Planetary Security:

Peace and Cooperation in Times of Climate Change and Global Environmental Challenges

Conference Report

2 and 3 November 2015

Peace Palace, The Hague

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1 Foreword

Wim Geerts
Chairman of the 2015 Planetary Security Conference
Political Director
Ministry of Foreign Affairs of the Kingdom of the Netherlands

On behalf of the organising team, it is my pleasure to present this report on the proceedings of the conference on Planetary Security held at the Peace Palace in The Hague on 2-3 November 2015.
The Planetary Security Initiative was launched by the Netherlands Minister of Foreign Affairs, Bert Koenders, to provide an international platform to discuss the impact of climate change and other global environmental challenges on security. The concept was based on four key elements: (1) promoting knowledge sharing between experts, (2) connect the experts with high level policy makers, (3) translate the combined knowledge into action, and (4) facilitate this through an annual event for this growing network where new insights can be shared, progress can by monitored and evaluated, coalitions can be built and new initiatives can be developed.

We trust that an annual Planetary Security conference in The Hague will increase momentum for more coherent policy and action. The Netherlands remains committed to help creating greater political awareness and wider involvement for implementing an integrated agenda. This agenda is essentially about strengthened resilience to climate-fragility risks.

Understanding the complexities of the climate-security relationship, or transboundary waters, or food security and all the interlinkages is one thing, but translating the analysis of the experts into action is another. So, therefore, we are very pleased that more than 300 experts and policy makers from over 75 countries took part in the conference, with a good balance between the two constituent groups.
In terms of stimulating greater awareness we are pleased with the wider interest shown in the conference by the press and in the social media. We have seen that one of the most effective ways to increase understanding of the climate and security nexus is through the telling of real stories of real people – be they people whose small island country will disappear due to rising sea levels or farmers and herders who have had to leave their home lands due to ever more severe and long lasting droughts. As the Netherlands Minister for Foreign Trade and Development Cooperation, Lilianne Ploumen, said during the conference: “It is all about people, that are everywhere being affected by climate change, albeit to differing degrees”.

On the interaction between related initiatives, many remarked that this event was held at precisely the right time. In September, world leaders committed to the Global Goals for Sustainable Development which are now being translated into action. And just a month after the Planetary Security Conference world leaders met in Paris, resulting in an agreement between more than 190 countries on an unprecedented global deal to tackle climate change. Now that the multilateral stage is set for the near future, it is our hope that the many strategic conclusions and recommendations from the conference will not only contribute to an increased understanding of how climate change impacts security but that these will lead to scalable action to address the challenges to the security of our planet.

The organisers would like to especially thank the more than twenty organisations who helped behind the scenes with the preparations and especially mention the Prince of Wales’ International Sustainability Unit, the Municipality of The Hague and the Skoll Global Threats Fund for their support.

2 Introduction

Alexander Verbeek
Conference Organiser
Strategic Policy Advisor Global Issues
Ministry of Foreign Affairs of the Kingdom of the Netherlands

The 2015 Planetary Security Conference was prepared over a period of more than a year through extensive international consultations with the members of the Advisory Board, the moderators of the plenary sessions and working groups, and many other speakers and participants. It was on the basis of all the advice received that we were able to create an event that focused on the issues that participants themselves identified to be of the most importance. It was precisely this participatory nature of the preparations and of the conference itself that helped make this event so unique and contributed to its success.

To increase the impact of the conference –also for the many interested parties who were not able to be present - we produced this report. In the first part a comprehensive summary of the proceedings is provided. In the second part we present the reports of the twelve working groups which were really at the heart of the conference. Each group report consists of brief overviews of the challenges faced under each topic as well as the responses already being undertaken, followed by especially commissioned info-graphics to help in the understanding of the complex issues and interlinkages among them. They end with a summary of the analysis of current obstacles to further progress as well as a number of important conclusions and recommendations. Ultimately, for each working group, the key question was: what should we do differently?

When talking with so many of the participants over the past year, one of the most consistent comments we received was on the need to make this an annual event. So the Planetary Security Initiative - of which this conference was the first activity - aims to continuously strengthen the community and each year build upon the results of the previous year. We will continuously ask: what are the successful policies to strengthen resilience in the face of rapid climate and other environmental changes? What are the lessons learned?

Preparations for next year have already begun. The next conference will be both broader and deeper. We aim to broaden the participation by involving more types of stakeholders; and to also deepen the debate by focusing in more detail on some of the specific issues we have begun to explore together in the first conference. As stated in the concluding remarks of the Chairman of the conference, Wim Geerts, “The success of this first Planetary Security conference lies in our hands. The work begins now. … We must use the new network we have established here and the new momentum we have generated together to continue to share knowledge and insights on the nexus between climate change and security and, importantly, to translate insights into policy”.

I would like to thank everybody who contributed to the success of the first Planetary Security Conference. I am grateful for all the advice given and tasks shared by so many of you.
I would especially like to mention the organising team. I was very lucky to work with such a motivated, flexible, positive and creative group; without them this conference would not have been possible.

3 Opening of the Conference

Bert Koenders
Minister of Foreign Affairs of the Kingdom of the Netherlands

Your Excellencies, ladies and gentlemen,

I would like to welcome you all to the Netherlands, and to the Peace Palace in particular. It is a great honour to see so many people gathered here today around such an important topic. I would also like to thank the Carnegie Foundation, which owns and manages these beautiful premises.

The Peace Palace is home to several organisations in The Hague that promote international peace and justice. I can think of no better place to discuss how climate and the environment interact with peace and security.

And it seems the very building behind me agrees. You may have had the opportunity to tour the Peace Palace. The fountain in the inner courtyard is decorated with sculptures of polar bears and seals. They were donated by Denmark. At the time of construction, some questioned whether predators and their prey were fitting for a site dedicated to peace. But in recent years the plight of the polar bear has become a symbol for the impact of climate change, which we are now discussing in the context of peace and security. So if anything the Danes were very forward-looking.

Today's conference marks the launch of the Planetary Security Initiative. I hope this is the start of something that happens more often and regularly. Climate and peace are intimately linked. Climate change forms a grave threat to security, especially in countries that are already fragile.

So we need to work together and help each other, because we face a massive challenge.

The Netherlands has long been aware of how climate and the environment are linked to peace and security. Let me give you an example from Dutch history. Between roughly the 16th and 19th centuries, much of the world experienced a dip in average temperatures. It is known as the Little Ice Age, and some of our most famous painters made their masterpieces during this period, many of which show deep frozen canals and lakes. You can see many of our finest 17th-century paintings at the nearby Mauritshuis museum.

The Little Ice Age did not just influence painted landscapes. It also changed the security landscape. In the autumn of 1794, the French Revolutionary Army invaded the Dutch Republic. The winter that followed was so cold that several Dutch rivers froze. French troops were able to cross them, sealing the fate of the Dutch Republic. So the Little Ice Age had big consequences. With a little stretch of the imagination, you could say that climate changed the course of the conflict.

In today's world, changes to the climate and the environment are overwhelmingly man-made. And those changes continue to affect peace and security. Many experts in this room have shown how and why. You have done the homework and shown the statistics.

Later today, you will hear about an independent report commissioned by members of the G7. Entitled "A New Climate for Peace", it reaches a clear conclusion, based on 10 years of case studies from all over the world. It shows how climate change is a global threat to security in the 21st century. Climate change will put pressure on the world's economic, social

and political systems. And the most serious risks will emerge when the impacts of climate change overburden weak states.

Let me give a couple of examples: a case from my own recent experience. And other examples of countries in crisis that concern me as foreign minister.

Before I became minister, I was the head of MINUSMA, the UN stabilisation mission in Mali: a large, integrated peacekeeping mission with over 10,000 troops. Average rainfall in Mali has dropped by 30 per cent since 1998. The Sahara desert is expanding fast, pushing people on to land already used by others. And the lack of water wells and disagreements over land inevitably lead to tensions. It began with pastoralists and farmers on the bedding of the Niger River. The tensions then affected different pastoralist groups and eventually the central government in Bamako.

Of course, we cannot reduce the conflict in Mali to climate and the environment alone. The security situation in neighbouring countries, the lack of education opportunities, the spread of organised crime and smuggling: there are many factors at work in Mali, and they all reinforce each other. But we certainly need to take climate into account.

The climate problems that have hit Mali are affecting other countries too. The Intergovernmental Panel on Climate Change predicts that climate change will make the whole Sahel region drier. Tensions between groups may increase as a result, especially when dry spells become longer. Nomads will move their cattle to areas where farmers already have to make do with less water. This is what happened in Mali in fact. At some point neither group will be able to make a living. Poor former cattle herders and farmers will head for the cities, where there are not enough jobs to begin with. This is urbanisation not by pull factors but by push factors. And that could put peace and stability at risk and lead to more unorganised migration.

Let's now consider another country in a different region: Syria. An exceptionally long-lasting drought hit Syrian farmers in the years preceding the war. Many farmers headed for the cities with their families, but there were not enough jobs for them. To make matters worse, in 2010 severe dry spells in Russia made food much more expensive. For many Syrians, a bad situation turned into an unbearable crisis. The displaced and unemployed people in Syrian cities were especially hard-hit. Tensions got worse.

Again, we should not oversimplify. No conflict has only one cause. We cannot reduce the causes of the First World War to the murder of Franz Ferdinand. If cause and effect were that simple, we wouldn't need history books.

Minister Koenders

Minister Koenders

But it would be equally unwise to ignore the impact of climate and the environment. They act as an aggravating force by compounding other risks. The Netherlands, Syria, Mali, Darfur and Somalia are quite different places. But they all show that climate change can be catalyst for insecurity.

Organisations such as the OSCE, NATO and the World Resources Institute have been pointing this out for years, and I look forward to their contributions during this opening session, including on contentious issues like geopolitics, security, rights of indigenous people plus climate change in the arctic.

Fragile states show what happens when new risks are added to existing risks. Consider Yemen, for example. The amount of water available for each citizen has been decreasing for years. Conflicts over water, such as raids on wells, were already taking place before the war there began. The war has pushed the country into a vicious circle. Ever less water is available, and there is ever more fighting over it. Groundwater levels were already sinking. But fuel shortages and a broken power grid have put that groundwater beyond reach even faster. Yemen shows that, for fragile states, the compounding effects of climate change are especially hard to deal with. I remember visiting the country in 2008. A poor country in a difficult neighbourhood, with an exceptionally high population growth rate and declining natural resources. An announced crisis, where the so-called international community remained passive. Conflict triggered action in the Security Council only belatedly, when it was too late.

Even countries we consider more or less stable are by no means immune to developments elsewhere. Just think of the issue that's on everyone's minds these days: migration. By intensifying drought, natural disasters, hunger and conflict, climate change affects the flow of people.

Many become displaced within their own country or their own region. Many stay in their region – and I would like to commend those countries for fulfilling their obligations in this regard. Surely Lebanon, Turkey and Jordan are already in a difficult situation. Their hospitality is enormous. At the same time, large numbers leave their region. This shows why we need an integrated approach to today's migration challenges. Dealing with migration involves border management, anti-smuggling measures, development, trade, humanitarian assistance – and climate. We must do all we can to ensure that people do not feel forced to migrate. We must work to protect the rights of migrants and refugees en route. And migration policies must contribute to development. That's why we need broad partnerships that include the private sector and civil society. And we need a more united group of countries acting together; like-minded alliances within the United Nations and other international organisations.

Migration, however, is only one of the ways in which countries are linked to each other. We all share the risks of climate change and environmental degradation on this planet. Rising sea levels affect everyone, and increasingly fierce hurricanes do not stop at national borders. To paraphrase Martin Luther King: instability anywhere is a threat to peace and wellbeing everywhere. As we look to the future, the challenge will only become bigger.

The consequences of climate change threaten to undermine many successes of the past 70 years with regard to development and peace. They will add new pressures to human, national and international security.

The world is already 0.8 degrees Celsius warmer than it was before the Industrial Revolution. And the change we have seen so far is just the beginning. The dip in average temperatures during the Little Ice Age looks tiny compared with the rise predicted for this century.

One month before the world meets in Paris, we are reminding ourselves what is at stake. We hope and trust we will reach an agreement that is ambitious and meets the world's expectations. Preventing climate change as much as we can is crucial. But we cannot limit ourselves to mitigation. Even if we realise our ambitions, there will still be a projected rise in world temperature of two degrees Celsius. So mitigation and adaptation are both priorities. And the adaptation agenda must include peace and security. Let me offer two more examples that concern the future.

Sea levels have risen by 20 centimetres since 1880, and they could rise by another metre or more by 2100. For small island developing states – or SIDS – this poses a truly existential threat. I am happy that they are represented here today. Some may practically disappear under the rising sea within our lifetimes. Their concerns are our concerns: three of the four countries that make up the Kingdom of the Netherlands are located in the Caribbean, and are SIDS themselves. What's more, over a quarter of the Netherlands' land area is below sea level.
The threat to small island developing states is one of the reasons we are working hard to adopt a new, global, legally binding agreement on climate change in Paris. But it also shows that preventing climate change is not enough. That's why we are sharing our experience in water management with countries all over the world.

Worldwide, 700 million people live in low-lying coastal areas less than 10 metres above sea level. Already, between 100 and 200 million people a year are victims of floods, droughts and other water-related disasters. By 2050, this number could double.

The Netherlands is a low-lying delta country, which has dealt with floods for centuries. More than half the population of my own country lives below sea level. The Netherlands has a lot to offer when it comes to disaster prevention and early action. Our Disaster Risk Reduction Teams make the best Dutch water and delta expertise available to foreign governments that urgently need to prevent a water-related disaster. They also assist countries that have already experienced such a disaster and want to prevent another one. And the Dutch Surge Support facility helps ensure a better international response when disaster does strike.

The Netherlands also supports the Middle Eastern Desalination Research Center, an institute that was founded to address issues related to water and conflict. We also support the FAO to improve water security in countries like Jordan, Syria and Lebanon.

Ladies and gentlemen,

Finding innovative solutions to water- and climate-related challenges forms one of the main themes of our bid for a seat in the UN Security Council for the 2017-2018 term. And I believe that these solutions should be part of the toolbox of every diplomat. Clearly, diplomacy works better if it takes a climate perspective too. Even better, diplomacy should include climate as a key part of its activities.

The initiatives I mentioned recognise that challenges concerning the climate, environment, development and security are interlinked. In fact, most are funded by my colleague, Lilianne Ploumen, the Dutch Minister for Foreign Trade and Development Cooperation. Dutch diplomacy is used to taking an integrated approach. We already combine foreign policy with development cooperation and trade, all under the same roof. Climate change, environmental degradation and resource scarcity are now becoming top global challenges. No diplomat can say that these are only matters for environmental or development experts. The health of our planet is a new reality for diplomacy. Diplomats will be at the forefront.

Others are also expanding their diplomatic toolboxes. The EU is undertaking a strategic review of its external action. The review rightly takes a broad approach to security, and it will

certainly pay attention to climate change. It will have to if it wants to be relevant. The Dutch government will see to it that it happens during its EU presidency in the coming half year. It is no time for complacency as is shown by the OSCE, whose Secretary General Dr. Zannier is with us today, and which is increasingly active in the preventative approach.

I expect this Planetary Security Conference will provide the strategic review with valuable insights. Climate fragility needs to be a central foreign policy priority.

The new climate perspective in diplomacy also implies new coalitions. Good research does not magically become good policy or good practice. Too often, policymakers miss out on insights from the academic world. And too often, researchers find it hard to explain what their work implies in terms of concrete action. The Planetary Security Conference brings together thinkers and doers. It provides an annual platform for better cooperation and action between politicians, policy makers, academics, think tanks, security organisations, the private sector, civil society and the media. You are all pioneers, and we need you. This conference offers you the chance to compare agendas. It gives you the opportunity to develop planned or ongoing research.

It enables you to discuss new policies and initiatives. And it allows you to expand your networks and outreach. In short, it will help all of us to move from knowledge to action.

This conference is not something that we're organising for you; it's your conference. I'd like to thank all those here today who were involved in the preparations. And I hope everyone will participate actively in the debates.

Since I'm confident that you will all make this first annual event a success, I'd also like to ask for your input and suggestions for how to continue. Let's not do things the way we always do them.

Ladies and gentlemen,

This is an important year. The increased attention for climate change gives us the opportunity to redouble our efforts. The time has come to commit ourselves and to take action against climate change and its consequences. May our discussions today and tomorrow prove fruitful.

Thank you.

From l. to r.: Alexander Verbeek, minister Koenders, Wim Geerts and Kitty van der Heijden

H.E. Lamberto Zannier
Secretary General
Organization for Security and Co-operation in Europe

Minister,
Excellencies,
Ladies and Gentlemen,

It is a great honour for me to address this important event on the eve of COP21. It will help to increase political awareness, involvement and co-operation to effectively address the security risks caused by climate change.

Just one month ago the UN General Assembly adopted the Sustainable Development Goals. And one month from now, the world will gather in Paris to – hopefully – reach an international agreement to reduce global warming.

Both sustainable development and climate change policies are inherently interlinked with security. As the 2030 Agenda for Sustainable Development states: *"There can be no sustainable development without peace, and no peace without sustainable development."* Addressing and minimizing the risks posed by climate change are not only environmental and development tasks, but also a major contribution to peace.

It is widely acknowledged that climate change is a **threat multiplier**, posing significant and growing risks to security. Indeed, the OSCE recognized this particular security implication of climate change in its **2007 Madrid Ministerial Declaration on Environment and Security**. There is no doubt that climate change will increasingly shape our security policies in the coming years. Several countries already include climate change in their national security strategies.

Let me briefly highlight some of the ways climate change affects security:

- Increasing frequency of climate-induced **extreme weather events and disasters** can aggravate political instability and put livelihoods at risk. In the OSCE region, heat waves, floods, droughts and fires are the most common forms of natural hazard.

- Rising temperatures and extreme weather events can also **disrupt food production, and rising food prices** can lead to social instability, violent protests and civil unrest.

- **Reduced efficiency of energy production** caused by higher temperatures and lower precipitation, as well as threats to energy production and transmission infrastructure from extreme weather events, put supply chains and energy security at risk.

- **Increasing demand for water and an unreliable supply** increase pressure on existing water governance arrangements and can complicate political relations, in particular in transboundary basins already affected by tensions.

Although many of these consequences of climate change have the greatest impact at the local or regional level, climate change is a **global problem** and addressing its effects requires **cooperative solutions**.

The OSCE actively supports **concrete steps** to address security threats stemming from climate change. For example, since 2013, within the framework of the Environment and Security Initiative, the OSCE as the lead agency has partnered with the **European Commission's Instrument for Stability** to identify and address the security implications of climate change in South Caucasus, Eastern Europe, and Central Asia.

Together with the **European Environment Agency and Adelphi,** we organized **participatory climate change scenario workshops** for several OSCE regions to assess the impact of climate change on natural resources, energy and food availability, and their repercussions on security.

At the 2014 **Basel Ministerial Council**, the OSCE participating States emphasized the exacerbating effect that climate change has on the frequency and magnitude of disasters. In their Ministerial Council Decision, they also stressed the importance of climate change mitigation and adaptation to effective disaster risk reduction.

This year, under the Serbian OSCE Chairmanship, **water governance** is a priority since water is the primary medium through which climate change affects people, society and the environment.

Ladies and Gentlemen,

Based on OSCE experience, it is clear that environmental challenges can be a source of conflict. We have also learned that environmental co-operation can be an effective tool for conflict prevention and confidence building. These two insights also apply to climate change.

Because the security risks associated with climate change are multi-dimensional, they require effective **multi-dimensional strategies and approaches**. To develop such strategies calls for a good understanding of how different risks, as well as compounded risks, affect various sectors. We need to sharpen our knowledge about the links between climate change and security by assessing vulnerabilities, and then we need to raise awareness at all levels, from the highest political level to the community level.

Tackling the security implications of climate change also requires a **multi-stakeholder approach** that should include governments, business, NGOs and academia. At the governmental level, this means involving not only Ministers of the Environment, but also Ministers of Foreign Affairs, Development, Finance and even Defense.

Lamberto Zannier

The OSCE is a recognized platform for inclusive dialogue among different stakeholders. Indeed, just last week I convened an **OSCE Security Days conference on Climate Change and Security**, which featured an open and interactive debate among prominent speakers representing governments, NGOs, regional and international organizations, academic institutions and media from across the OSCE region. Among others, Professor Jeffrey Sachs, Special Adviser to the UN Secretary-General on the Millennium Development Goals, and Andrä Rupprechter, Austrian Minister of Environment, contributed to the thought-provoking discussions.

Allow me to share a few of the event's conclusions:

There was broad agreement among the experts at this event that climate change affects both human security and hard security. And some experts now consider climate change not only a threat multiplier but a **threat catalyst**.

Looking at the **nexus** of climate, water, food and energy in an integrated manner could be a useful approach to assessing multi-dimensional security impacts.

There is **growing awareness in the defense sector** about the security implications of climate change, but this awareness has not yet been translated into action. For this we need **clear communication** and **political will**.

Climate change co-operation can have significant benefits for broader relations between countries. It can also be a good entry point for conflict prevention and confidence-building.

There are already **good practices in the OSCE region** where joint climate action has been an effective catalyst for transboundary co-operation. One example is the co-operation between Ukraine and Moldova on transboundary climate change adaptation in the Dniester River Basin, which is supported by the OSCE and UNECE.

Ladies and Gentlemen,

The only effective approaches to addressing the security impacts of climate change are global and regional. With the support of our participating States, the OSCE will continue to work in close co-operation with our partners, including through the Environment and Security Initiative, to address these challenges.

In conclusion, let me reiterate that I am very pleased to participate in this pivotal conference. I look forward to fruitful discussions.

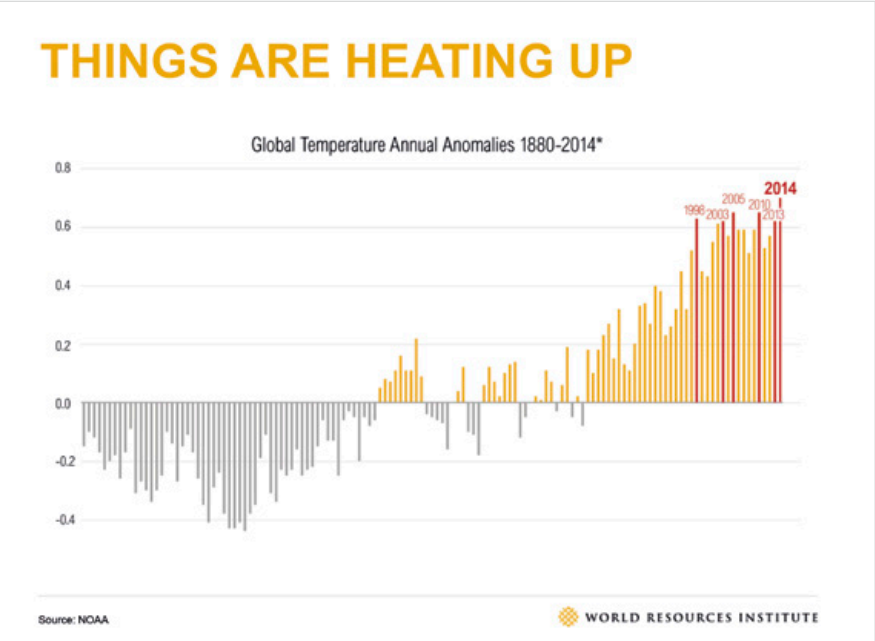
Thank you.

Andrew Steer
President and CEO
World Resources Institute

Good morning. It is a great pleasure to be here. Thank you Minister Koenders for your leadership in this area and for arranging this conference at an extremely timely occasion. I know that you've personally been involved in this for some time, and I remember back when the Security Council had its first ever highly controversial discussion on climate change in 2007, where I think you were personally invited to be a special speaker. Thanks for being ahead of the curve. We are still learning in this area, and so the idea that there should be an annual conference is a great idea.

I was asked to ensure that we are broadly on the same page when it comes to this issue and so I am just going to go through a few slides. I hope it is helpful. I suspect most of us are familiar with most of this already. But it is good at the beginning of this important conference that we share a common understanding.

Things are heating up



I think we all know that things are heating up. Twelve of the 15 hottest years in recorded history have all occurred this century. This is the 363rd month in a row where average world temperatures are above the 20th century average. So if you are 31 or younger, you have actually never lived a month in which average temperatures have been below the 20th century average.

Why do we care about climate change? It is pretty obvious, but it is worth reminding ourselves that there are four paths of influence:

- Temperature rise;
- Sea level rise;
- Extreme weather; and
- Shifts in the hydrological cycle, which simply means that where we were confident that rain would fall, we are now less confident; rain may now be falling somewhere else. The entire cycle has shifted.

Each of these individually can undermine human wellbeing but when they mix together, it is a deadly cocktail that can be quite devastating. And so there is a great deal of analysis right now that is very exciting in the academic, the political and the military communities about what the impacts of natural resource scarcity are on conflict.

Droughts and crop failures in the Middle East contributing to social unrest?

Minister Koenders already spoke about Syria. Surely it is no coincidence that the worst drought and the worst food shortage in recorded history occurred right before the civil war began, between 2006-2011. It is no accident that the same thing can be said about Darfur and northeast Nigeria when Boko Haram emerged. There has been some very important progress being made intellectually and substantively on this.

Pathways to insecurity

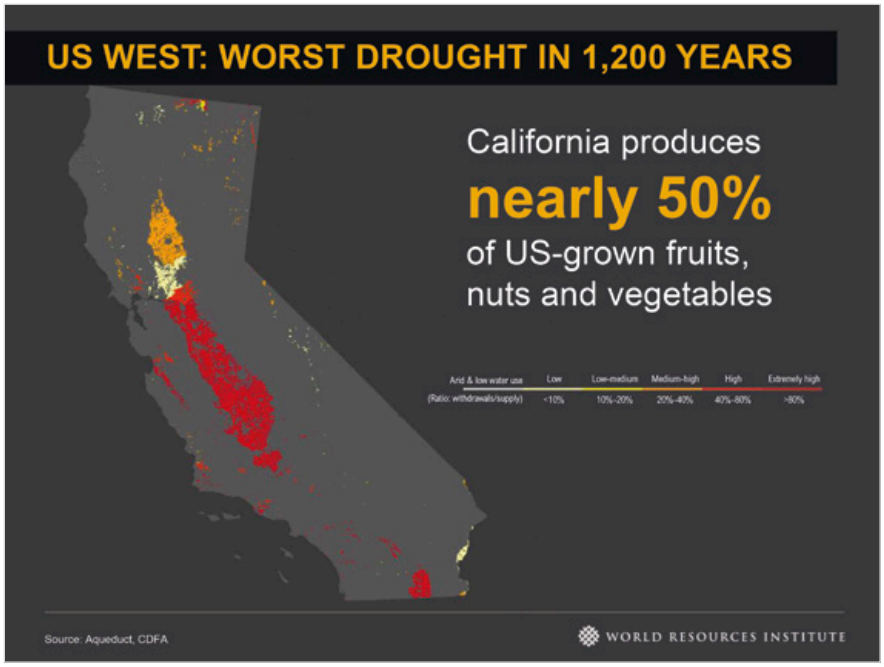
As Minister Koenders mentioned, a very important report under the auspices of the G7 came out this year, looking at various pathways to insecurity, resource competition, livelihood insecurity, extreme weather events, volatile food prices, transboundary water management and sea level rise all of which leads to human security, which leads to behaviour, which leads to all kinds of worrying threats.

"Climate change constitutes a serious threat to global security, and an immediate risk to our national security. Make no mistake, it will impact how our military defends our country. And so we need to act – now"
– President Obama

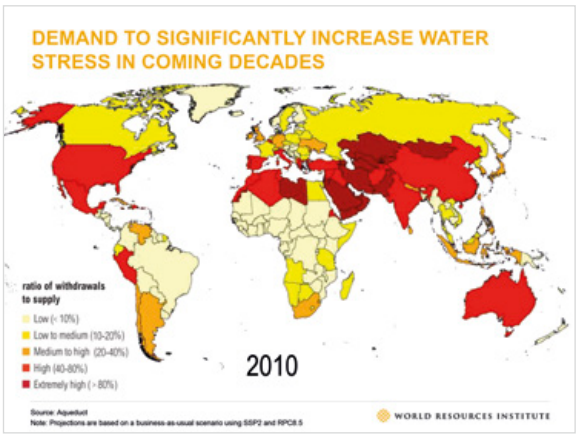
Here, I would like to trace through a little of what we know on some of these issues, but first, military leaders around the world – I happen to be living in the United States, a country in which many politicians deny the importance of climate change, but the Commander in Chief, Obama, makes no doubt about it whatsoever that this will affect the way the military thinks about things as well.

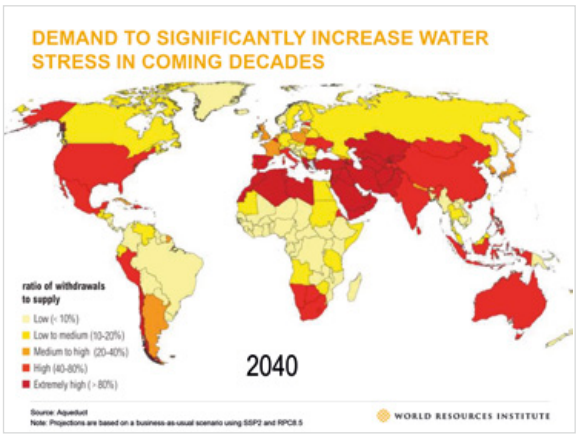
The starting point – water insecurity

The starting point has to be water. We all know today that there are 1.2 billion people facing water scarcity and that will double in the next 30 years. It is not just the poor – although they are the most affected.

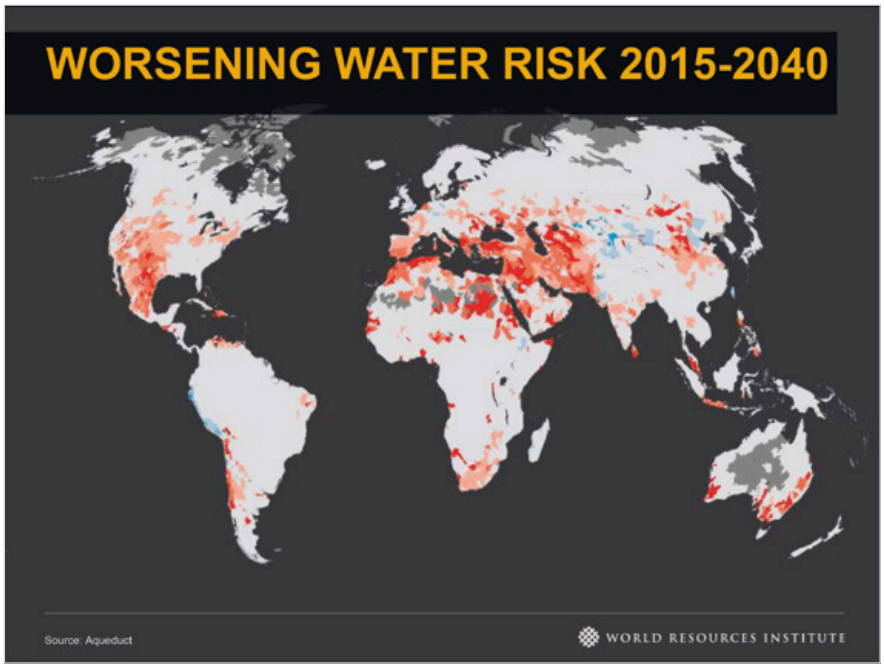


California is experiencing the worst drought in 1,200 years, and it is worth remembering that California produces nearly 50% of the United State's grown fruit, nuts and vegetables. So there are economic issues involved as well.





The WRI has some rather sophisticated modelling capacity where we look at 15,000 watersheds in the world and we model them. We then conduct a national level aggregation, to compare what it was in 2010 and what will be in 2040. However, these aggregates hide the really important issues that occur at the local level.

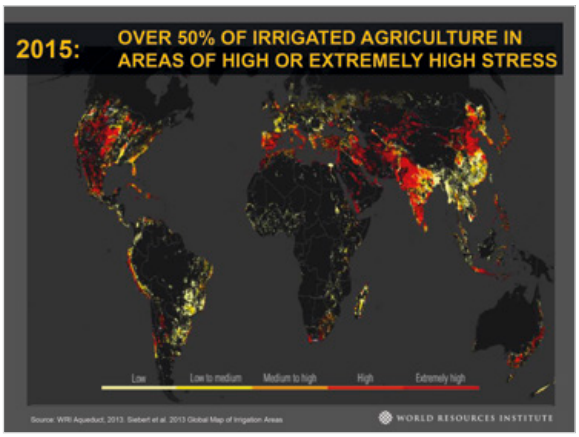


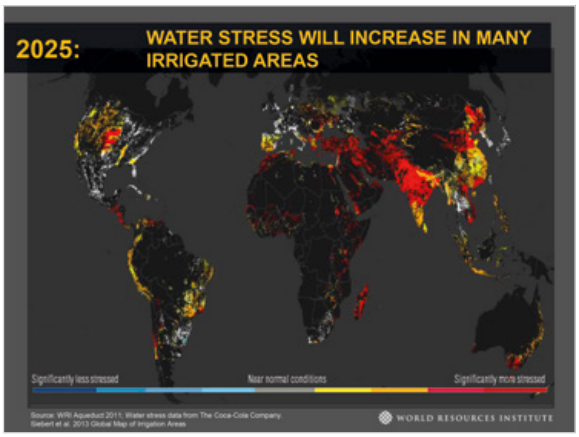
This shows what will potentially happen to the increase in water risk between now (2015) and 2040. This helps to identify precisely where the flash points are and it is pretty obvious from there that we are going to experience some challenges. This kind of data is now used in security analysis in most of the more sophisticated countries in the world.

800 million people were food insecure in 2012

And of course water insecurity leads to food insecurity and what we do is to look at the impact of changing water risk on food security for example, and also again that multiplies with increased heat, and so you can see what happens.

Over 50% of irrigated agriculture in areas of high or extremely high stress





Already half of all irrigated agriculture is in areas of high or extremely high stress and this will be what it will look like in another 10 years. Imagine today in South Asia where the average hectare of irrigated agriculture feeds about 26 people; it will have to feed about 40 people by 2050 – at a time when water is much less predictable. So you can imagine if you are responsible for food security, this is something that is quite worrying.

Food insecurity set to worsen

So what we try to do is look at great detail for what this might imply for food availability. It looks at both water and heat and we all remember the time between 2007 and 2009 when over 40 countries had food riots.

Impacts on commodities: 57% of cotton in areas of extreme high water stress

We can also look at individual crops, one for example such as cotton and we look at the impact of water risk and heat on the individual crop and of course this very relevant for Syria and countries that have become dependent through heavy subsidies of cotton.

Energy security: 50% of Brazil's electrical energy comes from hydropower

Not only food security and water security, but also energy security, such as hydroelectric power are all affected by the impacts of water risk. Brazil is an example of a country that has suffered a really extraordinary drought last year and this is not over yet. As the President of Brazil's Water Regulatory Agency warned last year that if the drought continues, the state faces "a collapse like we've never seen before".

Water constrains coal on China

But the risks to energy are not just hydro, they relate also to coal. We work, for example with the Chinese government that is interested on what the threats to energy security are from a lack of water. Coal development needs a lot of water. If you overlay water risk and the change in water risk you start seeing some quite insecure energy strategies.

Water constrains shale gas development: competition for water in US shale energy development

And this is the case also in United States, where the same goes for shale gas, which needs a huge amount of water.

Extreme weather threatens energy security

"The resilience of modern energy systems under the threat of imminent disaster must be treated as one of great urgency." – World Energy Council, 1 October 2015

Just last month the World Energy Council, which is a congress of the leading energy companies in the world, put out a report basically saying that if you add these things

together – water stress, sea level rise, rising temperatures, extreme weather events – we have a massive challenge to the resilience in the energy systems of the world. This is terribly important, for all countries, of course.

Security of homes and communities

So energy security, water security, and food security are very important, especially for the most vulnerable homes and communities where the problems are most extreme. For them, extreme weather events and sea level rise, as the past two speakers have pointed out, have already begun.

Sea level is already rising: 3-6 feet sea level rise by the end of the century

The US navy is basing its projections on a 1.3 metre sea level rise by the end of this century and as Minister Koenders said, "this will threaten 700 million people".

Tools now available to assess risk and act on it

There are now good tools available and we at WRI, together with a group of Dutch partners and the Dutch government have put together a modelling capacity to look at threats from flooding anywhere in the world. Take for example Bangladesh where you have flooding and a combination of more torrential rain, sea level rise and melting glaciers from the Himalayas; you have a pretty serious risky situation there. Using these modelling techniques we are able to look at the impact on who precisely will be affected and what economic assets will be affected. With increasing internal and external concern, it is quite likely that there will be migration internally, and that is why India has decided recently to take action with some border protection.

The poor suffer most acutely...

Of course it is the poor that will suffer most acutely, as is always the case for climate change. But we should not assume that the rich get off for free, they don't.

But the rich will also bear huge costs: half of Metropolitan; Miami, Florida is less than 5 feet above sea level

One of the striking things about the US right now is that whilst it is not easy in Congress to talk about climate change, you can talk about sea level rise. Last week we hosted a major conference where there were just as many Republicans as Democracts discussing sea level rise. And when you are the mayor of Miami and you realise that half of the people are going to be threatened by sea level rise, you realise that we are going to have to start taking this seriously. And we in a country today that knows exactly how to take this seriously.

Worsening natural disasters

Finally of course, there is the damage that comes from extreme weather events. Global damages from disasters, one of which was Typhoon Haiyan of the Philippines – a great tragedy, have caused $1.7 trillion dollars in the last decade. All of these together not only affect our physical security, but also our economic security.

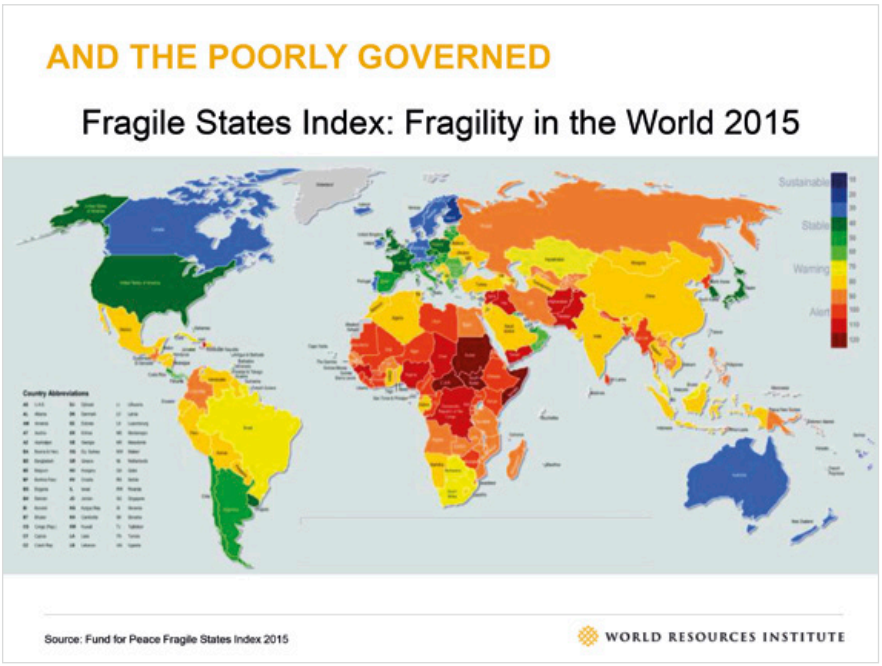
Global financial insecurity

"Shifts in our climate bring potentially profound implications for insurers, financial stability and the economy" – Mark Carney, Governor of the Bank of England, 30 September 2015

The Governor of the Bank of England last month said, as regulators of the financial system we should be understanding risks but we have done a very poor job on one of the most important risks of all, which is the risk of environmental damage and climate change. He and other financial leaders are now saying that we have got to do it differently because the threats are very, very serious indeed.

So there are risks ahead, there is no question about. We cannot say that climate change is causing the migration to Europe today, but we can say that the science today suggests that this kind of thing, the pressures from water and other forces are going to become more acute.

May 2015 India: heatwave with temperatures from 38-45°C kills over 2,500 and melted asphalt



We can say with absolute confidence that it is the poor who will be most affected and it is not only the poor but those that suffer from poor governance. That is where the security issue really comes from. It is the combination of natural resources stress and bad governance.

So where does this all leave us? It's one thing to pinpoint the problem; the question is what do we do about. So let me end with two thoughts:

First to build on what Minister Koenders said, this is a subject that requires us to put all the pieces of the jigsaw puzzle together. There is no silver bullet. We actually have some real leadership from the military community for example. We desperately need a thoughtful partnership between those who understand issues of governance, those who are in the diplomatic service, those who run aid agencies, those who are in the military, the political leaders and civil society. We need the pieces of the jigsaw puzzle to come together. And this conference can play, I believe, a very important role in this.

Secondly, we desperately need a good deal in Paris. It is encouraging that 150 countries (86% of global emissions) have now made their (INDC) offers for 2025 or 2030, but there are still some strong outstanding issues remaining. We need a five-year ratchet mechanism to be agreed starting in 2020. We need a long-term goal to be agreed and we need serious financing particularly for adaptation and resilience. Now if one cares about security, one ought to be lobbying hard for a good deal in Paris.

2015: a game changer?

We believe that 2015 can be a game changer because of the deal in Paris, but I actually believe it could be a game changer in another sense; we now have a momentum in the area we are discussing today and will do tomorrow, and we could really build a political coalition for real change.

Thank you very much.

Jamie Shea

Deputy Assistant Secretary General for Emerging Security Challenges
North Atlantic Treaty Organisation

First of all, I've given many speeches at my time with NATO in this very room – in fact, just a couple of weeks ago on hybrid warfare but I've never seen this room so full of people – with even some people standing at the back. I think that this is a testament to the initiative of Minister Koenders, Alexander Verbeek and his team. I congratulate them on bringing this community together. But I also think it's because this is a rarity and that's what has made this event so attractive.

At most of the conferences that I attend and get to speak at (on cyber crime or terrorism), I see that the community of interest is really joining up to include people from all colours of the spectrum. In short "everybody who has a skin in the game" as the Americans would say, is there. Unfortunately, we are still very far from doing that when it comes to conferences on climate change. Often the analytical community who are providing the evidence would say that the issues are not getting a hearing on the policy side. Now, this event has managed to bring together the experts, the policy makers and the politicians, who in other events in the past have not come together. Therefore it is very important that this is to be an annual event (and not just a one-off event like other conferences) to bring the same institutions together every year to take stock, to see what needs to be done and to link up the various communities. Having started this process so successfully, please stay with it – do not lose it. Aside from the analytical content that has been produced for this conference, the very plan of having a regular gathering of this type already makes this event a success today.

It is clear that climate change, the mother of all security problems, will be with us for a long time to come. However, it is still receiving far less attention than other issues, such as the fight against ISIL, cyber threats, hacking etc., which have occupied our minds and the political agenda to a far greater extent. Why is this case? Maybe because we don't make the connections well enough? As Thomas Carlyle, the famous British historian on the French Revolution once said, nobody predicted it but afterwards everybody saw that it was inevitable. Fast forward to today: what we see now is that we only pick up on climate change after the event rather than before. Sometimes it can be just an issue of narrative; that the whole thing is presented in such fatalistic terms that policy makers feel overwhelmed with questions such as where do I begin, can I still deal with it, is it not already too late, have we not already passed the tipping point?

Sometimes we need to break it down into smaller, more actionable packages so people can see that there is a positive message in dealing with climate change. One of the things that this conference can do is to look at how we craft the political narrative. How do we make the people more ready, not only to address the issue intellectually, but to see that there are some actions to be taken. As we go through some of the statistics, we conjure up a nightmarish scenario so much that we produce a self-reinforcing fatalism or fatality. Yes, we need to frighten but we also need to energise. So how do we get that balance right?

Planet earth has been around for a very long time: 4.5 million years. Humanity has existed for about 200,000 years and as Minister Koenders rightly pointed out: climate change is not new – in the sense that we have had rather extreme weather fluctuations throughout history. One of my favourite examples, as a patriotic Brit, is the story about how the Duke of Wellington won the Battle of Waterloo. I now understand that it was because of Mount Tambora, the volcano in Indonesia, which erupted in 1815 that also led to an extremely wet summer in Europe. On the day of the Battle of Waterloo, the rains had been so torrential overnight, that Napoleon had to postpone the battle until lunchtime and could not fire his cannonballs because they went "plop" into the rain soddened ground, which meant of

course that the Prussians had plenty of time to arrive. So, who finally defeated Napoleon? Mount Tambora, not Wellington.

But even if we recognise that there have been fluctuations in the past, what we are seeing now is not a blip on the screen, but a sustained process of change. The IPCC fifth report pointed out that over the next 30 years as much CO_2 will be released into the atmosphere as over the last 265 years of the earth's historical experience.

Then again, it's not all bad news. We need to also emphasise the good news as a source of encouragement. For example, the EU has agreed to set ambitious targets for CO_2 reductions by 2030 and as little as two years ago, the United States and China came to a bilateral agreement. The latter news is key because the two countries together are responsible for over 40 percent of CO_2 emissions worldwide. Moreover, the US also has come up with further bilateral agreements with countries like Mexico and Brazil. In preparation for COP21, over 150 countries have made their pledges albeit these pledges are still not enough. My understanding is that, even with those pledges put together, it will still put us at around 2.7 degrees Celsius, when what we want is to be below 2 degrees Celsius. There is still work to be done and that has to be turned into a binding deal for the next period.

Importantly, economists have also come up with an increasing body of evidence that shows that the change we need to make towards a carbon free or reduced carbon environment can deliver a significant economic growth. A low carbon society, according to one study, would require only 4 to 5 percent more investment than existing investment targets for industry and infrastructure. The figure has been calculated at about 90 trillion dollars in terms of what we need in industry and infrastructure investment for the next 15 years. So a low carbon production model would only need an extra 270 million dollars investment every year.

Of course old habits die hard. In 2012, the world's nations spent 82 billion dollars on subsidies for renewables, but a whopping 540 billion dollars to subsidise fossil fuels. Therefore if we don't address this particular discrepancy, it is hardly surprising that in countries like China, Russia, South Korea, even Germany, air pollution will take away 4 to 5 percent of potential GDP growth. According to the figures I have seen, 12 to 13 percent of Chinese GDP is being impacted by the health and mortality burdens produced by air pollution. The forest fires currently burning in Indonesia have triggered health problems as far away as Singapore and Malaysia for potentially hundreds of thousands of people. That said, an additional 2 degrees Celcius rise in global temperatures as an average now looks to be inevitable, whatever action we take in the future.

And of course, as we build our policy very much in incremental stages, whether it's to counter a 2 or 2.5 degrees Celsius rise, it is increasingly important that we don't become victims of our own models and predictions and lose sight of potential multipliers or black swan scenarios, which could suddenly tip things in a more dangerous direction. For instance, there are an estimated 1,700 gigatonnes of methane trapped in the ice, and if this were to be released from the Arctic icepack or the West Antarctic icepack, it would represent four times all the CO_2 emissions released since the industrial revolution. Bear in mind, methane is worse than traditional carbon as an accelerator of global warming. Similarly the rapidly accelerating meltdown of the Greenland and the Arctic icepacks are now happening seventy years earlier than climate scientists predicted a few years ago. This means that there is less snow to reflect the sun away from the earth. Again, this could be a black swan accelerator. As the oceans become more acidic, what will happen when they are no longer able to act as the global climate sinks? Twenty-five percent of current CO_2 emissions are being absorbed by the oceans. So, in our debate at this conference, while we look at impacts at currently projected levels, let's also not lose sight of these other potential black swans.

Jamie Shea

From the security view point, we now live in a world where climate change is not something for the future; it is something that is already happening. The migration crisis of this summer is very much linked in the minds of Europeans to the impact of environmental degradation on the global south, which is now being moved towards the global north. This also presents us with a challenge not only to reinforce our efforts to tackle the root causes of climate change, but increasingly also the manifestations of climate change, in terms of refugees. An interesting article I read in the New York Times this morning, states that there are still millions of refugees in the pipeline: twenty-five percent of Afghans have announced that they want to move, two million Eritreans as well, 1.1 million Somalis are already on the move, between half a million to one million refugees in Libya are waiting to move and potentially 4 to 5 million more Syrians. So, what we have seen this summer could just be a drop in the ocean of what we may expect over the next few years. The paradox from this is that we will be more involved in dealing with the symptoms and impacts of climate change and therefore perhaps less receptive in dealing with the root causes. The good side, if we can call it that, is that we are made more aware of the connections. The bad side is that dealing with just the symptoms takes us away from dealing with the root causes.

A recent report showed that about 70 percent of 155 countries surveyed see a national security threat from climate change. The stress factors have been well identified by all of the speakers of this conference. First of all there are the population pressures. The world's population is due to grow from just over seven billion to around ten billion by the end of the century. Then, there is the fact that these people are going to be living in urban environments. In 1950, there were only 74 cities in the world with over one million people. There are 500 cities today and it will be 700 by the middle of the century, with 37 megacities by 2025. Today, about one billion people live in impoverished conditions, where people have much lower protection, and this will be increase to two billion by 2030. Many of these cities will be located in coastal areas, where there will be super storms. Just look at the vulnerabilities that Miami faces or Hurricane Katrina in New Orleans. We need to therefore also handle the nexus of water resilience in cities.

Then there are the knock-on effects. Look at Fukushima, where it was not the earthquake that took down the nuclear reactor, but the resulting tsunami. The knock-on-effect is something we must analyse and prepare for in the military as part of our planning. For example, I remember being in New York during Super Storm Sandy, where the problem was with the power supply which all of the petrol pumps were reliant upon. Taxis had to drive hundreds of kilometres all the way to New Jersey or Connecticut to fill up with fuel before they could return to the city. Here, you see the knock-on effects throughout the infrastructure or the city resulting from major weather conditions.

Firstly, as pointed out, there is the connection between coastal urbanisation and climate change scenarios. Secondly, the stress on resources, particularly fresh water and food supplies and so on, all as a result of climate change. There will be winners from climate change. In my own country, the United Kingdom, we produce quite good wine now because our summers are becoming hotter. I am not sure that we are able to compete with Bordeaux or Bourgogne any time soon but we are probably going to grow sunflowers in the Arctic before the middle of the century. Although there are "winners" from climate change, they are still vastly outpaced by the number of losers. Indeed, water scarcity is going to affect 80 percent of the population in some form or another by the middle of the century and a 1 degree Celsius rise in temperature will drive seven percent of the global population towards water scarcity.

Now, extreme weather events. Our military is already well-prepared for the notion that they are going to have to operate in more extreme climates. In the past, NATO has deployed the Rapid Response Force to Pakistan to deal with an earthquake scenario. Our navies have also responded to the tsunami and to Typhoon Haiyan. We are often the first to arrive on the scene because of our network of global bases, and the ability to project power quite quickly.

I think we have to look at the capability issues here. For instance, I remember in Afghanistan and Minister Koenders will remember this, the Dutch had the most advanced helicopters available (Apaches), but they were wiped out within one fighting season because of the problem with dust storms. Believe it or not, the far less sophisticated old Soviet helicopters proved to be much better in Afghanistan, because they were more resilient to these kinds of dust particles than our more advanced western technology. The US who now finds itself having to operate in the Arctic recently revealed that it has only one functioning icebreaker. We lack double-hulled ships to operate up there. We also need more drones, and satellite monitoring and mapping technologies. As we deal more with riverine scenarios, where we deal with the flooding of deltas or coastal evacuation, we need cheaper modular flat-bottom boats. For example, when we are deployed on surveillance missions, we need maritime patrol aircraft. My own country has become aware of one particular challenge: when we wanted to track Russian base construction and other activities in the Arctic and the North Sea, we had scrapped all our maritime patrol aircrafts a few years earlier and so had to appeal to our European Allies to deploy their capabilities. Now in the latest UK Security and Defence strategic Review, we will buy these maritime patrol aircraft back.

When it comes to disaster relief, we mustn't just look at the number of tanks or joint strike fighters and artillery as part of the return to "conventional defence". Regardless of how important these capabilities are, we still need to make sure that we have at our disposal a whole range of flexible instruments and forces that can be used in more demanding weather conditions. Since the end of the Cold War, NATO has scrapped most of its Arctic units that were used to deploy to Norway and to deal with cold temperatures. Again, now we need to look to recreate them.

We need to do more stress testing as well. Climate change is, as one US general puts it, is like introducing aces in a deck of cards. The more warming, the more aces are added to the deck, increasing the possibilities and frequency of big events, shocks and freak weather conditions. What are some of the military implications that we need to look at? We need to focus this much more into our military strategies as we don't do this enough. Some countries do, but of the 28 allies this would still be the minority. We tend to make pro-forma references to the importance of climate change at the end of ministerial communiqués. For example if you look at NATO's longest summit declaration in history, produced in Wales in September 2014, climate change was mentioned in paragraph 110 out of 113 paragraphs. It is good that it's there but it needs to be in there in a way that will lead to some kind of follow-up action as well.

We need focal points in the Ministries of Defence that deal with climate change or are responsible for linking up with each other as well. In NATO, a few years ago we used to have a committee on the challenges of modern society and we used to have a science committee, who looked at this kind of things and this brought the science and military societies together. Both committees were discontinued some years ago. Therefore we need to look at which new fora we can create to address these kinds of issues.

One thing that we can do though, is mapping with geospatial information. We are currently acquiring Global Hawk drones and we have a network of satellites. SHAPE, NATO's Supreme Headquarters Allied Powers Europe, has a centre for meteorological and geospatial mapping and at the moment we are using X-band radars, which can only survey the world in a one year time frame. However, we are coming into an L-band radar system, which will be able to do surveys twice a week. With this new satellite mapping technology, we can have a much better and precise sense of the dynamics of climate change and a sense of where risks are going to occur. Fusing this and sharing this information with the scientific and policy making community can be a very important element of prediction.

So first is: strategy. Second: planning and capabilities. Third: mapping. We also need to maintain the SOFA. SOFA is not what you're sitting on. SOFA is a Status of Forces Agreement. You may have seen in the last few years as we deployed in the Gulf of Aden to fight piracy or intervened in Afghanistan, we had a network of partners with whom we negotiated legal arrangements – to fly through their airspace, to use their bases, to call in at their ports for refuelling or repair, or so we wouldn't run into legal obstacles or customs duties. When the NATO Rapid Response Force was deployed to Pakistan for a humanitarian mission, it was held up for weeks in Karachi because there were no legal arrangements with the Pakistani authorities on whether they had to pay customs for bringing in military equipment – even in an humanitarian emergency. Some of these arrangements we need to preserve, post-Afghanistan, because they can also facilitate military deployments in the event of climate change scenarios as well.

We also need to look at greening the military. The Pentagon spent 25 billion dollars annually on fuel just two years ago. If you use a gallon of fuel on an aircraft carrier it will move you one foot forward. We are massive guzzlers of fuel ourselves. And as we return to high momentum of military activity around the world – think of Eastern Europe, think of the anti-ISIL coalition, think of possible other deployments – that fuel bill is going to remain high. What we can do in the military in terms of solar power, batteries, and greening the military in producing generators which use 100 percent of their capacity for electricity and not 40 percent, is a contribution that we can make as well.

