on a particular region of the globe, Africa, that poses various problems (climate change, development, promoting peace) that brings together all the major players (governmental and nongovernmental). The Appel à Action de Ouagadougou, launched on June 15, 2017 by the presidents of Burkina Faso, Mali, and Niger, illustrates the will of African nations threatened by climate change and land degradation, to come up with concrete answers in order to ensure sustainability, stability and security within their borders.

A land restoration project has been launched in Agadez, Niger. It aims to restore at least 470 hectares of land, and create 470 farming jobs for jobless youth, migrants and former human traffickers as well as training for 500 migrants in transit while at Agadez. Other projects include the reintegration of migrants returning to Gambia, and former soldiers in the Central African Republic.

The proliferation of programs such as this one should be encouraged in other regions; and projects aiming to stabilize populations, and ensure their prosperity in the respect of the environment, reducing the risks of instability, should receive financial backing.

These regional cooperation initiatives will not prevent efforts on an international level and indeed, in order to turn this awareness into concrete action, it is crucial that the UN Security Council take on a greater leadership role.

PROVIDE TRAINING IN SUSTAINABILITY, STABILITY, SECURITY TO MILITARY AND DIPLOMATIC STAFF ON A NATIONAL LEVEL

Players at every level — international policymakers, simple citizens, diplomats, national authorities, the military — must be made more aware of security risks posed by climate change. A certain number of pioneer nations have implemented outreach and training programs for diplomats, to help them grasp the importance of environmental issues and apply the central concepts of climate diplomacy. The WWF recommends that sustainability, stability and security tutorials be compulsory in military schools and training courses for diplomats.

While it remains crucial to strengthen international cooperation and encourage meetings between communities, awareness at the national level is also necessary. It is essential that the 3S doctrine be taught to military, diplomatic and administrative professionals. This would ensure that decisions and actions, whether strategic or operational, would always take into account the environmental angle. Explaining how climate change and its effects can create instability is crucial if we want agents to be able to gauge situations correctly. For the moment, military academies, and diplomatic and consular institutions of any stature consider environmental issues to be peripheral, if not outright frivolous.

First and foremost it is imperative that the staff of national institutions not encourage, through ignorance, unsustainable policies. The only way to avoid this is through education, awareness campaigns and training programs. Each link in the chain must be

enlightened. Designing innovative projects with the aim of favoring sustainability and reducing the risk of conflicts through regional cooperation can be fruitful only if operators and protagonists grasp the importance of the issues at hand as well as the meaning of the initiatives being developed. Certain countries have already begun to provide this kind of training.

• Focus on Germany and France

In Germany for example, several initiatives have been set in motion. Among those, informational meetings for embassy administrators and other German representatives abroad, to heighten awareness of climate and security, and inform them of the policies needed to tackle the risks linked to climate change. These meetings also focus on the particular contexts of vulnerable regions, while encouraging discussions on what needs to be done to best tackle the risks, etc. More detailed training programs are also available for diplomats, dealing with multiple environmental issues (climate change, energy, climate diplomacy), and calling upon governmental and nongovernmental players (academics, NGOs, etc.) (adelphi, 2013).

In France, innovative action was also taken ahead of the COP21, by the IDC (Institut de formation diplomatique et consulaire) in the form of daylong training seminars for outgoing diplomats. Modules about climate issues were available during the 2015 Ambassadors' Week, during which the whole of French ambassadors were reunited, the world's third largest diplomatic network. Diplomatic posts have been given the green light to organize their own events, in sessions open to the public or behind closed doors. In all, over one thousand training and communication initiatives ahead of the COP21 among the French diplomatic corps, were observed.

Once awareness has been heightened on all fronts, agents must become specialized in environmental issues, acquiring the expertise necessary to guarantee a strategic orientation toward sustainable innovation.