And then there are diseases and pandemics. We have used the military on Ebola missions, for instance by deploying hospital ships. This is going to be an important future role; for instance in tracking epistemological studies on diseases and preserving a certain capability to use the military as the arm of the civilian authority when we deal with epidemics and so on.

There is a lot that we can do. But the key thing is that the politicians have to persuade the military to plan this, and the military have got to persuade the politicians that this is a national security issue that deserves attention. Both sides have got to work harder on incentivising the other.

In a nutshell, as we go forward, as a Brit, I would like to conclude with a quotation from Winston Churchill, who after the Battle of El-Alamein during the Second World War said, "It's not the end, it's not even the beginning of the end but at least it's the end of the beginning".

My sense is that when it comes to involving a security community like NATO, the debate has started, but it is still in an embryonic stage. I will do my best from inside the organisation to push things ahead, but I need your support and your pressure from outside the organisation to convince us that this is something that is fundamental for our future security i.e. something as fundamental as arresting terrorists crossing our borders or preserving deterrence and collective defence in Eastern Europe. So I am counting on you – but I see here today a very ready audience. So thank you for that.

4 A New Climate for Peace

In 2014, the G7 commissioned an international consortium consisting of Adelphi, International Alert, the Woodrow Wilson Center and the EU Institute for Security Studies, to conduct a study on climate change and fragility. The G7 report resulting from the study aims at closing the gap between the analysis and the action that is needed by policy makers.

Speakers:

Ernst Peter Fischer, Deputy Director General for Globalisation, Energy and Climate Policy, German Federal Foreign Office
Dan Smith, Director, Stockholm International Peace Research Institute / Former Secretary General, International Alert
Dennis Tänzler, Director of International Climate Policy, Adelphi

Rapporteur:

Jenny Clover, Sustainable Development Specialist, Independent Consultant

Dan Smith reported on the rationale for and content of the report, "A New Climate for Peace". He noted that the report, which is one of the cornerstones of this conference - is believed to present the "State of the Art" thinking on this topic. The initiative for the report arose out of the former G8 in 2013, which took a decision to raise the profile of the climate and security discussion and to give it more focus. Smith noted that it is very significant that in their final communiqué, the G8 linked climate change, security and development and that they identified the need for an integrated approach.

In 2014, the G7 commissioned an international consortium consisting of Adelphi, International Alert, the Woodrow Wilson Centre and the EU Institute for Security Studies, to conduct a study on climate change and fragility.

The G7 report resulting from the study aims at closing the gap between the analysis and the action that is needed by policy makers. It comprises three major parts: the first of which identifies the (seven) **compound climate-fragility risks**; the second of which examines the **policy options** for managing and minimising these risks; and the third of which presents the **recommendations** to the G7 governments for designing and implementing integrated responses to climate-fragility risks.

Smith listed the seven compound climate-fragility risks identified in the report that pose serious threats to the stability of states and societies in the decades ahead: 1) local resource competition; 2) livelihood insecurity and migration; 3) extreme weather events and disasters; 4) volatile food prices and provision; 5) transboundary water management; 6) sea level rise and coastal degradation; and 7) unintended side effects of climate policies, which contribute to maladaptation. Based on this, the policy analysis calls for integrated responses to these compound risks with resilience being the overarching goal, which can help to realise co-benefits.

In the part of the report dealing with "Policy Analysis: An Integrated Agenda for Resilience", three key policy sectors that help strengthen the resilience of states and societies are listed: i) climate change adaptation programmes; ii) development and humanitarian programmes that build economic, governance and social capacities and improve resilience to shocks; and iii) peacebuilding and conflict prevention programmes, which address the causes and effects of fragility and conflict by reducing tensions and creating an environment for sustainable peace.

Developing an integrated agenda does not mean having to reinvent the wheel, but Smith noted that it does require us to address a number of key policy and institutional gaps in order to break down the sectoral barriers that hamper efforts to address climate-fragility risks, especially in fragile states. The examples he gave were financing, early warning and assessment, and planning. Managing and reducing the climate-fragility risks is, furthermore, underpinned by ensuring the synergies and co-benefits across these three crucial policy sectors.

In the recommendations, the report calls for a new commitment for resilience, and recommends that the G7 take concrete action, both as individual members and jointly, to tackle climate-fragility risks and increase resilience to them.

The four recommendations of the report include concrete goals and entry points at different levels. First of all, within G7 member governments: integration, Dan Smith pointed out, begins at home, and has begun with a call for the G7 governments to improve coordination among different ministries. Secondly, greater coordination among G7 members is needed: coming together for new dialogue is something, which has already been started. Thirdly, the report refers to informing the global resilience agenda, such as in Paris 2015. Fourthly, working in partnership with a wide range of actors is called for, including in countries affected by fragility.

Dennis Tänzler then presented two other key tools that are part of this initiative. Firstly, they have established an **open, online platform** to share the collected knowledge and research in this field that can be found at the Climate for Peace website, and which is aimed at bringing together a Community of Practice for sharing knowledge and experiences. The second key tool is the development of a **"Factbook on Environmental Conflicts and Cooperation"**. The factbook has more than 100 global conflict situations that are being analysed with the purpose of sharing lessons learnt and encouraging knowledge for early action.

From l. to r.: Dennis Tänzler, Dan Smith and Ernst-Peter Fischer

Ernst Peter Fischer spoke about the response to the report by the G7 countries. Officials, welcoming the report, have now established a working group to examine and respond to the recommendations. The recommendations will help guide in dealing not only with existing crises and security challenges, but also in shaping the long-term responses needed and in particular exploring what kind of policies and structures are needed to address those challenges. The default setting for all G7 members is the need for global multilateral organisations to deal with global risks involving good institutions, good governance, and good policies. While it binds only the G7, it can feed into and influence other multilateral groups.

The G7 group has committed to follow up on three key aspects:

First, is to raise awareness about the importance of resource efficiency and climate change. Climate mitigation actions (such as the strong commitment to renewable energy) are strong on their local agendas, while foreign policy has put climate change on the centre stage. Examples of this are the 2011 report on climate change and security that was tabled at the United Nations Security Council, and a 2013 European Union report on operational conclusions and a multi-year working plan beyond 2016. These are in addition to a number of events planned for presenting the report and the knowledge platform. Key challenges, however, Fischer noted need to be addressed, such as the lack of horizontal policy integration between peacebuilding policy, adaptation policy and development policy and also the need for enhanced cooperation between the G7 states.

The second aspect the working group will address is to improve climate fragility risk assessment and foresight instruments. The first step is to identify and benchmark (best practice) risk assessment tools that integrate climate change aspects horizontally; secondly profile and share these especially with the multilateral organisations; and thirdly provide financing for research aimed at filling the gaps identified.

The working group will also address a third issue: that of cooperating with external partners on operational issues to develop some pilot projects. Germany has not yet decided with whom to cooperate around pilot projects, from the limited number of other actors, but possible partners would be the self-declared group of G7+ nations (the self-declared group of fragile nations); or an individual member of this group; the East Africa Community; or the Economic Community of West Africa States (ECOWAS) and to look at the G7 cooperation with these bodies. It will also seek to leverage existing international initiatives.

In conclusion, Fischer noted that Germany has undertaken to examine and monitor how it is meeting its own criteria in its agenda, for example by ensuring climate risk assessments are incorporated into peace agreements; by ensuring adequate information sharing and dissemination; and by holding a technical workshop.

5 Challenges to Planetary Security

In this plenary, the panellists, given their diverse backgrounds, were asked to give their views on some of the challenges to planetary security. The moderator, Johan Kuylenstierna mentioned the need to focus on concrete actions in order to move forward.

Moderator:
Johan Kuylenstierna, Executive Director, Stockholm Environment Institute

Speakers:
Stephan Auer, Director, Deputy Managing Director for Human Rights, Global and Multilateral Issues, European External Action Service
Luc Bas, Director of European Regional Office, International Union for Conservation of Nature
Warren Evans, Former Senior Advisor for Climate Change and Sustainable Development, World Bank Group
David Reed, Senior Policy Advisor, World Wildlife Fund
Kitty van der Heijden, Director Europe, World Resources Institute

Rapporteur:
Shirleen Chin, Law Programme Officer, Institute for Environmental Security

In his first question, to Luc Bas, he asked for some of the deep root causes vis-à-vis conflict and the environment. Luc Bas answered by saying that one of the major causes of many security problems today can be found in degraded ecosystems, which is undermining local livelihoods. Underpinning this is the idea that we should be more appreciative of the ecosystem on which we rely so that even in the worst-case scenario, the planet can still continue to support us. Specifically from the IUCN perspective, much can be done from nature-based solutions. In line with saving our ecosystem, we have to focus on its restoration and protection. These are no regret measures for adaptation and should be seen as investments and not costs, especially considering the returns that one gets. Also, our consumption both in how and how much we consume needs to take a turn for the better. As such, he called for a shift in the consumption patterns of industrialised countries to drastically and responsibly reduce their consumption impacts on the developing countries. Local production should also be encouraged as this in turn helps to generate local employment. Under the SDGs, we have for the first time integrated goals and these serve as a big opportunity for a successful implementation of the goals in combination with a meaningful outcome from the Paris Climate Conference.

Further, Mr. Bas pointed that there has been a misunderstanding on the three-pillar approach to sustainable development (social-environment-economic). The race for GDP growth has caused a lot of unnecessary consumption. Measurements of GDP should be more inclusive of the other two pillars: social and environmental. In light of this, IUCN is working closely with the business community to ensure that natural capital is taken into account in business decision-making. Together with the World Business Council for Sustainable Development, IUCN is now developing the Natural Capital Protocol.

Turning to the second panellist, David Reed, Kuylenstierna asked for his opinion on the interaction between natural resource scarcity and social and economic stability. Reed answered that scarcity is caused by the convergence of three global trends. The first trend concerns population growth and the process of urbanisation that many countries are experiencing. The second trend concerns the expanding world economy and the corresponding rising living standards of the middle class. These two trends when converged, lead to increased pressure to extract natural resources at an unprecedented rate.

The third trend is the intersection with the impacts of climate change. Although the science on climate change impacts is not clear, it is incontestable that these impacts have become deeper and are occurring faster than anyone predicted. Reed added that scarcity is fundamentally driven by institutions and policies, which were constructed many years ago during a time of abundance. We are no longer in a time of abundance. Instead, we are now in the era of the human enterprise, which is characterised by scarcity and instability. This scarcity is clearly compounded by institutions and policies that reflect power and privilege. Underlying this is an unsustainable approach to responding to new challenges, including climate change.

Therefore it is necessary to reform the institutions and policies that drive the human enterprise. Throughout history these policies have privileged some and prejudiced others. Unless we see a radical change in how we address these issues, we are creating our own instability. Now this is the first reference point of nexus. There are two ways in which this can be done. Firstly, by responding to natural resource scarcity through the lens of the food-energy-water nexus, which is understood very differently in different parts of the world depending on what scarcities prevail and what conditions exist. There are two fundamental planning principles that underlie the nexus. One is planning across sectors; planning because it is known that where you invest and intervene in the water sphere will have repercussions that run across the energy and agricultural production, etc. The second principle is that of vertical planning/vertical integration and that begins at the local level going all the way up to the subnational, national and then the transnational level. Through this kind of integrated planning, it is proposed that there are significant economic gains and efficiency gains; that there are important cross-sectoral synergies, and trade-offs. We need to make some hard decisions on trade-offs in the future and the burden can diminish through this kind of planning, through integration and reduction of the trade-offs.

Luc Bas and Kitty van der Heijden

The second concept is that of securitisation, which is fundamentally a political process: identifying a threat and elevating that threat to a national security threat. On the positive side, elevating the issue draws more resources to it. On the downside, when one puts natural resource scarcity and instability at the level of national security, one removes solutions from those people who are most affected – who need to be most involved in finding the solutions in the first place. Reed expressed his concern that these policy responses may be cast in the context of the frameworks that we are still operating in. The risk here is reproducing the political economy of marginalising and privilege. While there is no clear answer on what should be done, institutions can still be called upon to change their practices, such as when the neoliberal blueprint of the 1989 Washington Consensus was introduced. Here, the World Bank Group financed the world's first structural adjustment loans, which led to major investments in restructuring the world economy. As we are now entering a second restructuring of the world economy, caution must be taken. So far, there has been no clear blueprint through which one could pin accountability and request for a change in policy. Henceforth, one must look at individual sectors separately and hopefully realise the need to share best practices.

Reed went on to say that "water flows uphill to money". It is a reflection of the political economy of natural resources whereby money is not going to be invested in the impoverished places. Rather, money will be invested where there are opportunities for making more money. In addition to institutional change as a solution, one also needs to focus on involving people at the local levels to come up with alternatives in these trade-offs. Otherwise, we are only going to programme instability and conflict.

The floor was then given to Kitty van der Heijden who was asked to reflect on the issues relating to water in the Middle East and whether it is a slow moving crisis or an existential threat. She answered by stating that it is both urgent and slow, which makes it complicated. The element of water is extremely underrepresented and it is crucial to address it because

the world is likely to get "thirsty" before it gets "hot". For instance in China, 90 percent of water is withdrawn for agriculture. In the future, it is likely to run out of water and this will have impacts on the livelihoods of the Chinese population, including their exporting industry. Water scarcity will also have an impact on the ecosystem, the economy and the people's prospects to grow into a dignified future. If politicians continue to focus on water over-utilisation for agriculture, energy and big business purposes, the poorer population will suffer and this will have consequences. The same goes for a country like India. In order to remedy this, the urgency of the matter, together with the right tools and data, need to be brought to the attention of the policy makers. The World Resources Institute is already working very closely with the Indian and Chinese governments in addressing the issue and helping them to come up with solutions.

Then, Van der Heijden turned her attention to Yemen, which has a very different hydrological situation. Yet, it is not only a water issue. Yemen is what it is today because of population growth. It has grown three times its size since 1965. Irrigation grew ten-fold during that period as well. There is an evident problem with governance. For instance, more than 70,000 wells were drilled without any form of licensing causing groundwater extraction to exceed 400 times its natural recharge. This is partly to blame on technology; pumps these days work on electricity and can pull any amount of water out of fossil aquifers. In Yemen, this issue is compounded by the fact that it has become a pirate state, is running out of oil, and is al-Qaeda's recruitment ground. Then there is climate change. It is difficult enough to talk to the Yemeni government because there is none. The answer then may lie with rebuilding state capacity, governance and allowing poor people to have a say in their future.

Water is also an international relations problem. Transboundary water issues exist between Ethiopia and Egypt, and most recently between Tajikistan and Uzbekistan. In the drive to grow out of poverty, dams are being built in Tajikistan, damming off a large amount of water from its neighbour. For this kind of transboundary issue, a different toolkit is required and it has very much to do with diplomacy. Trusted partners are then needed to mediate to solve the problems.

In the Middle East, a lot of focus has been on building a stable government but less on the impacts of climate change. Egypt will be affected by a 59 centimetres sea level rise, which will render one-third of its fertile land useless because of salt intrusion. With an ever growing population and many youths working in the agriculture business, the future there might seem bleak. Therefore politicians should start looking at how to deal with climate change. Long-term scenario planning is going to be critical in ensuring how the future will look like.

When asked to reflect further on China, Van der Heijden emphasised that the country is moving away from an agriculture economy into an industrialised one. China has already been investing heavily in Africa. In fact, the developing countries make up for half of all the outputs that are being traded worldwide. She stressed the importance of looking at economic development also from an ecosystem perspective. We need to start pricing ecosystem use in our products. Politicians need to understand that this is much needed or else we will never get it right.

Kuylenstierna then posed a request to Stephen Auer for his perspectives on mainstreaming planetary and security issues into foreign and development policies. Auer observed that Germany has come a long way in accepting that there is a nexus between climate change and energy security but continuity is essential to fully incorporate climate change into foreign policy. There has been progress developed at the European Union External Action Service (EEAS) via a climate diplomacy action plan, which has been submitted to all EU member states and approved by the foreign ministers at the Foreign Affairs Council. In

order to raise more political awareness, the Foreign Affairs Council is arranging to get EU ministers to speak of climate change when they speak abroad on Syria or Libya. However, some EU member states may have more leverage than others depending on their roles at the Paris conference. The EEAS is also engaging in public diplomacy. It has been funding the framework of the Global Climate Change Alliance (GCCA), which overseas 51 projects related to climate change adaptation in 38 different countries in 8 regions. Twenty percent of the 1 billion Euro budget on climate change action is being spent there. This positive step has yet to be translated into concrete progress. Negotiations at the highest level are needed in order to agree on all possible options for a legally binding document. This is why post-Paris, concrete actions have to be taken. Over 155 Intended Nationally Determined Contributions (INDC) have been submitted, covering almost 90 percent of the world's emissions but this is still insufficient. The INDCs have to be implemented and the EU can play a role by offering its expertise to developing countries. Five-year reviews and negotiations must also go on.

Policy coherence for development goes hand in hand with trade, foreign direct investments and consumption patterns. Mainstreaming climate protection measures and water security need to be pursued in parallel to energy security and foreign policy issues respectively. To do so, we need to implement the 2030 Agenda for Sustainable Development, which was agreed upon on September 2015 in New York, in such a way that is all-inclusive. This is because the Agenda is key to implementing all 17 of the sustainable development goals.

Warren Evans then had the floor and spoke about the multilateral system's ability to respond to climate change challenges. Battles may have been won but we have not won the war. He does not yet see the balance between the action required and the actions taken at the global, regional and national levels.

From a technical and financial point of view, not much progress is going to be made unless there is a multilateral approach to scale up and build on the many but unfortunately small-scale examples of success out there. Multilateral institutions like the World Bank need to focus more on shared public goods. Here, local action has to be complementary. In other words, multilateral institutions and programmes have to help developing countries reach their development goals in a way that they are contributing not only to their shared local public goods but also to shared regional and global public goods. At present, there are still some substantial changes required in the system to secure the kind of support required to deal with long-term management of shared public goods.

Moreover, in order to bridge the gap between developing countries' demand for infrastructure, energy systems, water systems, etc. and the supply of shared public goods funding, official development assistance (ODA) has to be restructured. For instance, there is a need to introduce a condition on the use of funds to cater for climate change adaptation. There does not seem to be any problem concerning environmental and social safeguards otherwise. One of the other problems is that multilateral institutions are structured strictly for country-driven development and have no internal incentive structure to deal with regionally driven needs. With the support of the international community, multilateral and bilateral development banks can help build much-needed infrastructure in a way that is carbon-friendly, more resilient and still meet local needs. For this, additional costs will be inevitable but this is where the international community needs to respond.

There is no real shortage of capital; the private financial world has plenty to go around. The challenge is in finding viable projects that are all encompassing. However, there is a shortage of funding that will help trigger the right kind of development at a large enough scale. The question is how to put 100 billion dollars to work and turn it into the kind of money that is really required. Again, multilateral institutions' role in dealing with global public goods is needed.

The session then proceeded into an open discussion with the audience where one of the more outstanding remarks was a direct compliment to the "smarts" of Van der Heijden and calling for more female inclusion on discussion panels of the future. Further, questions about how to get through to the unconverted were raised: how will we influence the major development institutions and private sector finance groups that are driving unconditioned growth. Indeed, Van der Heijden stressed that the window of opportunity to preach to the unconverted is now and the Planetary Security conference is one of the defining tools in getting the message about climate change out there. The Dutch government was commended on this effort to put together such a conference. Slowly but surely, more groups are getting involved like the military people. The nexus between climate change and national security inter and intra is at a tipping point. Businesses are slowly getting in on this as they also take long-term views. Take for instance, Unilever as has been successfully led by Paul Polman. The biggest challenge is the politicians. In response to female representation, Van der Heijden could not agree more. Women remain under-represented in the senior ranks, certainly in the military and foreign offices. Yet, they are much more vulnerable to the impacts of climate change than men. There are tools that can help to address this issue, such as WRI's Environmental Democracy Index, which allows people from all walks of life to participate in decisions that will affect their lives and the lives of their children. For each dollar investing in a woman's sexual and reproductive rights, 30 dollars is saved on health bills and education. Yet, investing in women by ensuring their sexual and reproductive health and rights is one of the toughest things to deal with under the SDGs. Bas added that the role of leadership at the sub-national level is not to be forgotten in making break-throughs to the non-converted. There are already some states like California, Quebec and Gujarat that are leading the way in climate change issues. These states are active sub-national governments that are doing a lot of work, who often get lost in the debate on action.

Push factors that trigger migration should not be framed negatively in debates in the West. One has to realise that it is more about bringing to people the prospect of a dignified life tomorrow. People are travelling precariously on dingy, little boats to Europe partly because of the CO_2 that was emitted so many years ago.

Then there was a question about implementing EU trade agreements that contain chapters on sustainable development. To this, Auer took the floor by answering that an impact assessment is ongoing to address free trade agreements and climate change. An assessment of the EU's Generalised Scheme of Preferences (GSP) - which requires amongst others the implementation of 28 conventions that reinforce social and environment good governance in developing countries - is being done for the first time. The public has also been requested to contribute to a consultation on how the EU can better implement a sustainable development strategy.

Reed added that the corporate world or the private sector is extremely influential in shaping the thinking of politicians. Cargill and Coca Cola have come to realise that they cannot deploy their productive capacity unless and until they can ensure access to the natural resource wealth and to the ecosystems on a long-term basis. They are changing their corporate behaviour. Rather than sourcing off spot markets, they are setting up five to ten year sourcing agreements with small local producers. This is why WWF has chosen to focus on the corporate sector, a sector of which is under-represented in the conference. Moving ahead, recognition is needed for the extraordinary progress that the corporate sector is making. From the WWF point of view, the private sector is key to shaping the future "commercial statecraft" of all governments.

Auer agreed with Reed with a comment on the vast array of innovative approaches that multinational corporations in the US have taken. Their ability to influence the local government and not just activities overseas is increasing. There is a very complex, rich and unexplored dynamic between the private sector and the public space.
Building on the comment on the complex dynamic, Evans foresees the creation of "special purpose vehicles" that consist of governments, corporate sector and the philanthropic, civil society, and multilateral organisations who will drive change – much like the demonstrated successes in the health sector. This is certainly a way to involve the corporate sector to become more accountable. The fact that the Planetary Security conference is being held in The Hague, the city of peace, justice and security is enough to show how we can start achieving a level of accountability at the individual, private and public levels, particularly the country level.

Looking forward, the Planetary Security conference will have to encourage more scenario building strategies: what would we have done differently knowing what we know now? Also, is distributive justice possible in the context of a world framed by natural resource scarcity and insecurity? The conference is also encouraged to focus on less issues and drill down from there. Of course, there will be some rewards in inviting the non-converted to such a conference in the future. They might benefit by learning a thing or two from successful green industries. The last idea for the next conference is to be more blunt about the wrong financing. There is enough money out there to adapt to and mitigate the impacts of climate change. Just an example, if 8 days of military spending were stopped, we could provide education for the whole world for 12 years – just to put everything in perspective.

6 Conference Dinner at the Hall of Knights

Jozias van Aartsen
Mayor of The Hague

Your Excellencies,
Ladies and Gentlemen,

I bid you a warm welcome to The Hague: the city honoured with hosting the 2015 Planetary Security conference. This conference focuses on Peace and Cooperation in Times of Climate Change and Global Environmental Challenges.

Allow me to also welcome my fellow speakers here today: Bernice Notenboom, journalist, globetrotter and fearless environmentalist. And André Kuipers, who has travelled even further: to outer space. As such he has seen our planet from a distance – in all its vulnerability.

We have come together here in the Hall of Knights, a hall that for centuries has formed the constitutional heart of the Netherlands. Closely connected to The Hague's own development into the International City of Peace and Justice. Over 100 years ago, on 15 June 1907, the Second Peace Conference was held in this very hall, eight years after the first one.

Both congresses are milestones in the history of international law and international collaboration. A third Peace Conference had been planned for 1915. Ultimately, it did not go ahead, after the calm voice of diplomacy had been drowned out by the roar of cannon.

A century on, The Hague is the undisputed centre of efforts to make this world a better place. A world that is governed by the rule of law rather than the "law of the jungle". Where disputes are settled in court or through arbitration, rather than on the battlefield. And a world where those who think they can ignore the rules of international law are held accountable by the international community. Here, in The Hague.

At the International Criminal Court, for example, which will soon be moving into its new headquarters. This Court is the result, in part, of intensive lobbying by various NGOs. The cornerstone of the International Criminal Court is the Rome Statute. As you probably know, this Rome Statute originally specified five rather than four core international crimes. In addition to genocide, crimes against humanity, war crimes and crimes of aggression, the treaty also listed "ecocide": the destruction of ecological systems.

In view of the huge damage being done to our planet, and the alarming climate change that we experiencing as a result, initiatives that once again seek to make ecocide a criminal offence are more than welcome.

But this is not the only reason why The Hague is such an appropriate location for the present conference. History gives us many examples of the far-reaching consequences of crop failures. Today, climate change has had a dramatic effect on local water management, access to drinking water and food production in certain regions. And when people have to do without these basic needs, social unrest and armed conflict are never far away.

The Permanent Court of Arbitration and the International Court of Justice, both of which are seated in The Hague's Peace Palace, have had a number of water-related cases brought before them in recent years. The Hague is also home to the IRC International Water and Sanitation Centre and the Netherlands Water Partnership. In other words, you can already find considerable expertise in this field in our city.

It comes as no surprise that The Hague Institute for Global Justice identifies water management and the fair distribution of water as one of its key areas of attention. The Institute for Global Justice focuses on conflict resolution and legal issues that relate to water.

Indeed, this same Institute for Global Justice, together with the Stimson Centre, was one of the initiators of the Commission on Global Security, Justice and Governance. In the spring of this year this commission presented its report here in The Hague. Among other conclusions, the report emphasises the key role that cities play in solving the different problems faced by humanity in this day and age. Including the problem of climate change.

When you realise that 50 years from now, some 75% of the world population will be living in cities, it immediately becomes clear that the ball is now in the cities' court. And this also explains why cities play such an important role in the realisation of the Global Goals for Sustainable Development. One of these goals – Peace, Justice and Strong Institutions – can be found on The Hague's agenda every day.

Together with more than 100 fellow cities, last month, we signed the Milan Urban Food Policy Pact, which was subsequently presented to the Secretary-General of the United Nations. The signing of this Pact forms a major step forward in our development towards more sustainable, environmentally-friendly food production.

But what we also need to achieve is greater coordination in our actions – at all administrative levels, and in collaboration with as many civil society partners as possible. We need to make a concerted effort at the international, national, regional and local levels. To this end, we will need to set up a regular platform, where experts meet on a periodic basis. A permanent "war room" in the struggle against climate change. And naturally, we would be very happy to accommodate such a platform here, in The Hague.

I hope that this will prove a watershed conference. A turning point in policy makers' acceptance of measures that experts have long been calling for. "A paradigm shift", if you will.

Ladies and Gentlemen,

Earlier this year, two Dutch polar explorers, Marc Cornelissen en Philip de Roo, died during an expedition to the Arctic. They had devoted their lives to protecting the white wilderness. One of them, Philip de Roo, lived in The Hague. Today, a memorial service was held for both men.

Let their memory, and the work of their many courageous and dedicated colleagues, serve as a reminder that we should never stop fighting to preserve what ultimately matters most: a liveable planet – one that continues to present us with unlimited possibilities. As long as we treat it with care and respect.

Thank you.

Mayor Van Aartsen

André Kuipers

André Kuipers

Astronaut, European Space Agency

With two missions to the International Space Station in 2004 and in 2011-12, Mr Kuipers has spent a total of 204 days in space. André's new mission is to inspire young and old alike with his unique experiences.

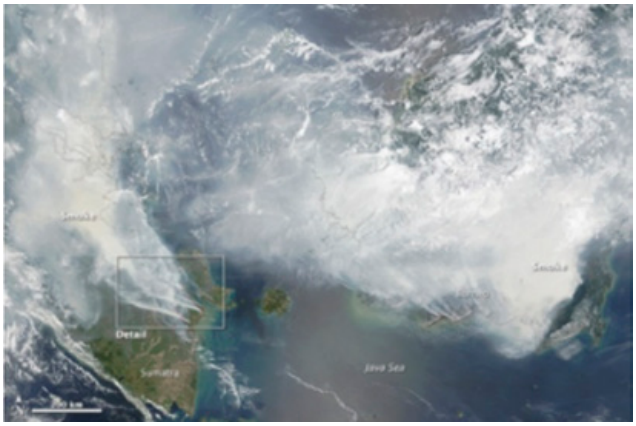
During his space flights, André could oftentimes be found near one of the windows to enjoy the spectacular views of the earth. He saw a world without borders with deserts, forests, the most beautiful islands and immense oceans. A blue paradise in the vast, black universe.

In the same view he saw a very vulnerable planet surrounded by a very thin atmosphere without which life is impossible. He saw deforestation, air pollution in large cities around and a web of lights at night as a reminder of a rapidly growing world population.

During his first flight in 2004, André decided to be an ambassador for sustainability, science and technology, education and some charity organizations.

The conference audience was intrigued by his inspiring commentary and many spectacular images from space such as those of the current Indonesian forest fires, the sea level rise threatening the survival of small island states and the droughts and desertification affecting large parts of the world.

Of particular interest were views of the raging peatland fires in Indonesia. According to a related article in The Economist, jungles and peatland are coughing up more carbon emissions than industrialised economies.[1] The article states that "Guido van der Werf, a Dutch researcher, reckons that emissions from a three-week period during this year's fires surpassed Germany's total annual carbon output. On a daily basis, they may emit more carbon than does America's economy – which is more than 20 times the size of Indonesia's".



Satellite image from 24 September 2015, showing smoke from wildfires burning across Indonesia. There have been nearly 100,000 active fire detections in Indonesia so far in 2015, according to the World Resources Institute. This is higher than 2006, which was one of the highest fire years on record, but lower than 1997-98, which was the worst fire year. Credit: NASA image by Adam Voiland (NASA Earth Observatory) and Jeff Schmaltz (LANCE MODIS Rapid Response)[2]

[1] The Economist, 'South-East Asia is choking on Indonesia's forest fires' (29 October 2015) http://www.economist.com/news/asia/21677342-jungles-and-peatland-are-coughing-up-more-carbon-emissions-industrialised-economies-south-east

[2] NASA Earth Observatory, 'Smoke Blankets Indonesia: Image of the Day' (24 September 2015) http://earthobservatory.nasa.gov/IOTD/view.php?id=86681

Bernice Notenboom

Professional Adventurer and Climate Journalist

Bernice Notenboom is a climate journalist, science writer, filmmaker, keynote speaker and professional adventurer. In 2008, she became the first woman to reach the North, South, and Cold Pole (in Siberia) and to traverse Greenland's icecap on skis in one year. In 2009, she reached the top of the Mount Everest.

She does expeditions to show and tell how climate change is really affecting us all already in extreme environments. She says, it remains important to do expeditions like this to show people what is at stake. She is the presenter/co-producer of Tipping Points, a 6 x 1 hour series about tipping points in our climate system with scientists from all over the world.

Currently, Ms Notenboom is producing the film The Arctic March, about the history of human polar exploration and its native people set against the timeline of climate change.

Conference participants were particularly interested in the part of the presentation on the effects of rapid Arctic warming and ice loss on weather patterns in the Northern Hemisphere, which was also the subject of a recent report in The Guardian. [3]

That new item refers to a report by researchers at Rutgers university which says that the rapidly-thawing Arctic appears to be a prime reason why the polar jet stream – a ribbon of winds that encircles the globe – gets "stuck" with increasing frequency. Western Europe and large parts of North America will experience more extreme weather because of "Arctic amplification" - the enhanced sensitivity of high latitudes to global warming, the team suggested in a paper published in the journal Philosophical Transactions of the Royal Society A.[4]

[3] Vidal J, 'Rapid Arctic ice loss linked to extreme weather changes in Europe and US', (The Guardian, 1 June 2015) *http://www.theguardian.com/environment/2015/jun/01/rapid-arctic-ice-loss-linked-to-extreme-weather-changes-in-europe-and-us*

[4] Francis J and Skific N, 'Evidence linking rapid Arctic warming to mid-latitude weather patterns' (1 June 2014) in Philosophical Transactions of the Royal Society A, *http://rsta.royalsocietypublishing.org/content/roypta/373/2045/20140170.full.pdf*

7 Strategies for Planetary Security

The purpose of the session was to have moderators of all Working Groups report back on the discussions. Panellists were requested to briefly share the most important highlights and policy recommendations. The twelve Working Groups were grouped into three categories: regional, thematic and strategic.

Moderator:

Wim Geerts, Director-General Political Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands

Speakers:

Jon Barnett, Professor, University of Melbourne / Future Fellow, Australian Research Council
Frank Biermann, Professor, Universiteit van Amsterdam
Sarah Cornell, Research Coordinator, Stockholm Resilience Centre / Stockholm University
Roger-Mark De Souza, Director of Population, Environmental Change and Security / Director of Population, Environmental Security and Resilience, Woodrow Wilson International Center for Scholars
Francesco Femia, Co-Founder and Director, Center for Climate and Security
Torgny Holmgren, Executive Director, Stockholm International Water Institute
Henk Ovink, Special Envoy for International Water Affairs, Government of The Kingdom of the Netherlands
Jürgen Scheffran, Head of Research Group for Climate Change and Security, University of Hamburg
Jamie Shea, Deputy Assistant Secretary-General for Emerging Security Challenges, North Atlantic Treaty Organization
Gerald Stang, Senior Associate Analyst, EU Institute for Security Studies
Bram van Ojik, Special Envoy for Migration, Ministry of Foreign Affairs of the Kingdom of the Netherlands
Caitlin Werrell, Co-Founder and Director, Center for Climate and Security

Rapporteurs:

Shirleen Chin, Law Programme Officer, Institute for Environmental Security
Syed Muhammad Nishat ul Hassan Kazmi, Research Associate, Centre for Research and Security / Associate Fellow, Institute for Environmental Security

I. REGIONAL WORKING GROUPS

Working Group 1: Analysis of Syria – Lessons Learned
Moderator: Caitlin Werrell

Participants in the Working Group on Syria looked at climate change and natural resource mismanagement issues. They conducted a forensic analysis as to how drought and natural resource mismanagement contributed to the unrest in the country. Discussions also included as to how water is used by non-state actors in the current civil war in Syria. Participants deliberated on questions such as how increasing climate stresses will impact the future and pose challenges to governance.

The discussions lead to important questions such as what kind of information is required by decision-makers to prepare for and prevent the negative impacts of climate change and water stresses as well as to prevent such impacts from spilling over and transforming into security issues. There was a consensus that a lot of information is available but quite often

information sharing and response is limited to a few institutions. For example, natural resource and environmental issues are handled by environmental ministries; diplomatic and defence institutions are not aware of problems on the ground as well as their potential impacts. It is vital that information is shared with key stakeholders including ministries of foreign affairs and defence in a compelling and comprehensive manner for a more coherent response.

Working Group 2: Small Island Developing States (SIDS)
Moderator: Jon Barnett

There were six major points that were discussed in this Working Group. Firstly, a 1.5 degree Celsius rise in temperature above pre-industrial level is about as much as the small island states can handle. Hence, a successful political outcome in Paris is seen as critical as this also raises significant implications about justice and responsibility for climate change.

Secondly, there was a consensus in the Working Group that climate change will not cause any significant political violence within small island states. However, in light of increasing population movement within countries, this might create some low-level conflict and violence, for example stemming from conflicting property right claims in urban areas as more people move away from the coastlines.

Thirdly, following a series of discussions on adaptation, the Working Group agrees that even though adaptation in small island states is possible, it will require a lot of innovation in terms of water, sanitation and energy technologies. Sustainable transport systems are just as important to help enhance the movement of goods, services and people within these countries to help overcome the asymmetries in economic development. There is also a need to harness and bring back the skills and labour of the diaspora that have moved out of small

island states. Since these countries work with customary or community-based government structures, community-based approaches to adaptation need to be reinforced.

The fourth point, which was agreed by all in the Working Group, is the need for SIDS to own the adaptation agenda and to form partnerships with the international community who will be the primary financial drivers. In other words, SIDS' call for ownership of the processes and assistance from the more able countries.

The fifth point is on the cost of technologies. At present, the cost of mitigation and adaptation is a call for concern when one looks at the longer-term projectile. These will also need to be financially supported over time.

The sixth and last point is that parliamentarians and political leaders have to be more engaged on the issues of small island states. Without them, the long-term viability of adaptation may not be possible.

Working Group 3: Africa – Focus on Sahel
Moderator: Roger-Mark De Souza

De Souza shared two out of the ten policy recommendations, which evolved during the discussions in the Africa group:

Africa and Sahel: It is critical to think about how we institute innovative partnerships that can overcome structural and operational barriers. Challenges posed by climate change require new partnerships, which can be not only between the public and the private sector but also between private institutions and philanthropic organisations. These arrangements can help address local issues on the ground and can move policies as well as development programmes – without being severely impacted by bureaucratic hurdles.
Technical and Diplomatic Tools: Participants acknowledged that there are several technical resources that can help understand the climate challenge but questioned whether there are effective diplomatic tools. For a comprehensive response on climate change in Africa, an appropriate set of technical and diplomatic tools is required, which together help understand stresses and risks and together respond to dynamic and evolving situations.

Working Group 7: Security and Climate Change in the Arabian Peninsula
Moderator: Jamie Shea

While the Working Group participants did not discuss the situation in Yemen, they analysed climate change impacts in the rich Arab countries. It was important to note that rich countries do not necessarily come out of climate change impacts as compared to poor countries. The increasing demographics, vast reduction in oil revenues and depleting resources at increasingly rapid rates (water, food and energy) would trigger tipping points and are only going to make the situation in the Middle East more complex. Participants observed that while infrastructure and industries are heavily reliant on fossil fuels, some of the decisions of oil rich Arab countries to diversify their use of resources are making the situation worse. Also, the regimes in these countries feel the impacts of uncertainties and focus on social peace in the aftermath of the Arab Spring; therefore they are devoting considerable resources on short-term subsidies rather than addressing long-term challenges.

It was noted that more instability in the Arab world could have major implications for the transatlantic community of nations. The important question is: how can these countries be supported? Participants presented a number of recommendations including the possibility helping the Arab countries with an orderly economic transition. Capacity building support can be extended to lower the risks and help withstand shocks and incentives can be given to encourage reform from within. Participants recognised that such support process may not be easy, as these countries have paralysed elites who dominate the society – and the status quo serves their interests.

Ideas also included helping build climate resilience through support for risk and crisis management. There is a need to rationalise international support in developing more meaningful projects such as building more energy-friendly infrastructure. On the regional level, the Gulf Cooperation Council can be used effectively to develop initiatives such as building standards and grid structures. Participants observed that there are reformist forces within the Arab world, particularly in the technocratic communities, which must be encouraged. It is no secret that in the present scenario “non-carbon economic models” are not in the interest of rich Arab countries. They have been dragged into the climate negotiations and have signed up pledges due to international pressure. Yet, they can be helped through a whole range of measures and support. The Working Group noted that if

the European Union, China and the United States are serious about climate action, common strategies to decrease vulnerabilities in the Arab peninsula could be a good first step.

Working Group 8: Arctic Security and Conflicting Interests
Moderator: Sarah Cornell

The presentations in the Working Group gave an overview to all participants as to how climate change is impacting the Arctic. There is data, models, scientific analysis and powerful images – all indicating the tremendous heterogeneous changes on the ground in the Arctic – effecting people there in very different ways.

There are complexities in the decision-making processes. Participants noted that very often policy-makers find it easy and simple to be lead by powerful short-term interests. It is vital that the needs of those people impacted by climate changes are strongly factored in the discussions for policy responses.

Participants recognised the need for better cross-linking between different knowledge communities and across data models and emphasised the need for a trans-disciplinary approach. It is also important to push for more transparency and accountability in the decision-making processes. The world community needs new forms of policy responses, which adopt a more long-sighted perspective and allow ideological pluralism.

II. THEMATIC WORKING GROUPS

Working Group 6: Urban Deltas – Water-related Climate Impacts
Moderator: Henk Ovink

Several important points were highlighted in the discussions within the Working Group. Water is important for life and it is essential for human activity in all possible sectors. The cross-cutting nature of water also means that it impacts food, energy as well as urbanisation. A report of the World Economic Forum places water crisis as number one in the future crises list and also notes that there is a clear interdependency on the origin and impact of water crisis. It was observed that the transboundary nature of water means that the effects of a water crisis may not be contained within a community or a country but can potentially hit regions. Also, the politics on water is not connected to the politics in place. Although we have innovations at the local level, which can benefit urban areas, local administrations are often not in a position to manage water or be part of the decision-making process.

Participants noted that several studies highlight the vulnerabilities of cities like Miami, Los Angeles and Guangzhou etc. to sea level rise but often entirely ignore the implications for the African continent. Africa is undergoing development, rapid growth and urbanisation. It is unfortunate there are no business cases for investments in African urban centres because too often the focus is on economics rather than humans.

Several recommendations were presented during the discussions. A comprehensive long-term approach is required which is connected to short-term innovations and interventions. Participants also stressed the need for an inclusive approach – a process that is founded and funded on collaboration and taps into governance models which current systems are not connected to. Ovink observed that many policy-makers view water from a crisis lens. If crisis approach is the only approach for true transformation on water issues, then stakeholders should exploit it for meaningful action. However, the world community must not require the excuse of a crisis to be intelligent.

Working Group 9: Food Security on the Brink?
Moderator: Jürgen Scheffran

According to Scheffran, the Working Group discussed the issue of food security in a rather broad way. He mentioned some positive developments in food security worldwide, including the increase in food production and yields in several crops, the reduction of undernourishment when compared in terms of the global population average and the increase in income in the agricultural sector. However, these developments remain challenged by some possible factors. One of them is climate change, which has been shifting environmental conditions considerably, such as temperature and precipitation, bringing about extreme events. Then there is the meat production industry, which needs more and more land resources. Additionally, there are land grabbing activities or land investments that prejudice the under-privileged. Food price volatility was also reflected upon. There have been big changes in price in a rather short period of time, which are to some degree associated with protests and also conflicts. Overall, there is a very complex nexus of interactions of food, water, energy, migration and many other problems. Henceforth, when looking through the food lens, the food and security issue cannot be solved alone because of these various linkages to other fields.

The ambiguity of these changes is also a challenge because these changes do not always point in the same direction. For instance, food price change may strengthen producers in rural areas with food price increase but will weaken consumers because they will have to spend more income on their food consumption. The same ambiguity with other trends like urbanisation and the effects on the rural area, the so-called negative urbanisation needs to be replaced by a positive urbanisation, which can leads to a more balanced relationship with rural areas.

Land rights issue is also a possible ambiguous term. Although in principle it is good to have strengthened land rights for farmers, it may lead to privatisation and the accumulation of capital in the rural area. This means that the power structure may land in the hands of a few farming business companies. So how does one match land rights with land responsibilities? How does one balance the individual interest with the community interest in rural areas?

There is a lot to be learnt from the negative nexus; with that comes the opportunity to make some positive couplings. How does one make that transition from the negative to positive? In short, one could strengthen justice and balance individual or community interests. This in turn could strengthen responsibility leading to climate resilient agriculture. While tech is part of this transition it cannot do the whole solving of the problem alone. There also has to be a social and economic transition to make that transformation from negative to positive couplings. In closing, Scheffran indicated his hope for the ambiguous relationships between trends and the transformation processes to be better addressed more in the future.

Working Group 10: Water Diplomacy for Peaceful Climate Adaptation
Moderator: Torgny Holmgren

The purpose of the session was to discuss how water diplomacy could serve as a building block towards peaceful climate adaptation. Holmgren noted that the diplomacy is generally referred to as high-level interaction between nation states. The Working Group considered questions such as how water issues impact local levels and how resilience and adaptation challenges can be addressed.

There were five major takeaway points from the discussion:

i. Data collection and sharing is very important. This should be between a range of institutions such as universities, private sector as well as the state level. For effective diplomacy and climate adaptation to strengthen resilience on water, data must be collected and shared by all parties.

ii. Institutions matter significantly in enhancing action. This is true not only for agencies but also for international conventions and treaties. The Indus Water Treaty between Pakistan and India is an example where the treaty was signed over fifty years ago and continues to provide effective framework for resolution of bilateral water disputes.

iii. Transboundary water issues are discussed in the context of nation state level but many water issues are between domestic actors. Such local disputes may not necessarily lead to armed conflict yet it is important to find effective strategies to address them. Local context for water is very important.

iv. Diplomacy on water is a long process and depends on a wide range of factors such as circumstances, crises, trust building, political leadership etc. Any window of opportunity has to be grabbed and it is important that all these factors together enable diplomatic success.

v. Broadening the scope of discussions on water issues is important. Historically, water has promoted cooperation between communities rather than conflict. Bringing other elements such as food, energy etc. in the discussion can enhance possibilities of successful actions for peaceful climate adaptation.

Working Group 11: Displacement and Migration
Moderator: Bram van Ojik

At this moment, migration is at the top of the political agenda on the public debate. In the discussions, Working Group participants noted that there is no mono-link between climate change and migration. The impacts of climate change are diverse and some of them can possibly have effects on human mobility.

It was also observed that migration should not only be discussed as something negative, which has to be stopped or minimised, as is the case in current debates. It can be seen as a coping strategy to avoid bigger problems in the future.

There is an old saying that prevention is better than cure yet policy-makers mostly do not translate this into action that results in prevention. If we look at the debate between climate change, migration and environmental scarcity, there is a big gap in terms of international governance. Migration is regarded as a domestic issue and this approach presents a barrier to find a broader and globally acceptable solution. Van Ojik noted that the scope of debate on migration issues should be broadened. There can be more effective approaches to manage migration that deliver better outcomes for all.

III. STRATEGIC WORKING GROUPS

Working Group 4: The Political Dimensions of the Anthropocene
Moderator: Frank Biermann

The Working Group participants discussed a number of issues linked with the broader issue of the Anthropocene. The Working Group did not discuss the real relationship between climate change and security; rather it deliberated upon the framing of climate as a security issue. Participants had mixed reactions to securitisation of the climate debate. Some reckoned that this could have negative consequences. Others were of the view that in some communities, such as in the United States, this combination can create a powerful political argument to engage important stakeholders in the debate.

Participants also observed that the idea that the COPs (Conference of Parties – UNFCCC Process) can change the world is something quite contrary to the real world situations – particularly in the context of climate change negotiations. It is important to note that unless every important actor, from business communities to NGOs as well as local stakeholders are involved, there would not be a truly global response to a challenge as massive as climate change. Yet, scepticism due to lack of success in climate negotiations must not lead to abandoning the process. Perhaps such negotiations could have a different role than they had in the 1980s and 90s. This new role can cover issues such as monitoring, transparency and setting long-term targets.

Working Group 5: The World in 2050 – A Far Future Scenario
Moderators: Francesco Femia and Bessma Mourad

Participants in this Working Group were engaged in a “Far Future Scenario Workshop” where they were encouraged to imagine the impacts of climate change in the year 2050. Participants were divided into various groups and discussions included a wide range of issues including state failure, inter-state conflict, humanitarian crises, migration, nationalism, global governance as well as resource conflicts.

The Workshop was designed based on the fact that imagination is very important – and for crisis prevention and mitigation, leaders across various disciplines and institutions need to imagine possible challenges that can/will shape the world. History tells us that probability events occur often over a long period of time. As Dr. Chad Briggs (one of the speakers of the Working Group) observed: "We have to plan for improbable combinations of probable events."

One of the recommendations presented in the discussions was to improve or create new structures to effectively deal with possible existential threats. Femia informed the plenary that since the Working Group proceedings took place in a workshop style, key results and recommendations will be shared in the conference report.

Working Group 12: Risk Assessment and Risk Management
Moderator: Gerald Stang

The discussion in the Working Group started with the question of whether uncertainty causes problems and if managing uncertainty is a major issue. The panel found that dealing with uncertainty is normal and there are many models and mechanisms that exist for risk management and assessment.

Participants observed that there are several researches which highlight climate change, security and development issues and often present issues in the same package. Many of these studies often ignore important pieces of the puzzle. It was also noted that all accumulated knowledge on climate change might not be translated/communicated in a common language, which could be used by those at the outcome of the processes. For example, scientific information on climate change needs to be conveyed not at the science level but in a way which bridges the gap for action at policy level. The same approach should be adopted when conveying key messages to other important stakeholders such as the defence communities, development audiences as well other partners across the globe.

Through various reports, such as the G7 Report on "A New Climate for Peace" and several other assessments, participants noted that there is necessary knowledge on what the risks are and where these risks are the highest. There are also lessons from development and peacebuilding work in fragile states. Therefore, a realistic strategy includes a thorough risk assessment based on deep contextual understanding – connecting all the relevant issues in a common language. It is also imperative that these discussions are accessible to the right stakeholders around the world. Many in the donor community can enable discussions on these important topics through support in fragile states.

IV. CONCLUDING REMARKS

Wim Geerts thanked all the moderators for reporting on the discussions from their respective Working Groups and noted that recommendations from each session reflect the richness of the discussions – on thematic as well as geographical linkages. He observed that this dialogue across various groups of stakeholders has lead to one major conclusion: there is a need for an integrated, comprehensive approach and "maladaptation could be a likely consequence of single sector approaches and decisions".

Henk Ovink added that this conference also provided an opportunity to reset and ask some very basic yet important questions. Securitisation of climate change may lead to certain negative and unintended consequences. Many believe that issues of security lead to war than actual solutions. It is therefore important to be cautious in pinning these two issues and framing them together.

Jamie Shea observed that it is a legitimate question to ask whether the securitisation of an issue may have repercussions. But it is important to know that militaries and defence communities around the world are the first to push such a scenario backwards – discouraging policy-makers from developing linkages with security. He said that for any coherent response to the climate challenge, development and defence communities should sit together and learn from each other's knowledge. The Planetary Security conference did exactly that and provided a platform for such an exchange – which must continue.

Caitlin Werrell noted that decision-makers have valid reasons to link security with an issue such as climate change. If we look at the impact – we note the tremendous human security implications as well as national security implications. One can look at how it is a framework for political expediency but it does not take away the fact that there are clear risks on the ground.

Francesco Femia pointed out that there is often a tendency within the securitisation dialogue – that experts tend to conflate securitisation with militarisation or securitisation leading to a heightened likelihood of a militarised response. It is important to understand that it is mostly not the case and militaries generally follow a policy of conflict avoidance. Also, in the United States, U.S. combatant commanders, particularly from the Pacific, have brought the climate-security debate to Washington. These officers working with partner nations have observed significant changes across a vast region and work to convince their leadership that the implications for inaction or ill preparedness can be severe.

One speaker even pointed out that regardless of these theoretical complexities, it is obvious that small island states have a clear security threat – an existential threat not by a hostile army but unpredictable climatic changes.

Jürgen Scheffran in his concluding remarks observed that since the end of Cold War, many dimensions of security have been discussed by policy-makers worldwide e.g. national to international, human to global security etc. But given the climate context, the important question is how we can give it a new meaning based on the discussions in Planetary Security conference?

There can possibly be two extremes: either we choose to depend on the vagaries of nature and its own internal dynamics or we start depending on technology to construct the future of our planet in a technical way (climate-engineering). Probably in the middle of these two extremes, the concept of Planetary Security can be better framed.

8

The Future of Planetary Security

A plenary panel comprising Minister Lilianne Ploumen, Paula Caballero, Dan Smith and Nasser Yassin presented their "takeaway messages from the conference". As important as analysis is – as is highlighted in the G7 report "A New Climate for Peace" and reiterated throughout the conference – there was a common call to all to go beyond analysis and now focus on the actions that are needed to address climate fragility and climate security risks. The final plenary focused on what these specific actions should be.

Moderator:

Wim Geerts, Director-General Political Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands

Speakers:

Lilianne Ploumen, Minister for Foreign Trade and Development Cooperation of the Kingdom of the Netherlands
Paula Caballero, Senior Director, World Bank Group
Dan Smith, Director, Stockholm International Peace Research Institute
Nasser Yassin, Director of Research, American University of Beirut

Rapporteur:

Jenny Clover, Sustainable Development Specialist, Independent Consultant

Moving beyond analysis, it was said, calls for being "honest and generous enough" to acknowledge the need for breaking out of bureaucratic silos, confronting the dilemmas and the complexities, and identifying the critical levers for doing what we need to do to protect those most in need. While people want to think in interconnected ways, we still have not come up with concrete, short-term deliverable outcomes. The G7 report contains several suggestions, but what is needed specifically is that we monitor the outcomes of the G7 working group and learn from the reporting back. A second suggestion was that the Planetary Security Initiative needs to continue, but should be more than just another conference, by building a constituency that is not only bigger, broader and more diverse but also one that has the capacity to go deeper.

From l. to r.: Paula Caballero, Wim Geerts and minister Ploumen

A strong call was made for recognising the role of civil society and investing in **enlarging the space for civil society**. The point was made that the development discourse is still "stuck in 1960s thinking", which continues to be very orientated towards working with states, while what is needed is that we become more innovative in our approaches, moving beyond these old narratives. While we focus attention on the state, we also need to better understand how civil society is coping and managing stress and threats. Actions are needed to invest in enlarging the (shrinking) space for civil society, to encourage processes and coalitions that ensure they are part of the peacebuilding and climate change agenda. This includes being responsive to information from relevant communities. Building on this point, a call was made for not only stepping out of our silos, but also more actively including civil society at the next Planetary Security conference. This would contribute to supporting a platform for listening to needs on the ground, responding to bottom-up driven processes, and ensuring that there is top-down commitment to listen and being generous in financial commitment.

Expanding on the **call for a platform that will drive an action-oriented agenda**, panellists concurred on the need for discussing climate security in an interconnected way, and called for deepening and broadening the multidisciplinary approach that has been initiated at this conference. This requires vertical and horizontal integration, bringing people together from different backgrounds – civil society, the business sector, different interest groups – and the need for innovative solutions.

It was noted that at this conference we have debated the what, how and with whom, but the challenge we face is of how we **reach out to the unconverted**, to share knowledge to promote resilience. One of the respondents noted the importance of not talking jargon, but sharing the real live stories – to "bring the day-to-day struggles into this conference".

Another panellist noted that it is not always useful to use "climate change language" as an entry point. But it is also not an "either-or" choice. On the one hand, we need to provide firm evidence to the official constituency for the imperative to act, such as that which the G7 report does, by "emblazoning" climate change and climate fragility throughout. You have to have the state authorities, the provincial and local authorities who can act inclusively, efficiently and accountably, but you also need the ground level pressure to ensure that these authorities act.

The value of presenting information and the data that can support a **long-term, integrated approach** in order to address the complex interlinkages and meet economic growth, environmental and livelihoods needs was highlighted. This requires also that we provide the economic analysis that shows the value of ecosystem services and resources – a nationwide ecosystem accounting approach. The point was made that economic valuation should be foundational to national decision making so that we do not risk short-term trade-offs without looking at the long-term economic gains. Short-termism is exclusive, while the long-term perspective provides the foundation for inclusiveness because this addresses inequality and insecurity. Addressing inequalities was seen to be fundamentally important for it is the root cause of many tensions and we are seeing deepening inequalities between countries and between generations. The call was made for investing more in meeting the SDGs to address gender, class, ethnic, national and regional inequalities. One of the conundrums is that of the temporal scale, of reconciling the short-term and the long-term. While we have the SDGs and a clear understanding of the importance of integrated responses, this community also needs to overcome the challenge of operating within the confines of electoral and budget cycles that are short-term and respond to immediate needs. In fact, a very different scale of funding is needed to address the deep-rooted causes, the drivers. It was acknowledged that we need to respond to crises timely, but we also need to move beyond ad hoc responses. Here, the kind of staying power that is needed to build long-term climate change adaptation resilience is a completely different "ballgame". It calls for programmatic approaches, for longer-term funding to build resilience to amplify coping capacities and resilience to what are often, complex and slow onset events. This means responding to the temporal and the territorial imperatives in order to address the deep-rooted causes, noting the difference between disaster risk response and the long-term adaptation strategies. This is the conversation that this community is uniquely positioned to take forward.