ADD SUSTAINABILITY EXPERTS TO THE CRISIS MANAGEMENT DEPARTMENTS OF DIPLOMATIC MISSIONS AND DEFENSE MINISTRIES

Far too often the relevant ministries analyze crises without taking into account the connection between lack of environmental sustainability and insecurity. This lack of an anticipatory response poses a clear and present threat to our planet. WWF France recommends that sustainability experts be systematically added to the teams analyzing the planet's "hot spots," and participate in crisis simulation exercises the world over.

Given the information presented in the first chapters of this report, it is crucial that analysts welcome to their ranks specialists in environmental issues. It is unthinkable to continue to analyze current and future crises without addressing climate change and its effects. For several years now and to varying degrees, diplomatic missions have been including environmental issues in the framework of their analyses.

The United Kingdom has for several years been keen on these issues, with measures taken to heighten awareness of the subject. In 2013 Rear Admiral Neil Morisetti was appointed as the Foreign Secretary's special representative for climate change, immediately recognizing the link between climate change and security (GOV.UK.2013). Though English-speaking nations (United States and United Kingdom), were among the first to recognize the connection between climate change and security, many other countries are now on board. In 2005 Bangladesh developed a national adaptation program of action, followed by coping strategies and mechanisms for fighting against climate change (Government of the People's Republic of Bangladesh, 2008). France has also recently gotten on board. First in 2012, with the adoption of the sustainable defense development strategy (S3D) (Ministère des Armées), followed by Senator Leïla Aïchi's 2014 initiative, "Le Livre vert de la défense" (Aïchi, 2014) (in which she recommended integrating the concept of "green defense") a paper that paved the way to the first international conference on climate and defense in 2015, which welcomed ministers from thirty-three nations, the UN, the Union Africaine, and the European Union. In early 2017, the DGRIS of the Defense Ministry formed a geopolitical observatory on issues related to climate change in terms of security and defense, a further sign of heightened awareness of the importance of these issues and of the necessity of allowing the ministry to deal closely with environmental issues concerning each of the planet's "hot spots."

• Focus on the United States

The United States has a head start on other countries worldwide in this field because the US Department of Defense was quick to grasp that environmental factors might well become a threat to security. Risks linked to climate change are considered a threat to national security, and this non-partisan evaluation is backed across America (The Center for Climate & Security, 2016). The 2015 National Security Strategy makes clear that climate change is an urgent and growing threat to national security (Seal of the President of the United States, 2015), which is why in January 2016 the Department of Defense issued a directive to evaluate and manage risks associated to the impacts of climate change (Department of Defense, 2016). This notably establishes the need to improve adaptation and resilience and implement

the 2014 DoD Climate Change Adaptation Roadmap. Among numerous initiatives, a report published by the US Department of Defense in 2015 explains how various "Unified Combatant Commands[13]" must identify the principal climate risks in their region and integrate mitigation of climate risks into their missions (humanitarian aid, cooperation on security) (Department of Defense, 2015). This will enable leadership to readily identify the climate risks most likely to destabilize their region and accordingly adapt policy in terms of adaptation and resilience. However, now that Donald Trump has taken office, American leadership on these issues is in doubt.

Several very interesting initiatives have emerged these past few years within governments who more and more often include in their analyses of the planet's "hot spots" environmental issues and weather events. This should become systematic, so that all institutions in charge of security policy should take climate change and its effects into account. In order to better grasp the extent of coming upheaval, crisis simulation exercises need to be carried out.

STRESS TEST IN TERMS OF CONFLICT: A WORLD WITH A 1.5°C-, 2°C-, 3°C-, OR 4°C-INCREASE IN TEMPERATURE

To prevent risk, anticipate crises and improve operational responses, WWF France recommends that Defense and Foreign Ministries join forces to reproduce IPCC scenarios, and stress test the possible consequences of unchecked global warming. The results of these analyses will consequently inform risk reduction efforts.