Panellists commented on the value of debates coming out of this conference and shared their recommendations on how this initiative should be taken forward. It was seen to have created a space in which climate change and security and the ramifications of these issues were discussed without either one taking precedent. More particularly it was seen to be a place for discussing these issues in a balanced and interconnected way. It was recommended that next year's conference should seek to both broaden and deepen the debate, finding the actionable conclusions that come out, and connecting these to the right constituencies. A second point made was about the richness of the depth and breadth from the multidisciplinary discussions that served to frame the issues in a way that makes sense. The suggestion was also made by several panellists that next year the conference should zero in on just a few key entry points, priority action areas, for addressing the risks – such as urbanisation, water diplomacy, food price volatility, food security – with an action-oriented agenda that is palatable and does not present the issues as too complex and overwhelming.

Finally, it was noted that it would be useful to discuss the political implications of not acting, of not having the right diagnosis, and to engage and invite real live stories that demonstrate our analyses and solutions, inviting people who are engaged in innovation.

9 Chairman's Summary

Closing Statement by the Chairman of the Conference, Wim Geerts, Political Director, Ministry of Foreign Affairs of the Kingdom of the Netherlands

The security of our planet is at risk.

This is not new.

For decades experts and policy makers have been warning about the 'limits to growth', and of the dangers of competition over dwindling natural resources, the threats to human security due to water scarcity, the fragility of our world food system, and the perils of biodiversity loss. The risk to our lives and to our ways of life due to a changing climate has also long been recognised.

What is new is the increased level of the threats to the earth, the increased recognition by more and more stakeholders of the dangers, and the increased determination of the international community to address the challenges by reducing, reversing or compensating for the underlying causes and to create new conditions for security.

What is also new is the increased understanding of the interlinkages between all the challenges – and the new certainty that they have a compounding effect: where the resulting impact of all these problems interacting is far greater than the sum of them separately.

Many political and military leaders around the world are now calling climate change the most serious threat to national security in the 21st century. Climate change has been called "perhaps the world's most fearsome weapon of mass destruction".[5] Experts and leaders everywhere agree that climate change has a multiplier effect increasing the impact of other existing threats.

But new public awareness and recognition by policy makers is not enough. More needs to be done, and the time to act is now.

Interdependent problems require interdependent solutions. Threats to the security of our planet are interacting and compounding in their impacts. Therefore, we need integrated solutions with compounding effectiveness.

A major challenge here is how to institutionalise and ensure integrated decision-making for these interdependent solutions. Having conferences of this type is a new step in the right direction.

"... the very existence of this conference reveals that new dynamics are supporting the emergence of a political awareness of the novel interactions between the global planetary change and national and international security issues. This creates a new paradigm, necessary to understand the strategic challenges of geopolitics on a changing planet".[6]

And there is something else new about this conference.

[5] John Kerry, U.S. Secretary of State, 'Remarks on Climate Change' (Jakarta, Indonesia, 16 February 2014) http://www.state.gov/secretary/remarks/2014/02/221704.htm

[6] Valantin JM, 'Planetary Security, or the Subversion of Collapse' (26 October 2015) https://www.redanalysis.org/2015/10/26/planetary-security-subversion-collapse/

It is not just an intellectual exercise or even just about new ways of thinking. It is also about new ways of acting. With this the first of such annual meetings here in The Hague, the international city of peace and justice, the Kingdom of the Netherlands aims to facilitate a regular time and place where the experts, organisations, and decision makers assembled here and many more to be included in the future will be able to share, connect and strengthen their parts of the new strategies needed for the future of planetary security.

While an annual conference could be seen as a new institution, its main aim is to help the existing foreign policy and security architecture to come to the integrated solutions required by the new eco-geopolitical landscape.

Let us agree that by working together we will be stronger and more effective in our determination to make a difference - not only for the future - but also now.

The effectiveness can go well beyond just the combining of our own efforts on an annual basis. Conferences like this one can help stimulate engagement by an ever larger community of concerned and committed citizens acting together on a daily basis everywhere leading to new ways of protecting our planet.

"... in the course of the 21st century the Anthropocene is likely to change how we under-stand political systems both analytically and normatively, from the village level up to the United Nations. This makes the Anthropocene one of the most demanding, and most interesting, research topics also for the field of political science, which has to develop novel, more effective and more equitable governance systems to cope with the challenges of earth system transformation".[7]

Research, of course, has to lead to action. This conference will help build the bridge between the intellectual and the practical through the action-oriented strategies we have developed here.

The success of this first Planetary Security conference lies in our hands. The work begins now. We cannot wait until we convene again next year. We must use the new network we have established here and the new momentum we have generated together to continue to share knowledge and insights on the nexus between climate change and security and, importantly, to translate insights into policy.

[7] Biermann F, The Political Dimensions of the Anthropocene (Background Note for the international conference on Planetary Security, 2-3 November 2015) *http://www.planetarysecurity.nl/conference/documents/discussion-documents/2015/10/28/background-paper-working-group-4-anthropocene*

PART II:
Working Group Reports

WORKING GROUP 1

ANALYSIS OF SYRIA: LESSONS LEARNED

This Working Group explored the links between climate change, natural resource mismanagement and state fragility, looking specifically at Syria and the Euphrates Basin. The Working Group explored how, in a time of multiple competing security priorities, the region and the international community can better prepare for and mitigate climate risks by integrating climate impacts and natural resource constraints into their national security and foreign policy priorities.

Moderator: **Caitlin Werrell**, Center for Climate and Security
Speakers: **Francesco Femia**, Center for Climate and Security
Rami Nakhla, Yale University
Colin Kelley, University of California
Marcus King, George Washington University
Rapporteur: **Nasser Yassin**, American University of Beirut
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES[1]

While we should not overstate the role of climate change in specific and complex human events, such as the current refugee crisis, it is equally unhelpful to underestimate the comprehensive scale of climate risks in the region, which impinge on a broad range of environmental, social, political and economic drivers of state fragility (see, for example, the G7-commissioned report "A New Climate for Peace").[2] Indeed, climate change risks may already be playing a destabilising role in the Middle East and North Africa, by straining critical water and food resources.

As we highlighted in 2012,[3] a combination of extreme drought, natural resource mismanagement and population dynamics helped set the conditions for a fragile Syrian state. From 2007-2010, the country experienced the worst drought in its history of records. This drought was part of a trend of declining winter precipitation in the region – a trend linked to climate change (Hoerling et al, 2011).[4] According to a recent study published in the Proceedings of the National Academy of Sciences, climate change made this drought two to three times more likely to occur (Kelley et al, 2015).[5]

[1] This section is extracted from Werrell C and Femia F, 'On Syrian Refugees and Climate Change: The Risks of Oversimplifying and Underestimating the Connection' (10 September 2015) (hereinafter Werrell and Femia 2015) *http://climateandsecurity.org/2015/09/10/on-syrian-refugees-and-climate-change-the-risks-of-oversimplifying-underestimating-the-connection/*; Additional information can be found in King MD, *Climate Change, Water Scarcity and Violent Extremism in Iraq and Syria* (Conference Paper presented at World Water Week, Stockholm, Sweden 24 August 2015)

[2] A New Climate for Peace, 'Report: A New Climate for Peace: Taking Action on Climate and Fragility Risks' *https://www.newclimateforpeace.org/*

[3] Femia F and Werrell C, *Syria: Climate Change, Drought and Social Unrest* (Briefer 29 February 2012) (hereinafter Femia and Werrell Syria 2012) *https://climateandsecurity.files.wordpress.com/2012/04/syria-climate-change-drought-and-social-unrest_briefer-11.pdf*

[4] National Oceanic and Atmospheric Administration (NOAA), 'NOAA study: Human-caused climate change a major factor in more frequent Mediterranean droughts' *http://www.noaanews.noaa.gov/stories2011/20111027_drought.html*

[5] Kelley CP et al, *Climate change in the Fertile Crescent and implications of the recent Syrian drought* (Abstract) *http://www.pnas.org/content/112/11/3241.abstract*

Combined with water, food and land mismanagement by the al-Assad regime, which subsidised water-intensive agriculture, this drought contributed to the devastation of a significant percentage of Syria's crop and rangeland,[6] and the displacement of 2 million farmers and herders, many of whom fled to urban centres. This massive internal displacement went largely unnoticed by the international community, and the underlying food and water crisis was not adequately captured in popular fragility indices.[7] Indeed, in early 2011, Syria was still broadly believed to be immune to the instability[8] that other "Arab Spring" countries were experiencing. While it is not clear precisely how this significant internal displacement of peoples contributed to the revolutionary movement, it is clear that Syria was already a fragile place, and that climatic stresses were a factor in that fragility.

2. RESPONSES

The complexity of predicting, responding and preparing for climate and state fragility involves an array of agencies, both government and non-governmental too great in number to compile into a single list. Two valuable sources for further information are the following:

The **Climate Security 101 - Resource Hub**[9] includes resources on the nexus of climate change and security. These include materials from the U.S. government as well as other governments and regional institutions, international institutions, and other academic, think tank and NGO sources plus links to other on-line collections.

Water and Conflict[10] - Oregon State, Transboundary Water Dispute Database: The Transboundary Freshwater Dispute Database (TFDD) is a database intended for use in aiding the process of water conflict prevention and resolution. This database, a project of the Oregon State University College of Earth, Ocean, and Atmospheric Sciences, was developed in collaboration with the Northwest Alliance for Computational Science and Engineering.

3. FURTHER READING

- The Center for Climate and Security provides a "One-stop list of resources on Syria, drought, climate change and unrest": *http://climateandsecurity.org/2014/01/23/updated-one-stop-list-of-resources-on-syria-drought-climate-change-and-unrest/*

- Water Conflict: In an ongoing effort to understand the connections between water resources, water systems, and international security and conflict, the Pacific Institute initiated a project in the late 1980s to track and categorise events related to water and conflict, which has been continuously updated since. A new interactive format, introduced in 2009, presents the information three ways, to better illustrate how conflicts over water impact history (Table, Timeline and Map): *http://worldwater.org/water-conflict/*

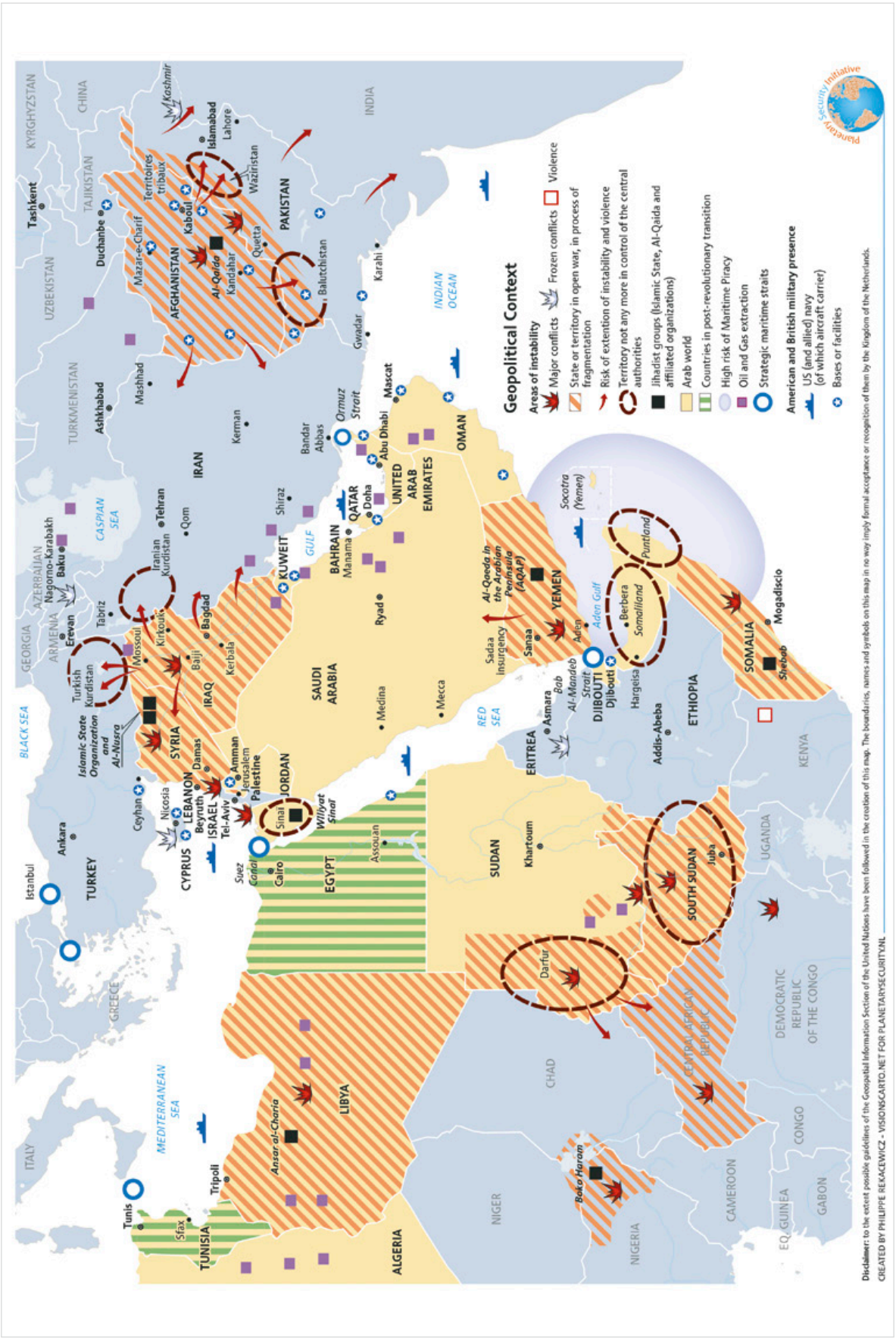
[6] Femia and Werrell Syria 2012

[7] Werrell C, Femia F and Sternberg T, *Did We See It Coming?: State Fragility, Climate Vulnerability, and the Uprisings in Syria and Egypt* (Abstract) (2015) *https://muse.jhu.edu/login?auth=0&type=summary&url=/journals/sais_review/v035/35.1.werrell.html*

[8] Al-Tamimi AJ and Svadkovsky O, 'Demography is Destiny in Syria: The "peripheralism" and Malthusian underpinnings of an unexpected uprising' *http://spectator.org/articles/36118/demography-destiny-syria*

[9] Climate Security 101, 'Resource Hub' *http://climatesecurity101.org/climate-security-resource-hub/*

[10] Oregon State University, 'The Transboundary Freshwater Dispute Database' (TFDD) *http://www.transboundarywaters.orst.edu/database/*


Geopolitical Context
Areas of instability
Major conflicts
Frozen conflicts
Violence
State or territory in open war, in process of fragmentation
Risk of extention of instability and violence
Territory not any more in control of the central authorities
Jihadist groups (Islamic State, Al-Qaida and affiliated organizations)
Arab world
Countries in post-revolutionary transition
High risk of Maritime Piracy
Oil and Gas extraction
Strategic maritime straits
American and British military presence
US (and allied) navy
(of which aircraft carrier)
Bases or facilities
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BLACK SEA
MEDITERRANEAN SEA
RED SEA
CASPIAN SEA
GULF
INDIAN OCEAN
Aden Gulf
Bab Al-Mandeb Strait
Ormuz Streit
Suez Canal
Wilyat Sinaï
Islamic State Organization and Al-Nusra
Al-Qaeda in the Arabian Peninsula (AQAP)
Ansar al-Charia
Boko Haram
Al-Qaeda
Sadaa Insurgency
Territoires tribaux
Iranian Kurdistan
Turkish Kurdistan
Nagorno-Karabakh
Berbera
Somaliland
Puntland
Shebab
Darfur
Kashmir
Waziristan
Baluchistan
TURKEY
SYRIA
IRAQ
IRAN
LEBANON
ISRAEL
JORDAN
Palestine
CYPRUS
EGYPT
SAUDI ARABIA
KUWEIT
BAHRAIN
QATAR
UNITED ARAB EMIRATES
OMAN
YEMEN
Socotra (Yemen)
ERITREA
DJIBOUTI
ETHIOPIA
SOMALIA
SUDAN
SOUTH SUDAN
LIBYA
TUNISIA
ALGERIA
AFGHANISTAN
PAKISTAN
INDIA
CHINA
KYRGHYZSTAN
TAJIKISTAN
UZBEKISTAN
TURKMENISTAN
AZERBAIJAN
ARMENIA
GEORGIA
GREECE
ITALY
CHAD
NIGER
NIGERIA
CAMEROON
CENTRAL AFRICAN REPUBLIC
DEMOCRATIC REPUBLIC OF THE CONGO
UGANDA
KENYA
CONGO
GABON
EQ. GUINEA
Istanbul
Ankara
Tunis
Sfax
Tripoli
Ceyhan
Nicosia
Beyrouth
Damas
Amman
Jerusalem
Tel-Aviv
Sinaï
Suez
Cairo
Assouan
Khartoum
Mecca
Medina
Ryad
Doha
Manama
Abu Dhabi
Mascat
Shiraz
Bandar Abbas
Kerman
Qom
Tehran
Mossoul
Kirkouk
Bagdad
Kerbala
Baji
Erevan
Baku
Tabriz
Ashkhabad
Mashhad
Tashkent
Duchanbe
Mazar-e-Charif
Kaboul
Kandahar
Quetta
Islamabad
Lahore
Karahi
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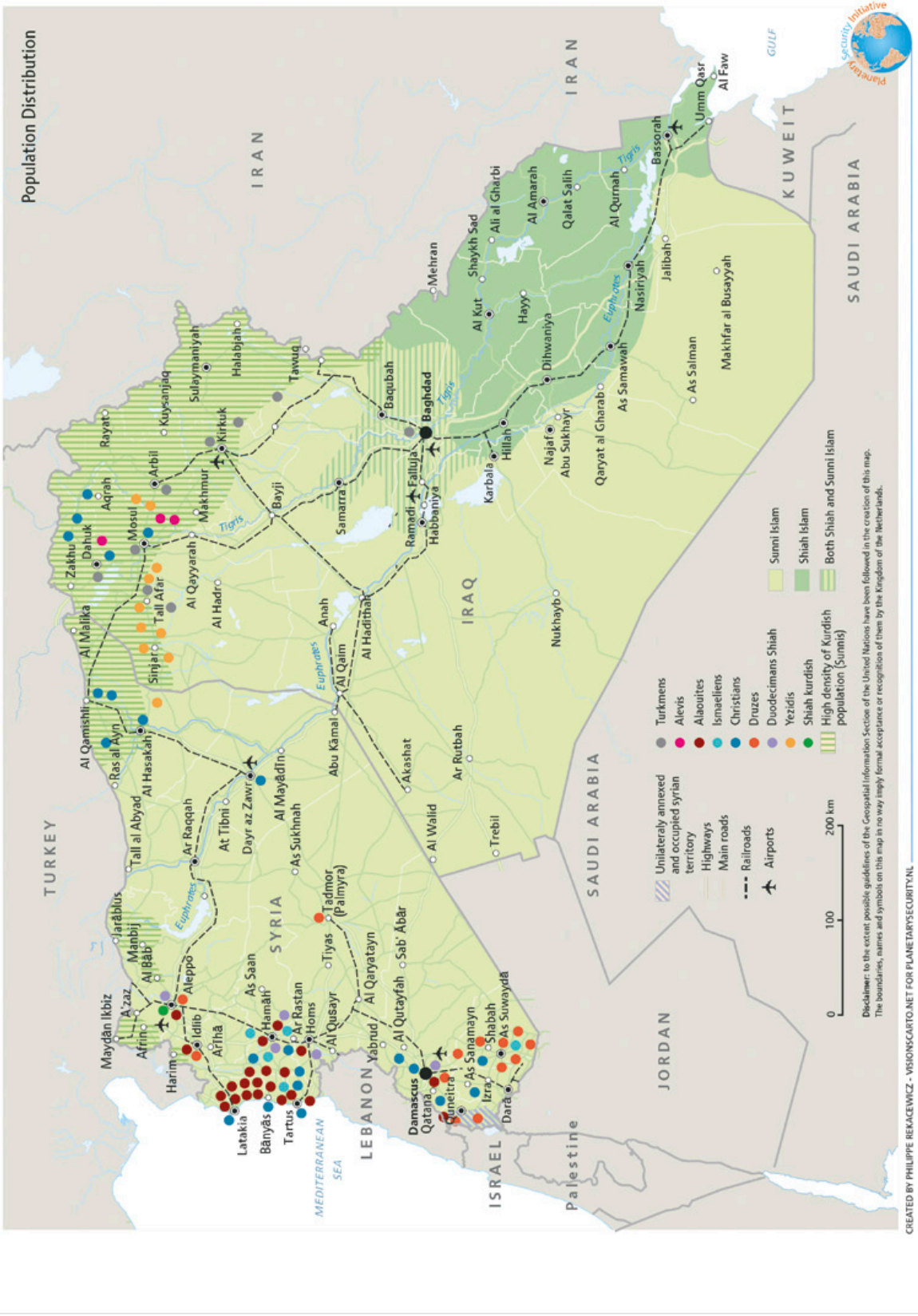
Hargeisa
Addis-Abeba
Djibouti
Mogadiscio
Juba
Darfur
Planetary Security Initiative


Population Distribution
TURKEY
IRAN
IRAQ
SYRIA
LEBANON
ISRAEL
JORDAN
SAUDI ARABIA
KUWEIT
Palestine
MEDITERRANEAN SEA
GULF
Baghdad
Damascus
Aleppo
Mosul
Kirkuk
Basrah
Tigris
Euphrates
Unilaterally annexed and occupied syrian territory
Highways
Main roads
Railroads
Airports
Turkmens
Alevis
Alaouites
Ismaeliens
Christians
Druzes
Duodecimans Shiah
Yezidis
Shiah kurdish
High density of Kurdish population (Sunnis)
Sunni Islam
Shiah Islam
Both Shiah and Sunni Islam
0
100
200 km
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Planetary Security Initiative

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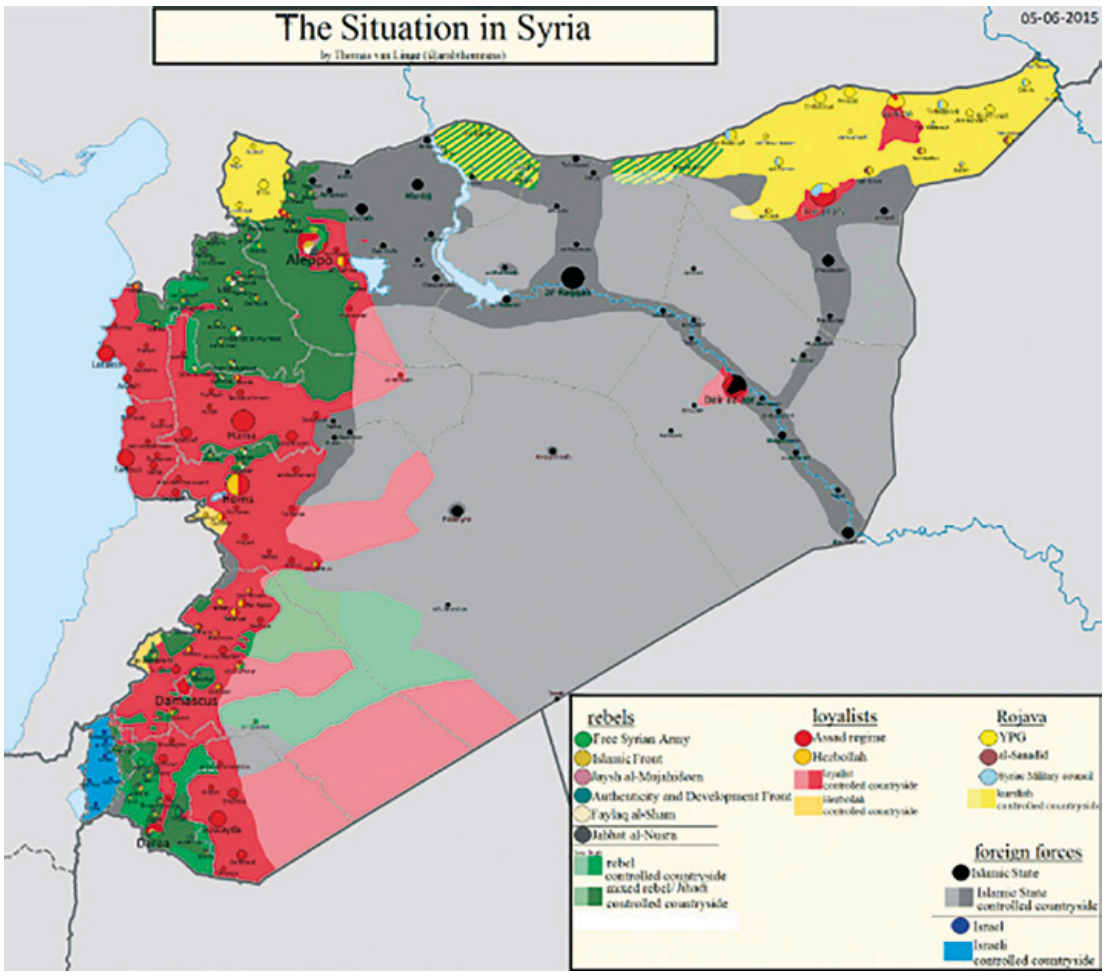
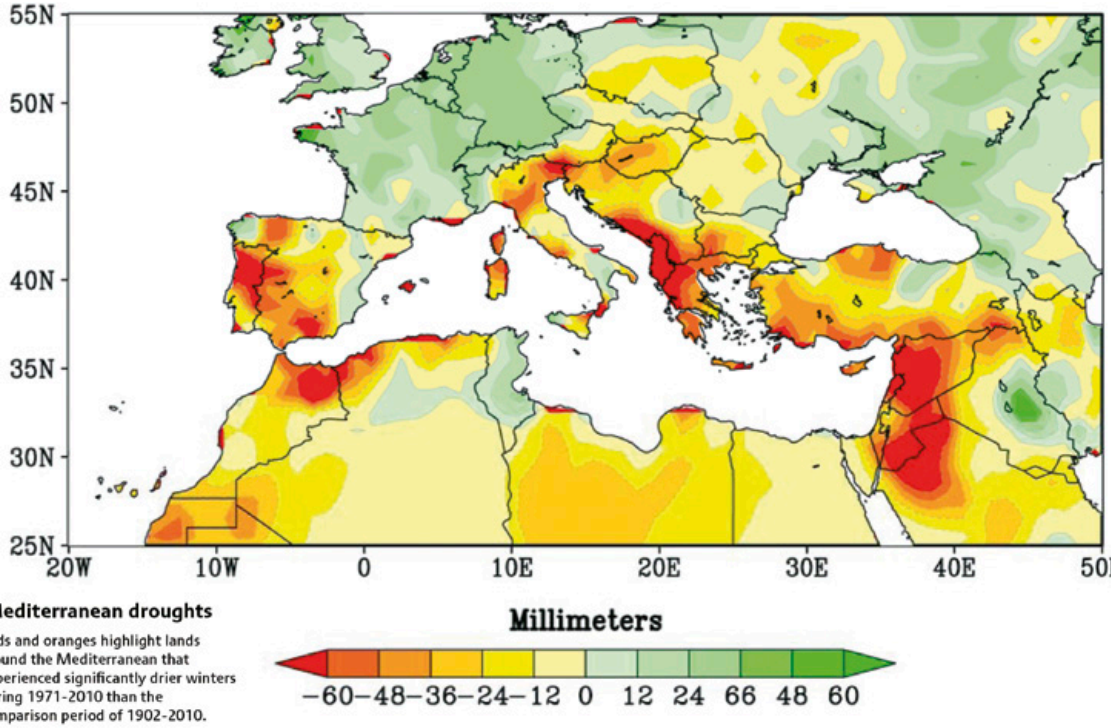




Mediterranean droughts

Reds and oranges highlight lands around the Mediterranean that experienced significantly drier winters during 1971-2010 than the comparison period of 1902-2010.

4. ANALYSIS

The war in Syria is calamitous by all means. More than 300,000 have been killed since the Assad regime militarily clamped down the popular protests that erupted in 2011. The war resulted in the largest population displacement since World War II estimated at 11 million people. The causes of war in Syria are multifaceted, as most civil wars. The environmental factor, however, is not to be discounted.

The case of Syria clearly demonstrates how climate change when coupled with other political, economic and demographic stresses can be a major factor of state and societal fragility. Mismanagement of water resources and their unsustainable use by Syrian authorities exacerbated the hitherto delicate natural resources system in large parts of Syria's eastern provinces. This leads to the forced displacement of tens of thousands of farmers and herders from these provinces to main urban centres in Syria and neighbouring Lebanon.

The current projections and recent modelling predict a further decline in precipitation causing additional natural resource stress in Syria and in the Euphrates Basin as well as in neighbouring Lebanon and Jordan. Further environmental stresses will be caused by an increased demand for water. Water and food insecurity in the region, driven by the unsustainability of local food and cash crop production, a lack of resilience to global food price fluctuations, and climate factors, is already acute. Furthermore, the current crisis has shown how water as well as access to food can be broadly used as a weapon or as a way of leverage and control, by non-state actors. The attempt of ISIS to control water resources in the Euphrates Basin is a case in point.

Caitlin Werrell and Francesco Femia

5. CONCLUSIONS AND RECOMMENDATIONS

There is need for better analysis and predictive tools to further integrate climate and natural resource stresses into out measurements of state fragility. The existing tools are out-dated and to a large extent do not take in consideration the complexity of the 21st century (Werrell and Femia, 2015).[11] Revisiting such analytical and predictive tools is of vital importance since certain indicators of state fragility missed the brewing crisis in Syria in 2010 and 2011 although evidence of the impact of draught was produced and made available (cf. Erian et al, 2012).[12] Furthermore, predictive tools would require field research and first hand data to produce grounded evidence.

Following on the above, it is necessary to get the right information to the right people. In most cases, data on severe climate and natural resource vulnerabilities exists, but is simply not reaching high levels of government (e.g. foreign affairs and defence ministries) due to issue competition and established cultures. More needs to be done to elevate climate and natural resources issues within these establishments, through translating this information in the right way, and through the right forums.

The outflow of Syrian refugees to neighbouring countries has created significant impact on host communities. The demographic implications are clear: Jordan and Lebanon alone are hosting between 2.5 to 3 million refugees stressing the already scarce natural resources. Competition over resources cannot be overlooked especially that the crisis in Syria is getting protracted and no clear solution for refugee return is in the horizon.

Though it is difficult-to-impossible to predict the future course of conflict in the region, we have relatively strong projections on what the future climate and water picture of the region could be. We must therefore commit climate adaptation resources in a way that addresses some of the underlying drivers of instability in the region, is conflict sensitive, and can be utilised to build cooperation between conflicting parties.

[11] Werrell C and Femia F, 'Fragile States: The Nexus of Climate Change, State Fragility and Migration' (24 November 2015) *http://anglejournal.com/article/2015-11-fragile-states-the-nexus-of-climate-change-state-fragility-and-migration/*

[12] Erian W (ed) et al, *Agriculture Drought in Africa Mediterranean and Middle East* (2012), *http://www.preventionweb.net/english/hyogo/gar/2013/en/bgdocs/Erian%20et.al,%202012.pdf*

WORKING GROUP 2

SMALL ISLAND DEVELOPING STATES (SIDS)

This Working Group focused on climate change and its effects on Small Island Developing States (SIDS). More specifically, the workshop focused on the following questions: Is there a future for SIDS? What does a comprehensive climate security strategy look like? This was one of two Working Groups in which sea level rise was one of the central themes.

Moderator:	**Jon Barnett**, University of Melbourne
Speakers:	**Patrina Dumaru**, University of the South Pacific
	H.E. Inga Rhonda King, Permanent Mission to the U.N. for Saint Vincent and Grenadines
	H.E. Pa'olelei Luteru, Embassy of the Independent State of Samoa
Rapporteur:	**Shirleen Chin**, Institute for Environmental Security
Infographics:	**Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

According to the United Nations (UN), there are 39 Small Island Developing States (SIDS) with a combined population of over 50 million people. Amongst them, 37 are Member States of the UN, comprising one-fifth of the total UN membership. Among the SIDS there are countries that are relatively wealthy by developing country standards, such as Singapore and the Bahamas, but also some of the poorest countries in the world, such as Comoros, Haiti and Timor-Leste.

Like many developing countries, SIDS are susceptible to a range of security challenges. These include problems of law and order, with seven of the Caribbean SIDS having the highest murder rates in the world according to the United Nations Office for Drugs and Crime (UNODC). Their small size and capacity limitations make SIDS ideal targets for transnational criminal networks, including those involved in illegal, unreported and unregulated (IUU) fishing, piracy, and the smuggling of drugs, arms and people.

SIDS also experience political instability, with 13 SIDS being countries of concern in the Fragile State Index. Yet among the developing countries the SIDS are not exceptionally insecure, as the principal factors influencing insecurity such as poverty, inequality, and restricted social opportunities and no more or less prevalent in SIDS.

VULNERABILITIES

I. When tropical storm Jeanne hit **Haiti** in September 2004, nearly 3000 people lost their lives even though the winds were not deemed hurricane force.
II. In **Kiribati**, a 16-month drought forced the government to deliver drinking water by boat to remote islands that depend on rain for freshwater.
III. The recent cyclone in **Vanuatu** caused 360 million US Dollars' worth of damage - about 45% of Vanuatu's GDP and Hurricane Sandy cost 315 million US Dollars across the **Caribbean**.

However, SIDS do face unique sustainable development challenges. Few SIDS are able to achieve economies of scale, few have competitive advantages, and most are dependent on imports that are subject to high transport costs. The formal economies of most SIDS are heavily dependent on natural resources, as are the livelihoods of most people living in them. Tourism, agriculture and fisheries are critical sectors that are vulnerable to environmental change. Most SIDS have large

Exclusive Economic Zones (EEZ), but minimal capacity to conduct proper surveillance of their maritime zones. In 2014, the value of the tuna caught in the EEZ of Pacific countries was 3.4 billion dollars – double the development assistance to the region from all sources. Around an additional 400 million dollars of tuna was estimated to have been taken from the zone illegally or through under-reporting.

SIDS are particularly vulnerable to natural hazards, which can affect their entire territories and economies. Most SIDS are located in zones of tropical cyclone activity and their high ratio of coastline to land area makes them particularly vulnerable to storm surges and wind damage. Many are also highly exposed to drought. Their high dependence on natural resources means such events can have disproportionate impacts on economies and livelihoods, and government spending and revenue (see the text box for examples).

These sustainable development challenges make SIDS highly vulnerable to climate change. Climate change will bring sea level rise, warming sea and air temperatures, an increase in cyclone and storm intensity, and changing patterns of rainfall. These will in turn cause coastal erosion and inundation, coral bleaching and associated impacts on near-shore fisheries, changing patterns of pelagic fish stocks, declining agricultural productivity, increased infrastructure damage, increasing risks to water systems, and increases in morbidity and mortality due to vector and water borne diseases and extreme events. Given the dependence of SIDS economies and livelihoods on natural resources, these impacts will undermine economic growth and livelihoods. Not only are SIDS highly exposed and sensitive to climate change, their capacity to adapt is constrained by their generally small economies and limited technological capacities.

However, SIDS are not all equally vulnerable, and most have considerable capacities that offer a foundation for adaptation. SIDS are typically characterised by high degrees of social capital rooted in kinship structures that extend across countries, and which provide important sources of income, information, and social support. Many SIDS societies have persisted for thousands of years, living sustainably in marginal and fragile environments through periods of changes in climate and sea levels, and these cultural repertoires continue in many small island societies. Information and communications technologies are helping to overcome the barriers of distance, as are falling transport costs. Finally, SIDS engage extensively with international partners in their pursuit of security and sustainability. These characteristics suggest that with careful and sustained efforts to facilitate adaptation, coupled with reductions in emissions of greenhouse gases that slow the rate of climate change, SIDS can persist, and future generations of people living in SIDS can continue to lead dignified lives.

2. RESPONSES

It is important to stress that SIDS are the principal agents of their own security, and will always be so. Nevertheless, the global forces that act on SIDS can overwhelm their local resources, and so support from the international community can significantly assist SIDS to manage their security.

Since at least 1992 international institutions, policies and conventions have consistently recognised that SIDS face acute sustainable development challenges, and are particularly vulnerable to climate change. The United Nations Department of Economic and Social Affairs (UN-DESA) has charted some of the main developments in international action to support sustainable development in SIDS, as shown in the following figure.

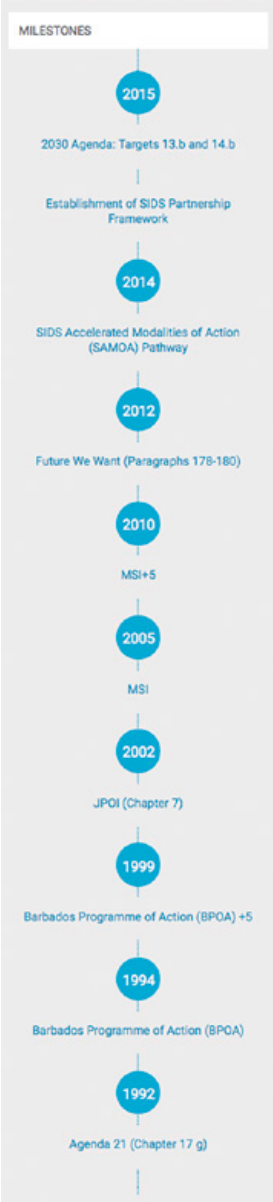


Figure 1: *1992 to 2015 Milestones*

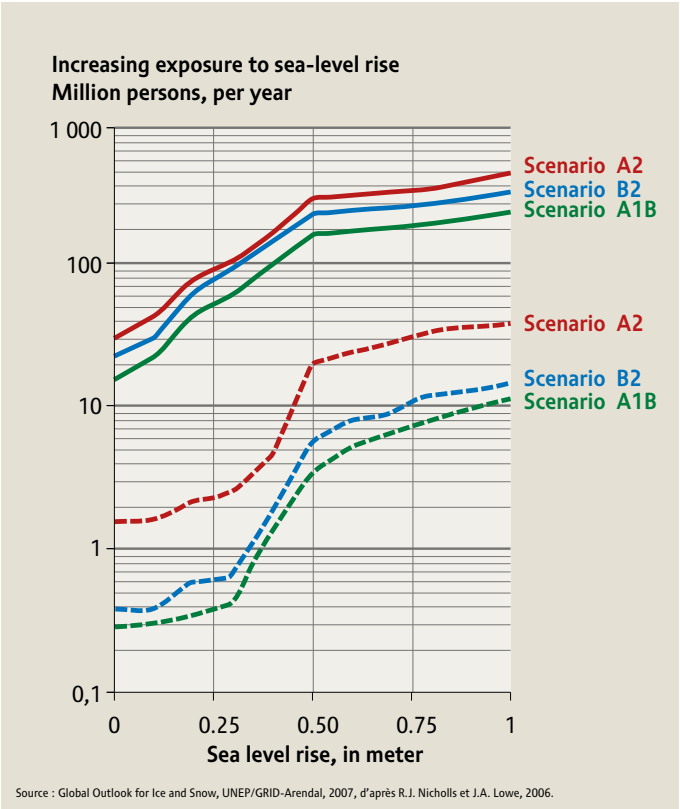
Most recently, in September 2014, the Third International Conference on SIDS was held in Samoa. The SIDS Accelerated Modalities of Action Pathway (SAMOA Pathway) was adopted at the conference. It addresses priority areas for SIDS and calls for urgent actions and support for SIDS' efforts to achieve sustainable development.

Many United Nations agencies are engaged in the implementation of these agreements and strategies, including: the United Nations Conference on Trade and Development (UNCTAD), the United Nations Educational, Scientific and Cultural Organisation (UNESCO), the United Nations Department of Economic and Social Affairs (UN-DESA), the United Nations Environment Program (UNEP), the United Nations Development Program (UNDP), and the United Nations Office on Drugs and Crime (UNODC). Multilateral and regional development banks such as the World Bank and the Asian Development Bank also play key roles. SIDS are also engaged in extensive bilateral arrangements, including with the Ministry of Foreign Affairs of the Kingdom of the Netherlands, who, in association with the UNESCO-IHE Institute for Water Education jointly launched the project "Strengthening Small Island Developing States" capacity in the water sector to cope with the effects of climate change'.

SIDS are typically grouped into three geographical regions: the Caribbean, the Pacific, and the Africa, Indian Ocean, Mediterranean and South China Sea (AIMS). Each region has its own regional cooperation body in the Caribbean Community, the Pacific Islands Forum and the Indian Ocean Commission respectively. There is also the Alliance of Small Island States (AOSIS), of which 44 SIDS are members.

3. FURTHER READING

- Department of Economic and Social Affairs (DESA), 'Sustainable Development Knowledge Platform' *https://sustainabledevelopment.un.org/*
- Intergovernmental Panel on Climate Change (IPCC), Working Group II, *Climate Change 2014: Impacts, Adaptation and Vulnerability, Chapter 29, Small Islands* *http://www.ipcc.ch/pdf/assessment-report/ar5/wg2/WGIIAR5-Chap29_FINAL.pdf*
- United Nations Environment Programme (UNEP), 'SIDS' *http://www.unep.org/regionalseas/partners/interagency/SIDS/default.asp*
- United Nations General Assembly (UNGA), *Report of the Global Conference on the Sustainable Development of Small Island Developing States (1994)* *http://www.un.org/esa/dsd/dsd_aofw_sids/sids_pdfs/BPOA.pdf*



Source : Global Outlook for Ice and Snow, UNEP/GRID-Arendal, 2007, d'après R.J. Nicholls et J.A. Lowe, 2006.

Protection level:

Poor

High

IPCC scenarios:

The graph shows projected increases in the number of people worldwide who will be exposed to sea-level rise under certain scenarios, with and without coastal protection.

For each of the three IPCC scenarios displayed the dashed and solid line of the same colour indicates the degree of reduction in exposure given coastal protection

The A1 storyline and scenario family describes a future world of very rapid economic growth, global population that peaks in mid-century and declines thereafter, and the rapid introduction of new and more efficient technologies. Major underlying themes are convergence among regions, capacity-building, and increased cultural and social interactions, with a substantial reduction in regional differences in per capita income. The A1 scenario family develops into three groups of which the A1B scenario representing a balance across all sources - renewable and non renewable (and where balanced is defined as not relying too heavily on one particular energy source, on the assumption that similar improvment rates apply to all energy supply and end use technologies).

The B2 scenario describes a world in which the emphasis is on local solutions to economic, social, and environmental sustainability. It is a world with a continuously increasing global population, but at a slower rate than other scenarios, intermediate levels of economic development, and slow but diverse technological change. Society is oriented towards environmental protection and social equity, and focuses on the local and regional level.

The A2 scenario describes a very heterogeneous world, based on the continued separation and preservation of local identities. Fertility patterns across regions converge very slowly, which results in a continuously increasing population. Economic development is regionally oriented and per capita economic growth and technological change fairly fragmented and slow.

4. ANALYSIS

Higher rates of warming pose increasing levels of security risk to SIDS. Warming in excess of 1.5°C above pre-industrial levels poses critical risks to SIDS, and to avoid this early and deep cuts in emissions are critical.

SIDS are playing their part in the clean energy transition. All SIDS are very small emitters on an aggregate or per capita basis, yet many have plans for large-scale renewable energy systems. For example, Saint Vincent and Grenadines have begun to look into geothermal energy and are aiming to launch a major project by 2018; Tonga has well developed plans for a large investment in solar energy; Mauritius is planning for clean and adaptable smart cities; Antigua and Barbuda are investigating solar-powered desalination systems. Nevertheless, the cost of such green technologies remains a barrier to ambitious action in SIDS.

In many SIDS the impacts of climate change are being felt. There are concerns about the effects of climate change on population movement. For example, there are increasing requests from communities in Fiji for relocation due to coastal erosion (thus far 45 communities have requested this). In Barbuda population movement into urban areas is compounding impacts from the erosion of the lagoon. Climate impacts on rural livelihoods may accelerate urbanisation, and the pace of change may outstrip the capacity of public services and markets to meet people's needs. Population movements such as these could lead to urban unrest, and disputes and low-level conflicts about access to land and other forms of property.

Climate change could also lead to increased burdens on public services such as health services and water and sanitation systems. Impacts on incomes, degradation of natural resources degradation, water scarcity, food shortages and the depletion of fishing stock are also issues of critical importance and priority areas for adaptation.

Adapting to climate change is critical to the security of SIDS, even if warming stabilises at 1.5°C above pre-industrial levels. SIDS have significant capacities for adaptation, but the extent of the task will require meaningful and genuine partnerships with a range of actors in the international system. High-level international conferences and organisations are not affecting changes at the local level.

Adaptation and mitigation are to be implemented in SIDS, are intended to serve the needs of SIDS, are to be owned and sustained by SIDS. Yet climate change solutions in SIDS are too often prescribed and controlled by donors. SIDS have very different geographies, cultures, political systems and economies, and so universal solutions rarely suit any given country. SIDS must drive climate responses in their own countries, with international actors assisting in these processes.

At present, the systems for supporting adaptation in SIDS are excessively complicated, cumbersome, slow, and difficult for SIDS to navigate. When SIDS have secured support from abroad, there have been significant problems with implementation, management, monitoring, ownership and the sustainability of projects. It is common for people in SIDS to feel that international actors undermine their local capacities and ownership.

From l. to r. Jon Barnett, H.E. Pa'olelei Luteru, Patrina Dumaru, H.E. Inga Rhonda King

5. CONCLUSIONS AND RECOMMENDATIONS

Deep and rapid cuts in emissions are required to secure the future of SIDS, and all SIDS should be very strong advocates for an ambitious, global and binding agreement to reduce emissions. Lifestyles in the more industrialised nations imperil the future of SIDS, and ethical behaviours and decarbonising technologies and practices are required to change these.

SIDS are raising their own levels of ambition in decarbonising their economies, and the international community can support this through transferring technology and knowledge, and through support to sustain these systems over long periods of time.

Adaptation is also critical. Adaptation is a policy agenda for SIDS to be controlled by SIDS, with support from international actors through meaningful and genuine partnerships. These partnerships will require greater effort to understand and reconcile the expectations of SIDS and their development partners. The processes through which international assistance for SIDS is determined and provided require simplifying and mainstreaming. SIDS should own the objectives, processes, and outcomes of mitigation and adaptation in their countries.

The Samoa Pathway is a well-considered and broadly supported strategy for action and its implementation should be supported as a matter of priority.

Adaptation will require innovation, such as in technologies for water and sanitation, and sustainable transport systems to better facilitate the movement of people and goods and services between islands within SIDS. The development and implementation of these technologies will require sustained and committed support from the international community.

Most SIDS have large diasporas, and these represent a large pool of human resources that can assist SIDS to adapt. Innovative programs to harness the skills of the Diaspora are required.

Many people in SIDS share communal values, resources, and practices. This makes community based adaptation (CBA), which works with local and customary governance structures, an important and effective approach to adaptation in rural areas. CBA is a proven approach, and the time has come to invest in systems to upscale its application across a larger number of rural communities.

Adaptation is a process of learning, and systems for monitoring and evaluating activities and goals are required. This includes evaluations of the success of projects based on the views of the most vulnerable people, and monitoring of resources committed to adaptation activities. Education more broadly is also important, and awareness programmes at the grassroots level can help build a mandate for change. Formal education is also a powerful tool to reach and engage future generations (for example through school curriculum on climate change).

Environmental Impact Assessment and Strategic Environmental Assessments are important processes for mainstreaming adaptation and long-range planning. Improving local capacity for such processes can help reduce vulnerability to climate change. The Netherlands Commission for Environmental Assessment is working to improve these skills in various developing countries, and this could be a model for SIDS.

WORKING GROUP 3

AFRICA: FOCUS ON SAHEL

The complex dynamics that are compounding the region's security emergencies are often left out of the headlines. Poor governance, rapid population growth, and environmental pressures, like food insecurity, climate change, and poor natural resource management, all contribute to chronic crises and eroding the region's resilience to shocks and stressors. These interlinked challenges require integrated responses. This Working Group explored these connections making the link to climate change impacts and environmental challenges for the region, focusing on a solutions-oriented policy dialogue that addresses environmental challenges, demographic trends, food security, and peacebuilding.

Moderator: **Roger-Mark De Souza**, Woodrow Wilson International Center for Scholars
Speakers: **Emily Boyd**, University of Reading
Conor Phillips, International Rescue Committee
Rapporteur: **Jenny Clover**, Independent Consultant
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

Located along the southern edge of the Sahara desert, the Sahel has been referred to as one of the harshest environments in the world and comprises parts of Niger, Mauritania, Chad, Mali, Burkina Faso, Senegal, Cameroon, The Gambia and Eritrea. Some 145 million people in 9 countries live in a region that is marred by complex and interlinked conflict systems spanning the region and which is constantly challenged by chronic food and malnutrition crises that are both cause and consequence of violent conflicts. The Sahel region is considered the most threatened region on the continent. Climate change is contributing to changes in precipitation patterns, including more frequent droughts, floods, and storms. The sub-tropical zones have become more arid, and desertification continues in the Sahara. Security and development cannot be separated in this region where the impacts of degrading soils, water scarcity, increasing demand for natural resources, growing populations and climate change drive and exacerbate social tensions, political unrest and brutal armed conflicts and violence.

- Many Sahelian states are facing worsening insecurity in an increasingly fluid regional environment
- 20.4 million food insecure
- 5.8 million acutely malnourished
- 2.8 million displaced (1 million more than in 2014)

Temperatures in the Sahel have risen by nearly 1°C since 1970, at a rate nearly twice the global average. The region faces increasingly variable rainfall, prolonged and more frequent droughts and storms. For many, it is a global hotspot for climate change. At the same time, the Sahel's highly fragile states have limited capacities to adapt to climate-related shocks. Moreover, the region's weak institutions, political instability, poverty, inequality and historical grievances have the potential to combine with climate change to exacerbate existing tensions and trigger new conflicts.

Violence threatens the lives of millions of people in the Sahel, increasing the food crisis and setting back progress that is being made. The rise of the conflict in northeast Nigeria has led to the displacement of more than 1 million people. Insecurity and conflict that have been occurring in Mali has also had a substantial effect on the country and region. In addition, Sahel areas are some of the poorest in the world, and host hundreds of thousands of people who have fled violent conflict in Sudan and the Central African Republic.

As a result of reliance on climate-sensitive activities like agriculture and fishing, Africa is projected to experience substantial losses in food production by as early as 2050. Many parts of Africa now face a number of security challenges concurrently, such as food and water stress, disease outbreaks, contests over state power, and conflict in some regions that, when combined with more frequent climate hazards, could overwhelm governments' capacity to meet the basic needs of their people. Furthermore, regional cooperation and capacity to address the fallout has weakened.

2. RESPONSES

It is crucial to address the impacts of climate change, which are threatening existing peacebuilding and development efforts in the region. All 5 pillars of the UN's current humanitarian appeal for the Sahel will be negatively affected by climate change: nutrition, conflict, epidemics (primarily vector-borne diseases like cholera and malaria), food security and natural disasters.

The condition of the 9 Sahel countries are closely linked. Crises that are climate or conflict induced, often impact the region as a whole. The Regional Response Plan aims to address the key vulnerabilities such as food insecurity, malnutrition, epidemics, conflict and displacement and natural disasters in an integrated fashion.

The UN's Integrated Strategy for the Sahel (2013-2020) focuses on 3 pillars: governance, security and resilience. All 3 are connected, and success in each can improve the ability of individuals, communities and countries to face the challenge of climate change. At the same time, climate change could undermine the strategy by: overwhelming governments and institutions and amplifying inequality and marginalisation, triggering conflicts and creating opportunities for radicalisation and criminal activities, increasing household vulnerability and food insecurity, and reversing development gains.

The European Union's (EU) strategy for the Sahel focuses on improving governance, addressing terrorism, and breaking up criminal networks. It also recognises climate change as a contributing factor influencing instability in the region. Moreover, EU member states have been at the forefront of the climate-conflict debate since its inception, with both Germany and Britain hosting Security Council debates on the subject. Recent European support for building resilience across the region (through the Global Alliance for Resilience), as well as EU and bilateral support for adaptation, should help to address climate-conflict links, but it does need to adapt to more recent changes emerging with the establishment of Islamic rule in northern Mali, the rise of Boko Haram in Nigeria and post-Gaddafi Libya.

With its presence in every African country and its extensive network of partners across the continent, the United Nations Development Programme (UNDP) has provided services to help African countries and regional institutions to respond to climate change by working on the following 4 areas:

- strengthening Africa's voice in the global climate change negotiations;
- helping Africa to develop comprehensive strategies to tackle climate change;
- unleashing Africa's low-carbon development potential; and
- helping the region to adapt to climate change.

In addition, through its participation in UN-REDD (Reducing Emissions from Deforestation and Forest Degradation), UNDP will be helping to monetise the carbon stored in forest to create incentives for African countries to protect forests. The resulting financial flows will not only significantly reduce carbon emissions but can support poverty reduction and help preserve biodiversity and ecosystem serviced. The programme is currently being piloted in the DRC, Tanzania and Zambia.

A 3-year (rather than 1-year) regional plan has been developed for the Sahel for the first time from the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) on behalf of Humanitarian Partners in the Sahel. The strategy provides a set of ambitious objectives and targets that will require a sustained, multi-year effort to achieve, and that could not be realistically contemplated on a planning horizon of merely 12 months. Working within this 3-year framework, annual review processes in each country – of priorities, of results, of number of people in need, of funding implications – will continue to be an essential part of the planning and reporting process. A new financing request will be generated on an annual basis and will be part of a formal annual 'launch' process for the region.

Over the next 3 years, humanitarian actors in the Sahel have agreed to work with partners towards 3 overarching strategic goals: track and analyse risk and vulnerability, integrating findings into humanitarian and development programming; support vulnerable populations to better cope with shocks by responding earlier to warning signals, by reducing post-crisis recovery times and by building capacity of national actors; and deliver coordinated and integrated life-saving assistance to people affected by emergencies.

The humanitarian crisis calls for a focus on meaningful resilience building. Many displacements have aggravated long-standing ecological vulnerabilities and food insecurity, and in places heightened conflicts with host communities.

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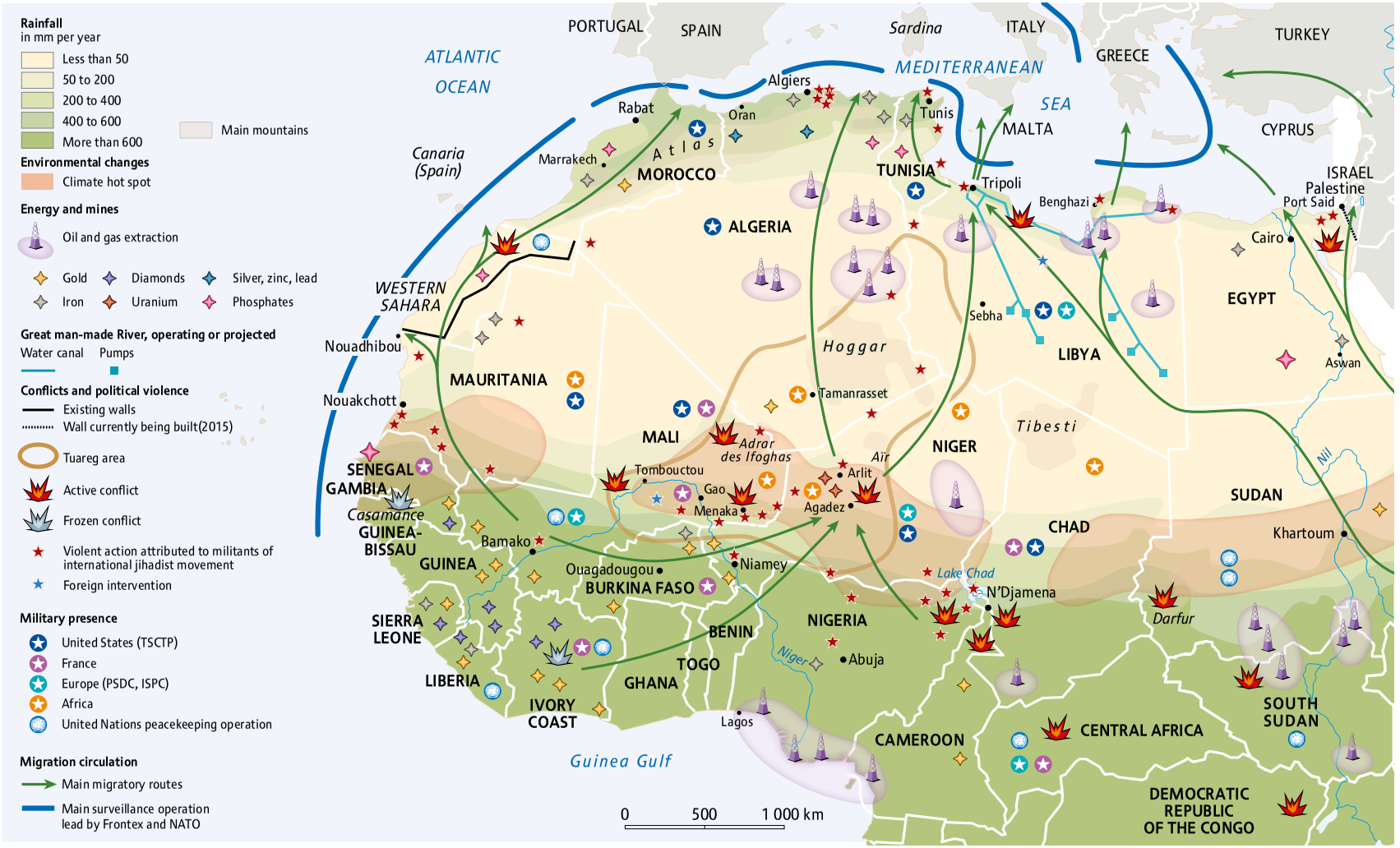

Sources: « Géopolitique du Sahara », n° 142 *Hérodote*, La Découverte, 2011; *Atlas de l'Afrique*, Les Editions du Jaguar, 2009; United Nations Office for the Coordination of Humanitarian Affairs (OCHA); United Nations; Cahiers de l'Afrique de l'Ouest, Un atlas du Sahara-Sahel, géographie, économie et insécurité, Sous la direction de Laurent Bossard, OCDE 2014; Security implications of climate change in the Sahel (SICCS) OCDE, Sahel and West Africa Club, 2010; UK Met Office Hadley Centre; SIPRI (Stockholm); PRIO (Oslo).

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4. ANALYSIS

The Sahel is a more extreme example of what is happing across the continent with respect to climate change compounding development challenges, contributing to chronic food and malnutrition crises that are both cause and consequence of increasing insecurity, driving and exacerbating tensions and violent conflict. Some key challenges include the following:

Appropriate scale of action: A key underlying obstacle all actors face is in deconstructing the interlinked conflict systems spanning the Sahel, while ensuring that strategies reflect and respond to the risks and vulnerabilities in a coherent way. This poses a **challenge** for informing at what scale, what level we respond and where we act.

Role of non-climate stressors: Deconstructing the interlinked conflict systems calls for identifying the key driving compound risks for the region and understanding the conflict dynamics. There is a degree of understanding of the non-climate stressors, but less so of how these non-climate stressors combine to exacerbate threats, of the political economy and poverty dynamics, and of how the dynamics of youthful age structures, lack of institutional capability, lack of government accountability, governance and economic inequality, interact.

Underlying causes of resilience deficit: A challenge to the development of conflict sensitive strategies for development, for climate change adaptation and mitigation, is that these require a good understanding of the resilience deficit in the region and what it looks like. As a result too often it is the symptoms, not the underlying causes that are addressed. Poor understanding of the underlying vulnerabilities and the lack of community resilience impacts on responses to recurring food crises, which in the Sahel are highly fragmented, dysfunctional and ineffective.

Donor coordination: Sustainable peace requires a comprehensive approach to security and one of the obstacles to achieving this is that of donor coordination. The region has challenges with donor coordination – as we consider the role of local actors, regional actors and international actors we should focus on improved coordination and partnership across strategies for the region – how can we build complementarity across strategies and find ways to entry points that are specific to the region, such as linking to the Economic Community of West African States (ECOWAS) members or the joint planning cell approach that United States Agency for International Development (USAID) uses. A related obstacle is ensuring coordination of efforts necessary to bring together the military, civil society and the government, and likewise the question of whether we know and understand how African and external stakeholders are responding to addressing these vulnerabilities.

Information and data that support anticipatory responses: Risk mitigation strategies, preparedness and early-warning underpins the need for the anticipatory approaches for to be dynamic and include approaches to right course policies if they are having perverse effects or exacerbating conflictual trigger points. An obstacle to better preparedness is that while Africa is highly dependent on resources, the region lacks information and reliable data at an appropriate level to support the development of anticipatory strategies, which are particularly necessary for the flexibility necessary to manage increasing uncertainty (of climate and the political economy). By way of example, there is a large degree of uncertainty regarding weather forecasting across scales, resulting in a mismatch between global forecasting and downscaled, local level forecasting. This makes it more difficult to determine specific coping strategies and contributes to the resilience deficit. Information is also often delivered in a top-down way, which makes it difficult for policy makers to use in a practical way.

Migration forecasting: A related obstacle is the need for improved migration forecasting, but which can be very tricky. Projections for unplanned migration are important in the region and overlaps with governance and security concerns. Action on this front requires us to also integrate humanitarian and development funding, but at the same time we should be careful about the predictive leverage of such projections for one region as they may not carry over to other countries/parts of the continent.

Unintended consequences of good interventions: An obstacle that donors face is not having sufficient in-depth appreciation for how well-intentioned interventions can drive other divisions. Donor interventions to address local grievances can put donors into conflict with the government or heighten local level conflicts (e.g. pastoralists/agricultural communities or refugees/internally displaced persons (IDPs) and host communities). A challenge is to be more transparent when well-intended actions have unintended consequences – actors too often avoid acknowledging failures and the policy implications. While there is a pressure to act timely, there is the risk of oversimplification. Issues are not always clear-cut and groupings not always homogenous so interventions and negotiations need to take into account the complexities of the context – of the variations across local communities and the conflict dynamics within and between those communities.

Tricky diplomacy: On the diplomatic side, negotiation with potential conflict actors is complicated by accounting for possible terrorist activities, ethnic complexities, and recruitment and when certain groups or sectors are blacklisted – it runs the risk of the military securitisation of development. One participant noted that at times environmental issues are low hanging diplomatic fruit that enable development actors to build trust to address harder issues. Another noted the importance of thinking of how development dollars need to be justified with domestic stakeholders.

5. CONCLUSIONS AND RECOMMENDATIONS

In order to address these challenges, the following recommendations were discussed:

Integrate development and humanitarian work: Overall strategic goals should focus on integrating development and humanitarian work through approaches that combine to address economic development, increasing resilience and reducing vulnerability: More specifically economic development policies should find the right balance between increasing robustness and reducing vulnerability and determining the right combination of those approaches at different points in time. Scenario planning can inform dialogue around better management of acute emergencies and securing long-term funding for integrating resilience responses into human and development planning. The opportunity to capitalise on increased funding during acute emergencies to secure funding for longer-term programming was recommended.

Facilitate, empower and reward joint planning across sectors: While it was noted that there is a greater focus by actors on the security and development links, the breaking down of silos across various sectors within and between aid agencies represents another opportunity, and one that will be important to address climate security links in an integrated manner. It calls for a platform to assist joint planning across sectors and between actors, for knowledge sharing, for resilience building, development and humanitarian programming, diplomacy, philanthropy and policy.

Explore targeted partnerships that overcome government bureaucratic limitations: Discussants noted the importance of identifying opportunities to address challenges in more effective ways. Opportunity was seen to lie in instituting innovative partnerships that overcome structural and operational barriers. We should envision new types of partnership that would enable us to move beyond bureaucratic limitations within governments that would include government, other community based authorities, the private sector, private philanthropy, and the development sector. Building partnerships for collaboration furthermore, needs to link local strategies back to regional mechanisms. The approaches by African and external stakeholders to addressing vulnerabilities should be compatible.

Provide specific technical and diplomatic skills that address the specificity of the region: To assist in strategic interventions, it was recommended that we determine whether we have the appropriate set of technical and diplomatic skill sets to address the conflict climate potential in the region. By way of example, “toolkits” do exist for reporting matrixes but these are not driven by an integrated perspective. To incentivise use of these they should be supplemented with information that enhances the value added of these tools for different actors in a variety of sectors.

Recognise that resilience is not possible if security challenges are incorporated into such initiatives: A recommendation was made for humanitarian agencies that are focusing on resilience building to also take into consideration the security dimensions of regional wide initiatives as not doing so could undermine resiliency efforts. It calls for a very specific resilience model for the Sahel, different to other regions, which must address chronic conditions, and reconcile short-term emergency interventions with long-term strategies.

Focus on localised, specific contextualised solutions: Another way to increase effectiveness of interventions is from a humanitarian perspective to focus on localised, specific contextualised solutions. The recommendation is to look at the areas that are chronically vulnerable, understand which proximate and underlying factors are driving vulnerability, and how competition and conflict over natural resources fit into this framework. Responses should focus on addressing local governance structures, ethnic identities, institutional strengthening and incorporating ways to build local conflict

mitigation and resolution strategies. The strengthening of institutions that can prevent or mitigate conflict over climate-affected natural resources is essential. With the growing "scramble" for land, water and pasture, recommendations were made for promoting and disseminating the existing laws and norms of stewardship over pastoral spaces and strengthening land commissions and reconciliation committees.

Develop local level climate monitoring systems: Given the challenges related to uncertainty of climate data, and the top down way in which it is often delivered, the need to develop local level climate monitoring systems to support anticipatory strategies that are driven by data and evidence was noted. These may not be immediately appealing to donors, but we will "have to learn how to manage uncertainty in practice" and put in place appropriate early warning.

Forge science-policy links that inform forecasting and facilitate scaling up of successful initiatives: Information and data, however, are not enough; it is critical that we scale up efforts at building resilience, creating anticipatory strategies. The opportunity lies in better science-policy links that can inform forecasting. One supportive action that will help this is to link the humanitarian, development and climate change communities – with a strong leadership role for social sciences and humanities communities.

Use adaptive planning to address the unintended consequences of good interventions: It was recommended that greater attention is given to the unintended consequences of interventions – for example the degree to which an influx of climate funding could be disruptive if there is a rush to access that funding. This calls for being deliberate about the ways climate financing might address conflict triggers, and it also important to make sense of interventions that fail and then to adapt policy accordingly – and to share lessons learnt.

WORKING GROUP 4

THE POLITICAL DIMENSIONS OF THE ANTHROPOCENE

The dominant impact of our species on planetary systems has given rise to a new term to describe the state of our planet – the "Anthropocene". In the Anthropocene, it is argued, all processes on our planet are shaped by human impacts; essentially, there is no 'nature' anymore that is separate from human activities. Yet what does this mean for our political systems? How will politics in the Anthropocene need to be different? And what are the implications of the new Anthropocene context for planetary security?

Moderator: **Frank Biermann**, Earth System Governance Project
Speakers: **Ingrid Boas**, Wageningen University
Joyeeta Gupta, Amsterdam Institute for Social Science Research of the University of Amsterdam / UNESCO-IHE Institute for Water Education
Sebastian Oberthür, Vrije Universiteit Brussel
Rapporteur: **Katarina Hovden**, TMC Asser Institute
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

Firstly, the Anthropocene creates, changes, or reinforces multiple interdependence relations within and among human societies (Biermann 2014). For one, the Anthropocene creates new forms and degrees of interdependence among the more than 190 formally sovereign countries and their national jurisdictions. Some of these new interdependencies emerge from functions of the earth system that transform local pollution into changes of the global system that affect other places that have (much) less contributed to the problem, with examples being climate change, stratospheric ozone depletion, the global distribution of persistent organic pollutants, and the global spread of species with potential harm for local ecosystems. Countries are becoming more interdependent also when local environmental degradation leads to transregional or global social, economic, and political crises, for instance through decreases in food production, which raise global food demand and prices. In short, the Anthropocene creates a new dependence of states, even the most powerful ones, on the community of all other nations. This is a defining characteristic as well as a key challenge that requires an effective institutional framework for global cooperation.

Secondly, the Anthropocene increases the functional interdependence of human societies. For example, political response strategies in one economic sector are likely to have repercussions for many others. Functional interdependence also relates to the mutual substitutability of response options, which poses special problems of international allocation. In climate governance, for example, for every global policy target there are an unlimited number of possible combinations of local responses across nations and time frames with equal degrees of effectiveness. In short, increased functional interdependence in the Anthropocene requires new degrees of effective policy coordination and integration, from local to global levels.

Thirdly, the Anthropocene creates new intergenerational dependencies that pose novel political challenges. Causation and effect of transformations of the earth system are usually separated by (often several) generations. Sea level rise, for example, is expected within a time range of a hundred years and more. Such planning horizons exceed the tenure and often the lifetime of present political leaders. Among other things, this poses the questions

of international credibility and trust that future governments will reciprocate and comply with international rules, and the problem of democratic legitimacy of policies in the intergenerational context. What rights and responsibilities do present generations and their representatives in parliament owe to their unborn successors? And to what extent can present generations be held accountable for activities of their ancestors, for instance regarding the burning of fossil fuels in Europe before the greenhouse effect became more widely known in the 1990s?

Fourthly, the Anthropocene comes with persistent uncertainty about the causes of earth system transformation, its impacts, the links between various causes and response options, and the broader effects of policies. Most transformations, such as global climate change, are non-linear and might accelerate, or slow down, at any time. Surprises in system behaviour can be expected, but are by definition unforeseeable. This creates a new political context, as exemplified by Ulrich Beck's notion of a global 'risk society'.

Finally, the Anthropocene is an epoch that sees the human species with extreme variations in wealth, health, living standards, education, and most other indicators that define wellbeing. According to the World Bank, the richest 20 percent of humanity account for 76.6 percent of the world's total private consumption. The poorest 20 percent, on their part, account for just 1.5 percent of global wealth. Almost half of humanity, roughly 3 billion people, lives on less than 2.50 dollars per day (Chen and Ravallion 2008). 850 million people lack sufficient food. The poorest 25 percent of humanity still has no access to electricity (UNDP 2007). 1 billion people lack sufficient access to water, and 2.6 billion have no basic sanitation (UNDP 2006). Politics in the Anthropocene has to operate in this global situation of large inequalities in resources and entitlements.

Overview lobby

2. RESPONSES

Yet what does this mean for our political systems? How will politics in the Anthropocene need to be different? And what are the implications of the new Anthropocene context for planetary security?

In the academic community, pleas for drastic change in global governance are becoming a frequent feature of scientific gatherings. For example, the 2011 Nobel Laureate Symposium on Global Sustainability called in its Stockholm Memorandum for "strengthening Earth System Governance" as one of 8 priorities for coherent global action (Third Nobel Laureate Symposium on Global Sustainability 2011). One year later, the 2012 State of the Planet Declaration, supported by various global change programmes and international agencies, called for "[f]undamental reorientation and restructuring of national and international institutions". It is fundamental, the Declaration continues, 'to overcome barriers to progress and to move to effective Earth-system governance. Governments must take action to support institutions and mechanisms that will improve coherence, as well as bring about integrated policy and action across the social, economic and environmental pillars (State of the Planet Declaration 2012, C1). A press release preceding this Declaration, supported by the International Council for Science and others, even requests governments to fundamentally "overhaul" the entire UN system (Planet under Pressure Conference 2012).

Yet the response clearly will not lie only in strengthening global institutions. Notably, also technological change and incremental policies at local and national levels will remain a driving force of progress in earth system governance. For instance, just cutting down the emissions of black carbon and methane, which is a precursor of tropospheric ozone could be a win-win solution by reducing global mean warming by around 0.5 degree Celsius by the middle of the 21st century. Incremental change by national and regional policies is important, too. For example, a mix of technological change and climate change policy has allowed the European Union member countries to cut greenhouse gas emissions by 18 percent from 1990 while growing their economies at the same time by 48 percent (European Commission 2013).

Transformations in social behaviour are crucial as well. Large-scale changes of lifestyles are likely to be non-linear and might depend on "social tipping points". There is ample historic precedence of drastic changes in perceptions of good and appropriate lifestyles. Environment-related changes in public perceptions of good and appropriate living include the public ban on smoking as inappropriate behaviour for movie actors, politicians and other perceived role models; the change in perception of whale meat consumption that is hardly affected by a recovery in some species stocks; and the rising social movement of vegetarianism. Another example is the increasing acceptance of bicycles as default vehicle of transportation in cities. In October 2013, 70 top managers of Dutch companies publicly left their chauffeur-driven cars behind in support of a week-long national "Low Car Diet" campaign, thus accepting a partial redefinition of the appropriate lifestyle in the most affluent segments of society. However, it might mean throwing out the baby with the bathwater if intergovernmental institutions were discarded. The UN system and international negotiations do not stand in an antagonistic relationship with local action and non-state movements. In a world of over 190 independent nation states, also strong and effective international cooperation remains important in the Anthropocene.

In sum, in the course of the 21st century, the Anthropocene is likely to change the way we understand political systems both analytically and normatively, from the village level up to the United Nations. This makes the Anthropocene one of the most demanding, and most interesting, research topics also for the field of political science, which has to develop novel, more effective and more equitable governance systems to cope with the challenges of earth system transformation.

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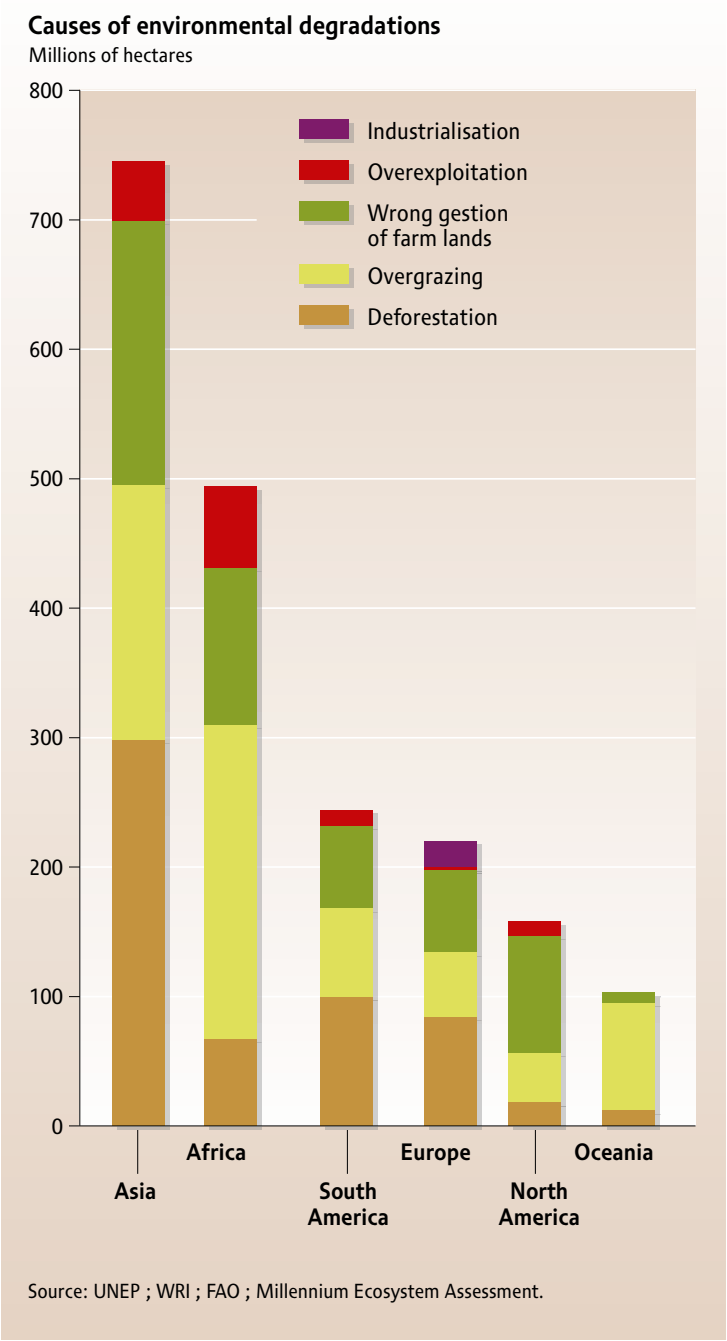
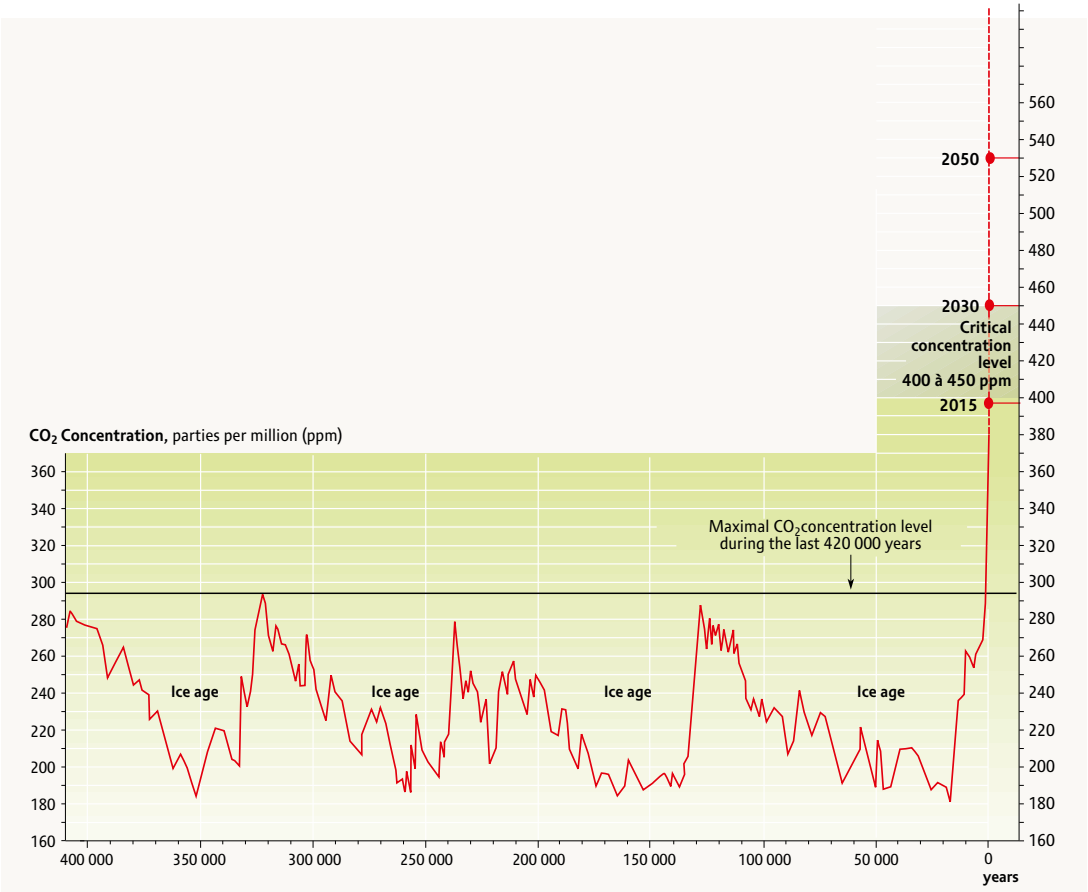
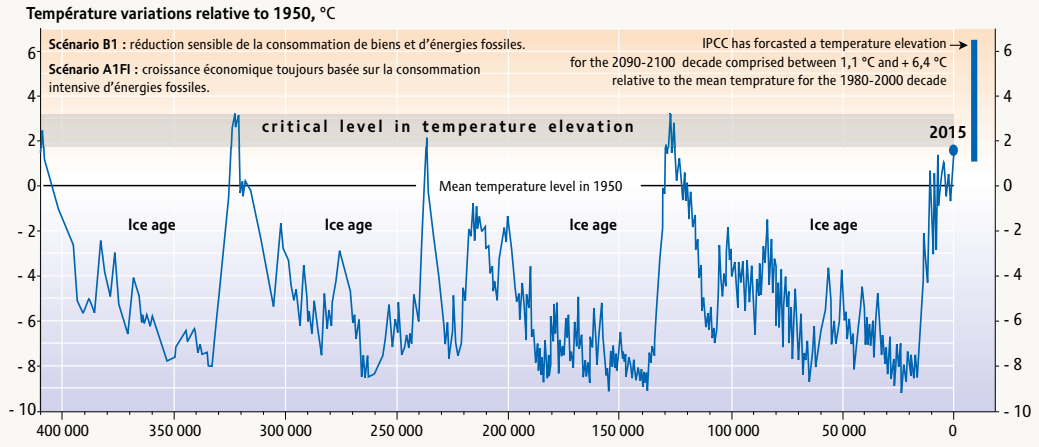

Causes of environmental degradations
Millions of hectares
800
700
600
500
400
300
200
100
0
Industrialisation
Overexploitation
Wrong gestion of farm lands
Overgrazing
Deforestation
Asia
Africa
South America
Europe
North America
Oceania
Source: UNEP ; WRI ; FAO ; Millennium Ecosystem Assessment.





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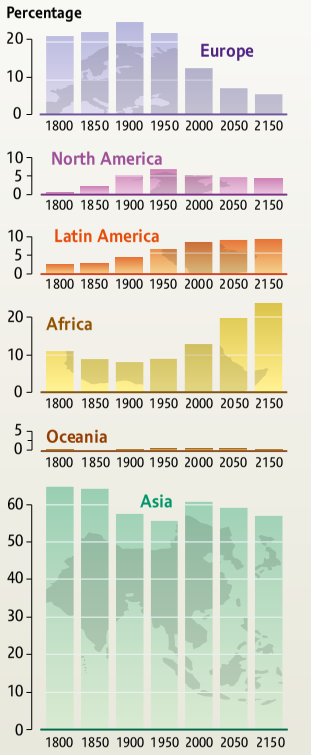

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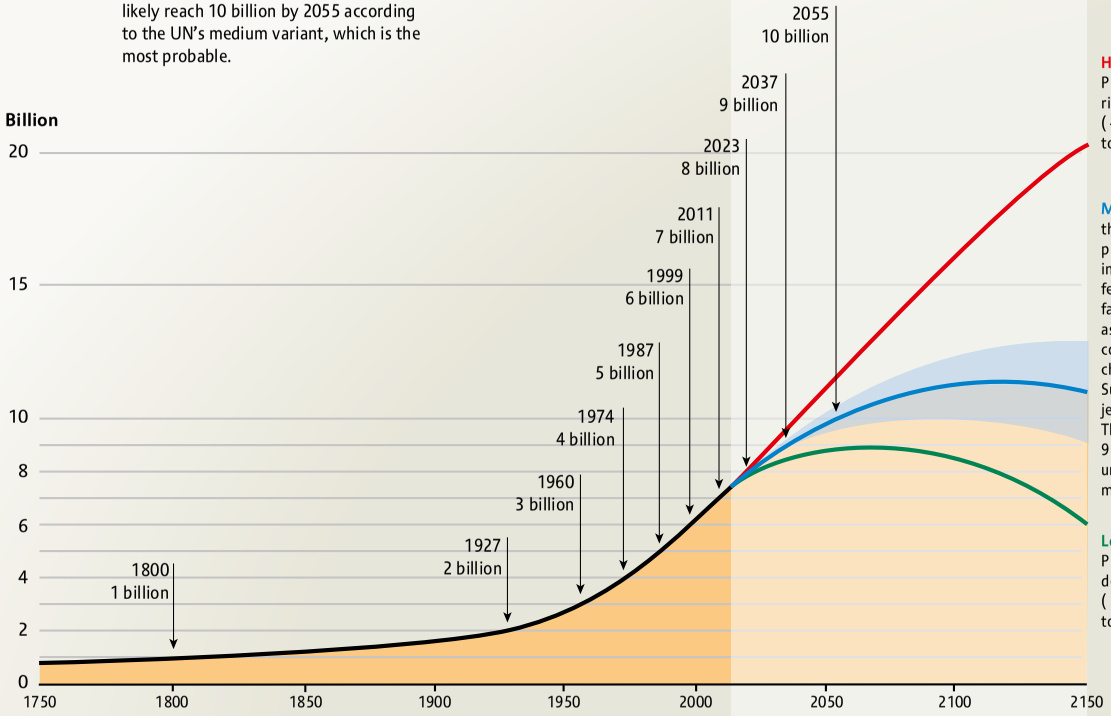
World population growth

After several centuries of slow evolution, the world's population grew by a factor of six between 1800 and 2000. It will most likely reach 10 billion by 2055 according to the UN's medium variant, which is the most probable.



High Variant: Projection assuming rising fertility (+ 0.5 child relative to the medium variant)

Medium Variant: clearly assumes that the effective use of family planning will result in reductions in total fertility rate, a decline of fertility for countries where large families are still prevalent as well as a slight increase of fertility in countries with fewer than two children per woman on average. Survival prospects are also projected to improve in all countries. The blue surface represents the 95 % of confidence (level of uncertainty) surrounding the median trajectory.

Low Variant: Projection assuming declining fertility (- 0.5 child relative to the medium variant)

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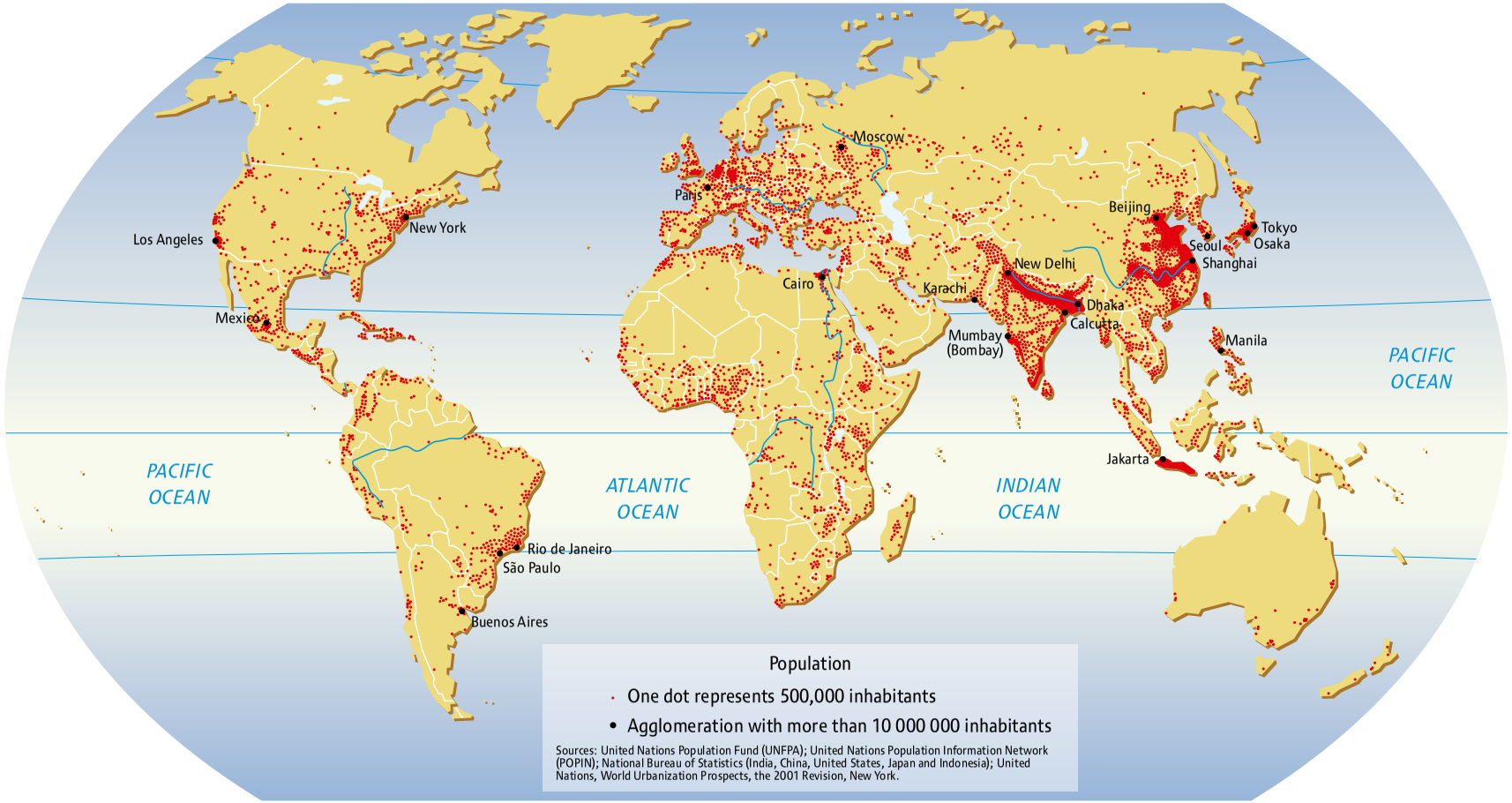

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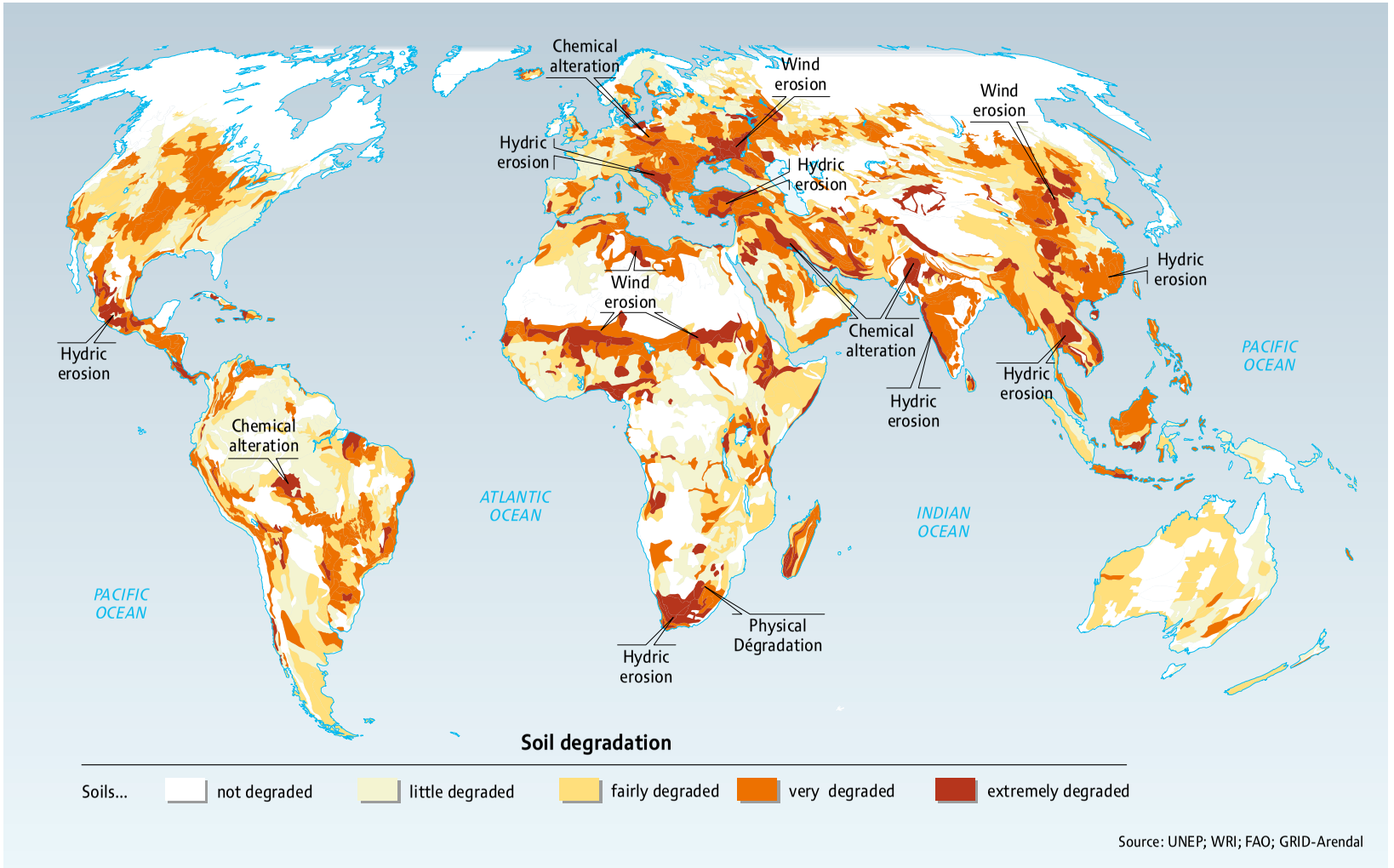

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Planetary Security Initiative

4. ANALYSIS

The Working Group commenced with an introduction of the Anthropocene, the present epoch in planetary history that is characterised by human beings' domination and human beings' potential to impact upon, and change, the planet's natural processes. A period where, researchers have argued, there is no nature that is separate from human activities.

This period, the Anthropocene, brings with it numerous, complex and multi-faceted challenges. In the political sphere, responses thereto must engage in an unprecedented discourse and be willing to consider different perspectives and new agendas.

The Working Group session dealt primarily with 3 main themes relevant to this discourse, but which are by no means exhaustive of the wider debate that is necessitated by the challenges of the Anthropocene: the role of equity, the importance of "framing" and the role of multilateral institutions/governance.

The Role of Equity

The first presentation, on the role of equity, raised the questions, how do we allocate rights, responsibilities and risks in a period where some natural resources are fixed and others are shrinking yet the global population and aggregate demand is steadily increasing? Moreover, how do we deal with global inequities in wealth and resource allocation, such as the findings of a 2015 report by Oxfam suggesting that by 2016, the richest 1 percent will be sitting on more than 50 percent world's wealth? In particular, how can we ensure that all human beings have access to sufficient resources to enable a healthy life? How should our political systems change in order to deal with these challenges and what political and other mechanisms do we need to employ to aid that response? What governance models would best support efforts to deal with those difficult questions? A neo-liberalist model? A hegemonic model? Polycentric governance? Transformational governance?

While it was not possible to engage in a comprehensive discussion on how to answer those important, yet difficult, questions, some reflections were nevertheless offered. The speaker recommended *inter alia* the need for multi-scalar approaches, a human right to water and food, ecological standards such as sustainability, the rule of law, global constitutionalism and inclusive development. It was pointed out that the Sustainable Development Goals (SDGs) have made progress in addressing the above questions- with its attention to social, ecological and relational inclusiveness – but that there is still room for improvement. This analysis was then linked back to the issue of sharing, where the importance of finding better ways to share the earth's resources was expressed. In the ensuing discussion, it was concluded that it is vital that we engage with these difficult questions and are willing to talk about what is really needed even if that means swallowing an uncomfortable truth. In wealthier nations, for example, people will have to accept that lifestyles must fundamentally change and that they must learn to live with less.

The Importance of Framing

The second presentation addressed the importance of framing, asking in particular what consequences follow from framing a conflict as a climate change conflict, and from framing climate change as a security issue. The discussion that ensued made it clear that framing is politically sensitive and highly context- and audience-dependent.

While indeed changes to the climate system can mean that previously habitable regions become temporarily or permanently uninhabitable, leading to migration, one should be cautious about framing, for example, the Syrian conflict as a climate change conflict. Indeed there is little evidence to suggest that people move far afield when climate change issues arise. Moreover, those who are most severely affected by climate change tend to be poorer and hence are less likely to have the sufficient resources to enable them to migrate to another

country/region. A controversial framing has the potential to exasperate political relationships and may delay efforts to work out practical solutions on the important issues at stake.

Whether or not climate change should be framed as a security issue is a politically sensitive and complex question due to the connotations that such a framing occasion. The definition of security in any given context will be important and may mitigate any potentially negative effects but the historical baggage of words should not be undermined. Thus, while it is of course possible to define security broadly, it is important to bear in mind that the term itself may be cloaked in high-politics and defence, a cloaking that it might be difficult to escape or overcome.

After this general debate, the discussion turned to the advantages and disadvantages of framing climate change in terms of security. On the one hand, it was felt that a security framing might engage a wider audience and broaden actor coalitions. Moreover, it was noted that a security framing has the potential to mobilise interest and to motivate ambition and action on climate change and environmental challenges. The U.S. political context was offered as one example, where it was suggested that the security framing might have helped to make the issues related to climate change more palatable and relevant to conservative factions in politics. Furthermore, it was expressed that the present conference might also have benefitted from a security framing, as this might have helped to attract the large and high-level audience.

On the other hand, it was felt that a security framing has the potential to increase international tensions and overwhelm the public. India was offered as an example, where British efforts to encourage greater ambition on climate change by using security arguments led to suspicions of ulterior strategic motives and had the effect of increasing political tensions. The discussion on framing concluded with a concern that the security framing might be unduly narrow. Climate change, it was felt, encompasses a broader range of issues than those which traditional security responses have grappled with. Thus, it was commented, the responses will also have to be broader in order to take account of the multi-faceted and complex nature of climate change. In particular, it was noted that while ministries of defence and foreign affairs are indispensible to the response to climate change, there is a risk that a security framing might exclude other key actors, such as the ministries of education and science that are also integral to a comprehensive response.

The Role of Global Institutions and Global Governance

The third presentation dealt with the role of global institutions and global governance in dealing with climate change, with a particular look towards COP21 in Paris. It was explained that while in the past emphasis has been placed on the global level of governance, with high expectations that global climate negotiations will deliver the solutions to climate change, the dialogue has been reframed in recent years. This re-framing might have occurred partly in response to the failure of Copenhagen to deliver the expected results but it has also come about due to complex changes in the political balance at the global governance level. The result is a greater recognition of the need for solutions to come from all levels of governance and non-governance, ranging from the individual to the global and across the spectrum of public and private initiatives. And yet, global institutions and global cooperation remains important to the process of incremental reform. Global institutions can help to enable action at other levels (for example by addressing concerns relating to competitiveness), can send an overall impulse and signal that the global community is taking action and can contribute to an aggregate idea of the climate policy agenda by indicating the expected trajectory. Equally, it is important to incentivise non-state actors at the local and national level, including civil society.

To apply these trends in international climate policy to the upcoming Paris Conference, it would be naïve to expect comprehensive solutions to emerge from Paris alone. Indeed, the majority of the Paris "outcome" has already been achieved and has been the result of the

process leading thereto, during which countries have communicated their intended level of ambition and the measures that they will put into force. Nevertheless, the conference can fulfil the function of sending an important signal that there is convergence on the need to act at all levels. Moreover, the conference could send a stronger signal, for example by putting decarbonisation on the agenda, or addressing transparency and accountability, although it is not yet clear whether Paris will send those signals. If that signal transmitted, policy makers and non-state actors will have an important role in creating an environment in which decarbonisation is both feasible and appealing.

5. CONCLUSIONS AND RECOMMENDATIONS

We face, in the Anthropocene, a daunting and unprecedented global governance challenge. Legal and political tools are becoming increasingly out-dated. Legal, political, economic and social systems are becoming increasingly complex, diversified and interdependent. This process of diversification entails the risk of fragmentation, and fragmentation in turn brings with it new challenges, where responses thereto will have to take on new perspectives and think outside the box.

There is still a great deal of research and work to be done in order to begin to address the many political and governance challenges that we face today. Future conferences can contribute to this response by focusing on issues that have been less researched and discussed in the past. Among those are discussions about the role of the finance sector, tax havens and subsidies to the fossil fuel industries. Moreover, in light of the extent of global inequity, research should also investigate the 1 percent and assess their links, if any, with the fossil fuel industries. Finally, there is a need to continue to research and work out the legitimate roles and responsibilities of non-state actors and how to better involve them in policy development and implementation on a global scale.

WORKING GROUP 5

THE WORLD IN 2050: A FAR FUTURE SCENARIO

The rate of climatic change is unprecedented in human history. It is therefore not sufficient to look to history for lessons on how we should prepare for, and prevent, future security risks in a climate-changed world. In this Working Group, participants directly engaged in a mini "future scenario workshop", where they plotted a plausible picture of a climate-changed future out to 2050, and identified policies and practices that can be put in place now to lessen the risks.

Moderators: **Francesco Femia**, Center for Climate and Security
Bessma Mourad, Skoll Global Threats Fund
Speakers: **Chad Briggs**, Global Interconnections
Sylvia Lee, Skoll Global Threats Fund
Simon Sharpe, Government of the United Kingdom
Discussion Leaders:
Brigadier General (retired) Bob Barnes, Center for Climate and Security
Mathew Burrows, Atlantic Council
Roger-Mark De Souza, Woodrow Wilson International Center for Scholars
Marcus King, George Washington University
Edward Pope, Met Office
Rod Schoonover, U.S. Department of State
Janani Vivekananda, International Alert
Rear Admiral Jonathan White, U.S. Navy (retired) / Consortium for Ocean Leadership
Rapporteur: **Swathi Veeravalli**, U.S. Army Corps of Engineers, U.S. Department of Defense
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. DESCRIPTION

In this "Far Future Scenario Workshop", participants engaged in a mini workshop where they brainstormed on a plausible picture of a climate-changed future out into 2050, and identified policies and practices that can be put in place now to lessen the risks. Scenario planning[13] is a helpful tool when reconciling large amounts of uncertainty, in order to identify potential vulnerabilities. As a planning tool, scenario planning is an essential and critical part of risk assessment to creatively develop best, middle, and worst-case scenarios. Finally, scenario planning allows to account for systemic risks between humans and the environment that are simultaneously complex and complicated.

Participants were divided into 8 sub-groups, covering 4 issue areas, exploring the following four security issues:

Groups 1 & 5: State failure, intra-state conflict, terrorism

Groups 2 & 6: Migration, human displacement, humanitarian crises

Groups 3 & 7: Global and regional governance realignment, nationalism

Groups 4 & 8: Resource competition, interstate conflict

[13] Scenario-planning formats include brain-storming, decision-modelling, war-games, and black-swan events

Sub-groups were asked to hypothesise future scenarios that could arise due to a potential climate scenario and then develop corresponding policies and practices that need to be implemented within the next 5 to 10 years to prepare for climatic impacts in 2050.

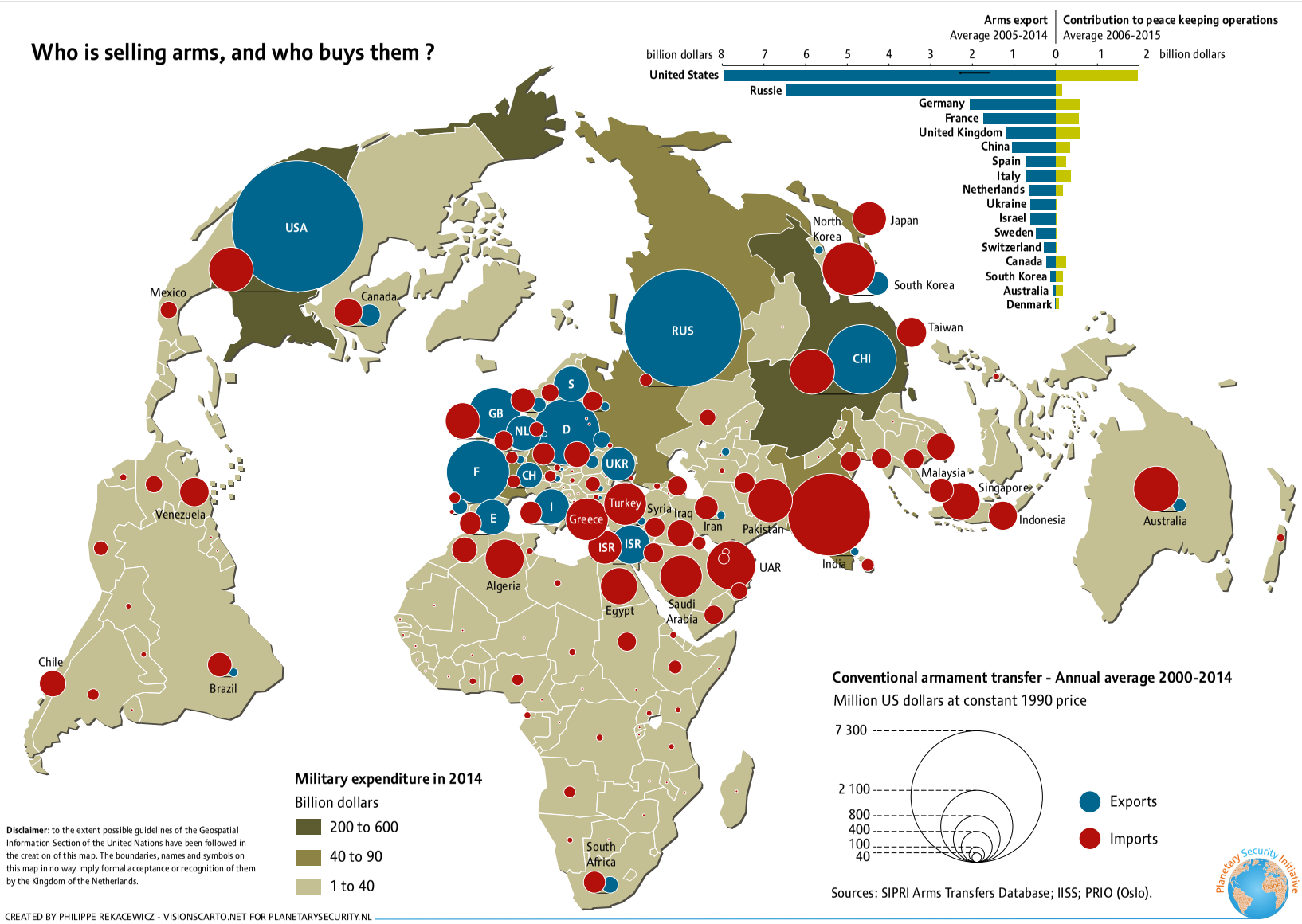
2. PARAMETERS

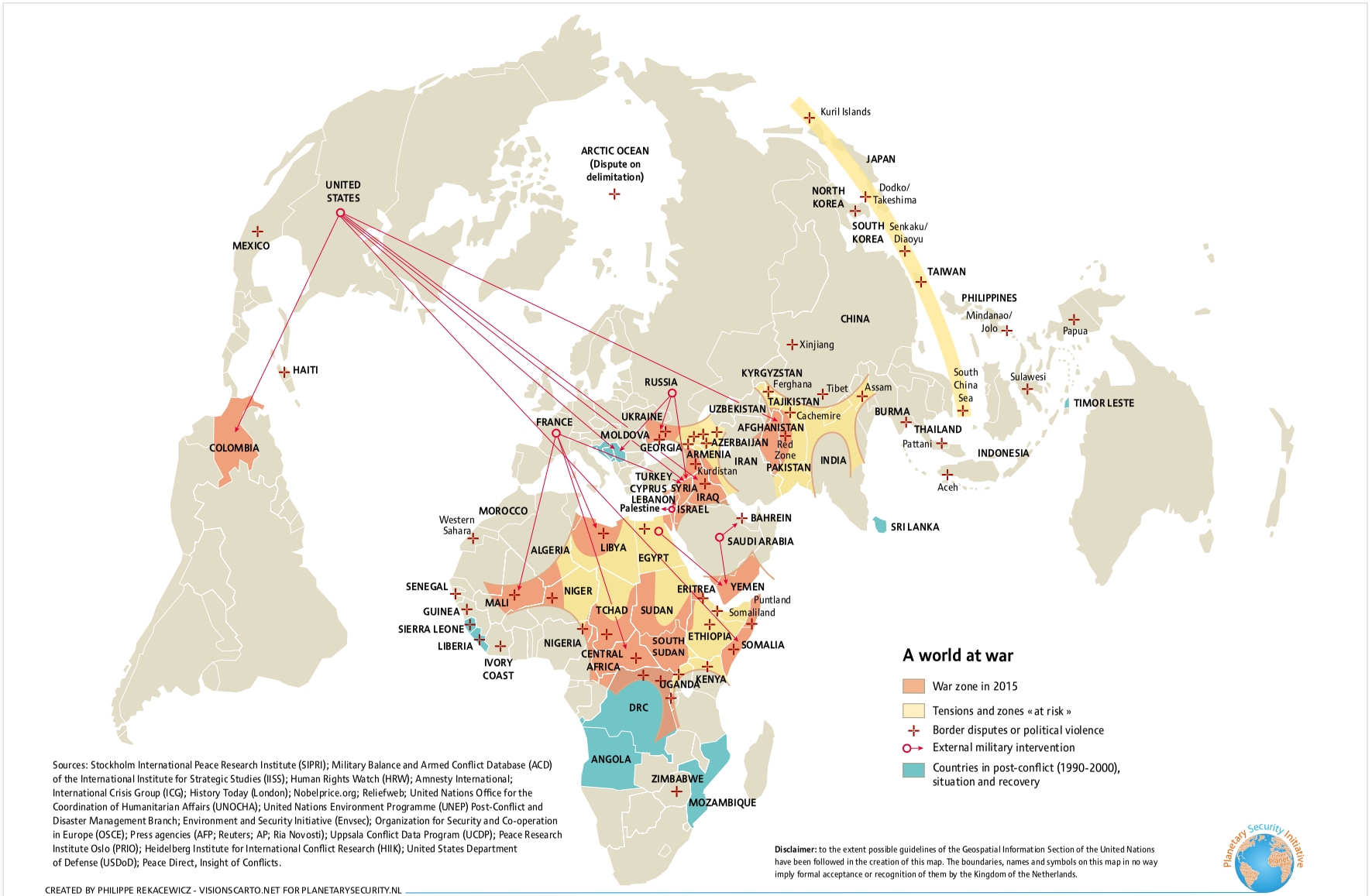
This is the year 2050. Below is a possible climate future. Participants will assess how this possible climate future will influence the security issues their respective groups are responsible for.