To best evaluate the possible impact of climate change and its effects, it is necessary to carry out simulation exercises. Defense professionals could stress test different global warming scenarios (+1.5°C, +2°C, +3°C, +4°C...) by basing themselves on IPCC[14] projections and attempting to see how to manage the anticipated consequences of such upheavals. These exercises take into account, depending on countries or regions, different risks: rising sea levels, land desertification, loss of biodiversity, migrations, reduced agricultural yields, water conflicts... and prepare for them. Climate change will cause an increase in the frequency and intensity of extreme weather events.
The world will be ever more exposed to Nassim Taleb's "Black Swans," extreme, unexpected events. Without effective preparation for the coming consequences of climate change, the repercussions in terms of conflict will be devastating. This is crucial, since inadequate preparation of the institutions tasked with security will turn fleeting tensions into permanent conflicts. Whereas responsiveness to and preparedness for possibly destabilizing events will create regional resilience.

After the 2008 financial crisis stress tests became a popular way to evaluate the solidity of financial institutions. Using this model, defense institutions should simulate the consequences in terms of conflict of a world with a 2°C or 3°C increase in temperature, and force those who are lacking in response capability to set the appropriate policies in motion. These simulations are crucial to meet the challenges that armies will be faced with in a world in which greenhouse gas emissions are destabilizing the planet.

13. Command composed of forces from at least two military departments, with a broad and continuing mission.

14. The most recent IPCC assessment report describes four different 21st century representative concentration pathways (RCPs). These include a stringent mitigation scenario (RCP2.6), two intermediate scenarios (RCP4.5 and RCP6,0) and one scenario with very high greenhouse gas emissions (RCP8.5). Global surface temperature change for the end of the 21st century (2081-2100) relative to 1986-2005 is likely to be 0.3°C to 1.7°C under RCP2.6, 1.1°C to 2.6°C under RCP4.5, 1.4°C to 3.1°C under RCP6.0 and 2.6°C to 4.8°C under RCP8.5. https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf

INCREASE FINANCING FOR RESILIENCE AND ADAPTATION TO CLIMATE CHANGE, CONSIDERING IT AN INVESTMENT IN LOCAL AND GLOBAL SECURITY

Financing adaptation to the consequences of climate change in developing countries is necessary to stabilize our planet. Current levels of investment — $22.5 billion in 2014 — are woefully inadequate. In fact, the World Bank estimated the cost between 2010 and 2050 at $70 to $100 billion; though a UN Environment report recently reevaluated the cost at $140 to $300 billion per year in 2030, and $280 to $500 billion by 2050. World military spending rose to $1686 billion in 2016, almost 75 times more than contributions to the cost of adapting to climate change in developing countries and they will no doubt continue to rise in rich countries, if for example NATO member states pledge 2 percent of their GDP to defense spending.

To meet demands (between $140 and 300 billion per year by 2030 to adapt to climate change), keep their commitment to international climate solidarity (at least $100 billion per year for mitigation and adaptation to climate change in developing countries by 2020), while ensuring the effectiveness in terms of security that their investment is bringing to bear, developed nations must create a roadmap to progressively increasing adaptation financing. While numerous countries the world over have increased spending on security (example: NATO member states pledging 2 percent of their GDP to defense spending), it would make sense to allocate a portion of the budget to climate security. For instance, in 2016 France invested €606 million in adaptation financing and is on board to contribute €1.2 billion per year to adaptation starting in 2020. In order to keep those commitments, it could pledge part of its increased security budget (the objective set by the president being €50 billion in 2025 versus €34.2 billion in 2018), toward adaptation. In this scenario, the extra €600 million for adaptation to climate change would represent a negligible portion of the total security budget and would allow anticipated conflict risk reduction.

Taking into account the facts presented here, we know that climate change and its environmental consequences must be seen as a major strategic risk by defense institutions, and that measures need to be set up to reduce vulnerability, encourage adaptation and allow territories to become more resilient. However, the relevant initiatives and programs need financing to succeed.

Bilateral and multilateral funding for climate change adaptation reached $25 billion in 2014, $22.5 billion of which was earmarked for developing countries. International financial institutions (IFI) accounted for 84 percent of funding. The rest came from bilateral adaptation-related aid commitments by OECD member countries (13 percent), and various climate funds (3 percent) (UN Environment, 2015).

And yet, the need is great still, and the organizations for international cooperation working on these problems recognize that there is a lack of investment in adaptation and resilience, when these issues should be at the heart of international climate solidarity. The Sendai Framework for Disaster Risk Reduction emphasized the importance of the UN helping developing countries with disaster risk reduction through increased funding (UN, 2015). The same applies to the Agenda for Action the Addis Abeba, adopted in 2015 during the Third International Conference on Financing for Development that noted investment gaps at local levels, and recognized the importance of implementing integrated policies and plans towards risk prevention, mitigation, and adaptation (UN, 2015).

Generally speaking the World Bank recognizes that there is a growing need for adaptation financing. In a 2010 study, it estimated the cost between 2010 and 2050 of climate change adaptation for developing countries was in the range of $70 billion and $100 billion dollars a year, around 0.2% of their GDP (World Bank Group, 2010). Since then, a 2014 UN Environment report estimated that adaptation costs could range from $140 to $300 billion by 2030 — and between $280 billion and $500 billion by 2050 (UN Environment, 2016). The report deplores the gap between the needs and the resources set aside to meet them.

This is why WWF France encourages developed nations to get back on track by investing massively in climate change adaptation to reach the goal of $140 billion by 2030. Multiple channels have been identified as useful in the quest for increased financing of adaptation (to increase regional prosperity, development and resilience); this report also demonstrates that financing adaptation is money spent toward stabilization. Consequently, it is a legitimate necessity to incite governments to set aside a sizable chunk of their security budget on financing adaptation.

IN THE WORLD

CURRENT SITUATION

1 686 BILLION
INTERNATIONAL MILITARY SPENDING IN 2016

$15,7 BILLION
DEVELOPED COUNTRIES' BILATERAL AND MULTILATERAL PUBLIC CLIMATE FINANCE IN 2020 (OECD'S PROJECTION)

FUTURE SITUATION

2 % OF GDP
TO DEFENSE SPENDING (COMMITMENT OF NATO MEMBER STATES)

$100 BILLION / YEAR
INVESTED IN DEVELOPING NATIONS BY 2020 (HALF IN THE ADAPTATION) (PARIS CLIMATE AGREEMENT)

WWF RECOMMENDATION

INVEST IN SUSTAINABILITY-STABILITY-SECURITY

Increasing financing of adaptation by setting aside portions of defense budgets will allow developed countries to uphold their commitments and reach the target of $140 billion (minimum) invested yearly by 2030 ($10 billion extra, per year).