- The rise in temperatures is accompanied by increases in extreme weather events. Populations around the world are experiencing much more frequent extreme heat waves, droughts, unseasonal floods, and wildfires.
- The Arctic sea ice is thawing rapidly, with the Arctic Ocean nearly ice-free in the summers.
- Half of the world's population is now faced with water stress. Areas that are particularly hard hit include the Middle East and North Africa, and parts of South and Southeast Asia.
- Although global population is now closer to 9 billion people, global agricultural yield has decreased by approximately 10 percent. All over the world, farmers are struggling to keep up with shifting weather patterns and increasingly unpredictable water availability. Farmers also must contend with unexpected attacks from weeds, diseases and pests, which affect agricultural yield.
- Coastal cities and small island states continue to be inundated by storm surges caused by increasing hurricane and typhoon activities and sea level rise.
- Increases in heat, precipitation, and humidity have allowed tropical and subtropical insects, animals, and microbes to new locations, causing more infectious disease outbreaks.
- Dramatic increase in heat-related mortality in tropical and sub-tropical areas.
- The oceans have become more acidic causing significant collapse of aquatic ecosystems.

3. DISCUSSION POINTS

- How do you think climate change is impacting your issue? What will the world look like in 2050?
- What are the policies and practices that need to be in place in the next 5 – 10 years to ensure that the future will look different?


Who is selling arms, and who buys them ?
Arms export
Average 2005-2014
Contribution to peace keeping operations
Average 2006-2015
billion dollars 8 7 6 5 4 3 2 1 0 1 2 billion dollars
United States
Russie
Germany
France
United Kingdom
China
Spain
Italy
Netherlands
Ukraine
Israel
Sweden
Switzerland
Canada
South Korea
Australia
Denmark
USA
Mexico
Canada
RUS
CHI
North Korea
Japan
South Korea
Taiwan
S
GB
NL
D
F
CH
UKR
E
I
Greece
Turkey
Syria
Iraq
Iran
Pakistan
India
ISR
ISR
UAR
Algeria
Egypt
Saudi Arabia
Malaysia
Singapore
Indonesia
Australia
Venezuela
Chile
Brazil
South Africa
Military expenditure in 2014
Billion dollars
200 to 600
40 to 90
1 to 40
Disclaimer: to the extent possible guidelines of the Geospatial Information Section of the United Nations have been followed in the creation of this map. The boundaries, names and symbols on this map in no way imply formal acceptance or recognition of them by the Kingdom of the Netherlands.
Conventional armament transfer - Annual average 2000-2014
Million US dollars at constant 1990 price
7 300
2 100
800
400
100
40
Exports
Imports
Sources: SIPRI Arms Transfers Database; IISS; PRIO (Oslo).
CREATED BY PHILIPPE REKACEWICZ - VISIONSCARTO.NET FOR PLANETARYSECURITY.NL
Planetary Security Initiative



Sources: Stockholm International Peace Research Institute (SIPRI); Military Balance and Armed Conflict Database (ACD) of the International Institute for Strategic Studies (IISS); Human Rights Watch (HRW); Amnesty International; International Crisis Group (ICG); History Today (London); Nobelprice.org; Reliefweb; United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA); United Nations Environment Programme (UNEP) Post-Conflict and Disaster Management Branch; Environment and Security Initiative (Envsec); Organization for Security and Co-operation in Europe (OSCE); Press agencies (AFP; Reuters; AP; Ria Novosti); Uppsala Conflict Data Program (UCDP); Peace Research Institute Oslo (PRIO); Heidelberg Institute for International Conflict Research (HIIK); United States Department of Defense (USDoD); Peace Direct, Insight of Conflicts.

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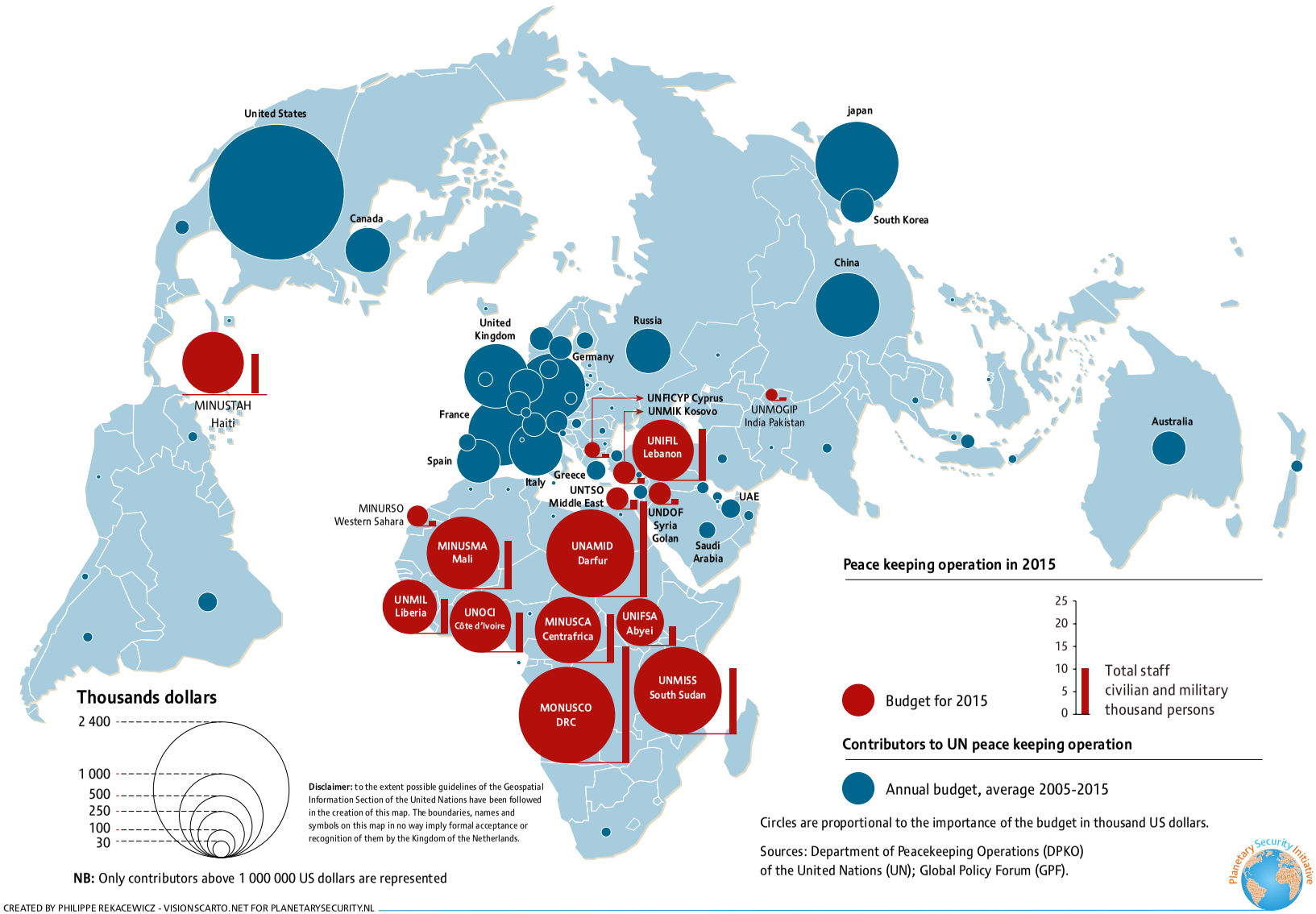
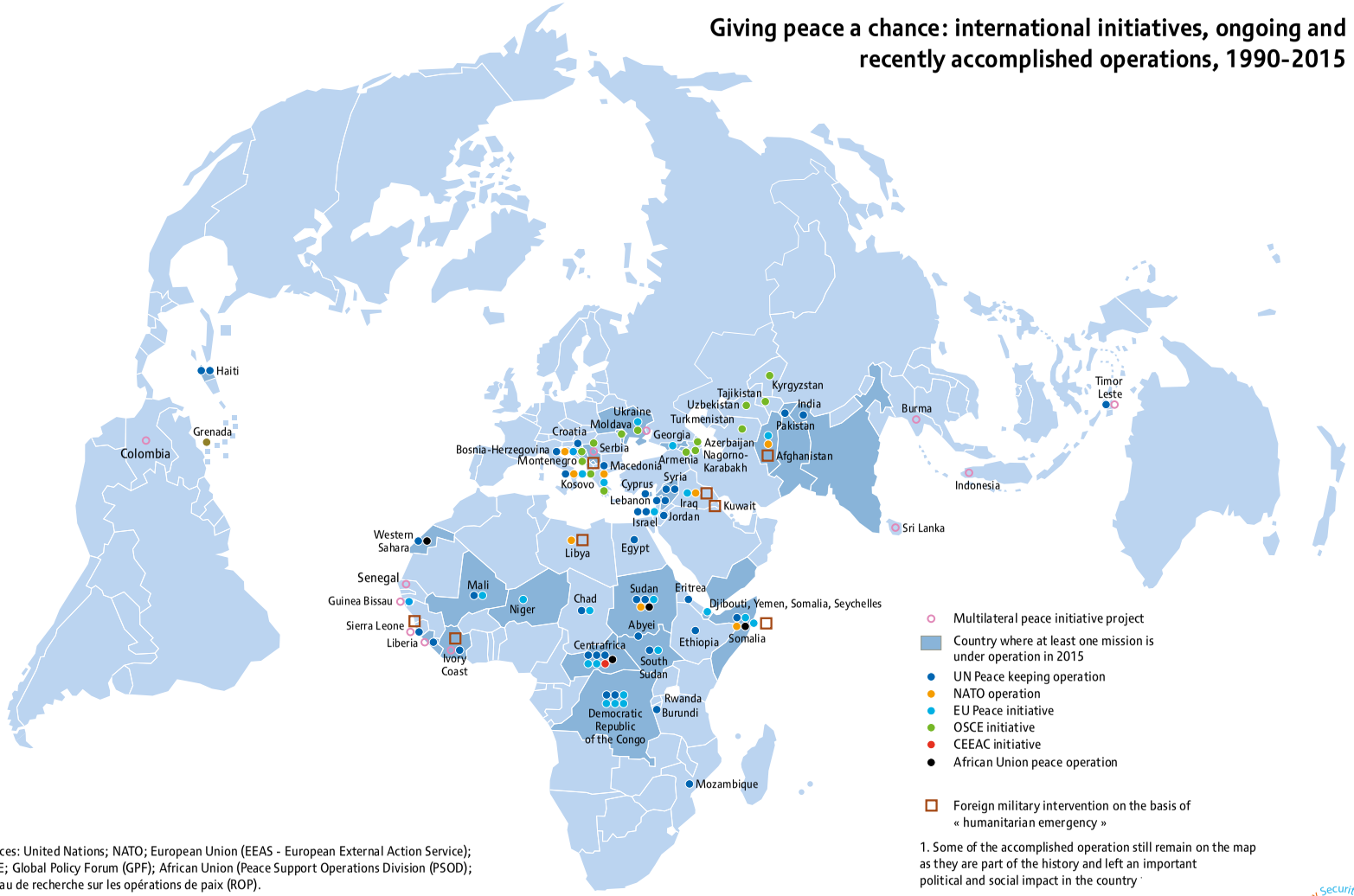


NB: Only contributors above 1 000 000 US dollars are represented

CREATED BY PHILIPPE REKACEWICZ - VISIONSCARTO.NET FOR PLANETARYSECURITY.NL

Giving peace a chance: international initiatives, ongoing and recently accomplished operations, 1990-2015



Sources: United Nations; NATO; European Union (EEAS - European External Action Service); OSCE; Global Policy Forum (GPF); African Union (Peace Support Operations Division (PSOD); Réseau de recherche sur les opérations de paix (ROP).

1. Some of the accomplished operation still remain on the map as they are part of the history and left an important political and social impact in the country

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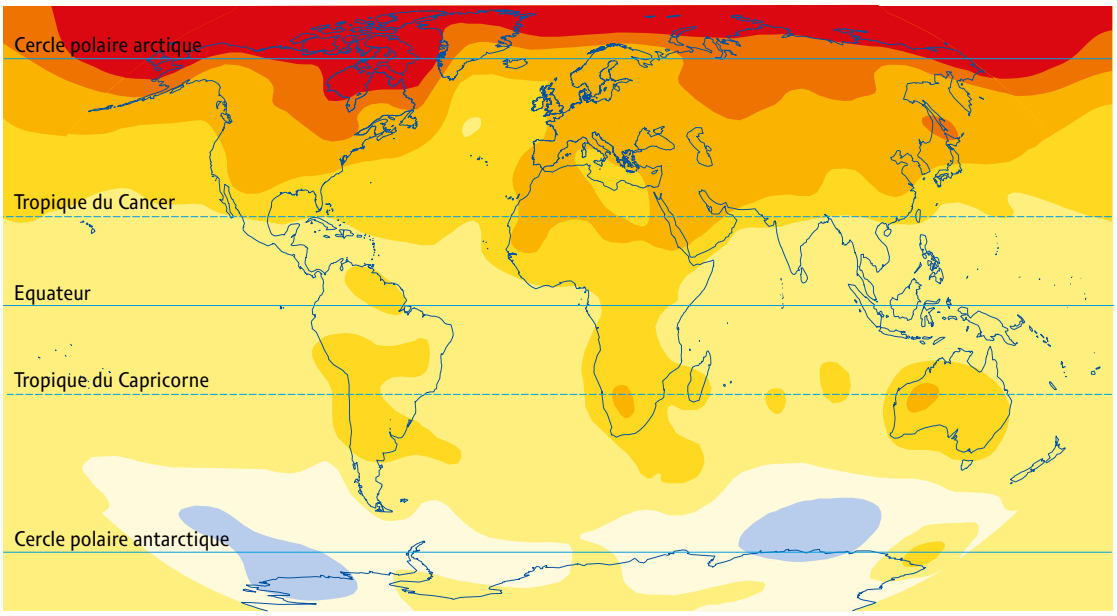
Temperature changes 2000-2100



GFDL model assume that CO_2 will increas by twice and temperature will increase by 3,7 °C between 2000 and

Source : Geophysical Fluid Dynamics Laboratory (GFDL), université de Princeton.

4. ANALYSIS AND RECOMMENDATIONS

Groups 1 & 5: State failure, intra-state conflict, terrorism

Analysis of climate change impacts

- Breakdown in the ability of governments to provide for populace
- Rise of religious groups to provide essential services
- Collapse of fisheries industry fuels piracy
- Increase in illicit activities/markets
- Uninhabitable regions force mixing of unfriendly to groups, potentially leading to conflict
- Increase in terrorism and terrorist activity
- Increase in migration
- Increase in multidimensional emergencies
- Collapse of state systems leads to vacuum of international order

Recommendations

- Create conflict preventive diplomacy
- Improve communication to public and increase collective responsibility
- Increase capacity building (from peace and infrastructure)
- Develop command and control practices for Arctic
- Increase outer-space and polar exploration expertise, and explore nuclear fusion as energy source
- Conduct better natural resource evaluation

- Develop multilateral funding platform for anti-desertification campaign
- More information sharing between states about imminent environmental disasters/risks; technology (e.g. mobile phones) to share information and coordinate responses
- Develop diffused communication, harnessing the power of mobile technology
- Create integrated information sharing platform containing geographic socio-political hazards
- Develop best practices for more effective country level management (e.g. developing nations need to take responsibilities to build technical capacity to conduct risk management assessments themselves)
- Move from paradigm of conflict management to conflict prevention by integrating defence, development and diplomacy entities
- Integrate development and climate adaptation communities with funding mechanisms

Groups 2 & 6: Migration, human displacement, humanitarian crises

Analysis of climate change impacts

- Greatest stress in largely agrarian/fisheries (Caribbean, sub-Saharan Africa, South Asia)
- Changing patterns of migration (middle class/wealthy able to move but more poor become trapped in location so unable to move) coupled with uncontrolled migration
- Legal response becomes untenable: debate on environmental migrants as refugees
- Signals changing: (better safety net) Europe changing and diversion of people to China could be positive
- International system becomes untenable because of anarchy so will witness a rise of regional bodies and unilateralism
- Increased urbanisation, civil disorder and border conflict
- Both positive and negative effects could occur (e.g. positive: increased south-south collaboration; e.g. negative: health impacts for small island nations)
- Increased request for aid and international cooperation
- Changing views of citizenship – fluidity of identity and new tier within in society migrant/illegal worker underclass that could become normalised

Recommendations

- Develop moral response to human issues rooted within human security and not state security
- Create human rights based approach to clean environment
- Increase dialogue with faith groups, corporations etc.
- Understand remittances and develop better regulation of remittances
- Obtain better info to conduct/understand scenario planning and creative solutions
- Understand shifting state responsibilities and rights to protect population
- Conduct comprehensive assessment that recognises benefits and risks of interactions and allows for budget allocation
- Conduct more education programs focused on developing public awareness for general population to receive/understand climate change science and adaptation
- Cultivate comprehensive policies at various levels (e.g. at the national level develop whole of government policies that include education, health, economic and other dimensions)
- Comprehend importance of strengthened multilateral agreements
- Develop greater coherence between north and south regarding how to address climate change with regards to migration

Groups 3 & 7: Global and regional governance realignment, nationalism

Analysis of climate change impacts

- Reshuffling of deck in national and global landscapes
- Nationalism rising in richer states that causes fragmentation along various divides (e.g. North-South divide)
- Inequalities worsening
- Megacities coming together to share solutions
- Increase in power of corporations
- Power will flow in two different directions: from national/state to regional group; and within state to local/city government
- Trends towards either increased collaboration or less collaboration between states occur
- New regional alignments will be stronger

Recommendations

- Develop consensus on stronger bottom up approaches (opposed to top down) to address climate risks
- Create global health initiative and develop technology transfer in terms of patent/global health provision
- Create green helmet equivalent driven by the UN to conduct disaster risk reduction/ climate country adaptation to have country's internal central pool of expertise
- Analyse funding policies of financial institutions as well as country's financial policies
- Evaluate linkages between natural resources and trade
- Assess evolving nature of multilateral institutions and other sub-national structures and their ability to conduct conflict prevention
- Increase information sharing

Groups 4 & 8: Resource competition, interstate conflict

Analysis of climate change impacts

- Energy sources and strain on energy innovation could lead to water security issues
- Trade policies could mitigate conflict
- Inequality and stratified socio-political identities leads to increase in winners and losers
- Trade policies could mitigate conflict
- Difficult to decouple energy-food-water with other metal/extractive industries
- Degradation of ecosystem services

Recommendations

- Understand potential for innovative economics (e.g. natural resources and trade)
- Changing/evolve multilateral institutions and how to focus on conflict catalyst
- Understand changing nature of sub-national structures and potential for increase in information sharing
- Develop national mitigation-adaptation strategies
- Understand linkages between closed/circular economies
- Understand climate science and natural variability

5. CONCLUSIONS

Climate security has presented significant local, regional and international threats and disruptions to world order throughout history. For example, the destructive 30 Years War, in many ways, drove the decision in Westphalia to establish a nation-state system in Europe. Then the incredible tragedy of WWII drove the development of an international and regional world order designed to lessen the probability of conflict between nation-states. And in looking out to 2050, a lot of the scenarios in this workshop revolved around the impact of natural resource stresses on the legitimacy of nation-states – due to their incapacity to provide their publics with basic services. This in turn could disrupt the current global order that is built on the legitimacy of states. In that context, a lot of policy suggestions revolved around either improving/augmenting, or creating new, national, regional, and international structures for addressing what's increasingly considered to be an existential risk.

There is a need to increase interagency/international scenario planning exercises. There is tangible value of scenario planning exercises. Given the unprecedented changes occurring in the 21st century, looking exclusively to the historical record to plan for the future will no longer be sufficient. Thus imagination is critical. Failure of imagination is a risk in and of itself. It is imperative to plan for improbable combinations of probable events and simultaneously to not be afraid of planning against low probability, high impact events. To paraphrase Carl Sagan, "low probability events happen all the time." And as discussed throughout the Planetary Security conference, we currently have plenty of information to work with. In many ways we have greater certainty on predicting climate risks than with other traditional security risks. Consequently, we need an informed imagination, and future scenario planning exercises will be key.

WORKING GROUP 6

URBAN DELTAS: WATER-RELATED CLIMATE IMPACTS

Urban deltas are on the front line of the climate change impacts. Challenges due to rapid urbanisation enhanced by water-related climate impacts pose serious treats to the viability and the stability of delta countries. The interdependencies between vulnerabilities and water-related climate impacts show a clear opportunity for integrated approaches and innovative solutions. In this session we explored these opportunities and how to catalyse integration into policy and practice. This was the second Working Group where sea level rise was one of the central themes.

Moderator: **Henk Ovink**, Government of The Kingdom of the Netherlands
Speakers: **Major General (retired) A.N.M. Muniruzzuman**, Bangladesh Institute of Peace and Security Studies / Global Military Advisory Council on Climate Change
Betsy Otto, Amsterdam Institute for Social Science Research of the University of Amsterdam / UNESCO-IHE Institute for Water Education
Dominic Kailashnath Waughray, World Economic Forum
Rapporteurs: **Florine Gongriep**, Government of The Kingdom of the Netherlands
Anton van Hoorn, Netherlands Environmental Assessment Agency
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

Deltas and coastal areas are amongst the most urbanised and urbanising places worldwide. Deltas, flood plains and coastal zones offer high economic activity through a confluence of agriculturally rich fluvial flood plains, connectivity assets and labour, economic and port shipping opportunities. Water is key for agricultural, food and energy production, thus essential for the economy, and our social and cultural wellbeing. In deltas, these assets come to bear. It is in these deltas that some of the world's largest metropolises are built and recent projections show that while by 2050, 75 percent of the world's population will live in cities, it is more than 70 percent of the urban population who will live in urbanised deltas. [14]

These great opportunities are however also the root of the challenges that delta cities face. Rapid land-use change, changes to the water system and rapid (uncontrolled) city growth put a lot of pressure on cities, societies and citizens, on the economy and ecology. This, in combination with climate change, makes urban deltas very vulnerable. They are especially vulnerable due to their low-lying location, rivers and coastal areas, as it is through water that we will feel the impacts of climate change most. Sea level rise is already threatening the economic and physical viability of low-lying areas and, according to the Intergovernmental Panel on Climate Change (IPCC), sea level rise will continue to rise this century. Additionally, they expect that the frequency and intensity of extreme weather events will increase, resulting in more floods and droughts in delta areas. The 2015 World Economic Forum (WEF) Risks Report (presented in Davos in January 2015) put the impact of Water Crises as the number one global risk. And these risks threaten the viability of delta countries even before the deltas begin to become submerged.

[14] Beroepsorganisatie Nederlandse Ontwerpers, Holland: A Sustainable Urban Delta *http://www.bno.nl/upload/nieuws/open-oproep-sustainable-urban-delta/Sustainable%20Urban%20Delta%20-%20Holland%20Branding.pdf*

Global urbanisation gives us growth, prosperity, emancipation, cultural activity and development opportunities, but these positive effects might be reversed if we do not make cities more resilient. Adapting to and mitigating the risks urbanised deltas face is extremely urgent because they must safeguard large numbers of people, and key infrastructure and assets. If we continue with business as usual, 2 billion people are expected to be severely affected by 2050, and 4 billion in 2080. Taking into account sea level rise and floods, the 10 most vulnerable urban deltas in 2050, measured as a percentage of GDP, are: Guangzhou, Mumbai, Kolkata, Guayaquil, Shenzen, Miami, Tianjin, New York-Newark, Ho Chi Minh City and New Orleans.[15] Miami then leads with 278 billion dollars of assets at risk, followed by Guangzhou, New York-Newark, New Orleans, Hong Kong, Mumbai, Osaka-Kobe, Shanghai, Amsterdam and Ho Chi Minh City.

If lives and assets are not safeguarded this will have large consequences at the national and even international level. Decreasing viability in urbanised areas will lead to social disruption, displacement and migration, increasing the risk of tension and conflict in the affected areas. Some researchers even fear a simultaneous flood-tide of climate change refugees that may lead to civil unrest and possibly armed conflict nationally and/or internationally (especially in areas with a history of political instability). Another trigger for international conflict may be disputes over maritime boundaries, territorial seas and sea-lanes when coastlines change and border demarcations alter due to sea level rise.

To make cities more resilient, it is not enough to focus only on the effects of climate change and adaptation measures including improvement of flood defence systems. Human interventions in river and delta systems, such as damming and channelisation, also have large impacts on the way these water systems function. This was illustrated by the transformation of some natural delta systems into man-made, engineered systems in the nineteenth and twentieth century. This led to serious erosion and decay due to a substantial decrease in the transport of sediments by the rivers to the deltas and drainage resulted in land subsidence in many delta regions. Therefore urban water must be seen in the context of the rural hinterland and the systems of these (ecological) riverine basins that ensure quality of nature, ecology and the safety, scarcity (the quantity) and quality of water. Water quality defines economic and societal prosperity, and risks – caused by either too much or too little water – define our societies' vulnerability. This is not about "fixing" climate change; this is about moving towards a systems approach where long-term comprehensive strategies are connected to short-term (preferably innovative) interventions.

Urban water is at the heart of how cities develop. Therefore spatial planning and design have become increasingly more important. The WEF 2015 Risks Report concludes that both the failure of urban planning and the failure of climate change adapting are increasing the vulnerabilities of our communities across the world in the next decade. Again, this is a plea for a comprehensive integrated approach where the defence and development of cities are combined, adding value for all based on the principles safety and quality (of life, the environment, the economy). Vulnerable communities are located in the most vulnerable places, all over the world, as much in the developing as in the developed world. To improve community resiliency, adaptation plans must be connected to the local needs and the process should be inclusive, including all stakeholders. This also implies moving or sharing responsibilities from central governments to local authorities, private institutions and citizens.

The need for investment in climate adaption provides unique opportunities to combine and integrate spatial, economic and social needs and demands. An increasing number of deltas are already sharing knowledge and lessons learned to increase resiliency and improve adaptation strategies. Working on resiliency has become a global connecting task!

[15] Hallegatte S et al, 'Future flood losses in major coastal cities' (2013) in *Nature Climate Change*

2. RESPONSES

The 100 Resilient Cities initiative, pioneered by the Rockefeller Foundation (100RC), is dedicated to helping cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century. 100RC supports the adoption and incorporation of a view of resilience that includes not just the shocks – earthquakes, fires, floods, etc. – but also the stresses that weaken the fabric of a city on a day to day or cyclical basis.

Cities in the 100RC network are provided with the resources necessary to develop a roadmap to resilience along four main pathways:

- financial and logistical guidance for establishing an innovative new position in city government, a Chief Resilience Officer, who will lead the city's resilience efforts;
- expert support for development of a robust resilience strategy;
- access to solutions, service providers, and partners from the private, public and NGO sectors who can help develop and implement resilience strategies; and
- membership of a global network of member cities who can learn from and help each other.

Through these actions, 100RC aims not only to help individual cities become more resilient, but will facilitate the building of a global practice of resilience among governments, NGOs, the private sector, and individual citizens.

The C40 Cities Climate Leadership Group was founded in 2005. It brings together the world's megacities in meaningful exchanges to better prepare them for climate change (see Figure 1). It sets actionable and measurable goals at the individual city and organisational levels to ensure that actions and outputs are effective. The C40 networks facilitate dialogue amongst city officials across more than 50 countries. As more than two thirds of the world's largest cities are coastal cities, the C40 group has come up with a network called Connecting Delta Cities (CDC). Here, cities exchange knowledge and best practices in the field of climate change related spatial development, water management and adaptation. A CDC Secretariat has been installed in Rotterdam.

Figure 1: *C40 membership*

The World Water Forum (WWF) is another international initiative that addresses issues surrounding water. It is hosted by the World Water Council and forums are held in major cities every three years. The 7th World Water Forum 2015 was held in South Korea. The themes are managed by the Forum and various stakeholders gather to select and discuss the most pressing issues such as climate change, disasters and green growth. Other themes include the Political, Regional and Science and Technology developments and changes. During the 5th WWF held in Turkey, perspectives on "Deltas and coastal cities" were discussed, in which adaptation to climate change was addressed as a challenge to the sustainable development of deltas. Deltas vulnerability to flooding, shortages of freshwater resources, ageing infrastructure, erosion of coastal areas and seal level rise were identified as core issues. Figure 2 shows the vulnerability risks of eight deltas.

Delta	Issues					
	Pressure on space	Flood vulnerability	Freshwater shortage	Ageing or inadequate infrastructure	Coastal erosion	Loss of environmental quality and biodiversity
Yellow River Delta (China)	••	•	••	•	•••	•••
Mekong River Delta (Vietnam)	••	••••	••••	••	•	•••
Ganges–Brahmaputra Delta (Bangladesh)	••••	••••	••	••	••••	••••
Ciliwung River Delta (Indonesia)	••••	••••	••	••	•	••••
Nile River Delta (Egypt)	••••	•	••••	••••	••	••
Rhine River Delta (The Netherlands)	•••	••	••	•••	••	•
Mississippi River Delta (USA)	•	••••	•	••••	••••	••••
California Bay (USA)	••	••••	••••	•••	•	•••

Legend:

- • relatively minor problem, now and in the near future
- •• currently a minor problem, but is likely to increase in the near future
- ••• currently already a big problem, future trend uncertain
- •••• currently already a big problem, likely to increase in the near future

Figure 2: *Nature of delta issues in eight selected deltas*

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the Third United Nations World Conference in Sendai, Japan, on March 18, 2015. It is the outcome of stakeholder consultations initiated in March 2012 and inter-governmental negotiations from July 2014 to March 2015, supported by the United Nations Office for Disaster Risk Reduction (UNISDR) at the request of the United Nations General Assembly.

Taking into account the experience gained through the implementation of the Hyogo Framework for Action 2005-2015, and in pursuance of the expected outcome and goal, the Sendai Framework identified that there is a need for focused action within and across sectors by states at local, national, regional and global levels in the following 4 priority areas:

- Priority 1: Understanding disaster risk;
- Priority 2: Strengthening disaster risk governance to manage disaster risk;
- Priority 3: Investing in disaster risk reduction for resilience; and
- Priority 4: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction.

Chapter 13 of the Physical Science component of the 2013 Intergovernmental Panel on Climate Change (IPCC) Assessment Report suggests that regional sea level change projections may differ substantially from a global average because of a combination of various contributions emerging from the ocean, atmospheric pressure loading and geology. As such, regional changes in sea level could reach values of up to 30 percent above the global average in the Southern Hemisphere and around North America, between 10 and 20 percent in equatorial regions and up to 50 percent below the global average in the Arctic region and some regions near Antarctica. Worldwide responses should therefore take these estimates into account, especially where the projected rise would be a significant percentage above the global average. However, there are not enough existing regional transboundary responses that involve several countries working together to mitigate and adapt to climate-related impacts. Often times, it is restrained to country-led effort, as such measures are costly and takes a long time to construct (for example, the London Thames Estuary 2100 Plan will take 25 to 30 years to plan and implement).

In the United States, the National Oceanic and Atmospheric Administration (NOAA) carries out climate and coastal erosion monitoring, and runs a Coastal Zone Management Program. The programme is a voluntary federal-state partnership created by the Coastal Zone Management Act that addresses a range of issues, including climate change. Together with the National Ocean Service (NOS), the programme creates sea level rise inundation models and supports the development of climate change adaptation plans, regulations and policies at the state and local levels.

Tim Folger for National Geographic wrote an article in 2013 describing New York City as essentially defenceless in the face of hurricanes and floods because of its lack of levees and storm barriers. This was showcased by Hurricane Sandy, which left 157 dead, destroyed or damaged 300,000 homes, damaged or forced to close at least temporarily hundreds of thousands of businesses and brought about a total damage and economic loss of 65 million dollars, making it the second costliest storm in the history of the USA. In Florida, sea level rise threatens the state's freshwater supply. If sea level rises above 60 centimetres, Florida's aquifers are very likely to be poisoned beyond recovery. The National Geographic article points to best practices from the Netherlands, where a single storm in 1953 changed not just a city but the nation's policy. The Dutch saw that climate-related mitigation and adaptation measures are a matter of national security, especially for a country where 26 percent of the land lies below sea level and 60 percent is flood prone. To date, the Netherlands is one of the best-protected deltas of the world with standards of risk prevention based upon events that occur only once every 10,000 years. Living with water as a cultural approach, is the Dutch way of dealing with living at risk, making the Deltaworks, the Building by Nature projects like the Sand Engine and the Room for the River Program global standards and inspirations for many other delta cities worldwide.

3. FURTHER READING

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- Hallegatte S et al, 'Future flood losses in major coastal cities' (2013) in *Nature Climate Change*
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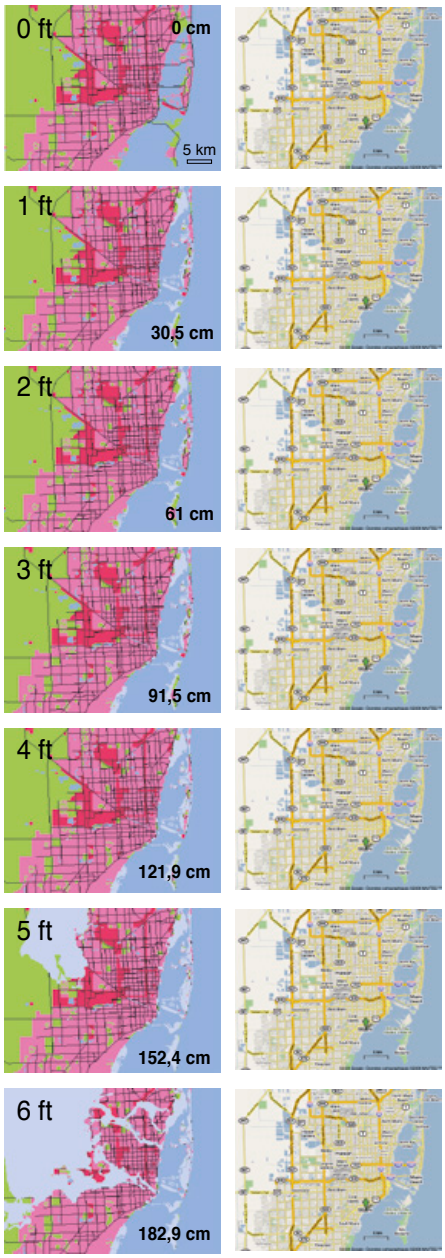
- United Nations Development Programme (UNDP), Human Development Report 2007/2008 http://hdr.undp.org/sites/default/files/reports/268/hdr_20072008_en_complete.pdf
- World Economic Forum (WEF), *Global Risks 2015: 10th Edition* http://www3.weforum.org/docs/WEF_Global_Risks_2015_Report15.pdf
- *World Water Development Report 2012,* http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/wwdr/wwdr4-2012/

Impact of Sea Level Rise in Miami



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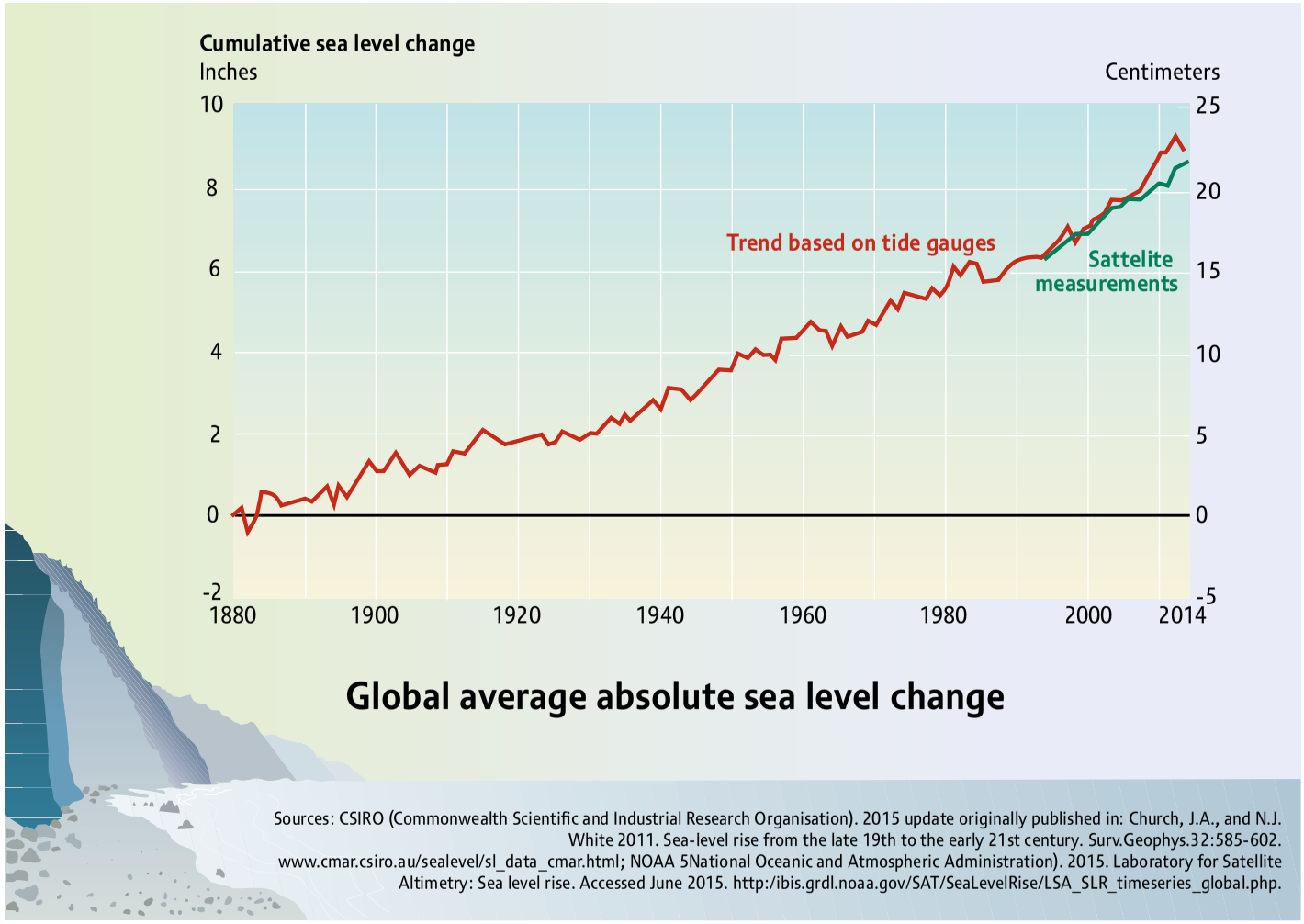

Planetary Security Initiative

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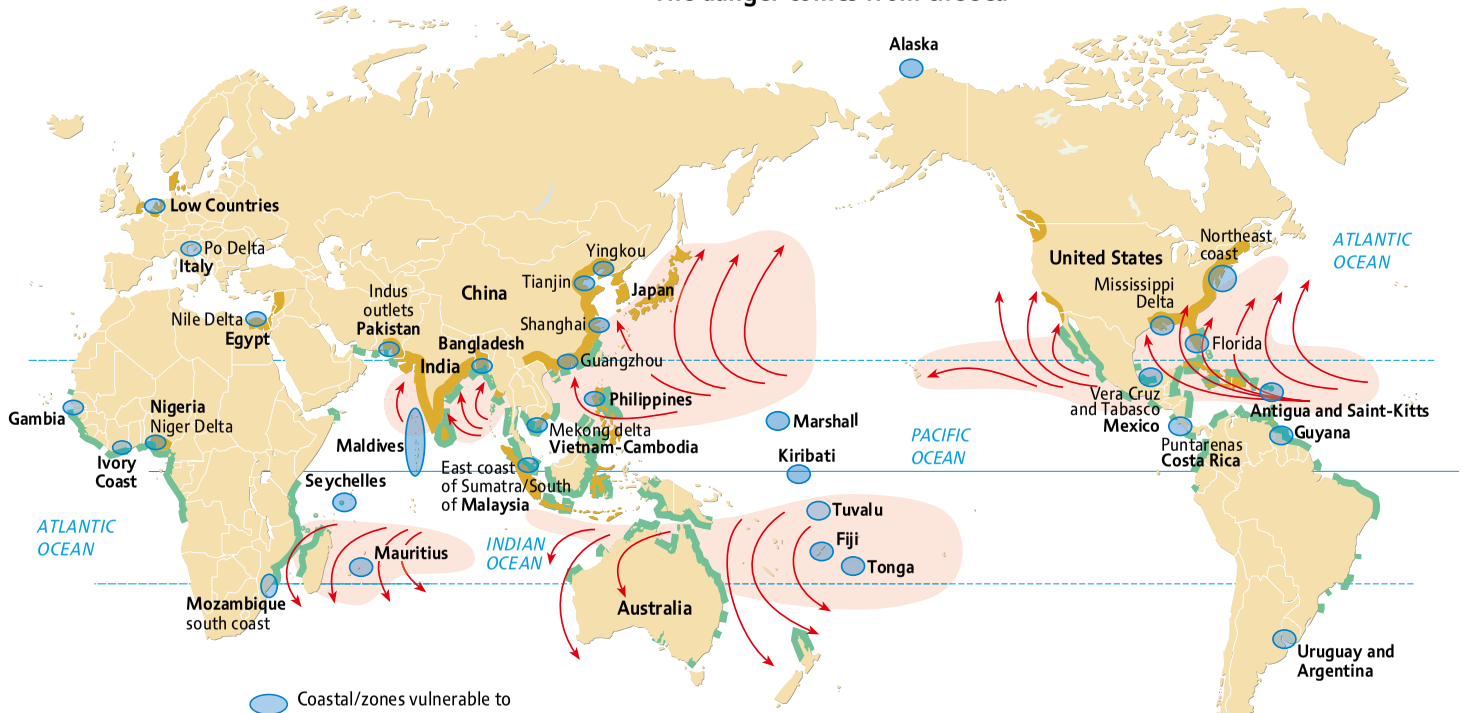
The danger comes from the sea



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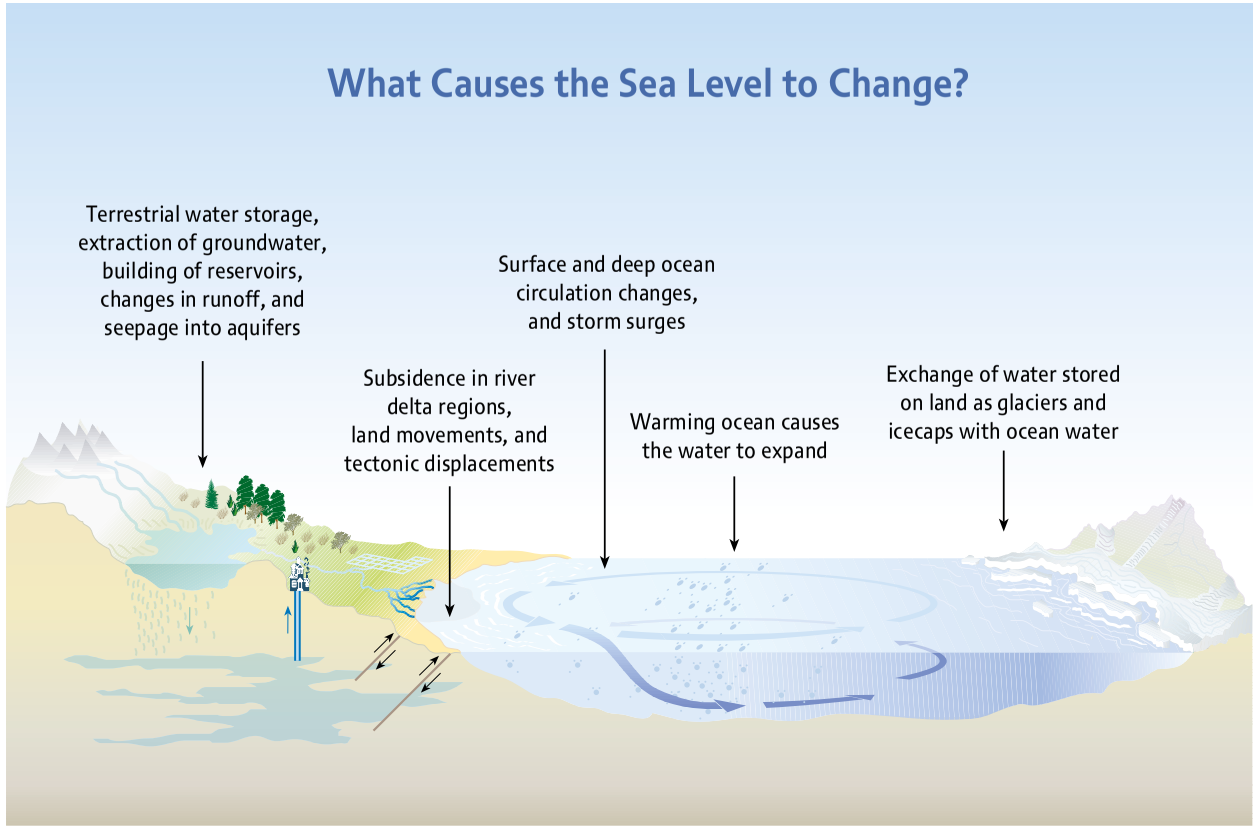
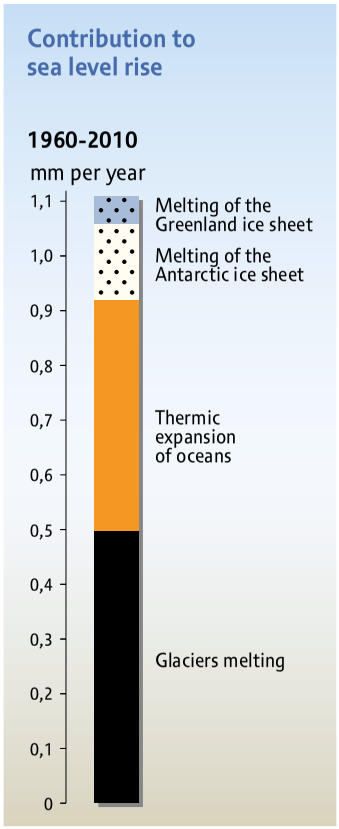
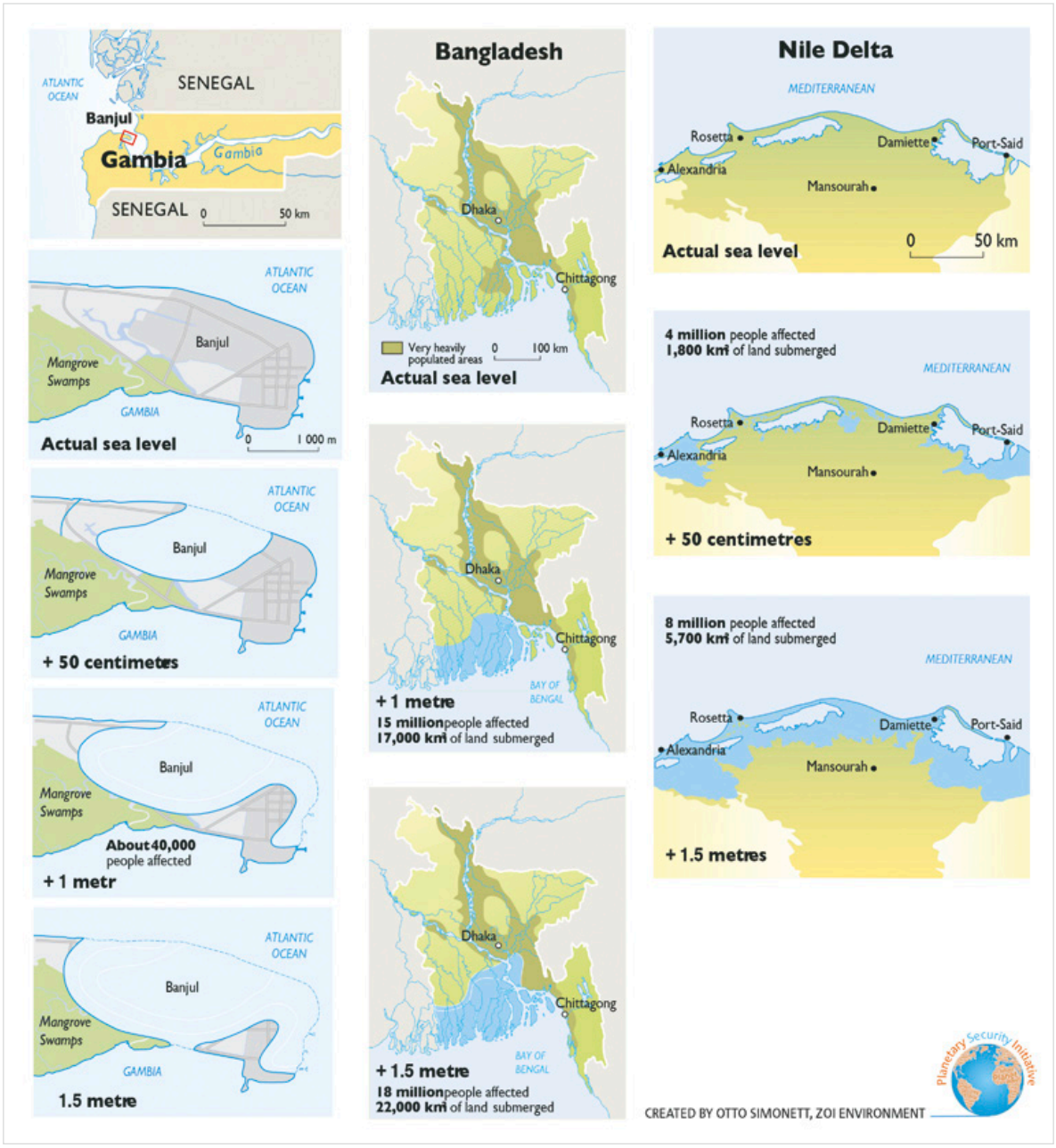




Source: David Griggs, in *Climate Change 2001*, Synthesis report, Contribution of working groups I, II and III to the Third Assessment Report of the Intergovernmental Panel Climate Change, Cambridge University Press, 2001; Quatrième rapport du Groupe intergouvernemental sur l'évolution du climat (GIEC), 2007 and 2014; NSIDC.


ATLANTIC OCEAN
SENEGAL
Banjul
Gambia
Gambia
SENEGAL
0
50 km
ATLANTIC OCEAN
Banjul
Mangrove Swamps
GAMBIA
Actual sea level
0
1 000 m
ATLANTIC OCEAN
Banjul
Mangrove Swamps
GAMBIA
+ 50 centimetres
ATLANTIC OCEAN
Banjul
Mangrove Swamps
About 40,000 people affected
+ 1 metr
ATLANTIC OCEAN
Banjul
Mangrove Swamps
GAMBIA
1.5 metre
Bangladesh
Dhaka
Chittagong
Very heavily populated areas
0
100 km
Actual sea level
Dhaka
Chittagong
BAY OF BENGAL
+ 1 metre
15 million people affected
17,000 km² of land submerged
Dhaka
Chittagong
BAY OF BENGAL
+ 1.5 metre
18 million people affected
22,000 km² of land submerged
Nile Delta
MEDITERRANEAN
Rosetta
Damiette
Port-Said
Alexandria
Mansourah
Actual sea level
0
50 km
4 million people affected
1,800 km² of land submerged
MEDITERRANEAN
Rosetta
Damiette
Port-Said
Alexandria
Mansourah
+ 50 centimetres
8 million people affected
5,700 km² of land submerged
MEDITERRANEAN
Rosetta
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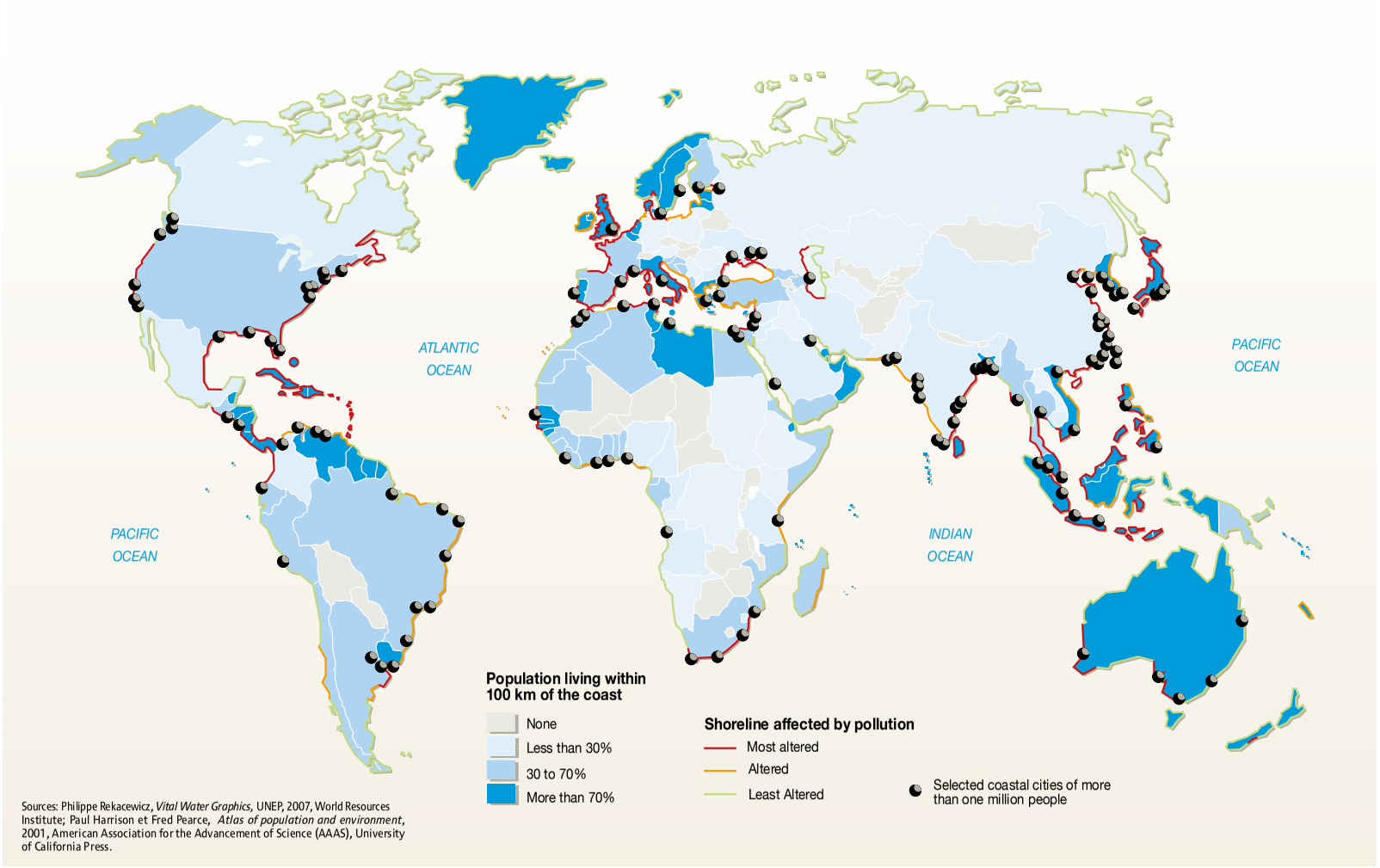
Port-Said
Alexandria
Mansourah
+ 1.5 metres
Planetary Security Initiative
CREATED BY OTTO SIMONETT, ZOI ENVIRONMENT



Sources: Philippe Rekacewicz, *Vital Water Graphics*, UNEP, 2007, World Resources Institute; Paul Harrison et Fred Pearce, *Atlas of population and environment*, 2001, American Association for the Advancement of Science (AAAS), University of California Press.

Disclaimer: to the extent possible guidelines of the Geospatial Information Section of the United Nations have been followed in the creation of this map. The boundaries, names and symbols on this map in no way imply formal acceptance or recognition of them by the Kingdom of the Netherlands.

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4. ANALYSIS

Climate change brings about a new era in geopolitics. Water-related impacts hit humanity, economy, culture and ecology. Tensions in national security are exacerbated by water, food and energy crises. With the increasing frequency and impact of natural disasters and extreme weather events more people than ever are vulnerable, at risk and on the move. Governments around the world fail to act because of misguided trust in technical solutions, uncertainty about societal, geographic and economic changes, lack of capacity, fragmentation and political gridlocks amongst others.

The magnitude of the figures on the risk we face are numbing, but we must rise up to the challenges. We must find ways to adapt to and to mitigate these risks, because we are talking about the lives of many billions. This should not be about dollars, or even national security. It is about planetary security and human dignity.

Finding the right solutions is complex, because the problems are inter-connected, especially in deltas. Deltas are vulnerable but also attractive places: people are drawn to the possibilities for agriculture, housing, and production. The system of a delta strongly depends on the availability of good quality fresh water falters and flood safety. In the case of a water crisis – be that scarcity or flooding or pollution – all sectors are in trouble and cities and deltas stop to function. The cascading effects multiply the losses and damages. Energy disruptions caused by flooding may cause telecom and transport services to break down, and without communication and transport emergency response actions are frustrated. Let alone the rebuilding.

Better understanding of the issues at stake in urban deltas and the interdependence between these risks requires more knowledge. We need proper data and assessments and we need to share more knowledge between governments, industries and society.

At the same time we cannot wait with action, given what we already know. This is a battle situation and people's lives are challenged every day. Transitions take a long time. The Netherlands due to its vulnerable condition has a resilience approach defined by "living with water" at the core of its political and societal culture. Cities like Rotterdam and Amsterdam are worldwide at the forefront when it comes to adaptation and resilience approaches. But most cities now are too vulnerable to wait for even ten years with investments, they have to start now. A comprehensive step-by-step approach is needed, based on a long-term climate-inclusive strategy.

Working Group 6. Urban Deltas

5. CONCLUSIONS AND RECOMMENDATIONS

To gain better understanding of the issues at stake and the interdependencies between them at the global and regional scale we need inclusive processes, data, facts and design for making connections. Satellite data is key and instrumental to this need. It can provide global information on the details of water stress, ground level water, runoff satellite data, projections for climate change and flood risk, coastal storm surge, water quality amongst others. Better understanding of the risks provides a better basis for action.

Although the interdependencies between the risks make it much more complex to understand the system, they can be a blessing as well. The interdependencies show mostly on the regional level and this is also the scale where humanity can adapt to and mitigate those risks. The need for investment in resilience provides unique opportunities to find integrated solutions for spatial, ecologic, economic and social demands.

For example, mangroves protect the coast against storm surges, but they cannot keep up with sea level rise when there is not sufficient sediment nourishment from upstream. When we understand the system, we see that in this dynamic system the sea is not the enemy but the sediment trapping upstream. When we design upstream measures in way to better manage water and sediment flows on a river basin scale, we also protect the mangrove ecosystem, which protects the shoreline during storm surges, provides wood, fish production and nursing, water quality improvement, biodiversity conservation and recreation.

Often complacency is harder to deal with than complexity. So to seize the opportunities complexity offers we need to build an enabling environment using a comprehensive systems approach that ensures a focus towards real transformative capacity of collaborations and their methods. In this system approach, 4 key aspects are:

Long-term strategies matched with short-term interventions and comprehensive planning: Planning and implementing adaption measures at the regional scale or system level in the existing governance structure proves difficult, and takes a long time. Therefore we need a long-term strategy that fits all the expensive pieces of the jigsaw into place.

Institutional capacity: Often there is a lot of fragmentation between decision-makers who need to give programmatic guidance to follow the long-term plan and to implement short-term measures. In that case we need to build institutional capacity. There is a Mekong Delta Plan, a delta plan for Bangladesh, a delta plan for Myanmar and some projects may get funding. To make sure that these projects do not become isolated interventions however, we need institutional capacity that ensures (local) ownership and follow up. As the case of Bangladesh poignantly shows, collaboration is needed across national borders, between many regional governments and a multitude of city authorities. What is needed is to work together in the regional context of the delta, across the board of agriculture, safety, biodiversity and ultimately defence.

Transparency and (innovative) funding, linking public and private finance: The problem is in part about getting the money. But most of all we need social understanding and full transparency of where the money goes, and how the investments add revenues. To publicly account for the measures taken and to attract private stakeholders to invest in resilience measures we need effective benefit costs analyses, monitoring and evaluation instruments that can take long-term comprehensive resilience strategies and measures into account. Interestingly, there is a good uptake from business (mining, agriculture, food processing and packaging, finance, insurance, energy, car manufacturers, consumer goods). There are good opportunities to get businesses more involved - they have been thinking about risk for decades. They see opportunities in materials, supply chains, risk assessment. Off course the

operate on their own terms and the 'bottom line', but they do not see themselves as isolated and are looking for proper, big investments. Also, PPP could provide very interesting opportunities for collaboration.

Collaboration: Cities in deltas are well positioned to take small action for mitigation and build adaptation plans, but the water system may extend city boundaries, out of the span of control. If authorities on different levels do not work together, if nations compete for the same water, the power to act is fragmented. Also, as mentioned before, water is connected to energy and food sector and urban development. Moreover, we need to include all stakeholders so that measures will be supported locally and integrate effectively into global and regional environmental and political dynamics.

We should be smart enough to not wait for crises and to take preventive measures. Yet, once there is a crisis, the willingness to act increases. Crises can catalyse the integration of solutions into policy and practice. We know that there will be crises, so why don't we package the information that we will need in case of a crisis in a clear and accessible way. At a time of urgency there is a great need for information. The packages can assist first steps in dealing with the crisis as well as first steps in transition to a safer delta.

Finally, there are lot of interesting cases, bright spots, are happening in the field where businesses and governments work together. For example in Miami, wastewater is rerouted into the aquifer to keep the water level up. In Los Angeles, water is treated as one jurisdiction without separating responsibility between wastewater of potable water. We can build on these good examples and add chapters to them.

WORKING GROUP 7

SECURITY AND CLIMATE CHANGE IN THE ARABIAN PENINSULA

There is mounting evidence that climate change has been a key factor in undermining stability and social cohesion throughout the Arabian Peninsula. How will climate change projections and scenarios impact further on a region, which is now in considerable turmoil, and how will it hamper prospects for an ultimate stabilisation and long-term recovery?

Moderator: **Jamie Shea**, North Atlantic Treaty Organization
Speakers: **Glada Lahn**, Chatham House
Nick Mabey, Third Generation Environmentalism
Rapporteur: **Nasser Yassin**, American University of Beirut
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

The Arab region covers 10 million square kilometres (more than 2.5 times the size of Western Europe) and stretches from the Atlantic Ocean to the Zagros Mountains in southwest Asia.[16] The Arab countries are located in a hyperarid to arid region – less than 0.2 on the Aridity Index (AI) – with pockets of semiarid areas (between 0.2 and 0.5 AI). There are some temperate zones in coastal North Africa, the eastern Mediterranean, and equatorial areas in southern Somalia and the Comoros as well as some snow-classified areas in the mountains of Algeria, Iraq, Lebanon, and Morocco. Environmental challenges in the Arab world include water scarcity, with the lowest freshwater resource endowment in the world; very low and variable precipitation; and excessive exposure to extreme events, including drought and desertification.[17]

For thousands of years, the people of this region have coped with the challenges of climate variability through the adaptation of their survival strategies to changes in rainfall and temperature. However, over the next century their adaptation skills will be put to the test as the climate of the Arab countries will experience unprecedented extremes. As pointed out by the World Bank, "temperatures will reach new highs, and in most places there will be less rainfall. Water availability will be reduced, and with a growing population, the already water-scarce region may not have sufficient supplies to irrigate crops, support industry, or provide drinking water".[18] Given the region's demanding environment, its volatility in terms of inter- and intrastate conflict, its instability and its high dependency of many of its states on fossil fuel revenues, the Arab region is considered to be amongst the world's most vulnerable regions to climate change.[19] For the Arab region, climate change presents regionally and socially unequal threat of severe environmental, economic, political and security impacts.

[16] Elasha BO, *Mapping of Climate Change in threats and human development impacts in the Arab region* (2010) http://www.arab-hdr.org/publications/other/ahdrps/paper02-en.pdf
[17] Verner D, Adaptation to a Changing Climate in the Arab countries: *A Case for Adaptation Governance and Leadership in Building Climate Resilience* (2012)
[18] Ibid
[19] Elasha 2010; Luomi M, 'Gulf of Interest: Why oil still dominates Middle Eastern Climate Politics' (2011) in *Journal of Arabian Studies* (hereinafter Luomi 2011)

2. RESPONSES

As the Arab region entails such a diverse group of countries with deferring national circumstances and climate vulnerability, there is a marked variation in the states' activeness in climate action to date when measured in terms of plans, initiatives and actions.[20]

A review of Arab national communications reports to the United Nations Framework Convention on Climate Change (UNFCCC) and current projects and initiatives shows that Arab countries are in fact implementing various climate friendly policies and measures. However, most of these initiatives are fragmented and do not appear to have been implemented as part of a comprehensive policy framework at the national or regional level.[21]

In general, mitigation and adaptation efforts are hindered by regional politics and mutual distrust among the Arab states. Arguably, climate change brings to the fore the major contemporary inter-Arab divisions that prevent the development of meaningful cooperation, namely: major oil exports and the rest; rentier and non- or declining rentier states; rich and poor countries; and stable and internally conflict-prone states. These divisions largely coincide with parallel geographical boundaries, separating the wealthy Gulf oil-exporting monarchies (Qatar, the UAE, Kuwait, Saudi Arabia and, to some extent, Oman and Bahrain) from the resource-restricted Arab states of the Mashriq (Syria, Lebanon, Jordan, the Palestinian territories and, partly outside the geographical division, Egypt and Yemen). The internal stability and prosperity of the former group of states in the coming decades will arguably depend to a large extent on both the international demand for oil and their ability to diversify their economies away from oil revenue dependence. In the Gulf, in addition to sustaining a ruling bargain between the ruling elites and the national populations, export revenues also sustain the states' capacity to adapt to the extreme climatic conditions and structural water scarcity.[22]

3. FURTHER READING

- Elasha BO, Mapping of Climate Change in threats and human development impacts in the Arab region (2010) *http://www.arab-hdr.org/publications/other/ahdrps/paper02-en.pdf*
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[20] Luomi M, *Mainstreaming Climate Policy in the Gulf Cooperation States* (2014) *http://www.oxfordenergy.org/wpcms/wp-content/uploads/2014/02/MEP-7.pdf*

[21] Tolba MK and Saab NJ, *Arab Environment: Climate Change. Impact of Climate Change on Arab Countries* (2009) *http://www.afedonline.org/afedreport09/Full%20English%20Report.pdf*

[22] Luomi 2011

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4. ANALYSIS

The current model in the Arabian Gulf region of over-reliance on revenues from fossil fuels and resource depletion to advance economic growth is clearly unsustainable. It appears to be getting worse with the current practices as resources like food, water and energy are being used at a faster rate given the demographic pressures. Current diversification and investment efforts are making the situation worse by reinforcing dependence on fossil fuels rather than replacing them.

Examples of unsustainable practices include the provision of services such as water desalination, which is resource intensive, as well as subsidies to certain sectors such as the food industry (e.g. milk production). Such policies and practices, although may appear to advance prosperity, are not necessarily contributing to resilience building in Gulf States. A case in point is in the Jeddah floods that caused significant causalities. All of this is coupled with Gulf States being vulnerable to shocks of oil price fluctuations.

5. CONCLUSIONS AND RECOMMENDATIONS

Even if reliance on oil and fossil fuels will eventually decrease we need to remain concerned. The Gulf region should not follow the downward spiral of Syria or other conflict-affected regions. There will be indeed a transition, and such transition can be made less bumpy. We can work on lowering the risks and shocks and help the local actors, including budding civil society, to find their appropriate model that can work on three tracks.

Firstly, we must work to support efforts of diversification of the economy. Although this is not novel in the Gulf region, new generations look more ready for a new economic model that can gradually move from over reliance on resource depletion. Secondly, we must work with Gulf countries on building resilience to shocks and setting a better resilience infrastructure. Thirdly, we must work to facilitate regional collaborations and empower regional structures such as the Gulf Cooperation Council (GCC). EU and China can possibly work jointly to propagate such ideas in Gulf countries. This can start by getting Gulf states more involved in the forthcoming Paris Meeting and press them on their pledges to meet CO_2 reduction targets post-Paris.

Working Group 7. Arabian Peninsula

WORKING GROUP 8

ARCTIC SECURITY AND CONFLICTING INTERESTS

As the world's attention turns to the rapidly changing Arctic, new interests are projected into an already complex landscape. In this Working Group, we discussed how the interactions of these multiple interests challenge conventional concepts and approaches to security.

Moderator: **Sarah Cornell,** Stockholm Resilience Centre
Speakers: **Annette Bickford**, York University
Leo Goff, Center for Naval Analyses
Tom Spencer, Global Military Advisory Council on Climate Change / Institute for Environmental Security
Rapporteur: **Philippe Rekacewicz**, Visionscarto.net
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

"It is no exaggeration to say that the Arctic has crossed a threshold leading to what systems analysts refer to as a state change" – Oran R. Young[23]

Geographically, the Arctic comprises the Arctic Ocean, which is international water, and the land surrounding it. Politically, there are eight Arctic states in this polar region: Iceland, Denmark, Norway, Finland, Sweden, Canada, Russia and the United States of America. They operate in various networks and alliances, from the regional scale of cooperation among the Nordic states, to the transatlantic scope of NATO, and the increasingly global perspectives of the Arctic Council. And culturally, the Arctic is home to many indigenous people groups, whose knowledge of the hostile Arctic environment has given them age-old resilience to change. Together, these actors and some new players will play a defining role in how the Arctic is managed in the future.

Communities in the Arctic are facing the challenge of unprecedented environmental change. According to the Arctic Council, "[t]he evidence of global warming is in no place more obvious than in the Arctic region. The Arctic has warmed rapidly during the last four decades. The magnitude of temperature increase in the Arctic is twice as large as the global increase." The US National Snow and Ice Data Center this year recorded the fourth lowest extent of sea ice in satellite record, evidence that "reinforces the long-term downward trend in Arctic ice extent".[24] As the Arctic warms, landscapes and ecosystems are being transformed, bringing new risks to human safety and security.

Arctic environmental change also presents a global challenge. The Arctic's sea ice is a major driver of global weather systems. As the ice melts, exposing dark seawater, less solar radiation is reflected back to space. Arctic change amplifies global warming. Ice and melted water from the Arctic Ocean have profound effects on ocean circulation patterns in the North Atlantic, from there influencing ocean and other climate systems over the entire

[23] Cited in Kraska J, *Arctic Security in an Age of Climate Change* (2011) (hereinafter Kraska 2011)
[24] National Snow & Ice Data Center (NSIDC), 'Arctic sea ice news and analysis' (2015) http://nsidc.org/arcticseaicenews/2015/10/2015-melt-season-in-review

planet.[25] These processes are well represented in computer models. Climate model outputs vary, but all show a clear trend towards warming in the Arctic and diminishing sea-ice extent. Unless strong efforts are put in place to mitigate climate change, the scientific consensus is that Arctic sea ice will completely disappear during the summer months before the year 2100.[26]

This increased thawing and resulting environmental change in the region is both expanding opportunities and creating new challenges in the region, which contribute to its rising significance as a global security arena. The melting ice is expected to open new commercial shipping routes, and increase natural resource exploration, provide increased access to fishing stocks, and facilitate higher tourism numbers.[27]

However, the risks and benefits of these opportunities differ for the various actors in the Arctic, and around the world. In particular, exploiting opportunities in the Arctic region can lead to escalating costs for adaptation to climate disruption elsewhere. Challenging clashes of interest are playing out at multiple levels, among Indigenous Peoples and local communities, environmental organisations, NGOs, regional groups, international bodies, commercial actors, and states. As interest in the region increases, it remains to be seen how the goals of each will interact.

Meeting the challenges of balancing these multiple interests will require local, regional, and international cooperation and foresight. As of yet, diplomatic and multilateral cooperation has existed alongside unilateral state action on the Arctic. While multi-member groups have taken shape, sovereign interests have become a politicised topic in virtually all of the surrounding states. Most recently, Russia has submitted a contested bid to the United Nations for the rights to 1.2 million square kilometres of the region.[28] Since 1982, territorial interests have been guided by the United Nations Convention on the Law of the Sea, which establishes the right for countries to exploit the continental shelf up to 200 nautical miles from their shoreline.[29] Yet there are fears that this treaty could be transgressed, which presents a variety of potential territory-based scenarios. Firstly, international or regional conflict can occur if states in the region choose to pursue sovereign interests through military means. In addition, rising sea levels have the potential to alter geographical and maritime borders across the world, which could also ignite international maritime law disputes between states. Thirdly, some fear the return to land rights system based solely on a state's ability to defend the land/water in question.[30]

[25] National Snow & Ice Data Center (NSIDC), 'Arctic sea ice news and analysis' (2015) *http://nsidc.org/arcticseaicenews/2015/10/2015-melt-season-in-review*

[26] Representative Concentration Pathway 8.5; Intergovernmental Panel on Climate Change (IPCC), Working Group I, Climate Change 2013: The Physical Science Basis, Chapter 12, Long-term Climate Change: Projections, Commitments and Irreversibility *http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter12_FINAL.pdf;* See also Figure SPM.7b in IPCC AR5 WG1 on nearly ice-free Septembers predicted by 2050 *http://www.climatechange2013.org/report/reports-graphic/report-graphics/*

[27] Kraska 2011

[28] Reuters, 'Russia resubmits claim for energy-rich Arctic shelf' (4 August, 2015) *http://www.reuters.com/article/2015/08/04/russia-arctic-idUSL5N10F3H920150804*

[29] United Nations Convention on the Law of the Sea, Part VI, Continental Shelf, article 82 *www.un.org/Depts/los/convention_agreements/texts/unclos/closindx.htm*

[30] Paskal C, *How climate change is pushing the boundaries of security and foreign policy* (June 2007 Chatham House Briefing Paper) *http://www.partnershipforchange.ie/library/Report%2017%20How%20Climate%20Change%20is%20Pushing%20the%20Boundaries%20of%20Security.pdf*

2. RESPONSES

Forty-seven nations are currently engaged in one or more of the 14 international organisations dealing with Arctic affairs. Many international legal frameworks are concerned with the Arctic, especially regarding environmental and ecosystem issues.

The United Nations Convention on the Law of the Sea and the International Maritime Organisation play a pivotal role in pre-empting and addressing potential conflict in the Arctic region.[31] Further, the United Nations Commission on the Limits of the Continental Shelf (CLCS) and the International Seabed Authority (ISA) oversee claims by states to secure the outer limits of its continental shelf.

The Arctic Council, formally established in 1996, is a high-level intergovernmental forum that provides a means for promoting co-operation, coordination and interaction among the Arctic States, with the permanent participation of representatives of the Indigenous Peoples of the Arctic, who are consulted in all negotiations and decisions. It has steadily expanded the number of observers; China, Singapore, India, Japan and the Republic of Korea are now among the 12 non-Arctic observer countries. Meeting bi-annually, the Arctic Council issues non-binding declarations. In addition, its Working Groups produce authoritative scientific assessments on environmental change and sustainable development in the region. It currently operates three task forces charged with scoping emerging issues and proposing improved ways to deal with particularly challenging issues: the Task Force on Arctic Marine Cooperation, the Task Force on Telecommunications Infrastructure in the Arctic, and the Scientific Cooperation Task Force.

Also known as the Finnish Initiative, the Arctic Environmental Protection Strategy is a non-binding yet broad-ranging agreement founded at a ministerial conference in Rovaneimi, Finland, in June 1991. All eight Arctic states are signatories to the agreement, which is widely seen as a precursor to the Arctic Council. It sets out the principles that underpin responses to Arctic challenges today: an emphasis on environmental monitoring and protection, and respect for the needs and traditions of Arctic Indigenous Peoples.

The European Union maintains an observer status in the Arctic Council, and regularly participates in meetings. On 20 January 2011, the European Parliament adopted an own initiative report and resolution on "A sustainable EU policy for the High North". The report indicates the need for a united, coordinated EU policy on the Arctic region, stating the EU's priorities, identifying the potential challenges, and defining a strategy. The scope of the EU's Arctic policy includes: environment and climate change, support to Indigenous Peoples and local populations, research, monitoring and assessments, exploitation of hydrocarbons, fisheries, transport, tourism, and multilateral governance.

The Barents Euro-Arctic Council (BEAC) is made up of the five Nordic countries (Sweden, Denmark, Iceland, Norway, and Finland), Russia, and the European Commission. Established in 1993, the group attempts to facilitate sustainable cooperative development in an effort to prevent political tension between members.

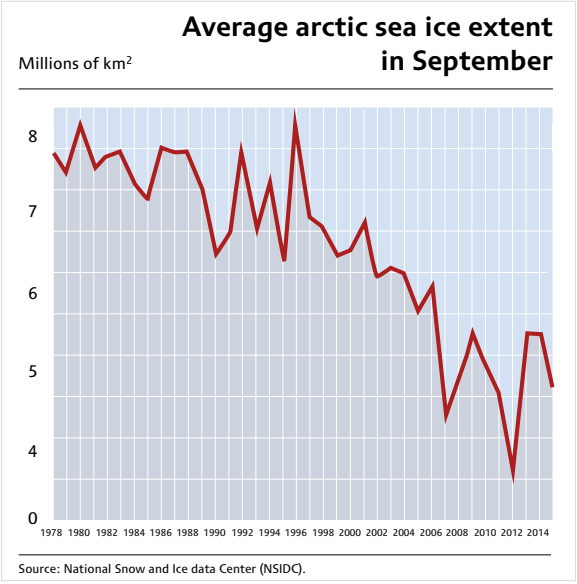
[31] For Russia's Arctic claim, see Van Efferink L, 'Arctic Geopolitics – Russia's territorial claims, UNCLOS, the Lomonosov Ridge' *http://www.exploringgeopolitics.org/publication_efferink_van_leonhardt_arctic_geopolitics_russian_territorial_claims_unclos_lomonosov_ridge_exclusive_economic_zones_baselines_flag_planting_north_pole_navy/*

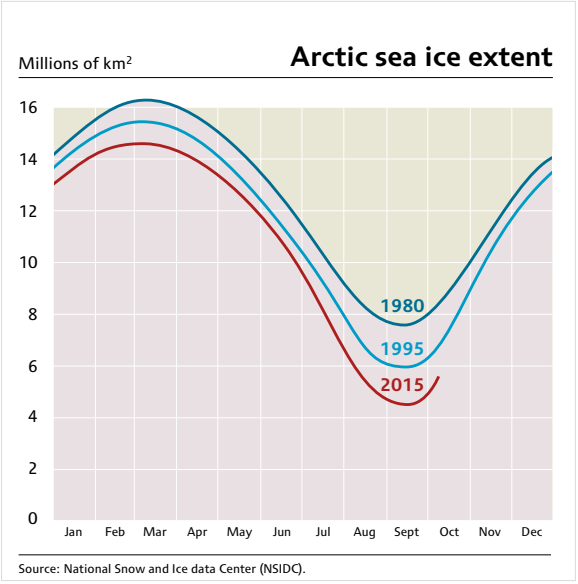
3. FURTHER READING

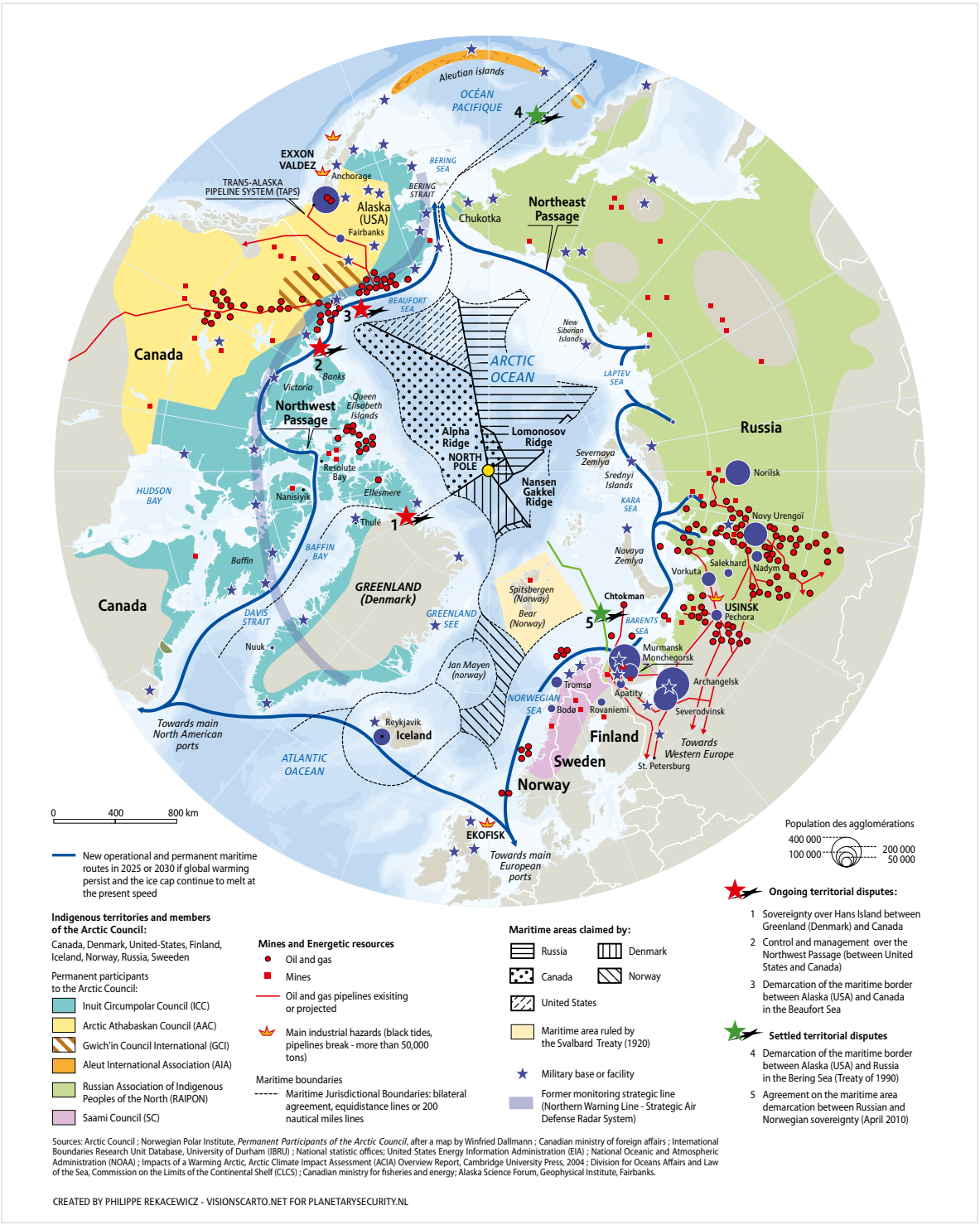
- An image of claimed land in the Arctic region by country: *http://cdn.static-economist.com/sites/default/files/imagecache/original-size/images/print-edition/20141220_IRM937.png*
- GeoPolitics North – A geopolitics organisation with links to Arctic strategy from a variety of states: *http://www.geopoliticsnorth.org/*
- How climate change is pushing the boundaries of security and foreign policy: *http://www.partnershipforchange.ie/library/Report%2017%20How%20Climate%20Change%20is%20Pushing%20the%20Boundaries%20of%20Security.pdf*

Arctic Strategy by Country

- Kingdom of Denmark (2011 – 2020): *http://usa.um.dk/en/~/media/USA/Washington/Arctic_strategy.pdf*
- Sweden (2014): *http://www.openaid.se/wp-content/uploads/2014/04/Swedens-Strategy-for-the-Arctic-Region.pdf*
- Finland (2013): *http://vnk.fi/documents/10616/334509/Arktinen+strategia+2013+en.pdf/6b6fb723-40ec-4c17-b286-5b5910fbecf4*
- Norway: *https://www.regjeringen.no/en/dokumenter/report_summary/id2076191/*
- Iceland: *http://library.arcticportal.org/1889/1/A-Parliamentary-Resolution-on-ICE-Arctic-Policy-approved-by-Althingi.pdf*
- Canada: *http://www.northernstrategy.gc.ca/index-eng.asp*
- United States: *https://www.whitehouse.gov/sites/default/files/docs/nat_arctic_strategy.pdf*







Sources: Arctic Council ; Norwegian Polar Institute, *Permanent Participants of the Arctic Council*, after a map by Winfried Dallmann ; Canadian ministry of foreign affairs ; International Boundaries Research Unit Database, University of Durham (IBRU) ; National statistic offices; United States Energy Information Administration (EIA) ; National Oceanic and Atmospheric Administration (NOAA) ; Impacts of a Warming Arctic, Arctic Climate Impact Assessment (ACIA) Overview Report, Cambridge University Press, 2004 ; Division for Oceans Affairs and Law of the Sea, Commission on the Limits of the Continental Shelf (CLCS) ; Canadian ministry for fisheries and energy; Alaska Science Forum, Geophysical Institute, Fairbanks.

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4. ANALYSIS

The Arctic area, for the moment, mainly untouched by human beings, hosts a very sparse native population, who have adapted very well to one of the most rude and hostile climate. For centuries, they have also wisely managed a living in an extremely vulnerable environment.
But the whole region is going through enormous changes. First of all, the climate change induced by the elevation of temperature is now proven to accelerating much faster than was previously predicted by the IPCC at the end of the 1990s. Secondly, this fragile region is experiencing a rapid increase of both mineral and energy resources exploitation, not to mention maritime traffic.
It is clear that economic interests in the Arctic area as a result of globalisation are socially and politically in conflict with the native Arctic communities. This is a very complex multi-layered environment where a lot remains to be done, especially in negotiating sovereignty and control of the Arctic Ocean, the main transportation corridors (Northwest and Northeast passages) as well as the local issues.

In this socially and environmentally changing world, the influence of the various actors are asymmetrical; economic power trumps other social end even sometimes political criteria for decision-making. At present, in spite of significant progress, local communities are still facing difficulties in raising their voices and expressing their opinions during the elaboration or implementation of large industrial projects, extraction infrastructures or the construction of big dams.

Historically, colonial attitudes have shaped governance – and they still do today. This is disempowering communities who cannot eventually decide on important elements used to plan and develop the territory. In the economic landscape, in addition to the private industrial companies who are possibly supported by the political authorities, external states as a third party actors may have an important if not more influential roles than the group conventionally seen as direct Arctic players.

Globalised and neo-liberalised corporatist capitalism is dominant, powerful and visible – but it is just one of the many economic systems at play. It relies on a strong enough state (public sector efficiencies and coordination), and needs to be in balance with local economies, which play an essential role in social cohesion and human security, and the commons both local and global. The short-term profit imperatives that are pushing companies into Arctic exploitation have irreversible consequences for the complex set of securities on a global scale. These longer-term costs do not appear on corporate balance sheets, and are not featured coherently in national economic planning.

5. CONCLUSIONS AND RECOMMENDATIONS

The empowerment, views, needs and hopes for the future of the Indigenous Peoples of the Arctic are as varied as those of any international group of people, but due to their long experience and territorial practices, one wonders whether Indigenous Peoples of the Arctic should be given the right to self-determination in order to allow them to be more responsibly involved in the decision-making process.

There is no way back from tipping points. Choices can still be made about avoiding the worst Arctic (and global) impacts, but these decision points are rarely articulated. Opening the Arctic to new flows of people (tourists, resource extraction) locks the world into known accelerators of climate change. The Arctic can now be “opened” even without people – for instance, military defence options now include automated technologies.

What kind of governance is needed for these complex global issues? Accountable and transparent governance implies new global forums for multi-actor dialogue. The Arctic Council's experience shows the value of regional forums with diplomatic credibility (even with external actors who do not have a border or a direct link to the Arctic area), wider contributions from international observers, and a remit oriented towards knowledge gathering and sharing and a longer-term perspective than "normal" political decision-making. Within Arctic nations (and other countries!), Arctic issues deserve wider recognition and engagement.

Forums and institutions that maintain long-sighted views and discussions, which allow for ideological pluralism rather than the suppression thereof (because of extreme and uncertain conditions and high rates of change) are particularly useful.

The current debate and negotiations on economically and politically managing the Arctic territory and sea remain widely open. The option is not necessarily to share the traditional concept of "one country, one full sovereignty". It is to invent a new form of territorial governance through sharing, participation, cooperation, and eventually pooling together the means of development, and collectively deciding (by all actors) on what is the level of "reasonable intensity" the Arctic area can sustain without harm for the nature and the people.

WORKING GROUP 9

FOOD SECURITY ON THE BRINK?

Global food security is facing multiple challenges: undernourishment, poverty and the need to feed a growing world population; industrial crop and meat production; price speculations on globalised food markets; competition for energy and land; degradation of fishery, soil and water resources; and climate change as a risk multiplier. Complex food crises may contribute to economic, social and political destabilisation, as demonstrated by the cascading events of the Arab Spring. A viable transformation of the food system requires new governance mechanisms and enabling frameworks for a resilient climate-smart agriculture and sustainable food security.

Moderator: **Jürgen Scheffran**, University of Hamburg
Speakers: **Andrew Cox**, U.N. Habitat
Ruerd Ruben, Wageningen University
Rapporteur: **Shirleen Chin**, Institute for Environmental Security
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

The World Food Summit (WFS) of 1996 defined food security as existing "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life". Commonly, the concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences. In many countries, health problems related to dietary excess are an ever-increasing threat. In fact, malnutrition and food borne diarrhoea have become a double burden.

Food security is built on 3 pillars:

i. Food availability: sufficient quantities of food available on a consistent basis;

ii. Food access: having sufficient resources to obtain appropriate foods for a nutritious diet; and

iii. Food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

The radical improvements in agricultural productivity over the last few decades suggest that food production is sufficient to feed everyone on earth. However, dealing with the effects of climate change on food security must become a priority in climate adaptation plans. This includes enhancing agricultural productivity to make them more resilient and stabilise harvest yields. Unfortunately, many poor countries in Africa and elsewhere do not yet have adequate institutional, financial and human resources to deal with the problem.

Climate-change as the "hunger-risk multiplier"[32]

Climate change will affect food security, making climate change an unprecedented threat to food security of millions of people around the globe. Extreme climate events affect the production of crops and future climate change threatens to exacerbate this. Food access is affected by climate change, because prices of major crops could increase leaving the most

[32] Food and Agriculture Organisation (FAO), 'Climate Change, Food Security and Nutrition' http://www.fao.org/fsnforum/forum/discussions/climate-change-and-fsn

vulnerable people – who use most of their income on food – would have to sacrifice additional income to their nutritional requirements. Food utilisation is affected since climate-related risks can affect the calorie intake creating/continuing a vicious cycle of hunger and disease.

The latest scientific evidence suggests that climate change, climate variations will intensify existing threats to food security and livelihoods through a combination of more frequent and intense climate hazards, diminishing agricultural yields and production, and intensifying competition over scarce resources.

Climate impacts on food production has had plenty of instances in the past and are likely to worsen in the near future as a result of climate change. Indeed, unprecedented swings in rainfall and temperature patterns have caused a shift in planting seasons and in the types of crops that can be successfully grown. Ruined harvests and diminishing yields have contributed to higher food prices and food insecurity. The World Food Programme (WFP) estimates that "the risk of hunger and child malnutrition could increase by up to 20 percent due to climate change by 2050".

- In **Southern Africa**, uncharacteristic and erratic rainfalls in 2014/2015 are expected to cause a decrease in regional crop production.
- In **Central Ethiopia**, early season dryness worsened during April, which resulted in large rainfall deficits. The crop production and pasture development was damaged, leading to below average harvests.

Land Challenges[33]

The global population is facing a range of large-scale challenges, which create increased competition and conflict over land at the transnational, national, sub-national, local and family levels. This will increase over the next decades.

By 2050 the world's population will grow to around 9.6 billion people, with a population growth rate of 1 billion every 12 years. More than 50 percent already live in urban areas. All these people will need access to land and have to be fed in a sustainable way. The impact of this growth will be the greatest in the developing world, and particularly in Africa, where large-scale urbanization is expected. In 2010, 40 percent of the population in developing countries was under 15 and young people (15-24 years) account for another 20 percent. Young people are the least likely to have secure tenure (UN-Habitat/GLTN) and are a key vulnerable group. They are also the most likely to engage in conflict.

Population growth, urbanisation, and the impact of climate change make ensuring food security a fast increasing challenge. FAO estimates that 805 million people were chronically undernourished between 2012 and 2014, particularly in sub-Saharan Africa and Asia. Climate change could reduce food production growth by 2 percent each decade for the rest of this century (IPCC). The President of the United Nations Security Council noted his concerns in 2011 when he said that, "possible adverse effects of climate change may, in the long run, aggravate certain existing threats to international peace and security." Shifting global development needs and patterns increase the pressure on large-scale exploitation of natural resources, which often competes with the needs of local communities. Conflict often strengthens the power of elites over land, as they take advantage of weak institutions and rule of law to increases their land holdings.

[33] Extract from: United Nations, *Land and Conflict: Towards UN System-Wide Engagement at Scale Phase 1: Scoping and status study* (2015) (internal working document)

As a result of these trends, large numbers of people are likely to be forcefully displaced, evictions will increase, and an upsurge in migration is likely by people in search of food security and livelihoods. In the absence of planned urbanisation, slum development will continue to spread. Rural areas, including agricultural areas, risk becoming increasingly dysfunctional. Women, children and other vulnerable groups (for example Indigenous Peoples) will be affected the most.

Until today, dealing with land and conflict was made very difficult as conventional land administration systems are very expensive, technically complex and very slow to put in place. As a results, they cannot be scaled up easily to facilitate conflict resolution, peacebuilding and of unlocking development potential. Most developing countries have less than 30 percent coverage in terms of land registration (cadastre) and it would take more than 600 years to get complete coverage at the current rate. Those addressing land and conflict have been frustrated because land administration systems are critical to the protection of land rights.

2. RESPONSES

72 out of 192 countries have reached the MDG 1, 29 of which have also reached the more ambitious WFS goal. The latest estimates indicate that about 795 million people – just over one in nine – were undernourished in 2014 -16 which is a decrease of 216 million people suffering hunger in 1990-92.

The Members of the United Nations (UN) have made 2 major commitments to tackle world hunger and thus *inter alia* increase food security. First in 1996, at the World Food Summit (WFS) in Rome when 182 governments committed themselves to "eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015". Second in 2000, when the UN formulated the Millennium Development Goals (MDG) and included among its targets "cutting by half the proportion of people who suffer from hunger by 2015".

The year 2015 marks the end of the monitoring period of both these major internationally agreed targets and inevitably raises the question of how well the international community did in achieving those targets.

Overall, there has been considerable progress towards the eradication of hunger. But much work remains to be done in order to achieve food security.

After 2015 the MDGs will be replaced by a new food security agenda. The post-2015 agenda entails a set of 17 Sustainable Development Goals (SDGs) "to end poverty, fight inequality and injustice, and tackle climate change by 2030", which have been adopted by the United Nations Sustainable Development Summit in September 2015. The SDGs, or known as Global Goals, build on the MDG, but call for a broader sustainability agenda. As such the SDGs go much further than the MDGs by addressing the root causes of poverty and the universal need for development.[34] SDG Goal 2 is to "end hunger, achieve food security and improved nutrition, and promote sustainable agriculture".

[34] United Nations Development Programme (UNDP), 'Sustainable Development Goals (SDGs)' http://www.undp.org/content/undp/en/home/mdgoverview/post-2015-development-agenda.html

There are also important international efforts to work towards a food secure world for everyone. The WFP is part of the United Nations system and has been pursuing a vision of the world in which every man, woman and child has access at all times to the food needed for an active and healthy lifestyle. The WFP works towards that vision with other UN agencies – the Food and Agriculture Organisation (FAO). FAO acts as a catalyst and facilitator, its main role is to help countries identify, formulate and implement national and regional food security programmes, drawing on FAO's corporate capacities and engaging other partners and donors. The FAO's Special Programme on Food Security (SPFS) aims to improve food security within poor households through National Programmes for Food Security (NPFS) and Regional Programmes for Food Security (RPFS). All programmes are developed by participating governments.

The FAO programme on climate-smart agriculture (CSA) is an integrative approach to address the interlinked challenges of food security and climate change. The ultimate goal is to build resilience while protecting the environment and reducing greenhouse gases. The CSA Sourcebook documents good practices in management and governance of production systems as well as options for enabling environments to facilitate the transition from conventional production and harvesting practices, to practices that promote higher sustainable production, sustainable livelihoods and improved resilience of food production systems.[35]

The United Nations System Network on Rural Development and Food Security is a global partnership approach towards tackling rural development challenges at the country level. Established in 1997 by the United Nations Administrative Committee on Coordination (today United Nations System Chief Executives Board for Coordination), it brings together key actors for the achievement of the shared goals of 'food for all' and rural poverty reduction.

The Committee on Food Security (CFS) is the UN's intergovernmental platform to review policies concerning world food and bring stakeholders together. In addition, in response to the severity of the food crisis and the need for prompt action, the World Bank Group set up the Global Food Crisis Response Program (GFRP) in May 2008 to provide immediate relief to countries hard hit by food high prices. The Bank's response has been articulated in coordination with the United Nations' High-Level Task Force (HLTF) on food security. Through its response, the Bank is supporting the implementation of the joint Comprehensive Framework for Action (CFA).

Many countries in Africa are adopting specific initiatives to promote resilient farming systems and increase food security. For example, communities in Zimbabwe and Ethiopia are using traditional knowledge to cope with climate change. The African Union (AU) has launched the Comprehensive Africa Agriculture Development Program (CAADP) to bring about a sustainable increase in food and agricultural productivity. Regional Economic Communities have also developed food security programmes.

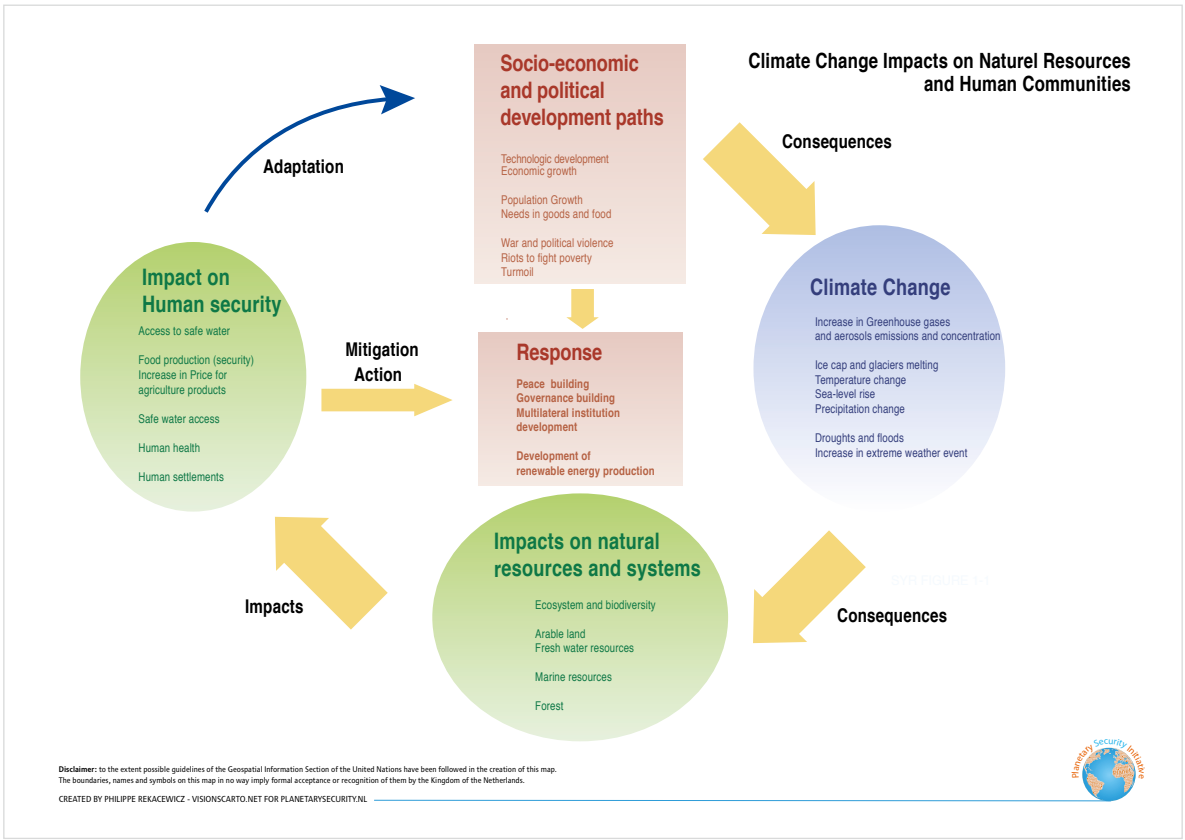
Many countries have adopted the AU declaration of investing 10 percent of the national budget in agriculture and rural development. They have also signed the CAADP Compact, and formulated National Adaptation Programs of Action (NAPA). Nevertheless, more must be done to avert the potentially disastrous consequences of climate change. The participants at the Africa, Climate Change, Environment and Security (ACCES) Dialogue Process Forum in Addis Ababa agreed in 2010 that high priority should be given to addressing the impact of climate change on food security.

[35] FAO, 'Climate Smart Agriculture' *http://www.fao.org/climate-smart-agriculture/en/*

A European Parliament (EP) resolution on EU agriculture and climate change[36] recommends measures to help EU agriculture adapt to the effects of global warming. The resolution states that the EU must develop a coherent strategy for agriculture to adapt to the two kinds of adverse climatic effects anticipated: overall global warming, and more marked variations in climate conditions resulting in an increase in extreme weather events. In its draft report on an "EU policy framework to assist developing countries in addressing food security challenges",[37] the Committee on Development processed a series of appropriate measures.

3. FURTHER READING

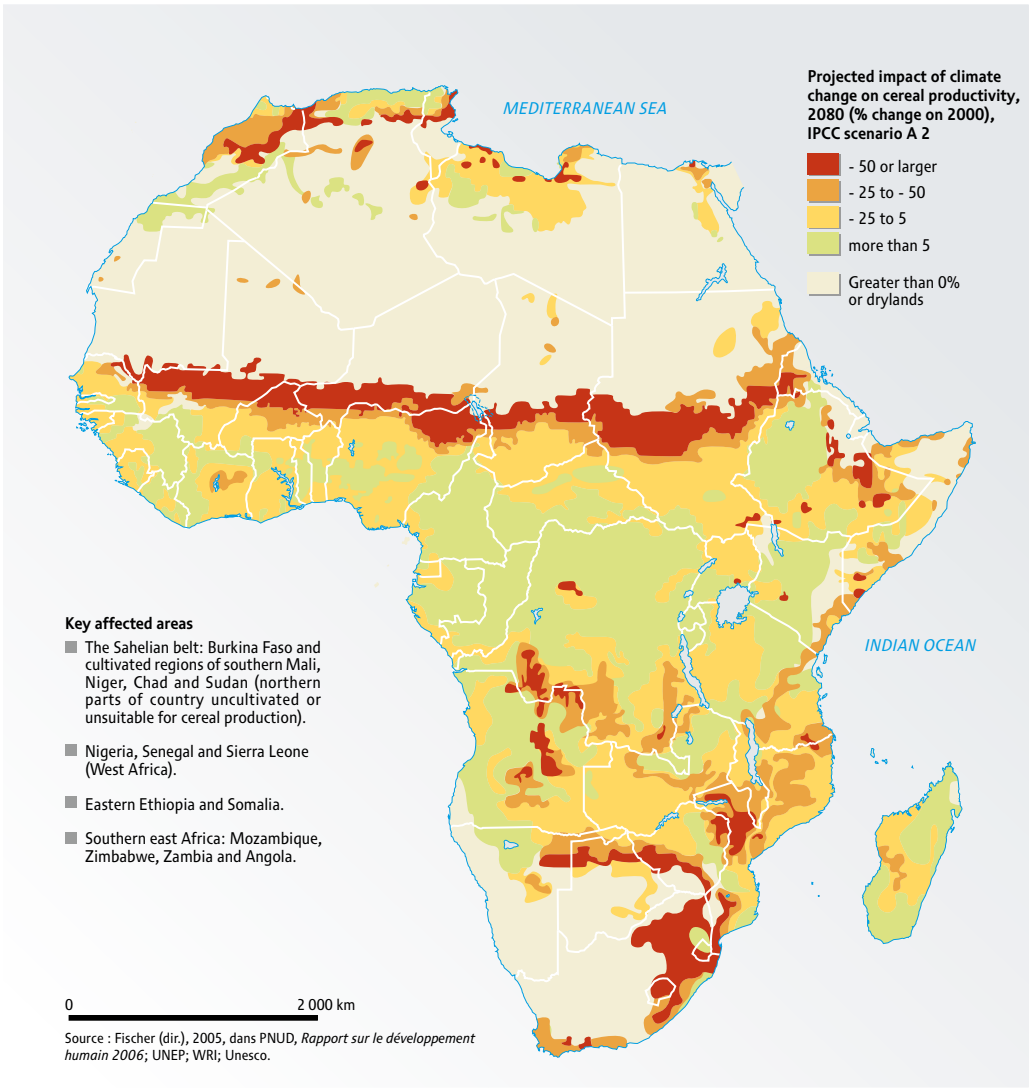
- Food and Agriculture Organisation (FAO), *The State of Food Insecurity in the World* (2015) *http://www.fao.org/3/a-i4646e.pdf*
- World Food Programme (WFP), *Global Food Security Update – Tracking Food Security Trends in Vulnerable Countries* (Issue 18 – April to June 2015) *http://documents.wfp.org/stellent/groups/public/documents/ena/wfp275824.pdf*
- The Africa, Climate Change, Environment and Security (ACCES) Dialogue Forum and Process, *Climate Change and Security in Africa: Vulnerability Discussion Paper* *http://www.africa-eu-partnership.org/sites/default/files/documents/doc_climate_vulnerability_discussion_paper.pdf*



[36] European Parliament Resolution of 5 May 2010 on EU agriculture and climate change *http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P7-TA-2010-0131&language=EN*

[37] European Parliament Draft Report of 11 May 2011 on an EU policy framework to assist developing countries in addressing food security challenges *http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+COMPARL+PE-448.856+01+DOC+PDF+V0//EN&language=EN*

Cereal productivity in Sub-Saharan Africa under a scenario of the IPCC that shows CO_2 atmospheric concentrations a level at 520-640 ppm by 2050



Source : Fischer (dir.), 2005, dans PNUD, *Rapport sur le développement humain 2006*; UNEP; WRI; Unesco.

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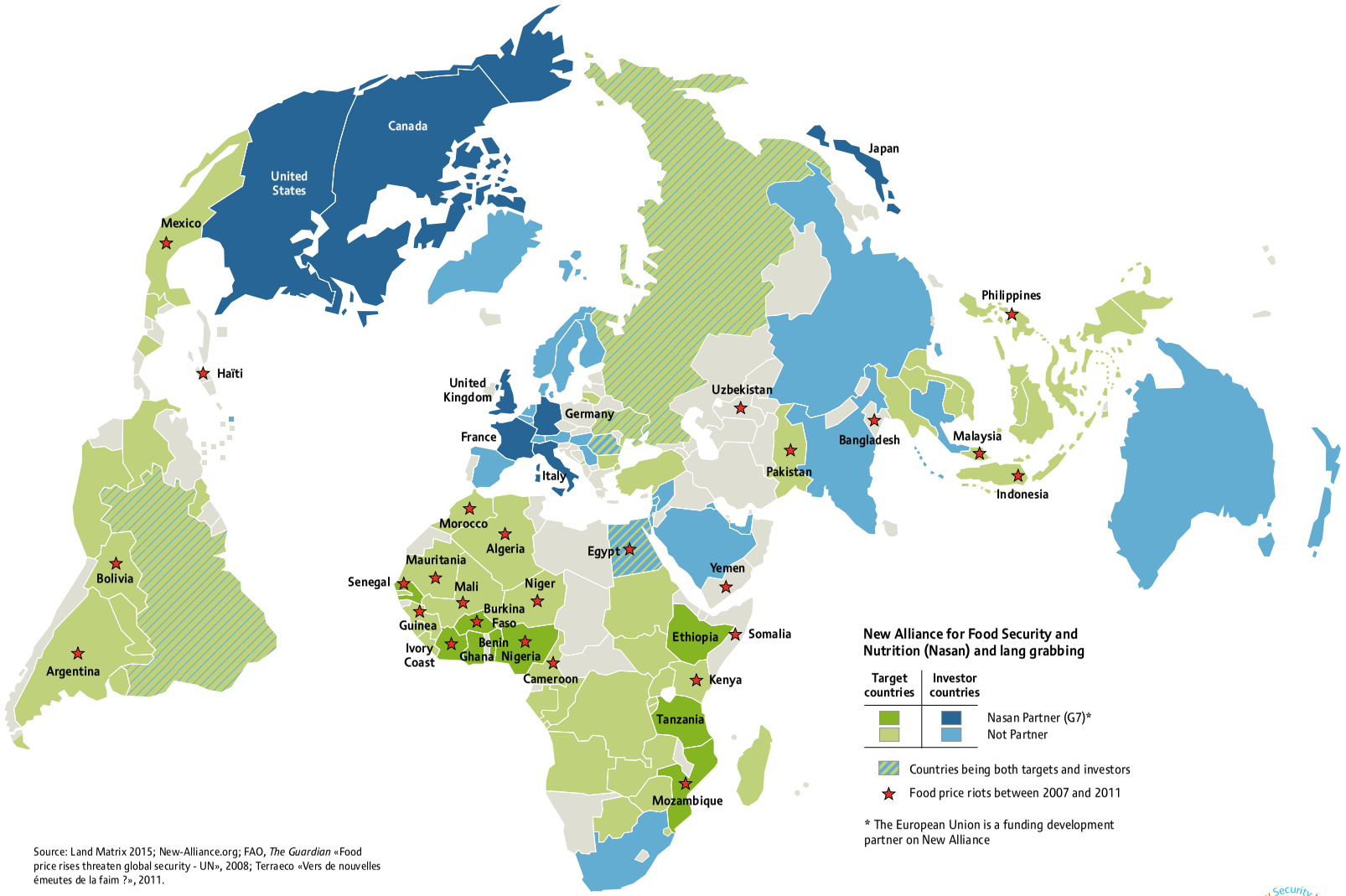

Source: Land Matrix 2015; New-Alliance.org; FAO, *The Guardian* «Food price rises threaten global security - UN», 2008; Terraeco «Vers de nouvelles émeutes de la faim ?», 2011.