IN FRANCE

CURRENT SITUATION

34,2 BILLION
THE DEFENSE BUDGET IN 2018

€606 MILLION
FINANCING FOR ADAPTATION IN DEVELOPING COUNTRIES IN 2016

FUTURE SITUATION

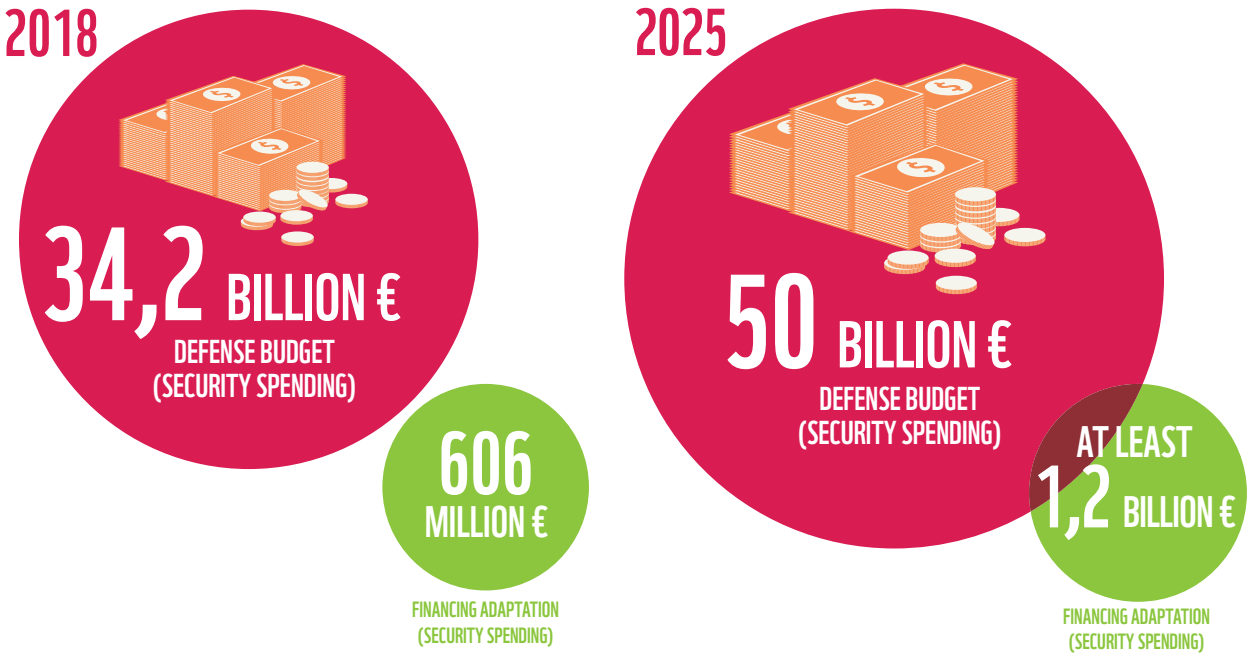
50 BILLION
TO DEFENSE SPENDING (EMMANUEL MACRON'S COMMITMENT)

€1,2 BILLION / YEAR
PARTICIPATING IN INTERNATIONAL EFFORTS WITH €5 BILLION IN CLIMATE FINANCING STARTING IN 2020, INCLUDING €1.2 BILLION FOR ADAPTATION (EMMANUEL MACRON'S COMMITMENT)

WWF RECOMMENDATION

INVESTING IN SUSTAINABILITY-STABILITY-SECURITY

In order to keep its commitments, France could pledge part of its increased security budget toward helping developing nations adapt to climate change. In this scenario, the extra €600 million for adaptation to climate change would represent a negligible portion of the total security budget and would allow anticipated conflict risk reduction.



Earmarking part of the defense budget (security spending) for financing adaptation (security spending)

Not only is financing climate change adaptation a necessity, it is also a valuable opportunity, for ensuring increased sustainability is synonymous with increased security and stability. The 2015 OSCE conference on climate change and security stressed the security benefits climate change mitigation and adaptation would bring about (OSCE, 2015) This is how financing needs to be envisaged: as stabilization spending, investing in peace. This is why WWF France recommends that governments progressively set aside a small but growing part of their defense budget for climate change adaptation and resilience, a manner of investment in stability and security.

• Focus on the European Union

The European Council, following the European success of the COP21, decided to intensify European climate diplomacy starting in 2016, putting forward three principal objectives: making climate change a strategic diplomacy priority (relying on debate, public diplomacy and external policy instruments) by implementing the Paris Climate Agreement and stepping up efforts to highlight the link between climate, prosperity, stability and migrations (European Commission, 2016). Each strand of action includes steps to help achieve these goals.

In addition, the EU fully recognizes “the need to move from crisis containment to a more structural, long-term approach to vulnerabilities, with an emphasis on anticipation, prevention and preparedness” In this context, it supports partner countries in becoming more resilient (European Commission, 2017).