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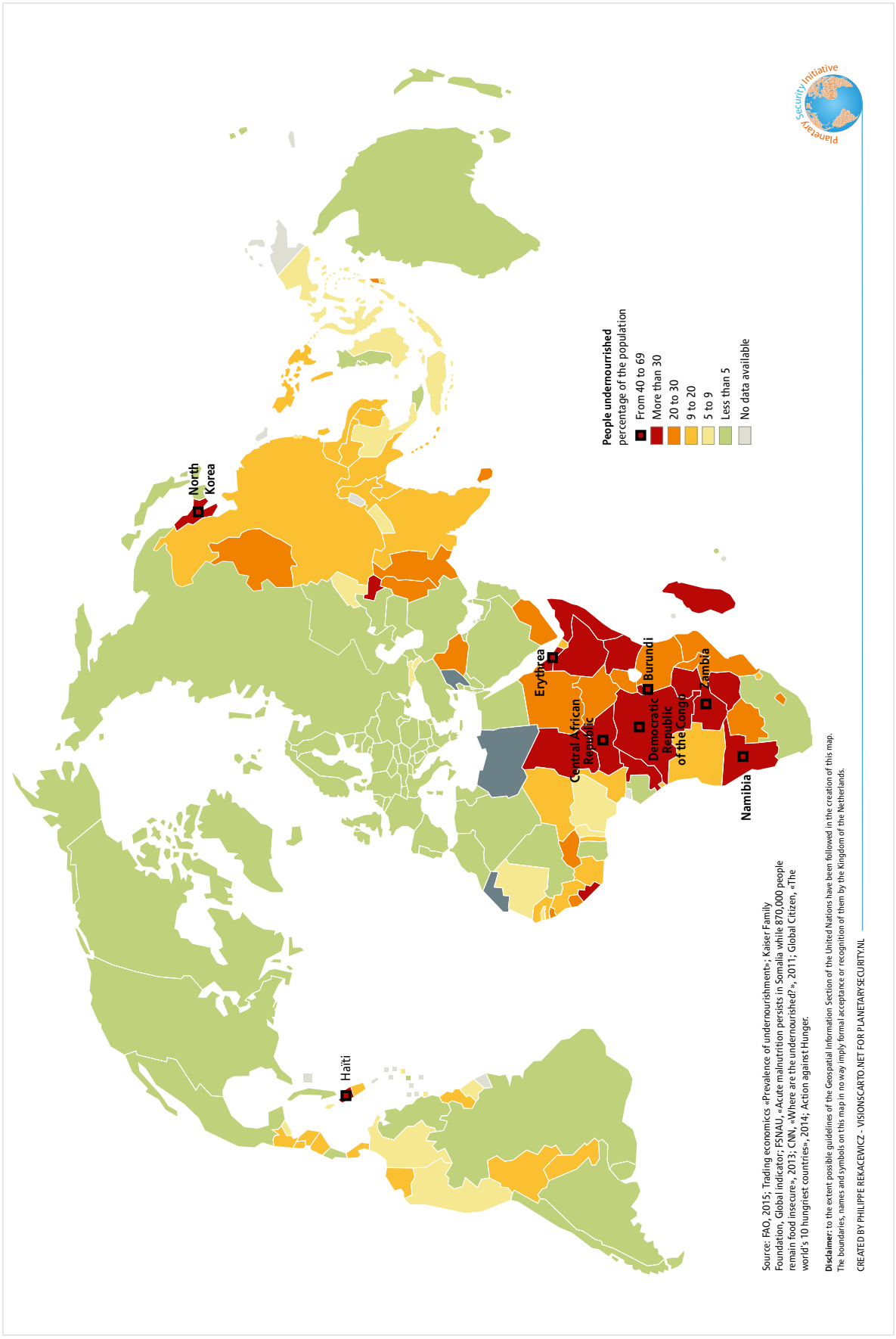

Source: FAO, 2015; Trading economics «Prevalence of undernourishment»; Kaiser Family Foundation, Global indicator: FSNAU, «Acute malnutrition persists in Somalia while 870,000 people remain food insecure», 2013; CNN, «Where are the undernourished?», 2011; Global Citizen, «The world's 10 hungriest countries», 2014; Action against Hunger.

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4. ANALYSIS / CONCLUSIONS AND RECOMMENDATIONS

Globally, there have been some positive developments in food security. This has been partly due to improved adaptation strategies and technological advancements. Food production has increased and so has yield production in several crop types. There has also been a decrease in undernourishment worldwide when one compares it to the percentage of the global population.[38] In addition, income in the agricultural sector has also risen. Insofar as the 1990-2015 World Food Summit goal to half the number of undernourished people is concerned, much progress can be observed in South America and a few states in Africa, Central Asia and for the most part, in China (see Figure 1). However, the question remains as to whether these improvements can meet the demands of the growing world population that is projected to reach 9.6 billion in 2050.

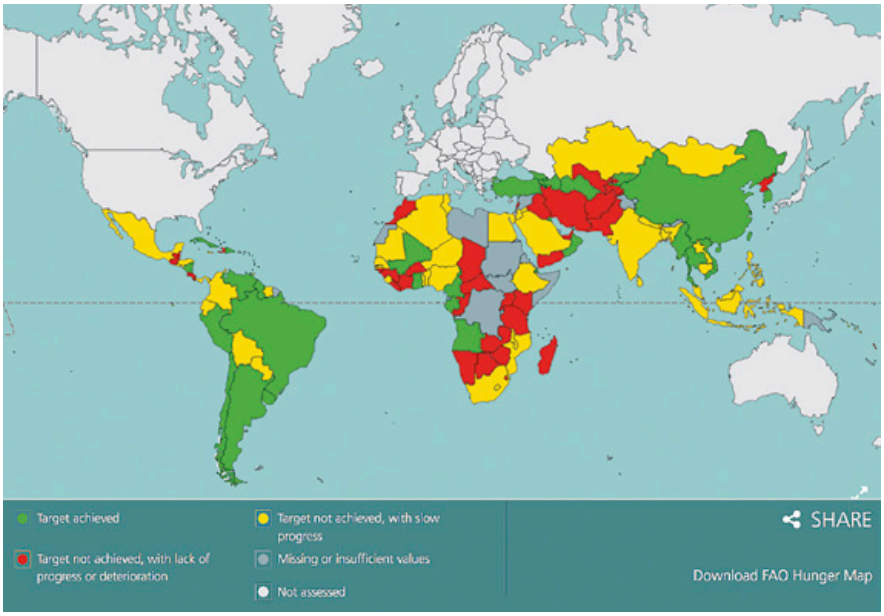


Figure 1: *The FAO Hunger Map 2015*

Despite these positive developments, food security still faces major challenges. The Working Group attempts to shed some light on some of these challenges and in some instances, offers some recommendations.

Stress Factors

Climate change is but one of the many challenges to food security. Its factors include the shifting of environmental conditions such as temperature variability, changes in precipitation and extreme weather events. Together with the main factor of climate change, which is the increased carbon concentration in the atmosphere, these will have an impact on plant growth. According to the latest report of the IPCC, without adaptation, the yields of wheat, rice and maize in both temperate and tropical regions would decline. However, the impact of climate change is not geographically uniform and may have large impacts in the tropical regions of the world where adaptation measures could be less efficient. This can be a problem in more populous parts of the world.

[38] Problems of undernourishment and stunting still remain prevalent in many countries and these are particularly concentrated in rural areas.

The multiplying effects of climate change cannot be stressed more. **Droughts or groundwater depletion** as a result of climate change could lead to soil and land degradation. Population can become frustrated as a result of the loss of access to water, which used to be there for irrigation purposes. If the availability of water declines, it can have a negative effect on food. Similarly, if food production declines, it can have a negative impact on energy, for instance where biofuels are concerned. This points to the need to study the nexus of energy-water-food under changing climatic conditions in more detail (see section on "Ambiguous Linkages in the Food Security Nexus").

As the world grows, the **consumption of meat and dairy produce** also grows, and this is a major driver of climate change as well as a stress factor on climate vulnerable countries. Compared to crop production, the production of meat uses an incredible amount of energy and water. For example, it takes more than 15,000 litres of water just to produce 1 kilogramme of beef. The increasing demand for meat and dairy produce also requires more land resources, which leads to the next paragraph on land.

Land has been acknowledged by the United Nations as one of the triggers of conflict and insecurity. There have been historical grievances over land, particularly with regard to differentiated access to economic and natural resources. Link that to food security and one can see that land has driven major historical events in political and security-related conflicts. For example, in Tunisia where the Arab Spring started, land and food security became intertwined, driving people into cities where there was lack of opportunities, work, access to food. The most food insecure are those with the least amount of land, or the least amount of control over our land, such as smallholders living on marginal land, the rural landless, pastoralists and fisher folks, those living off forests and rural migrants in peri-urban slums. The issue of land rights was discussed in this Working Group and whilst there is a general belief that peasant farmers or smallholder farmers should have access or rights to land, these rights do not necessarily commensurate with the interests of the community.

- **Land reform** or the redistribution of land has proven to be an effective way to deal with conflict prevention. In Mexico, lands in hand of a few powerful elites were redistributed back to the majority of the population from as early as the 20th century.

- Farmers who have limited resources should be given the **right tools** to move as far up the scale of the freehold continuum as possible (see Figure 2 for the Continuum of Land Rights).

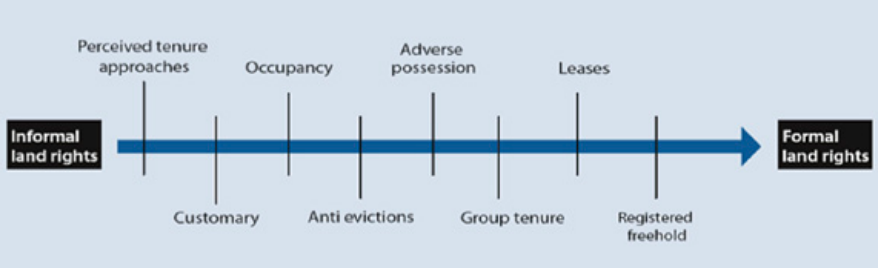


Figure 2: *The Continuum of Land Rights was adopted at the 2011 UN-Habitat Governing Council resolution by member states and is now widely accepted by the development community*

- As the struggle over land is increasing, **dispute resolution mechanisms** have to be in place if progress is to be made on capacity or long-term development.

- Effective land policies define how resources and benefits are to be allocated based on principles of justice. As this is a big governance question, this then implies that land policies are to be developed through **a process that involves all major stakeholders**.

- **The rights of the individual and the responsibilities towards the community need to be balanced.** This is a precondition for justice.

There is **structural underinvestment in agriculture**, particularly in African agriculture. The Maputo Declaration established that governments in Africa should allocate at least 10 percent of their national budgets to investment in agriculture. However, only a few countries complied. As a consequence, agriculture growth in Sub-Saharan Africa is relatively low. It is far below the 6 percent that is needed to guarantee continuous supply of food for the local population. The boost in agriculture productivity and availability is technically feasible but cannot be realised due to low investment.

- The stability of food supply and food prices are seriously challenged by shallow rural markets and further reinforced by climate change. It is therefore important to intensify exchange relations within regional and (inter)national value chains, and to **increase public investments in rural infrastructure** in order to control transaction costs, to reduce post-harvest losses and to enhance agency coordination.

- Regional trade restrictions are sometimes so high that it is easier for countries in Africa to import food from Europe than to trade regionally. This is an area where substantial **political investment** might be useful.

There are some events associated with climate change that have been attributed to **food price variability** as a result of the drop in crop productivity. Particularly in 2008 and 2011, this contributed to riots and political unrest in parts of Asia and Africa. While there is still some debate going on whether the rise of food price and the Arab Spring were related to climatic events that happened before, one cannot ignore that there were weather-related harvest losses in the United States, Russia, China, Australia and the Sahel region in the corresponding years, including deficient monsoon rainfall in India.

Governments that try to reduce food prices to consumers are usually not favouring the people that should be favoured. Rather, it ends up with the middle classes and not the poorer households. Hence there should be an **effective policy against discriminatory distribution**.

Ambiguous Linkages in the Food Security Nexus

Considering the factors above, food security issues cannot be solved alone but are embedded into a very **complex nexus of interactions** of food security with issues of energy and water availability, access to land rights and food price volatility. In this nexus many of the linkages are ambiguous where the outcome depends on circumstances and human responses, which decide whether the linkages have negative or positive effects, representing conflictive or synergistic relationships.

- It was already mentioned that **food price increase** possibly contributes to food riots, partly because it may weaken consumers who then have to spend more of their income on food consumption. On the other hand, food price increase may strengthen the income of producers in rural areas or developing countries, whether they are powerful multinationals or smallholder farmers. Hence, for producers, the increase in price is beneficial but for the consumer, this becomes a negative experience. Future research in this area would study this dual relationship and explore the possibility of finding a balance.

- Then there is also the relationship between food insecurity and **human migration**, which includes internal displacement, such as the movement from rural to urban areas, and international migration. This could be a result of many factors including, the impacts

of climate change on traditional income from agriculture or simply not having enough control over one's own land. Much of the move to urban areas can be an enriching experience for some, as people pursue better lives for themselves and their children, join the white and blue-collared workforce, benefit from educational institutions and gain access to basic services. On the other hand, the integration of immigrants could fail, e.g. if they end up in slums or run into competition on food among themselves or with local population.

This highlights that unplanned urbanisation can reduce food security but a system of **planned and sustainable urbanisation**, which includes planned city extensions, national urban policies etc. can be used as an engine for national and equitable growth. One needs to shift away from spontaneous urbanisation where you have low land and food security and massive externalities to viable pathways of urbanisation based on **deliberate forethought and anticipation**. If cities are planned and managed properly, one will see benefits on food security.

- In the same way, one can also see the benefits on economic development. There is a lot to be gained from a properly designed, **compact city**, which facilitates a more efficient and synergistic nexus of energy, water and food than a spread out city, e.g. taking benefit of the proximity between residential and commercial areas or less food wastage because of more efficient consumption.

- **Land rights** are also a possibly ambiguous term. In principle, it is good to have strengthened land rights for farmers but this could lead to eventual privatisation and the accumulation of capital in the rural area. This means that the power structure may lead to only a few farming companies, which then replace small-scale farmers. This highlights the need to **match land rights with land responsibility** by balancing the individual interest with the community interest in rural areas.

From Negative to Positive Linkages: Viable Governance of Food Security

Judging the negative and positive aspects of food insecurity related impacts on pricing, urbanisation and land rights, one could be in the position to develop positive relationships from the opportunities that present themselves. It is a task of viable governance frameworks to develop concepts and mechanisms that avoid negative linkages and conflicts and strengthen the positive ones as part of a viable governance framework of food security.

Firstly, as regards to food pricing, solutions can be created to strengthen the marginalised individuals who are set to benefit from high income from lesser yields whilst dampening the impact of rising prices on the least income-abled communities.

Secondly, there is a need to make individual and community interests compatible vis-à-vis food security and land security. By balancing the rights of the individual and the responsibilities towards the community, one will also be strengthening justice. Otherwise one will have the risk of a situation where power lies in the hands of the few who do not necessarily take the interests of the community into consideration.

Thirdly and lastly, while technology has played a prominent role in the transition towards viable food security, it does not stand-alone. Technological solutions should not stand-alone but need to be coupled with political, social and economic solutions. For example, food production in deserts using desalination plants (e.g. in Saudi Arabia) currently run on fossil fuel but to be sustainable and economically feasible in the long-run, alternatives could be developed using solar power that is more environmentally friendly and compatible with the climate. Such a change may be still compatible with the existing political and economic circumstances.

WORKING GROUP 10

WATER DIPLOMACY FOR PEACEFUL CLIMATE ADAPTATION

The purpose of the session was to explore how the efforts of water diplomacy at multiple levels can contribute to more effective resilience and adaptation to climate change. Climate change has long-term and short-term impacts whereby climate variability can result in increased frequency of droughts and flooding. Flooding in particular plays a fundamental role in regional identity and presents a window of opportunity for mutually beneficial regional cooperation. The panel and audience discussion centred on the question of how water diplomacy improves the ability to adapt to climate change and follow the path of cooperation rather than conflict, (globally and in the South Asia region, in particular).

Moderator: **Torgny Holmgren**, Stockholm International Water Institute
Speakers: **Ahmad Rafay Alam**, Saleem, Alam & Co. / Punjab Environment Protection Council
Jenny Clover, Independent Consultant
Malin Mobjöck, Stockholm University
Jamie Pittock, The Australian National University
Aaron Salzberg, U.S. Department of State
Rapporteur: **Syed Muhammad Nishat ul Hassan Kazmi**, Centre for Research and Security Studies / Institute for Environmental Security
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

The challenge is in understanding and unpacking the nexus of water-food-energy and the environment and how the trade-offs can be negotiated to support sustainable development. Water has been described as the bloodstream of the biosphere;[39] it is fundamental in agricultural production and is an essential component in the generation of many types of energy. Nexus thinking promotes an understanding of the connections between water, food, energy and the environment and how any action in one of these sectors impacts and influences the other sectors.

The World Economic Forum (WEF) articulated the water-food-energy security problem as follows:

"A rapidly rising global population and growing prosperity are putting unsustainable pressures on resources. Demand for water, food and energy is expected to rise by 30 to 50 percent in the next two decades, while economic disparities incentivise short-term responses in production and consumption that undermine long-term sustainability. Shortages could cause social and political instability, geopolitical conflict and irreparable environmental damage. Any strategy that focuses on one part of the water-food-energy nexus without considering its interconnections risks serious unintended consequence."

Water is therefore integrally linked to food, energy and the environment, and if it is addressed in isolation from these other sectors, and climate change in particular, the solutions to our water problems will be naive and almost definitely result in perverse outcomes, which could potentially weaken rather than strengthen water cooperation and diplomacy objectives.

[39] Rockström et al, *Linkages Along Water Vapor Flows, Food Production, and Terrestrial Ecosystem Services* (1999) http://www.ecologyandsociety.org/vol3/iss2/art5/main.html#Introduction

Some Facts:

- Approximately 276 river basins cross international borders and serve as a primary source of freshwater for approximately 40 percent of the world's population. Globally about 30 to 50 percent of the world's population depend on groundwater sourced from 608 transboundary aquifer systems. Around 60 percent of the world's international river basins lack any type of cooperative management framework. Sharing these water resources equitably and fairly requires cooperation at both the technical and political level.

- Global consumption of water is doubling every 20 years, more than twice the rate of human population growth. According to the United Nations, more than one billion people, or about one-sixth of the world's population, lack access to good quality drinking water. Of these one billion, the vast majority is living in developing states. If current trends persist, by 2025 the demand for water is expected to rise by 56 percent more than the amount of water that is currently available.[40]

- Each of the past three decades has been warmer than the last, and warmer than any decade since we started keeping records. Sea levels are rising. Arctic ice cover is shrinking. Crop yields are changing – more often than not, getting smaller. It has been getting wetter, and storms and heat waves are getting more intense. Climate change will make food systems more volatile, exacerbate health problems, displace people, weaken countries' infrastructures, and fuel conflict. It will touch every area of life. Economic growth will slow as temperatures warm, new poverty traps will be created, and we will find that poverty cannot be eliminated without first tackling climate change.[41]

2. RESPONSES

Climate change, in conjunction with other global pressures such as population growth, urbanisation, increasing demand, environmental degradation and uneven economic development and inequity, poses as a threat multiplier to transboundary water management and cooperation.[42]

Conflict over shared water resources has a long and fascinating history. Interestingly, there is a globally accepted misperception that the next wars will be fought over water.[43] On closer examination of the evidence, there are in fact more instances of international cooperation than armed conflict over water.[44]

Aaron Wolf and his colleagues, in their research "Basins at Risk", examined the relationship between change and the institutions in the context of transboundary waters.[45] They found that where change exceeded the institutional capacity to absorb change, the potential for conflict (not necessarily armed conflict) was heightened. Their study systematically examined conflictive and cooperative events and found that cooperation was the most likely outcome in most circumstances at a ratio of about 2 to 1.

[40] Institute for Environmental Security (IES), *Recent trends in EU external action in the fields of climate, environment, development and security* (2011) http://www.envirosecurity.org/resa/RESA.pdf

[41] Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014 Synthesis Report Summary for Policymakers* https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_SPM.pdf

[42] European Union Institute for Security Studies (EUISS), *EUISS Yearbook of European Security: Y-E-S 2015* http://www.iss.europa.eu/uploads/media/YES_2015.pdf

[43] Allan JA, *Water in the Environment/ Socio-Economic Development Discourse: Sustainability, Changing Management Paradigms and Policy Responses in a Global System* (2005) https://sustainability.water.ca.gov/documents/18/3334111/Water+in+the+Environment.pdf

[44] Yoffe S et al, *Geography of international water conflict and cooperation: Data sets and applications* (2003) http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.365.2469&rep=rep1&type=pdf

[45] Ibid

Two of the most obvious responses from a transboundary perspective at the international level, are the 1997 Convention on the Law of the Non-navigational Uses of International Watercourses, which entered into force in August 2014 and the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes (which recently broadened its membership to beyond the EU to a global audience). Other responses include over 400 signed international water treaties which cover a significant number of the world's transboundary watercourses[46] and in many cases cooperation is further institutionalised by the establishment of River Basin Organisations (RBOs) governing various aspects of shared water resources.[47]

Some of the basins that were identified as at risk by Yoffe et al (2003) are now no longer so classified, primarily as a result of institutional reform and the establishment of RBOs. There is, however, still much work to be done with regions at risk being those where there are unilateral development plans without cooperative mechanisms in place.

The Sustainable Development Goals (SDGs) can provide further impetus to the management of transboundary water resources directly through Goal 6.5, which states that by 2030 integrated water resources management should be implemented at all levels, and through transboundary cooperation as appropriate and indirectly through, among others, Goal 16, to promote peaceful and inclusive societies for sustainable development.

"[W]ar and armed conflict in the world is again climbing. Numbers of casualties in areas of struggle are simultaneously increasing and half of the world's poor live in conflict states".[48] Creating opportunities for international water cooperation can contribute to peacebuilding efforts; this is where the role of water diplomacy can play a significant role.

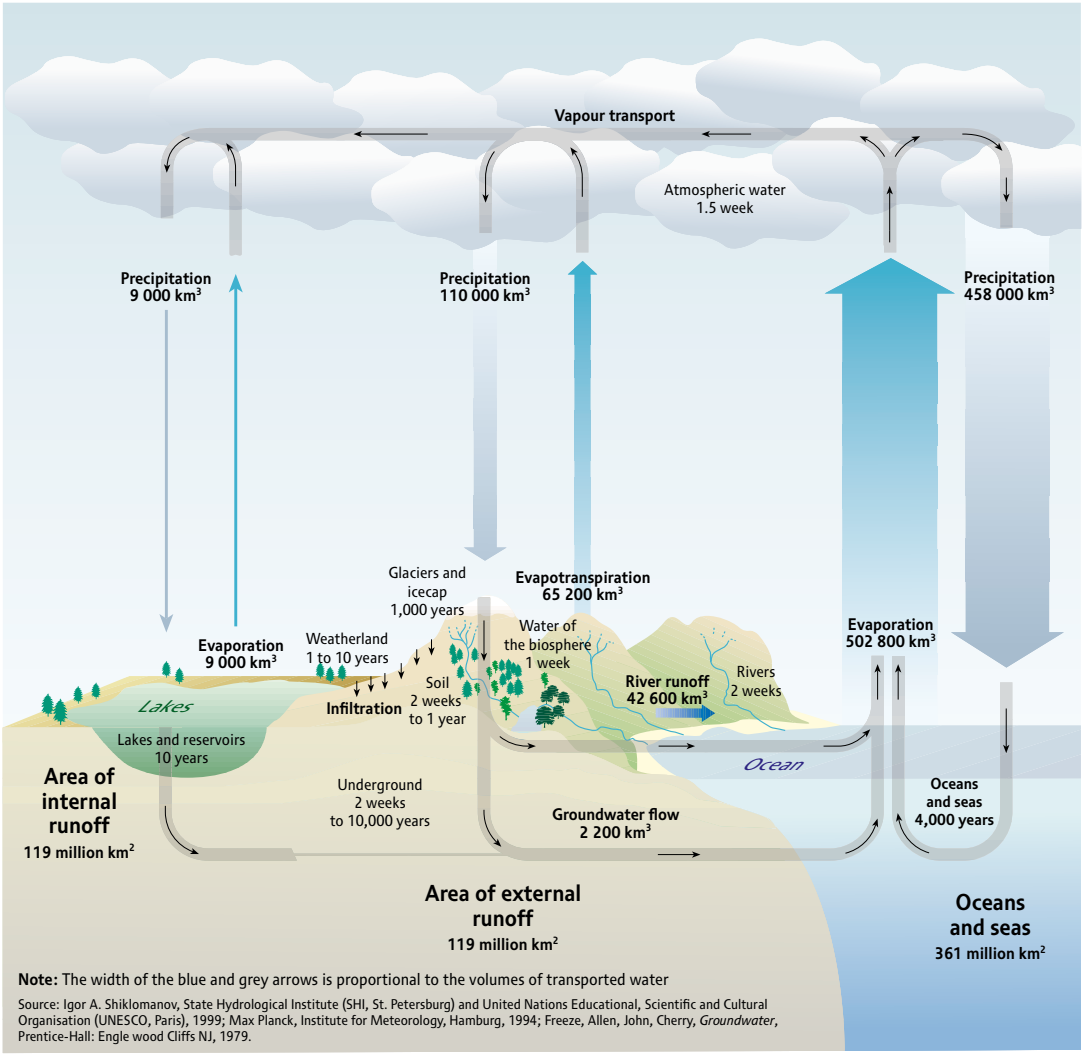
3. FURTHER READING

- World Economic Forum (WEF), Global Risks 2011 Sixth Edition: An initiative of the Risk Response Network *http://reports.weforum.org/wp-content/blogs.dir/1/mp/uploads/pages/files/global-risks-2011.pdf*

[46] Wolf A, *Regional Water Cooperation as Confidence Building: Water Management as a Strategy for Peace* (2004) *http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.132.2717&rep=rep1&type=pdf*

[47] Schmeier S, 'River Basin Organisations lost in Translation? Transboundary River Basin Governance between Science and Policy' (2014) in Bogardi J et al (eds), *The Global Water System in the Anthropocene: Challenges for Science and Governance* (2014)

[48] Folke Bernadotte Academy, 'Policy, Research and Development' (2015) *https://fba.se/en/how-we-work/research-policy-analysis-and-development/*

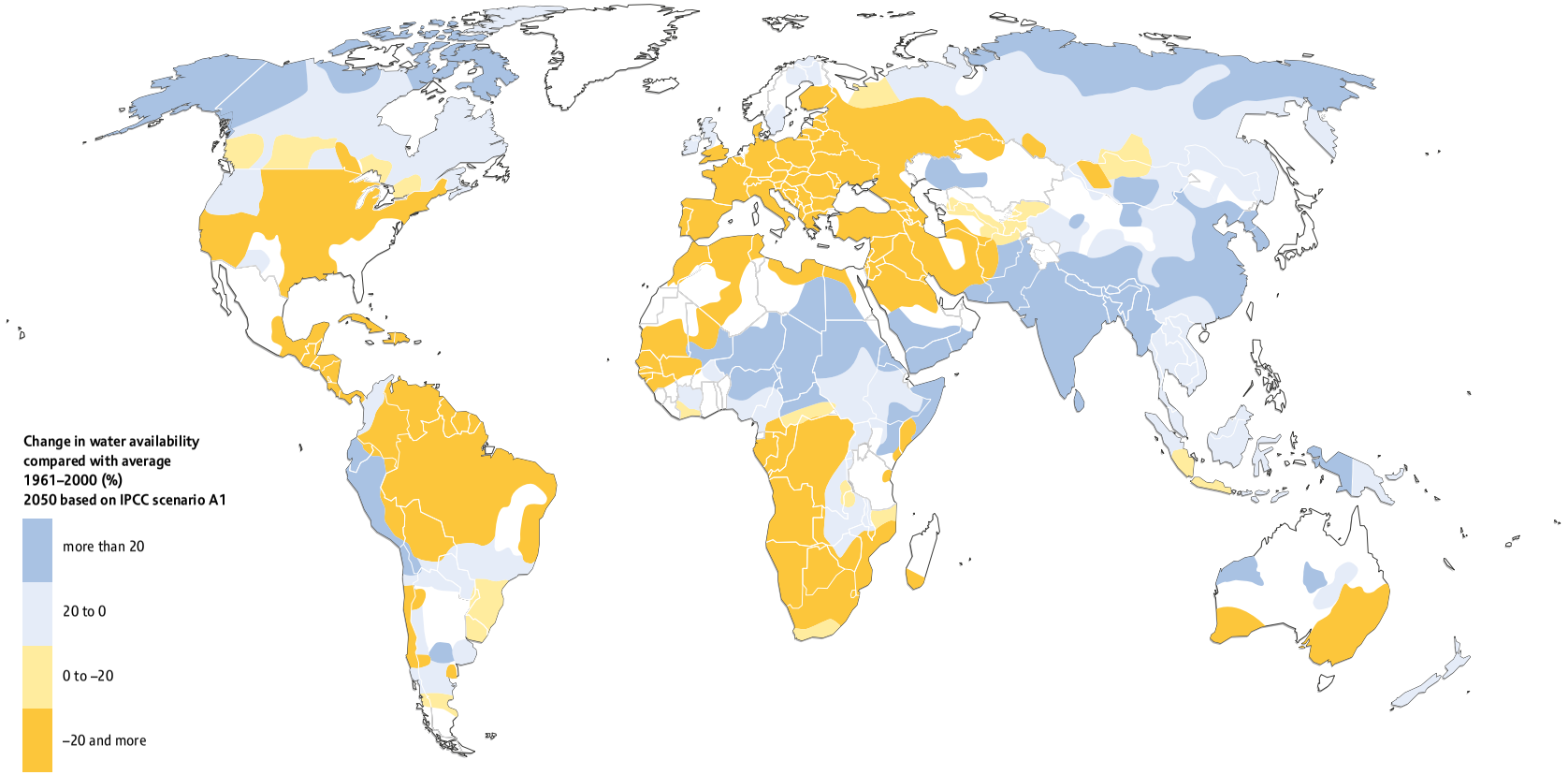


Note: The width of the blue and grey arrows is proportional to the volumes of transported water

Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris), 1999; Max Planck, Institute for Meteorology, Hamburg, 1994; Freeze, Allen, John, Cherry, *Groundwater*, Prentice-Hall: Engle wood Cliffs NJ, 1979.

CREATED BY PHILIPPE REKACEWICZ - VISIONSCARTO.NET FOR PLANETARYSECURITY.NL

Climate change will contribute to declining water availability



Source: Arnell 2004; WRI; FAO; Unesco.

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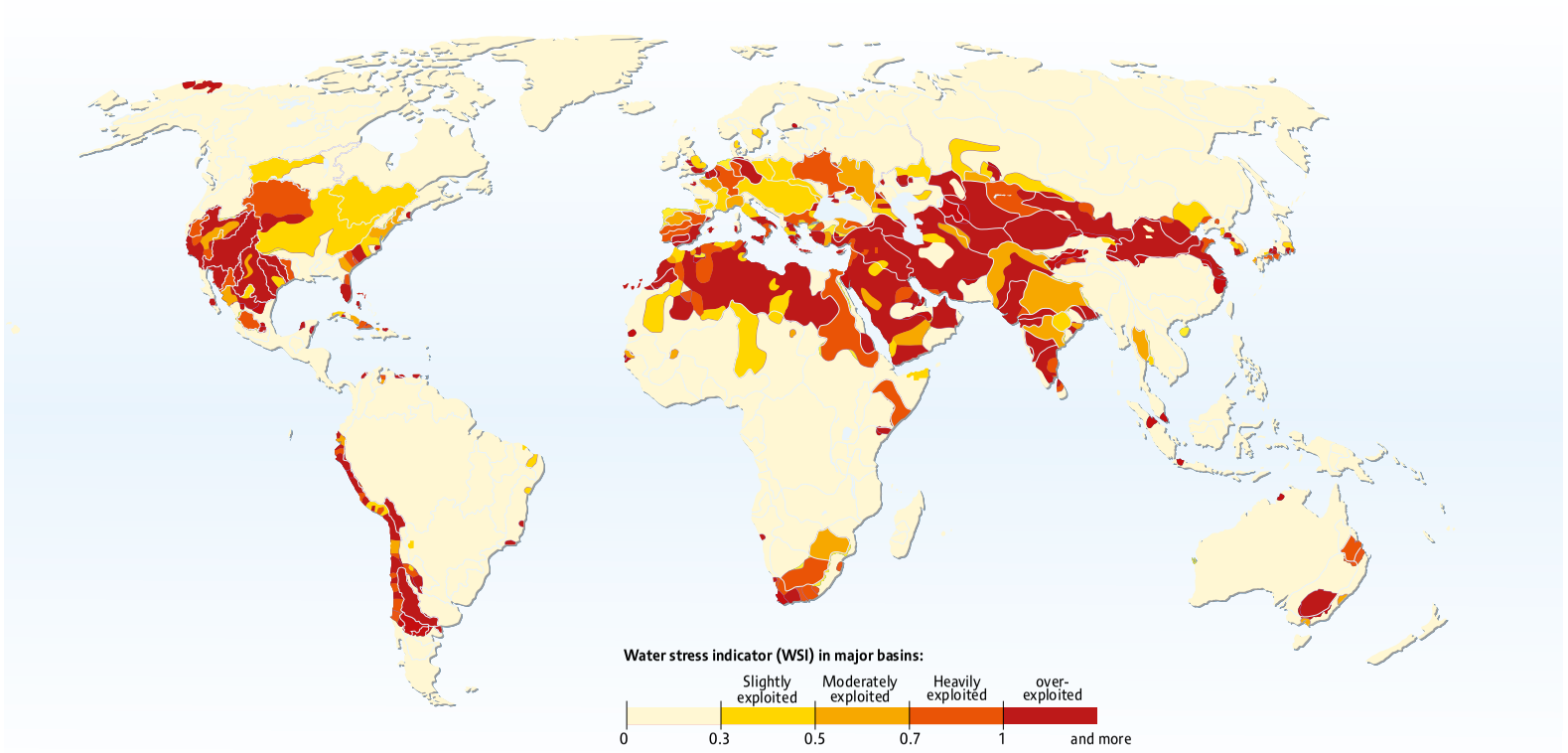

Sources: Smakhtin, Revenga and Döll, 2004; WRI; Unesco.

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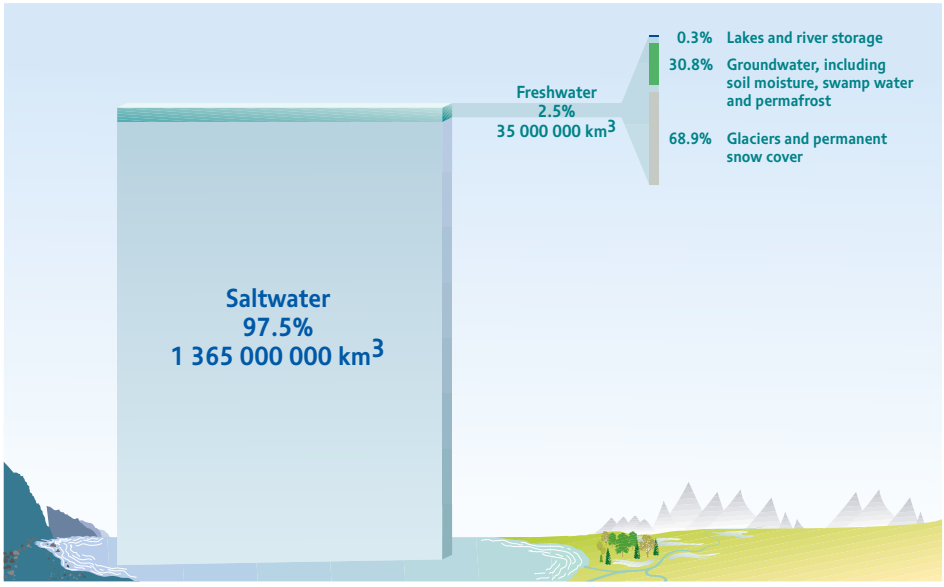

Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris), 1999.

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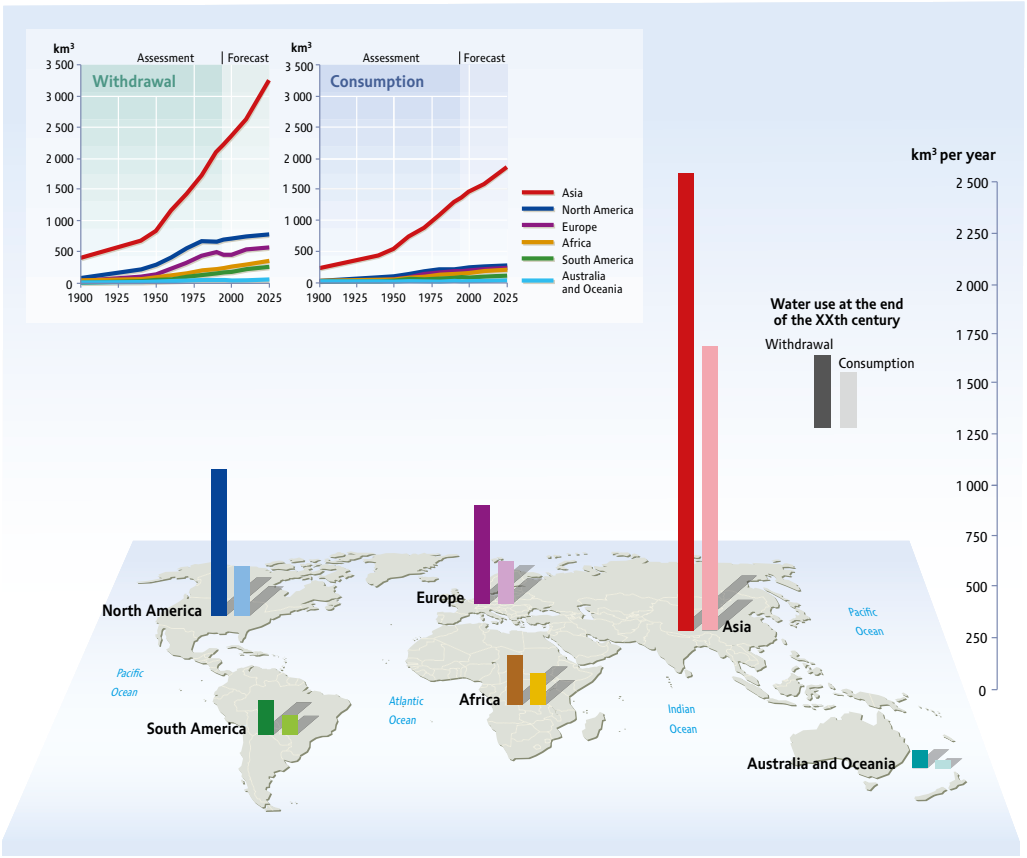

Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational,Scientific and Cultural Organisation (UNESCO, Paris); *World Resources* - various years (WRI).

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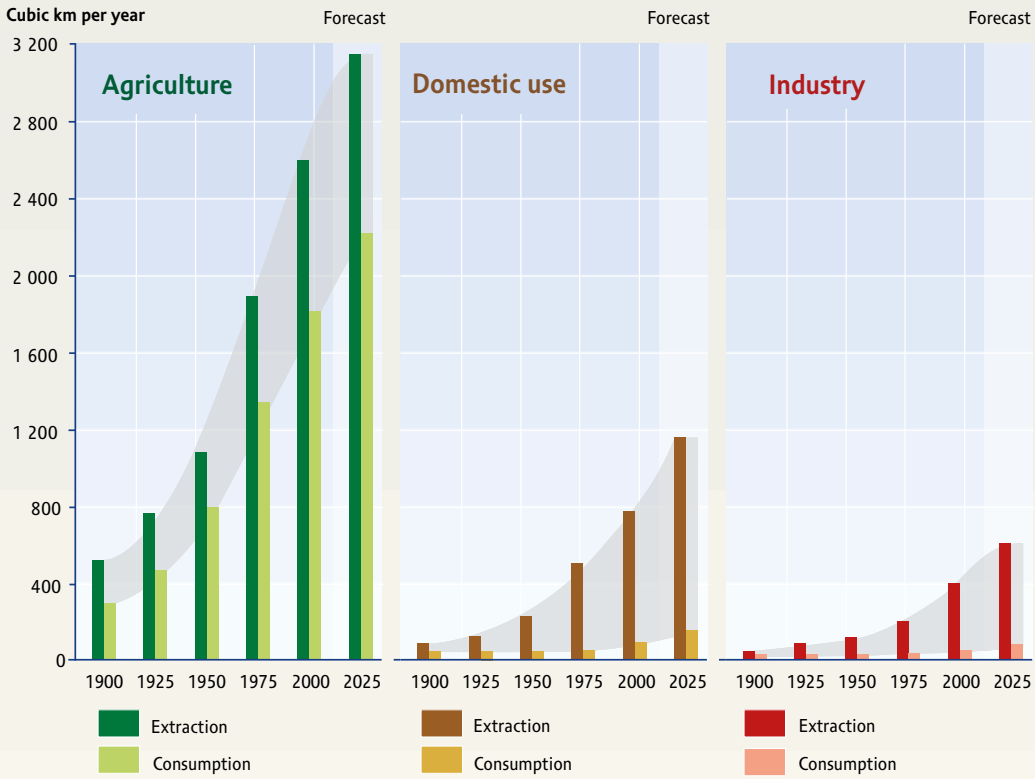

Source: Igor A. Shiklomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational,Scientific and Cultural Organisation (UNESCO, Paris), 1999; FAO; WRI; UNEP.

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4. ANALYSIS

The session started off with speakers raising fundamental questions such as how the effects of water diplomacy (can) complement adaptation efforts for climate change? How can the dialogue on climate change be more inclusive – incorporating voices from the top to intermediate as well as community levels? Speakers emphasised that while Sustainable Development Goals also include goals and targets on both water and climate change – cooperation would be required across all sectors to achieve success by 2030.

Speakers recognised that the changing climate will have both long-term and short-term security impacts. These impacts if not mitigated can have serious consequences for the world community at large. Several speakers expressed that not much has been achieved since the Conference of Parties at Copenhagen (2009) and even now there is not enough evidence of serious efforts on the global level to address the Climate Challenge. While security dimensions of climate change have been discussed at various fora since the Copenhagen talks – it is fundamentally important to ask the question: Whose security and whose interests will be impacted the most? Understanding on these fundamental questions is important to frame more coherent responses.

It was noted that global warming will also inflict changes on the existing fresh water resources – both on quantity as well as quality of these resources. Speakers reckoned that though there is evidence to support more cooperation in transboundary water issues through the world, new challenges demand new approaches: e.g. exploring water cooperation at the domestic level (within provinces/communities). Such approaches are likely to mitigate social stress and strengthen resilience in societies.

Speakers also reflected on the unintended impacts of climate change response policies on other sectors. A case study of Mekong River Basin was shared with the Working Group participants. The audience was informed that about 88 dams were planned in the Mekong River between 2010-2030. But if all goes according to plan, there will be severe impacts on fisheries as various environmental impact assessments inform policy makers that about 23-37% of fish supplies will be lost. Thus these projects will clearly result in negative impacts on bio-diversity and food supplies and these losses will directly affect about 60 million people in the region. Speakers questioned if countries such as Laos develop these dams, from where will they bring the alternative food supplies – critical to the lives and livelihoods of the people of this region? It was also observed that such unintended impacts would not be limited to food security – but will cause long-term health issues for the population. If fish – which is a key source of protein, is replaced by pork or chicken, the health vulnerability of the population will increase particularly to bird and swine flu.

Panellists also reflected their experiences on water issues across various regions. It was noted that very often it is propagated that conflict on water is inevitable. It is important to note that conflict is not necessarily a bad thing. Conflict can incentivise cooperation and optimise benefits. In societies across the world, parties express their free will and settle disputes according to laws – a system which ensures cooperation, stability and thus strengthening peace and security.

Speakers emphasised the need for joint projects between countries. For example, a typical dam lasts about 100-200 years. If countries are bound together on a dam that may not only be good diplomacy but it will increase stability. Yet, there are several challenges that restrict progress and cooperation not only at the bi-lateral level but also domestically within states on sensitive questions such as water sharing. There are capacity constrains where developing countries do not have the experts to strategically ascertain and negotiate their interests in an effective manner. Very often there is little support on the political level to develop technical resources and build capacities of individuals. At the international level,

very few agreements exist (1997 United Nations Watercourses Convention, UNECE guidelines etc.) which can serve as model water laws and be regarded as real sources of international common law. Most of these instruments only cover surface water. It is important that agreements provide effective processes, which give predictability to all parties. They should ideally also include provisions, which allow reallocation of resources for the benefit of all.

Regional discussions on water also included the Southern African region, which is regarded as one of the most vulnerable to impacts of climate change. The increased droughts, floods, dropping crop yields have naturally tested resilience of people who greatly depend on water for their lives and livelihoods. Lack of reliable data is a major challenge as it affects planning of adaptation actions. Transboundary water issues often attract a lot of interest but little attention is given on small-scale conflicts, which result in political instability. The disconnect between national and local levels is indeed a real hurdle in devising meaningful strategies for adaptation actions.

Participants also discussed examples of effective water diplomacy such as the Indus Water Treaty between India and Pakistan as well as the Water treaty between Mexico and United States. India and Pakistan signed the treaty in 1960 through the support provided by the World Bank. The framework has withstood three wars and countless diplomatic deadlocks – and both parties regularly use the arbitration procedures to resolve outstanding water-related disputes. Similarly the water treaty between the United States and Mexico was signed over hundred years ago, yet the flexible amendment procedures have ensured that the treaty can be changed with the new developing realities. Such institutional mechanisms will be important so that sharing of resources between countries is possible.

5. CONCLUSIONS AND RECOMMENDATIONS

The following recommendations were presented by panellists and speakers through the discussion:

- Effective management of fresh water resources is crucial in times of increased water stress. This can be achieved when an inclusive and transparent process is adopted.

- Water is a technical challenge and political leaderships in developing countries must empower technical leaders to guide their countries. We need leadership and data resources to look at long-term implications of climate change. Water agreements must be flexible to include changes in water patterns so to increase long-term resilience.

- Domestic and International support, both are important for effectively dealing with water diplomacy challenges. Whereas the actors bear primary responsibility to lead the process, it is important that global institutions such as the World Bank, International Monetary Fund etc. remain committed in supporting emerging and developing countries.

- Data collection is very important for parties involved in transboundary water issues. Often, data on river flows is kept secret by countries. For effective diplomacy and climate adaptation to strengthen resilience on water, data must be collected and shared by all parties.

- Partnerships between public and private actors and private and local communities should be encouraged. Private companies often have the resources to team up with local actors to devise projects that enhance their capacities to better manage limited water resources. Developed countries can also help build capacities with the “Trade for Aid” frameworks.

- There is a great need for model water laws for effective transboundary water management worldwide. The 1997 UN Watercourses Convention and the draft articles on the Law of Transboundary Aquifers can together respond to many questions of surface and ground water and address associated challenges in times of climate change.

- Bringing the discussion to local level: Often in climate vulnerable developing countries much of the discussion takes place at the higher level (federal/state level) while the impacts are felt on the local level. It is imperative to devise innovative ways to tackle these gaps in strategy formation and implementation.

- Planetary security does not only refer to climate security. It means optimising water, food, land, energy as well as environmental health. We must bear in mind that mal-adaptation could be a likely consequence of single sector approaches and decisions.

"We must not remove solutions from those who are most affected. Developing a conflict sensitive approach to CC mitigation and adaptation for preventing intra-state and local level conflicts means addressing the issue of eroding conditions for livelihoods caused by climate conditions and addressing structural violence in various regions, water poverty, which is embedded in class, race and gender." – Jenny Clover, speaker in the Working Group.

WORKING GROUP 11

DISPLACEMENT AND MIGRATION

Environmental migration including climate change induced displacement within countries and migration to neighbouring countries and beyond is a complex matter. Even disaster-induced displacement is multi-causal. Environmental migration is a multifaceted phenomenon that cuts across different policy areas, including but not limited to: migration, development, climate change and environment, humanitarian assistance, human rights and security. This Working Group took into account such complexities and related fragmented legal framework issues and discussed options for future policy action to address environmental migration, which could be based around a strategic framework aimed at minimising forced environmental migration, planning for and responding to environmental migration, and facilitating voluntary migration as an adaptive response.

Moderator: **Bram van Ojik**, Special Envoy on Migration, Ministry of Foreign Affairs of the Kingdom of the Netherlands
Speakers: **Emad Adly**, Arab Network for Environment and Development
Dina Ionesco, International Organisation for Migration
Walter Kälin, Nansen Initiative / University of Bern
Kees van der Geest, United Nations University
Rapporteur: **Philippe Rekacewicz**, Visionscarto.net
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

From the early hunter-gatherer communities to the agricultural societies, migration has always been used as a strategy for survival throughout history, especially in the face of environmental change. Today, the effects of climate change are expected to increase "environmental migration" globally. A key distinction is to be made between population displacement resulting from rapid-onset natural disasters such as floods and storms (clearly forced movement) and migration resulting from slow processes such as drought, desertification and soil degradation linked to changing rainfall patterns, and the resulting scarcity of productive agricultural land.
Migration and displacement due to slow-onset phenomena is already becoming a major challenge in Africa, having pushed an estimated ten million people on the road over the last two decades. Estimates say that Chad and Niger could potentially lose their entire rain-fed agriculture by 2100 due to changing rainfall patterns and degraded land, while in Mali cereal harvests could decline by 30 percent. Desertification is likely to cause the largest share of (forced) migration in Africa over the long-term, both rural-rural and rural-urban. In Asia, sea level rise and glacial melt already profile themselves as challenges for the region's stability, threatening to push dozens of millions of people on the road in the next 100 years.

Most analysts predict that the majority of environmental migration will be internal or to bordering countries. Those most vulnerable to environmental and climatic factors may actually be those who are unable to use migration as an adaptation strategy.

Large-scale migration can potentially have destabilising effects but must be considered in parallel with contextual factors in the receiving area. Conflict may arise when migrants, particularly those of a different nationality or ethnicity, move quickly or in large numbers to areas already suffering from tensions over access to scarce resources and where coping mechanisms are absent. The situation on the Indian-Bangladesh border, where India is building a fence to prevent mass migratory movements of Bangladeshi across the Indian border illustrates the failure of the international community and the two parties to set up appropriate adaptation mechanisms to the threat of rising sea levels.

Concerted action is needed at all levels, on the one hand to minimise forced migration, and on the other hand to manage migration flows, including the facilitation of migration as an adaptation strategy. As world population grows and natural hazards increase in frequency and intensity, one can see that the lack of planning to deal with large-scale migration flows will cause the worsening of human suffering and may spark conflict in receiving areas.

2. RESPONSES

First introduced in the 1970s by Lester Brown of the Worldwatch Institute, the concept of environmental migrant is now entered into common usage. A distinction is made between forced environmental migrant and environmentally motivated migrants. The first can be described as a person that "has" to leave his/her place of normal residence because of an environmental stressor whereas the second is a person who "may" decide to move because of an environmental stressor.

Though no internationally accepted definition for persons moving for environmental reasons exists[49] and many contested figures have been put forward to estimate the flows of environmental refugees in the course of this century - up to 300 million environmental refugees in 2050, the question of environmental refugees is already a hot topic and requires to be properly addressed.
The draft negotiating text proposed in the 20th Conference of the Parties Lima (COP20) includes a small section on addressing better understanding of how climate change impacts human migration and displacement. The text proposes that the Warsaw International Mechanism established at COP19 shall serve the final agreement and be fully operationalised to support the implementation of the commitments related to loss and damage, including establishing a climate change displacement coordination facility that "assists in providing organised migration and planned relocation".

A 2015 estimate by the Internal Displacement Monitoring Centre (IDMC) reveals 184 million people have been displaced by sudden onset and slow onset disasters between 2008 and 2014 (averaging at 26 million per year), more than those fleeing from conflict. In 2014, the Office of the United Nations High Commissioner for Refugees (UNHCR) estimated that over 15 million became refugees, asylum seekers or internally displaced as a result of war and civil strife. Despite this, there is no protective legal framework for those displaced by natural events, in contrast with those fleeing conflict. Migration induced by natural disasters and climate change can only be addressed by coordinating inputs from various policy actors, as there is no organisation with a specific focus or mandate.

Since October 2012 the Nansen Initiative (managed by Switzerland and Norway) has carried out research and organised consultations in various parts of the world. The focus has been on cross-border movements resulting from natural disasters and climate change. Conclusions of the work carried out under the Initiative are summarised in a document titled 'Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change'. The Agenda compiles a set of practices regarding effective responses to protect those affected by cross-border disaster displacement and identifies three priority areas for action: developing knowledge about displacement, enhancing humanitarian protection and strengthening the management of disaster risk displacement in countries of origin. The Global Consultation, which took place in Geneva on 12-13 October 2015 was the final major event of the Nansen Initiative, which will come to an end in December. While UNHCR and IOM are the two main bodies carrying out activities relevant to the concerns that were addressed by the Nansen Initiative, the work completed will be a

[49] Terms such as "environmental refugee" or "climate change refugee" have no legal basis in international refugee law

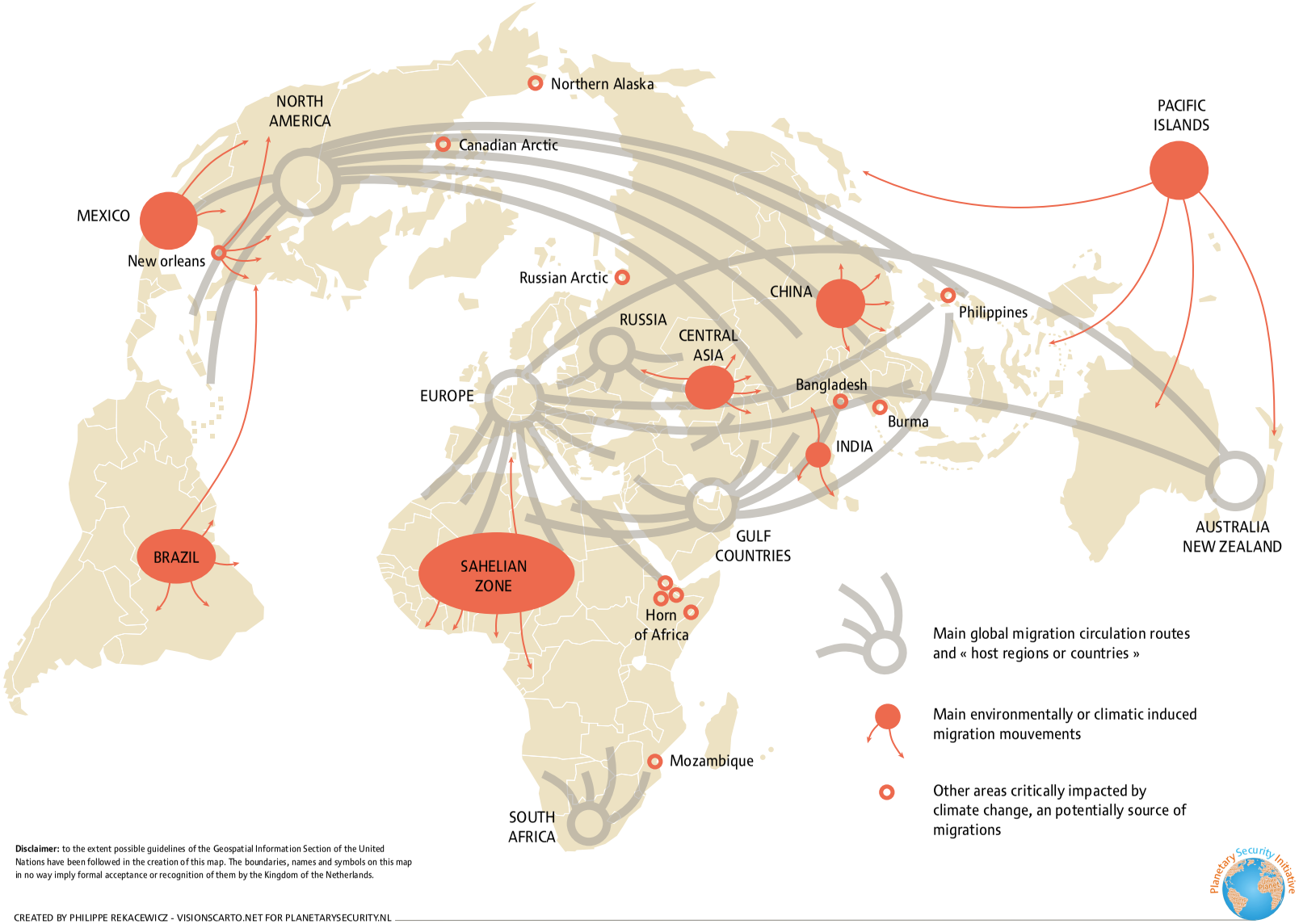
Bram van Ojik

guide for further decisions by all bodies active in the field. It is unlikely that any single agency would be mandated by its Member States to take on responsibilities with such a massive scope. Over 100 states, as well as many UN agencies and other Intergovernmental bodies were represented at the Global Consultation.