This strategy also references the GCCA (Global Climate Change Alliance), an alliance created in 2007 by the EU to strengthen dialogue and cooperation with developing countries, in particular least developed countries (LDCs) and small island developing States (SIDS) (GCCA, 2017). Today, the GCCA is one of the most

significant climate initiatives in the world. It supports 51 programs around the world and is active in 38 countries, countries, with the aim of ensuring that countries most vulnerable to climate change increase their capacities to adapt to its effects.
To achieve these goals, the Alliance acts as a source of support for regional and national adaptation programs (forest management, coastal zone management, risk reduction, development of clean energy sources). Adaptation and risk prevention will make these territories more resilient and safer. A 2014 report highlighted several examples of the advantages obtained, including better preparation for flooding, military base relocation, and anticipating migratory movements; it also emphasized the fact that the cost of inaction is superior to the cost of action. (IES, GMACCC, University of Cambridge, 2014).

POSTFACE

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OVERCOME THE DOUBLE POST-PARIS PARADOX

We often mention the effects of climate change on the environment, public health and development. Its consequences for peace and international security are more rarely discussed. The merit of this "3S Report" from WWF France is to discuss it and to do it clearly. The risks are indeed major. It is clear that climate change will also be a change in the context of security.

The negative effects of climate change on political stability, within the countries as well as internationally, have now been proven. The climate turmoil makes the access to vital resources more difficult as well as more essential – especially to water, but also arable lands. This heightens the tensions. When looking at the world's large rivers – Jordan, Euphrates, Nile, ... –, concrete examples of conflicts immediately come to mind. This "3S Report" from WWF France gives a lot more of these illustrations.

The massive population displacements represent another source of instability. Because of the rising sea levels, desertification, more frequent extreme weather events, there are millions of people who will have to seek refuge elsewhere. For some small insular States, it is the very existence of the State and its territory that is at stake. Beyond the human catastrophe that these forced movements represent, they also constitute a major risk for international security, as they are likely to destabilize States that are incapable of welcoming and managing that many people, and a major challenge for the global governance of tomorrow.

However, the link between security and climate has to be also examined from another angle, more positive: fighting climate change might and should constitute a contribution to peace and international security. If we succeed in reducing our dependency to fossil fuels, we will improve the sustainability of our model of development and will reduce the prospect of seeing new conflicts rising over the control of resources. This is even more true because most of renewable energies are neither rivals nor exclusive – which means that the consumption of a resource does not deprive one's neighbor: the sun and wind belong to everybody.

We have to develop a global community around clean energy that benefits from the possibilities offered by renewables and energy efficiency and that limits tensions that could emerge around rare earths or renewable energies that are not accessible for all. States – and there are fortunately quite a few –, companies, local communities, civil society, that concretely act against climate change do act for security. Those who do not carry a heavy responsibility.

That is the double paradox of the current post-Paris period. The Paris Agreement reached in 2015, and its adoption that I had the honor to preside, as along with the Sustainable Development Goals, are great international steps forward. However – and that is the first paradox – data on climate keeps on raising great concerns, for instance the disastrous amount of illness and death due to climate change. The second paradox is that, while it is necessary to amplify and accelerate action, some people are turning their backs to this action, committing a historical misinterpretation. How can one pretend to be a partisan of security and peace, and shy away from the fight against climate change, a provider of conflicts in the world?

To overcome this double paradox, there is no other solution than to act. It is mandatory: to act locally, to act globally and multilaterally, to act individually and collectively, to act on a public and on a private level. Support the renewable technologies and carbon pricing, which constitute two formidable sources of progress. Implement entirely the Paris Agreement, especially its financial commitments toward the poorest countries, reinforce the national contributions of each State, and mobilize fully the non-governmental actors. That is the action plan of all those who understood that by destroying the environment, we are destroying ourselves, whereas by acting for an inclusive and low-carbon development, we are creating the conditions for a better sustainability, stability and security.

Laurent Fabius
President of the Constitutional council of the French Republic
Former President of the COP 21

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