The Sendai Framework for Disaster Risk Reduction 2015-2030 adopted in 2015 brings increased recognition to the importance of human mobility in the context of disasters, both in terms of reducing vulnerability and building resilience. At the global and regional level, it seeks to promote, amongst others, transboundary cooperation to build resilience and reduce disaster risk in the event of displacement risk. At the national and local levels, it also seeks to promote regular disaster preparedness, response and recovery exercises, with a view to ensuring rapid and effective response to disasters and related displacement.

3. FURTHER READING

- Foresight, *Migration and Global Environmental Change* (2011) *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/287717/11-1116-migration-and-global-environmental-change.pdf*
- Paper from the High Representative and the European Commission to the European Council, *Climate Change and International Security* (2008) *http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/reports/99387.pdf*
- U.K. Ministry of Defence, Strategic *Trends Programme: Global Strategic Trends - Out to 2040* (2010) *https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/33717/GST4_v9_Feb10.pdf*



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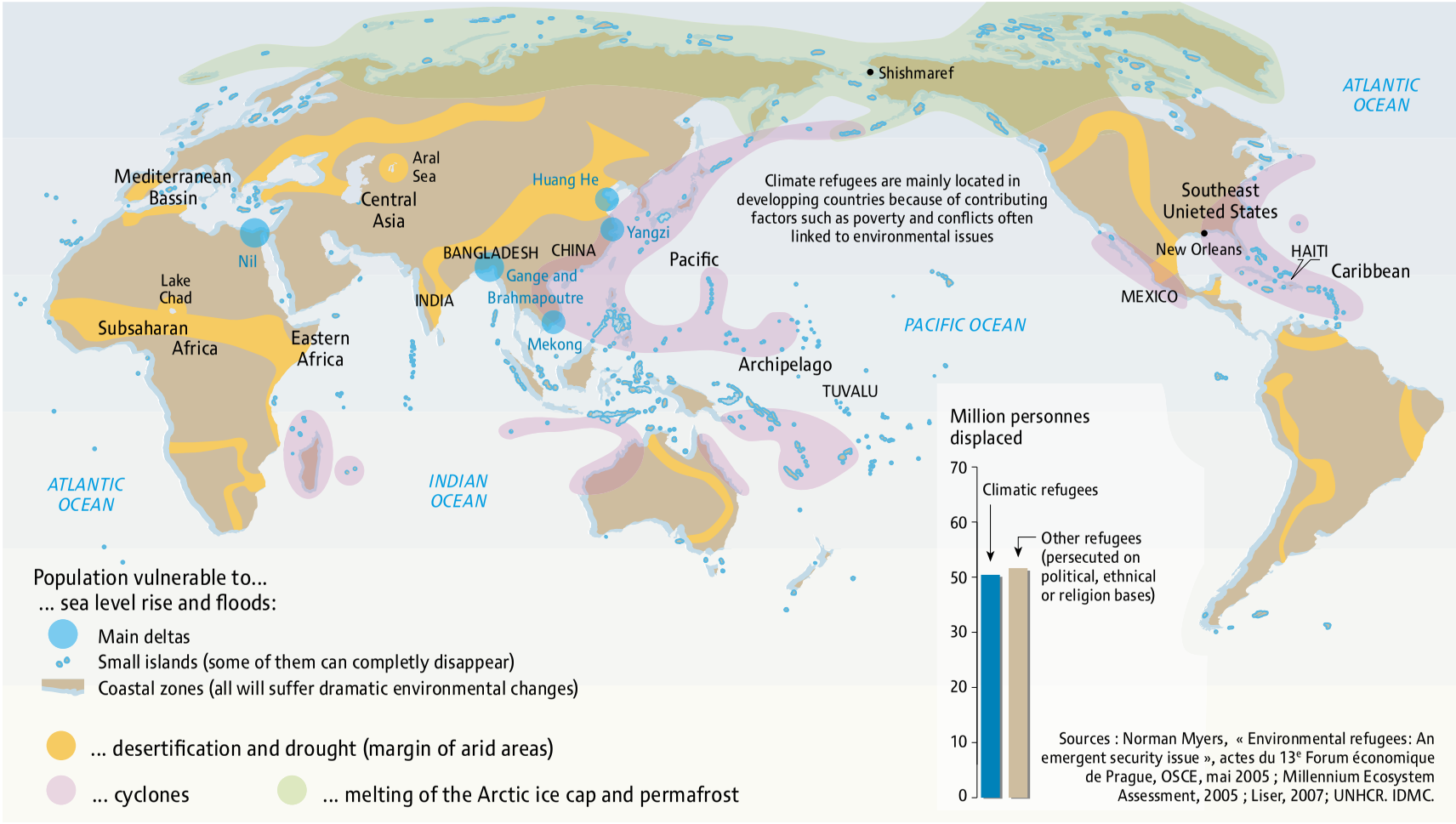

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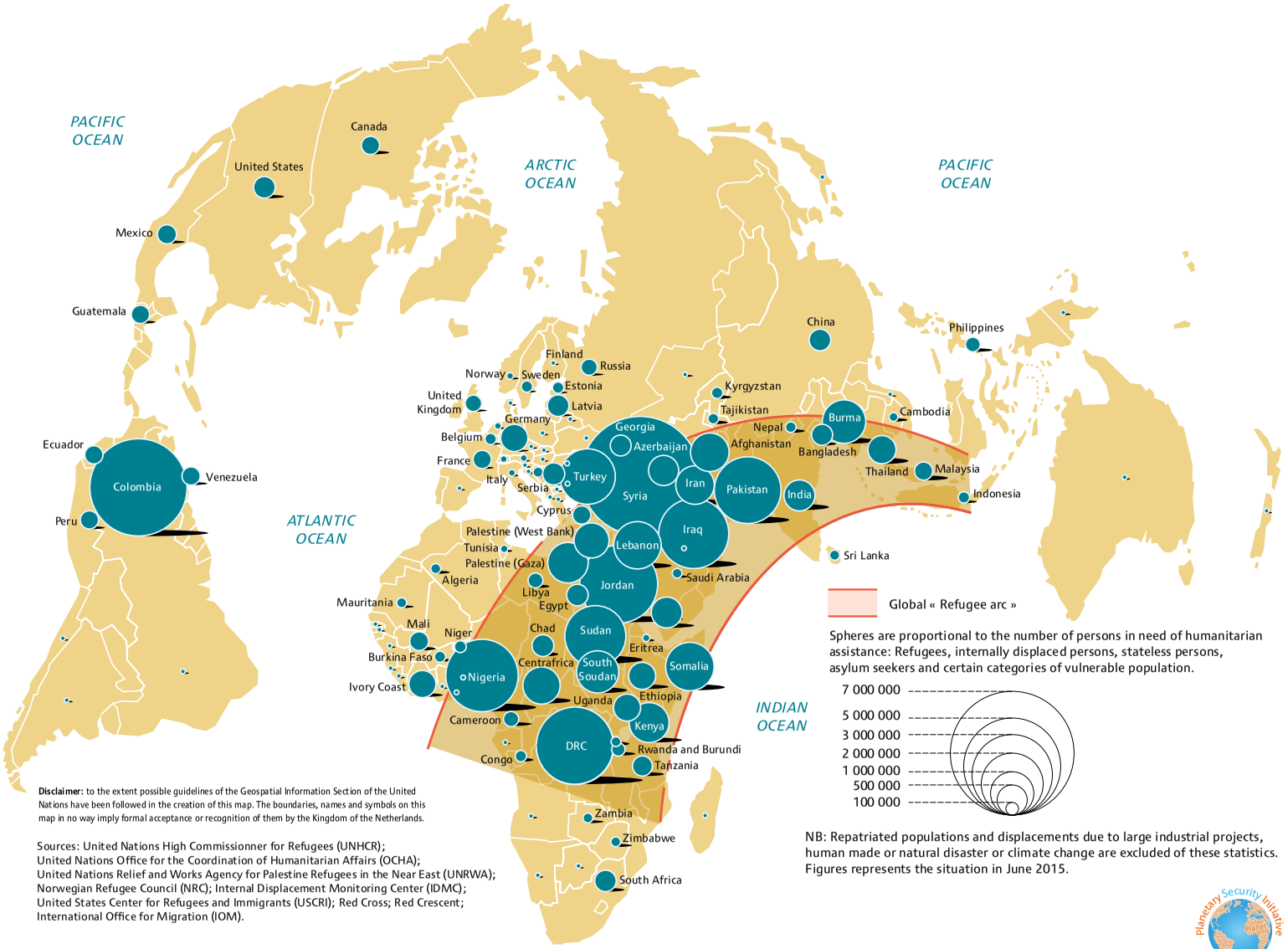
PACIFIC OCEAN
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France
Italy
Serbia
Turkey
Georgia
Azerbaijan
Syria
Iran
Pakistan
India
Cyprus
Palestine (West Bank)
Tunisia
Palestine (Gaza)
Lebanon
Iraq
Algeria
Libya
Egypt
Jordan
Saudi Arabia
Mauritania
Mali
Niger
Chad
Sudan
Eritrea
Burkina Faso
Nigeria
Centrafrica
South Soudan
Somalia
Ivory Coast
Uganda
Ethiopia
Cameroon
Kenya
DRC
Rwanda and Burundi
Congo
Tanzania
Zambia
Zimbabwe
South Africa
China
Kyrgyzstan
Tajikistan
Nepal
Afghanistan
Burma
Bangladesh
Cambodia
Thailand
Malaysia
Philippines
Indonesia
Sri Lanka
Global « Refugee arc »
Spheres are proportional to the number of persons in need of humanitarian assistance: Refugees, internally displaced persons, stateless persons, asylum seekers and certain categories of vulnerable population.
7 000 000
5 000 000
3 000 000
2 000 000
1 000 000
500 000
100 000
NB: Repatriated populations and displacements due to large industrial projects, human made or natural disaster or climate change are excluded of these statistics. Figures represents the situation in June 2015.
Disclaimer: to the extent possible guidelines of the Geospatial Information Section of the United Nations have been followed in the creation of this map. The boundaries, names and symbols on this map in no way imply formal acceptance or recognition of them by the Kingdom of the Netherlands.
Sources: United Nations High Commissionner for Refugees (UNHCR);
United Nations Office for the Coordination of Humanitarian Affairs (OCHA);
United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA);
Norwegian Refugee Council (NRC); Internal Displacement Monitoring Center (IDMC);
United States Center for Refugees and Immigrants (USCRI); Red Cross; Red Crescent;
International Office for Migration (IOM).
Planetary Security Initiative
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4. ANALYSIS

The approach in the field of environmental migration, despite 10 to 15 years of studies, remains mainly empirical. The focus on "environmental refugees" is very recent and has only emerged with the raising of public awareness on global warming. Unlike the political or economical refugees flux, it is still very difficult to get an idea of the number of people directly or indirectly affected by environmental changes whether it came from the slow inset degradation or very sudden and spectacular events. This is also the case for the number of people that have already been obliged to move out of their homes and who are likely to move in the near future.

However, the current studies concern almost exclusively selected population living in areas prone to disasters – or very vulnerable to climate change – located in the "global south". For the moment, this kind of migration is primarily internal, with very little amount people being forced to move across borders. As a result of this, the challenge remains as to the legal status they should hold. In addition, the causality of their move is relatively indirect (slow or rapid environmental event -> stress on food production -> threat on livelihood security -> migration), which makes it more difficult to qualify them as "forced displaced persons" or "refugees" or even "economic migrants".

There is also difficulties in defining the term "environmental refugee" as there are some cases that do not correspond to any of the existing categories, like for example people displaced by great industrial development projects (India, China), Mexican peasants affected by the massive arrival of American subsidised corn and subsequently forced to migrate to find jobs elsewhere, or farmers in the Amazon who have been threatened to death by armed groups and then forced to leave their homes.

5. CONCLUSIONS AND RECOMMENDATIONS

Climatic stress induces migration especially when people are deeply dependent on rain-fed or irrigated agriculture. As the numbers are unpredictable, states and internationally mandated organisations have difficulties in planning ahead the needs triggered by large migration movements. So generally speaking, internal migration could be seen as a problem (or a burden) for countries with relatively scarce economic resources and weak infrastructures. However, countries can plan for migration by anticipation within the context of adaptation strategies to climate change. In the Sahel region, migrations within the sub-region have been pretty predictable for four consecutive decades as the precipitation system there has been very irregular and continuously decreasing. Peasants used to migrate during very dry years (when they could not cultivate) to find income on the coast for example, and come back after a few months. This modus operandi makes them more resilient in cases of brutal climate events.

With the improvement of climate trend forecasts, it is now possible to implement a proactive migration system (people leaving before the "disaster" – either slow or rapid – occurs) allowing population to resettle in much better conditions. Otherwise, migration would happen in a distressed way, during or right after the climate event, which often implies resettlement in disastrous living conditions.

Distressed forms of migrations have forced authorities and internationally mandated organisations to resettle populations (often a few dozens or hundreds of thousands people at any given time) in chaotic conditions – in areas where they can possibly enter into conflicts with the local population and environmental degradation can occur, where there is an inability to provide for basic environmental services in large numbers.

This is a fundamental question, which needs to be addressed, as 85 to 90 percent of migrants, and refugees remain relatively close from their point of origin, with a vast majority resettling in neighbouring countries (who are not at war themselves) when possible. Contrary to the spectacular 2015 media coverage on the increase in refugee flux towards Europe, only a tiny part of this population is actually trying to reach developed and wealthy countries. In fact, this population represents less than 0.5 percent of the total European population, and less than 1 percent of the total number of world refugees and displaced persons. This means that developed countries have the capacity and the infrastructures to host and manage the permanent or temporary resettlement of a population of circa one million vulnerable persons, badly in need of legal protection.

The problem in developed countries is not so much the lack of means or management systems (which they have) but more to confront – in the context of their democratic governance – the resistance of public opinions and the politicians that represent them.

Developed countries should however more positively support migration trends by anticipation, within the context of their contribution to the global adaptation to climate change. They should face the growing influx of migration around the world, whether it be politically, economically or environmentally induced, both by allowing in and out movements within their territories, and helping countries with scarce resources financially and technically to better host larger numbers of migrants or refugees in the global south.

WORKING GROUP 12

RISK ASSESSMENT AND RISK MANAGEMENT

The risks to security, stability and development caused by a changing climate are subject to multiple layers of uncertainty about their direction, magnitude and likelihood. With only murky estimates of future emission trajectories or the subsequent climactic changes, attempts to assess the impacts of climate change on complex human systems can seem like groping in the dark. But with limited budgets and fuzzy horizons, action must be taken today. How do we assess the risks before us, and shape appropriate responses? What can be learned from evolution of Disaster Risk Reduction (DRR)? How do we prioritise our efforts for building resilience and avoiding worst-case scenarios?

Moderator: **Gerald Stang**, EU Institute for Security Studies
Speakers: **Nick Mabey**, Third Generation Environmentalism
Katie Peters, Overseas Development Institute
Nicolas Regaud, French Directorate General for International Relations and Strategy
Janani Vivekananda, International Alert
Rapporteur: **Wybe Douma**, TMC Asser Institute
Infographics: **Philippe Rekacewicz**, Visionscarto.net

1. CHALLENGES

Uncertainty about climate risks is multi-layered. The first two layers of uncertainty relate to the trajectory that emissions will take and the physical changes that the climate will experience as a result of accumulated emissions. The next layers relate to the social, economic and political impacts of these physical climactic changes, and how they will evolve and interrelate. It is challenging to estimate with confidence what is most likely, or what may be a worst-case scenario, and thus how we should respond.

Many potential risks have been highlighted, most prominently for development and human security risks in the Intergovernmental Panel on Climate Change (IPCC) assessment reports, which assigns a level of confidence to each component of their analysis. The IPCC notes that risks result from the confluence of climate impacts, vulnerability and exposure. They note, with high confidence, that trends in exposure and vulnerability are major drivers of changes in disaster risk and are generally the outcome of skewed development processes.

The "A New Climate for Peace" report highlights climate-fragility risks, though without confidence levels, including local resource competition, livelihood insecurity and migration, extreme weather events and disasters, volatile food prices and provision, transboundary water management, sea level rise and coastal degradation, and unintended effects of climate policies.

How can we use risk management approaches to understand and apportion risks and to shape appropriate responses?

2. RESPONSES

Risk management is about framing choices and providing options for moving forward, rather than about defining particular solutions. A typical risk management approach involves an iterative cycle of assessment, planning, implementation, evaluation/reassessment, and planning again.
The process begins with risk assessment, which helps us understand the nature of the risks we face. There are many different risk assessment tools available, focused variously on conflict analysis or exposure to disasters or modelling how pandemics may spread. However, discordance among the various analysis tools, used by different organisations for different purposes, can impede the development of shared understandings and thus of coordinated and effective responses to complex interconnected problems.

Building on the assessment process, a series of actions can be taken to diminish and respond to the assessed risks:

i. **Reducing the risk** (mitigation and low carbon development). Fewer greenhouse gas emissions means lesser climate impacts and diminished subsequent risks. Whether efforts to improve understandings of the potential subsequent security and development risks can lead to increased impetus and effectiveness in mitigation negotiations remains uncertain.

ii. **Sharing/transferring risk** (insurance and risk pooling). Where there is sufficient confidence in the data inputs and risk probability curves, private insurance systems can play a major role in sharing and transferring economic risk, including for disasters. Where the risks are too large or too uncertain, governments are generally required to step in, but in much of the developing world, capacities to do so are missing. And for risks without economic calculability, such as those related to stability and conflict, sharing and transferring risks becomes an exercise in political and social understanding and support.

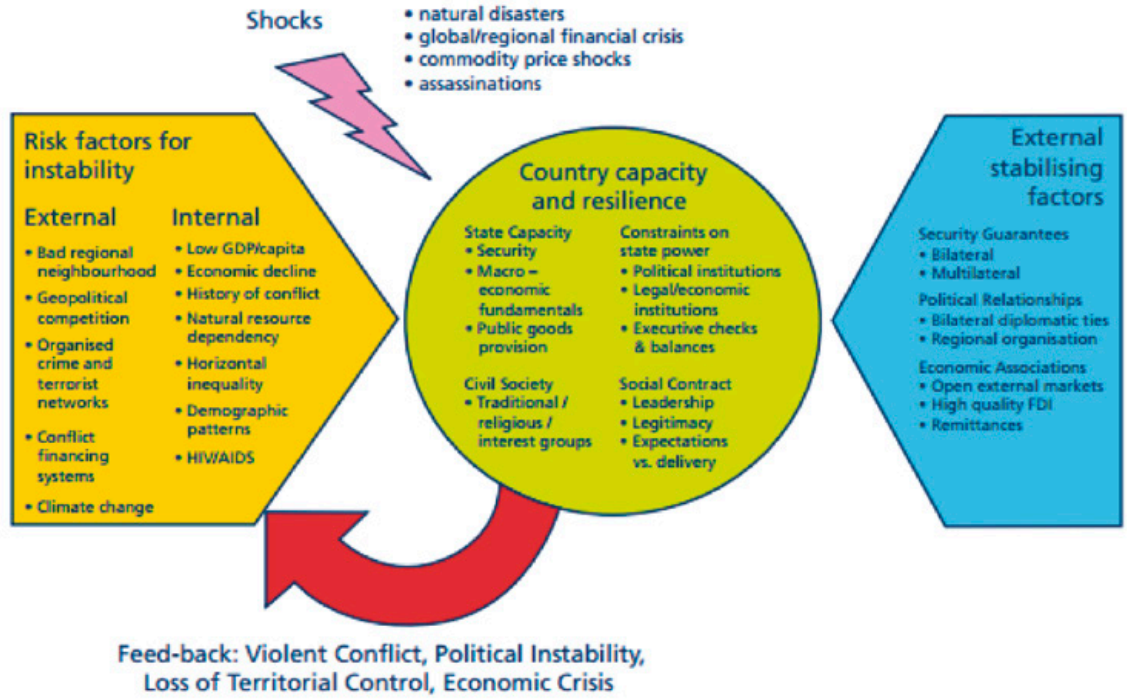
iii. **Preparation** (climate adaptation, early warning systems, disaster preparedness, resilience-building, peacebuilding). A very wide range of activities can be of value for helping to reduce the impact of potential security and stability risks related to climate change, beginning with climate adaptation activities already taking place in many countries and expanding to include peacebuilding and capacity building processes.

iv. **Response and recovery** (disaster response planning, peacekeeping and peacebuilding, post-conflict recovery efforts). Recovering effectively from disasters or conflict works best if plans and resources for crisis recovery are dedicated in advance to understanding how to 'build back better'. Defence actors are likely to play an important role in these efforts.

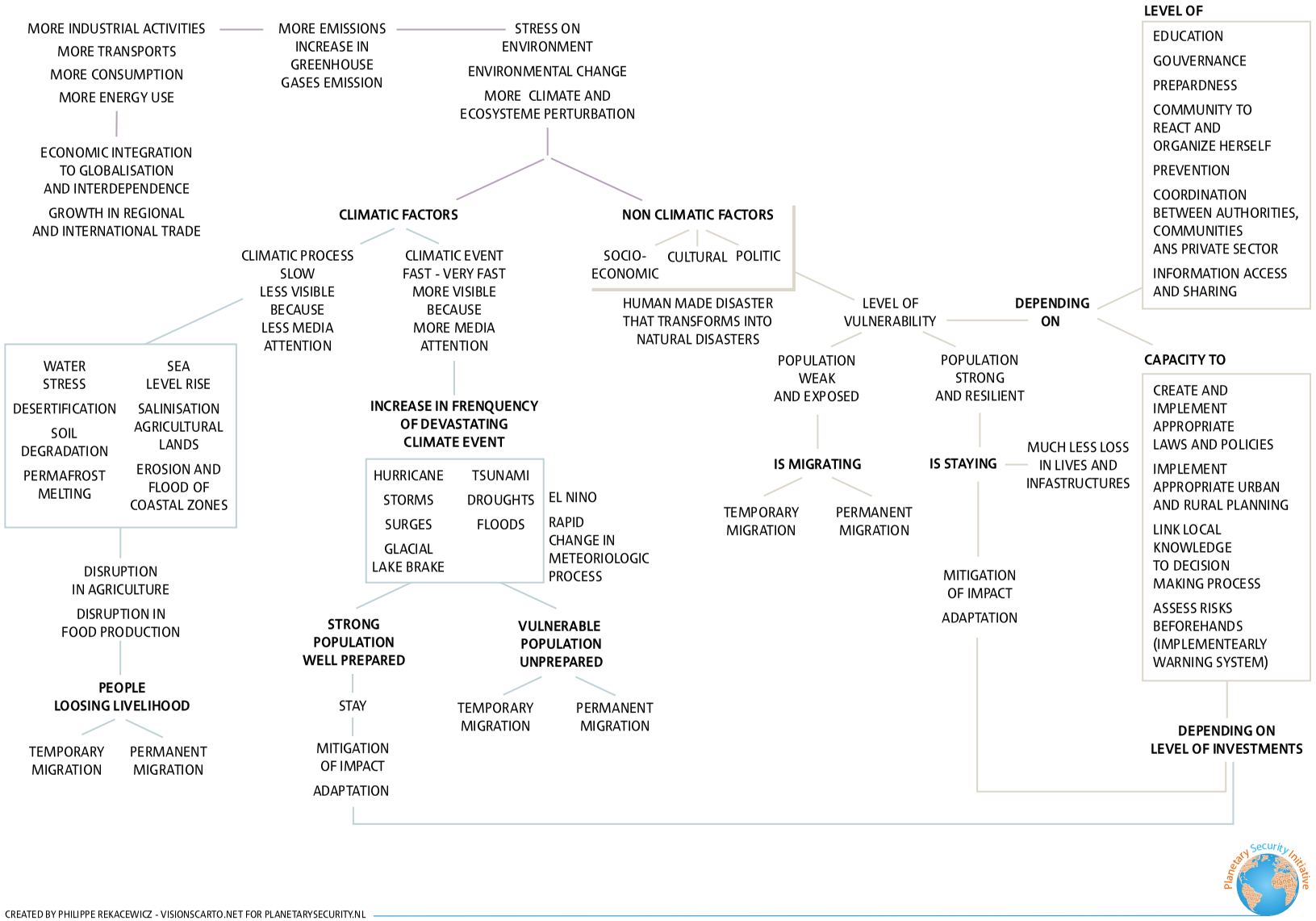
One example of where all of these processes, (assessment, risk reduction, risk sharing, preparation, and response) have already been investigated has been with the evolution of Disaster Risk Reduction (DRR). The Sendai Framework for Disaster Risk Reduction 2015-2030, successor to the Hyogo Framework for Action, was endorsed by the United Nations General Assembly (UNGA) in 2015 with four priorities for action: understanding disaster risk, strengthening disaster risk governance to manage disaster risk, investing in disaster risk reduction for resilience, and enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation and reconstruction. Hyogo and Sendai were developed as part of an ongoing, inclusive, state-centred (but not dominated) process that will see continuous follow-up. Can the successes and challenges of this process provide ideas for managing the broader range of climate risks to stability and development?

3. FURTHER READING

- A New Climate for Peace, 'Resilience Compass Blog' *https://www.newclimateforpeace.org/blog*
- *Climate Risk Management Journal* *http://www.journals.elsevier.com/climate-risk-management/*
- Intergovernmental Panel on Climate Change (IPCC), *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation (SREX)* (2012) *http://ipcc-wg2.gov/SREX/report/*
- King D et al, *Climate Change: A Risk Assessment* (2015) *http://www.csap.cam.ac.uk/media/uploads/files/1/climate-change--a-risk-assessment-v11.pdf*
- Kunreuther et al, *Risk management and climate change* (2013) *http://go.nature.com/zff2D2*; for the Policy Brief (July 2015) *http://www.csap.cam.ac.uk/media/uploads/files/1/climate-change--a-risk-assessment-policy-brief-v3.pdf*
- Mabey et al, *Degrees of Risk - Defining a Risk Management Framework for Climate Security* (2011) *http://www.e3g.org/showcase/degrees-of-risk/*
- Mitchell and Harris, *Resilience: A risk management approach* (2012) *http://learningforpeace.unicef.org/wp-content/uploads/2015/08/ODI-resilience.pdf*
- OECD Risk and Resilience Tools and Papers *http://www.oecd.org/dac/risk-resilience.htm*
- Sendai Framework for Disaster Risk Reduction *http://www.unisdr.org/we/coordinate/sendai-framework*



Source: « Investing in Prevention An International Strategy to Manage Risks of Instability and Improve Crisis Response », A Prime Minister's Strategy Unit Report to The Government, February 2005.


MORE INDUSTRIAL ACTIVITIES
MORE TRANSPORTS
MORE CONSUMPTION
MORE ENERGY USE
ECONOMIC INTEGRATION TO GLOBALISATION AND INTERDEPENDENCE
GROWTH IN REGIONAL AND INTERNATIONAL TRADE
MORE EMISSIONS INCREASE IN GREENHOUSE GASES EMISSION
STRESS ON ENVIRONMENT
ENVIRONMENTAL CHANGE
MORE CLIMATE AND ECOSYSTEME PERTURBATION
CLIMATIC FACTORS
NON CLIMATIC FACTORS
CLIMATIC PROCESS SLOW LESS VISIBLE BECAUSE LESS MEDIA ATTENTION
CLIMATIC EVENT FAST - VERY FAST MORE VISIBLE BECAUSE MORE MEDIA ATTENTION
SOCIO-ECONOMIC
CULTURAL
POLITIC
HUMAN MADE DISASTER THAT TRANSFORMS INTO NATURAL DISASTERS
WATER STRESS
DESERTIFICATION
SOIL DEGRADATION
PERMAFROST MELTING
SEA LEVEL RISE
SALINISATION AGRICULTURAL LANDS
EROSION AND FLOOD OF COASTAL ZONES
INCREASE IN FRENQUENCY OF DEVASTATING CLIMATE EVENT
HURRICANE
STORMS
SURGES
GLACIAL LAKE BRAKE
TSUNAMI
DROUGHTS
FLOODS
EL NINO
RAPID CHANGE IN METEORIOLOGIC PROCESS
DISRUPTION IN AGRICULTURE
DISRUPTION IN FOOD PRODUCTION
PEOPLE LOOSING LIVELIHOOD
TEMPORARY MIGRATION
PERMANENT MIGRATION
STRONG POPULATION WELL PREPARED
STAY
MITIGATION OF IMPACT
ADAPTATION
VULNERABLE POPULATION UNPREPARED
TEMPORARY MIGRATION
PERMANENT MIGRATION
LEVEL OF VULNERABILITY
DEPENDING ON
LEVEL OF
EDUCATION
GOUVERNANCE
PREPARDNESS
COMMUNITY TO REACT AND ORGANIZE HERSELF
PREVENTION
COORDINATION BETWEEN AUTHORITIES, COMMUNITIES ANS PRIVATE SECTOR
INFORMATION ACCESS AND SHARING
POPULATION WEAK AND EXPOSED
POPULATION STRONG AND RESILIENT
CAPACITY TO
CREATE AND IMPLEMENT APPROPRIATE LAWS AND POLICIES
IMPLEMENT APPROPRIATE URBAN AND RURAL PLANNING
LINK LOCAL KNOWLEDGE TO DECISION MAKING PROCESS
ASSESS RISKS BEFOREHANDS (IMPLEMENTEARLY WARNING SYSTEM)
IS MIGRATING
IS STAYING
MUCH LESS LOSS IN LIVES AND INFASTRUCTURES
TEMPORARY MIGRATION
PERMANENT MIGRATION
MITIGATION OF IMPACT
ADAPTATION
DEPENDING ON LEVEL OF INVESTMENTS
Planetary Security Initiative
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4. ANALYSIS

Dealing with uncertainties by using scenarios in their planning processes is common in the military, but less so in foreign affairs and the climate change communities. Since the Rio Declaration, states have recognised the importance of applying the precautionary approach in shaping responses to situations that lack full scientific certainty. This fits well with the related idea that it is far better to pursue preventative measures to head off instability or conflict before it happens rather than merely responding to crises. But neither the precautionary approach nor the pursuit of preventative actions are well entrenched in planning and decision-making processes.

Furthermore, researchers on climate change and its impacts are often not able to explain their findings in an understandable manner, and/or (advisers to) policy makers are not always trained to understand the significance of their advice. There exists a big gap between what researchers actually produce and the type of information that can inform (advisers to) policy makers in a meaningful manner. Furthermore, besides policy makers, other audiences also need to be reached. Connecting the data to actual decisions (filling the gap) is no-one's job: not from the environment department, not the foreign ministry, not the development department or intelligence agency.

In practice, it is difficult to agree on including the interlinkages between climate, vulnerability and conflict in political agreements. This, in turns, hampers coordinated meaningful action on the topic. For instance, the reference to conflict and violence as an underlying driver of vulnerability to natural disasters was deleted at the very last moment from the 2015-2030 Framework adopted at the 3rd United Nations World Conference on Disaster Risk Reduction (DRR) in Sendai, Japan (14-18 March 2015). Unfortunately, this is not a unique experience. Recognition of the interconnectedness of risk and vulnerability including specifically the links between climate and security are missing from many other 2015 international policy frameworks. The SDGs for example include references to conflict, to natural disasters, and to climate, but emphasis on the connections between these issues is lacking. The same is true where the latest COP21 text is concerned. Neither conflict nor migration is currently featured. This might be because much of the climate change community is actually not aware of or engaged in many of the processes such as the World Humanitarian Summit or the Sendai DRR framework.

There exist many different opinions on carrying out risk assessments in the light of insecurities and uncertainties. In practice, hazards can have various impacts depending on the context in which they play out (country, region, community etc.) including many risks that are often not quantifiable, making it extra hard for policy makers to set priorities. Dealing with such complexities is not yet commonplace.

No context is harder to understand than that of a fragile and/or conflict affected state. There is a need for a comprehensive risk assessment to understand and manage these risks, and to prevent climate change from multiplying the risks of conflict and instability in these fragile contexts. The risks in such situation are compound, complex and interrelated with feedback loops within and between the different risks.

5. CONCLUSIONS AND RECOMMENDATIONS

The existence of uncertainties about the complex interplay of climate change impacts is not necessarily the primary problem for creating actionable policy. The manner in which the military bases decisions in uncertain situations on scenarios, including middle and worst-case scenarios, could be used as an example for other departments as a manner to deal with uncertainties. Such scenarios, especially where they concern long-term developments, are often based on uncertainties and assumptions. Where climate change is concerned, a lot of data is actually already available. By using as many hard facts and risk assessments as possible, combined with scenarios, better decision regarding the risks of climate change and conflicts could be created. It needs to be accepted that we should strive for "good enough" interventions as we cannot wait to perfect data or the perfect interventions.

In fragile states, any action needs to start from the bottom up – ensuring that it is workable given the situation on the ground – while still making sure that it is linked to and supported by national and global actions. Specifically, the context and existing vulnerabilities need to be well understood, taking into account local priorities and ownership. Furthermore, it is always to be ensured that no harm is done to existing dimensions of resilience. The no harm tenet also needs to be applied to adaptation and mitigation responses to climate change.

Effective responses to address the compound risks should follow the "triple bottom line" approach. For example, in post-conflict urban reconstruction projects, responses should take into account long-term rainfall patterns so that this can be built into the water and sanitation provision. This is going to build resilience not just to conflict drivers such as poor water provision, but also address the drivers of poverty and climate change.

Bridging the gap between climate scientists and (advisors to) policy makers could be achieved by training or assisting researchers in presenting findings in a manner that is understandable and useable for policy makers. Another option would be the training of (advisers to) policy makers so that their capabilities to understand, interpret and use scientific findings.

Working Group 12. Risk Assessment amd Risk Management

In developing and using risk assessments, we need to understand how risk factors interlink. In the report "A New Climate for Peace", a framework is set out that establishes a lens for looking at compound risks and linked responses. It entails looking at possible direct and knock-on impacts on existing conflict drivers, i.e. pre-existing socio-economic and political weak points, such as livelihood and security, inequality, and state provision of basic services. It also requires a deep understanding of the shifting power relations entailed by these risks and our potential responses.

There is a need for reform of decision-making processes, for which top-down political leadership is necessary, even for situations where the ultimate goal is to decentralise decision-making. Benefits from this reform could extend beyond the climate change issue, and include pollution benefits, security benefits etc. When framed as a multi-objective approach it will stand a better chance to lead to a security sector reform, as this might not happen for climate reasons only.

The beneficiary of any support for development, adaptation and resilience building should be able to cope with a host of possible futures given that we do not know exactly what the climate future landscape will look like. It is thus important to ensure that answers to the following issues are investigated in advance, and findings taken into account when planning such support:

i. Does the intervention (in)directly affect resilience, such as social protection programming?

ii. Are the outcomes of the intervention sensitive to weather, such as infrastructure, food security, water sanitation etc.?

iii. Does it have long-term effects?

iv. Is it difficult to reverse or retrofit the intervention or its effects?

v. Are the stakes high? Not simply the financial stakes but also the number of people or assets at risk, or potential impact on highly sensitive conflict drivers such as land or forests.

The G7 response to the "A New Climate for Peace" report – developing a working group to facilitate cooperation and mainstreaming the issue throughout their governments – could bring about necessary changes. At the European Union level, the new EU Global Strategy process is another opportunity to reboot how the Union and its partners deal with climate change, building upon their existing resilience-focused development work. At the last moment, the references to conflict and violence as an underlying driver of vulnerability to natural disasters were removed during the Sendai Conference. Learning lessons from this unfortunate turn of events should inform efforts to address these issues elsewhere, including in the Paris COP21 conclusions, the World Humanitarian Summit in 2016, and in UN debates in general.

Developing good policy on climate change and fragility will be facilitated by the collection, processing and dissemination of good data in a way that is useful for policy makers and for project leaders on the ground. Cooperation across institutions will be essential and public/private partnerships might be useful in bridging gaps. Google/USA/UK Climate Data Initiative aimed at ensuring that scientific data is made widely available for analysis and use in decision-making, and the insurance industry's plan to make its catastrophic risk management platform open source form cases in point here.

PART III:
Annexes

Programme

Conference Program Monday 2 November		
Time	**Activity**	**Extra information**
09.30-10.45	**Security Check-in, Registration and Coffee**	*Location:* Peace Palace (modern premises) Carnegieplein 2, The Hague
11.00-12.00	**Official Plenary Opening**	**Mr. Bert Koenders**, Minister of Foreign Affairs of the Kingdom of the Netherlands **H.E. Mr. Lamberto Zannier**, Secretary General, Organization for Security and Co-operation in Europe **dr. Andrew Steer**, President and CEO, World Resources Institute **dr. Jamie Shea**, Deputy Assistant Secretary General for Emerging Security Challenges, North Atlantic Treaty Organisation
12.00-12.30	**Welcome & Introduction**	**drs. Wim Geerts** - Chairman of the Conference Director-General Political Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands **Mr. Alexander Verbeek** - Organiser of the Conference Strategic Policy Advisor Global Issues, Ministry of Foreign Affairs of the Kingdom of the Netherlands
12.30-13.30	**Lunch**	
13.30-14.15	**Plenary Panel: 'A New Climate for Peace: Taking Action on Climate and Fragility Risks'**	**Mr. Dan Smith**, Director, Stockholm International Peace Research Institute **Mr. Ernst Peter Fischer**, Deputy Director-General for Globalisation, Energy and Climate Policy, German Foreign Office **Mr. Dennis Tänzler**, Director of International Climate Policy, Adelphi
14.15-15.45	**Working Group Session A**	*Parallel Working Groups:* **Working Group 1:** Analysis of Syria: Lessons Learned *Moderator:* **Ms. Caitlin Werrell**, Center for Climate and Security **Working Group 2:** Small Island Developing States (SIDS) *Moderator:* **Professor Jon Barnett**, University of Melbourne **Working Group 3:** Africa: Focus on Sahel *Moderator:* **Mr. Roger-Mark De Souza**, Wilson Center **Working Group 4:** The Political Dimensions of the Anthropocene *Moderator:* **Professor Frank Biermann**, VU University Amsterdam
15.45-16.15	**Coffee**	
16.15-17.30	**Plenary Panel: Challenges to Planetary Security**	*Moderator:* **Mr. Johan Kuylenstierna**, Executive Director for Stockholm Environment Institute *Panellists:* **Mr. Stephan Auer**, European External Action Service **Mr. Luc Bas**, International Union for Conservation of Nature **Mr. Warren Evans**, Independent Senior Advisor **Drs. Kitty van der Heijden**, World Resources Institute **Dr. David Reed**, World Wildlife Fund
17.30-18.30	**Reception at the Peace Palace**	
18.45	**Transfer to Dinner Venue**	arranged
19.30	**Dinner at the Historic 'Hall of Knights'**	*Speakers:* **Mr. Jozias van Aartsen**, Mayor of the Hague **Mr. André Kuipers**, Astronaut, European Space Agency **Ms. Bernice Notenboom**, Professional Adventurer & Climate Journalist

Conference Program Tuesday 3 November		
Time	**Activity**	**Extra information**
08.00-09.00	**Security Check-in, Registration and Coffee**	*Location:* Peace Palace (modern premises) Carnegieplein 2, The Hague
09.00-10.30	**Working Group Session B**	**Working Group 5:** The World in 2050: A Far Future Scenario Workshop *Moderators::* **Mr. Francesco Femia**, Center for Climate and Security & **Ms. Bessma Mourad**, the Skoll Global Threats Fund **Working Group 6:** Urban Deltas: Water Related Climate Impacts *Moderator:* **Mr. Henk Ovink**, Special Envoy for International Water Affairs, Kingdom of the Netherlands **Working Group 7:** Security and Climate Change in the Arabian Peninsula *Moderator:* **dr. Jamie Shea**, NATO **Working Group 8:** Arctic Security & Conflicting Interests *Moderator:* **dr. Sarah Cornell**, Stockholm Resilience Center
10.30-11.00	**Coffee**	
11.00-12.30	**Working Group Session C**	**Working Group 9:** Food Security on the Brink? *Moderator:* **Professor Dr. Jurgen Scheffran**, University of Hamburg **Working Group 10:** Water Diplomacy for Peaceful Climate Adaptation *Moderator:* **Mr. Torgny Holmgren**, Stockholm International Water Institute **Working Group 11:** Displacement & Migration *Moderator:* **drs. Bram van Ojik**, Ministry of Foreign Affairs of the Kingdom of the Netherlands **Working Group 12:** Risk Assessment & Risk Management *Moderator:* **Mr. Gerald Stang**, European Institute for Security Studies
12.30-13.30	**Lunch**	
13.30-14.30	**Plenary Panel:** **Strategies for Planetary Security**	*Moderator:* **drs. Wim Geerts** - Chairman of the Conference Director-General Political Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands *Panellists:* Working Group Moderators
14.30-15.00	**Coffee**	
15.00-16.00	**Plenary Panel:** **The Future of Planetary Security**	Panel with **Ms. Lilianne Ploumen**, Minister for Foreign Trade and Development Cooperation of the Kingdom of the Netherlands *Panellists:* **Mr. Dan Smith**, Stockholm International Peace Research Institute **Ms. Paula Caballero**, World Bank **Mr. Nasser Yassin**, American University of Beirut
	Chairman's Summary	**drs. Wim Geerts** - Chairman of the Conference Director-General Political Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands
	Conference Follow-up	**Mr. Alexander Verbeek** - Organiser of the Conference Strategic Policy Advisor Global Issues, Ministry of Foreign Affairs of the Kingdom of the Netherlands
16.00-17.00	**Farewell Drink**	

Moderators and Speakers

A.G. (Bert) Koenders MSc, MA

Minister of Foreign Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands

Bert Koenders was appointed Minister of Foreign Affairs in the Cabinet Rutte-Asscher on 17 October 2014. From July 2013 to October 2014 Mr Koenders was Under-Secretary-General of the United Nations and head of the Multidimensional Integrated Stabilization Mission (MINUSMA) in Mali. From August 2011 to July 2013, he was the Secretary-General's Special Representative and head of the UN Operation in Côte d'Ivoire.

drs. E.M.J. (Lilianne) Ploumen

Minister for Foreign Trade and Development Cooperation, Ministry of Foreign Affairs of the Kingdom of the Netherlands

On 5 November 2012 Lilianne Ploumen was appointed Minister for Foreign Trade and Development Cooperation in the Rutte-Asscher government. She was Chair of the Labour Party (PvdA) from October 2007 to January 2012. From 2001 to 2007 Ms Ploumen worked for the development organization Cordaid, first as head of quality and strategy and later as director of international programs.

H.E. Mr. L. (Lamberto) Zannier

Secretary General, Organisation for Security and Cooperation in Europe (OSCE)

Ambassador Lamberto Zannier took up the post of OSCE Secretary General on 1 July 2011. Mr. Zannier is an Italian career diplomat. From June 2008 to June 2011 he was UN Special Representative for Kosovo and Head of the United Nations Interim Administration Mission in Kosovo (UNMIK). From 2002 to 2006, he was the Director of the Conflict Prevention Centre of the OSCE.

dr. A. (Andrew) Steer

President and CEO, World Resources Institute (WRI)

Dr. Steer joined WRI from the World Bank, where he served as Special Envoy for Climate Change from 2010 - 2012. He serves on the Executive Board of the UN Secretary General's Sustainable Energy For All initiative and is a member of the China Council for International Cooperation on Environment and Development (CCICED), the Leadership Council of the Sustainable Development Solutions Network, and IKEA's People and Planet Positive Advisory Group.

dr. J.P. (Jamie) Shea

Deputy Assistant Secretary General for Emerging Security Challenges, North Atlantic Treaty Organisation (NATO)

Jamie Shea has been working with NATO since 1980. He is involved with several prominent academic institutions and acts amongst others as professor of the Collège d'Europe, Bruges, Visiting Lecturer in the Practice of Diplomacy, University of Sussex, Associate Professor of International Relations at the American University, Washington DC, where he also holds the position of Director of the Brussels Overseas Study Program, and lectures at the Brussels School of International Studies at the University of Kent.

J.L. (Johan) Kuylenstierna

Executive Director, Stockholm Environment Institute (SEI)

Johan holds an adjunct professorship in international water resources issues at the Department of Physical Geography and Quaternary Sciences at the Stockholm University. Johan has previously worked as the Chief Technical Advisor to the Chair of UN-Water, based at FAO in Rome. Before joining the United Nations, he served as Project Director at the Stockholm International Water Institute with the overall responsibility for the World Water Week in Stockholm.

drs. W.J.P. (Wim) Geerts

Director-General Political Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands

In 1988 Mr. Geerts joined the Dutch Ministry of Foreign Affairs and entered the Dutch Foreign Service. His first posting abroad was at the Dutch Embassy in Singapore. Between 1991 and 2002 he worked in the Prime Minister's Office, where he held a number of positions, becoming Foreign Policy and Defence Advisor to the Prime Minister in 1995. Mr. Geerts started in his new position as Political Director at the Dutch Ministry of Foreign Affairs on July 1, 2013.

J.J. (Jozias) van Aartsen

Mayor of The Hague, Municipality of The Hague

Jozias van Aartsen is a Dutch politician of the People's Party for Freedom and Democracy (VVD). He has been the Mayor of The Hague since 27 March 2008. Van Aartsen previously served as the Minister of Agriculture, Nature and Food Quality from 22 August 1994 until 3 August 1998 in the Cabinet Kok I.

dr. E. (Emad) Adly

General Coordinator, the Arab Network for Environment and Development (RAED)

Dr. Eman is an environmental Specialist with extensive experience in dealing with international agencies, governments, civil society, and grass root organizations, media and NGOs. More than thirty five years of professional practice and extensive experience in fostering regional and international partnerships and fund raising activities.

A. R. (Rafay) Alam

Partner, Saleem, Alam & Co. / Yale World Fellow

Ahmad Rafay Alam is a Pakistani environment lawyer, activist and Yale World Fellow. In 2013, after over a decade of practice, Rafay merged his experience in regulatory, corporate and constitutional law with his passion for public interest environment litigation and co-founded Saleem, Alam & Co., a law firm that specializes in energy, water, natural resources, and urban infrastructure.

S. (Stephan) Auer

Director for Multilateral Relations and Global Issues, European External Action Service (EEAS)

Stephan Auer is Director, Deputy Managing Director for Human Rights, Global and Multilateral Issues with specific responsibilities for Human Rights and Democracy, Multilateral Affairs, in particular UN and the Council of Europe, Development Policy and Development cooperation, Global Issues and Counter-Terrorism, supporting the work of the High Representative of the Union for Foreign Affairs and Security Policy at the European External Action Service.

Brigadier General (Retd.) J. (Bob) Barnes

Senior Policy Advisor, Center for Climate and Security (CCS)

Bob Barnes is Senior Policy Advisor and member of the Advisory Board at the Center for Climate and Security, where he provides policy advice on addressing the national and international security implications of climate change. He is a recognized expert on environmental security, interagency and public-private collaboration on climate change and other environmental matters with national security implications.

dr. J. (Jon) Barnett

Professor and Australian Research Council Future Fellow, School of Geography at Melbourne University

Jon Barnett is Professor and Australian Research Council Future Fellow in the School of Geography at Melbourne University. Jon is a political geographer whose research investigates social impacts and responses to environmental change. His research has helped explain the impacts of climate change on cultures, food security, migration, water security, and peace.

L. (Luc) Bas

Director, IUCN European Regional Office, Brussels

Luc Bas is the Director of the IUCN European Regional Office representing the IUCN Secretariat and providing leadership and guidance for all activities undertaken within the regional context. Prior to this, Luc was European Director of The Climate Group in Brussels, working with business and government to reach more ambitious EU climate policy and prepare for a true energy transition.

Prof. A. (Annette) Bickford

Assistant Professor in Interdisciplinary Social Science, York University

Annette Bickford earned a Ph.D. in Sociology from York University, and an MA in Social/Cultural Anthropology from the University of Toronto. She has conducted research in North Carolina, and has a book under review with the University of Toronto Press. She specializes in interdisciplinary studies; her research lies broadly at the intersections of critical race theory, national identity, postcolonial studies, and governmentality.

Prof. dr. F. (Frank) Biermann

Chair, Earth System Governance Project

Professor Frank Biermann is the chair of the Earth System Governance Project, a global transdisciplinary research network that was launched in 2009 under the auspices of the International Human Dimensions Program on Global Environmental Change and has now become part of the global research alliance 'Future Earth'.

dr. I.J.C. (Ingrid) Boas

Assistant Professor in Climate Governance, Wageningen University & Research Centre

Ingrid Boas is Assistant Professor at the Environmental Policy Group at Wageningen University. Ingrid's research is based on the field of climate governance with a focus on the topic of climate migration, climate security and resilience. Her recent book is called Climate Migration and Security: Securitisation as a Strategy in Climate Change Politics, published with Routledge (2015).

dr. C. M. (Chad) Briggs

Strategy Director, Global Interconnections

Chad Briggs is a global leader in risk assessment and energy & environmental foresight, having worked in academic, military and security communities. He has been a Fulbright professor to Budapest and Berlin, a senior advisor to the U.S. Department of Energy, DOE team leader on abrupt climate change, and has also published in fields from ecotoxicology and medicine to scenario planning and geography. He is currently also an adjunct faculty member at the John Hopkins University.

Dr. M. J. (Mathew) Burrows

Director of the Atlantic Council's Strategic Foresight Initiative, Brent Scowcroft Center on International Security

Dr. Mathew J. Burrows recent book is entitled The Future Declassified: Megatrends that Will Undo the World Unless We Take Action (Palgrave/ Macmillan, published 9 September 2014). In August 2013 he retired from a 28-year career in the CIA and State Department, the last ten being spent at the National Intelligence Council (NIC), the premier analytic unit in the US Intelligence Community.

P. (Paula) Caballero

Senior Director for Environment & Natural Resources Global Practice, World Bank

Prior to joining the World Bank in July 2014, Paula Caballero, was the Director for Economic, Social and Environmental Affairs in the Ministry of Foreign Affairs of Colombia. She was a leading voice and negotiator in international fora, including the United Nations Framework Convention on Climate Change, and the Post 2015 framework.

J. (Jeanette) Clover

Independent Consultant on Sustainable Development

Jenny Clover is a sustainable development consultant with post-graduate qualifications (PhD) and international experience who specialises in integrated approaches to climate compatible development and sustainable resource governance and management. She has more than 25 years progressive experience that combines technical knowledge, strong conceptual and analytical skills, and interdisciplinary, applied policy research.

S. (Sarah) Cornell

Phd Research coordinator Planetary Boundaries, Stockholm Resilience Center

Sarah Cornell is the Coordinator of the Planetary Boundaries research laboratory, which is part of the Stockholm Resilience Centre's Global Dynamics research theme. She is also the co-convenor of the international Planetary Boundaries Research Network, PB.net. Both of these initiatives take a transdisciplinary approach to link insights from Earth system science and resilience theory, to better characterize the issues of global sustainability.

A. (Andrew) Cox

Chief of Staff, Office of the Executive Director, UN Habitat

Andrew Cox served as Resident Coordinator of the United Nations in the Maldives, Resident Representative of UNDP, and UNFPA Representative (2010-2013). Previously, Andrew was Chief of Staff at the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) in New York (2007-2010).

dr. P. (Patrina) Dumaru

Team Leader, EU-Global Climate Change Alliance Project, Pacific Centre for Environment and Sustainable Development (PACE-SD), University of the South Pacific

Patrina Dumaru has worked with various national and regional agencies in the Pacific Islands over the past 15 years and specialises in integrated and participatory approaches to climate change adaptation, coastal resource management and water and sanitation and has published some of this work. Her recently completed PhD with the University of Melbourne examined the effectiveness of community-based adaptation projects to enhancing the adaptive capacity of indigenous Fijian villages to climate change.

W. (Warren) Evans

Independent Senior Adviser

Warren Evans, formerly Director of Environment and Sr. Adviser for Sustainable Development at the World Bank, is an independent adviser to international organizations, governments, civil society and private sector. He currently holds several positions including senior advisor on climate change to the Asian Development Bank, senior advisor to the Clinton Climate Initiative, and senior advisor to the Chief Executive of Birdlife International.

F. (Francesco) Femia

Founding Director, Center for Climate and Security (CCS)

Francesco Femia is Co-Founder & Director of CCS, where he leads the Center's policy development, analysis and research programs, and facilitates the primary forum for climate-security dialogue in the U.S. national security community. He has written and published extensively on the security implications of climate change, water stress and natural resource mismanagement in Syria and North Africa.

E.P. (Ernst Peter) Fischer

Deputy Director General for Globalisation, Energy and Climate Policy, German Federal Foreign Office

Peter Fischer's portfolio covers global economic, financial, trade, energy, environmental and climate policy. Peter is a career diplomat. His professional path has focused on economic and global issues.

K. (Kees) van der Geest (PhD)

Senior Researcher, United Nations University, Institute for Environment and Human Security

Kees van der Geest (PhD) is a human geographer, specialised in studies of migration, environment, development, livelihood and climate change (vulnerability, impact, adaptation, loss & damage). He has extensive fieldwork experience, mostly in Ghana (5 years), but also in Burkina Faso, Vietnam, Bangladesh, Nepal and Bolivia.

dr. L. (Leo) Goff Captain USN (Ret.)

Program Manager, Center for Naval Analyses (CNA)

Doctor Goff is the program manager for CNA's Military Advisory Board, a group of retired three- and four-star flag and general officers from the Army, Navy, Air Force and Marine Corps who study pressing issues of the day to assess their impact on America's national security. Their focus for the last several years has been on climate, energy, and national security.

Prof. dr J. (Joyeeta) Gupta

Professor of Environment & Development in the Global South, Amsterdam Institute for Social Science Research of the University of Amsterdam and UNESCO-IHE Institute for Water Education in Delft

Joyeeta Gupta is editor-in-chief of International Environmental Agreements: Politics, Law and Economics and is on the editorial board of seven other journals. She was lead author in the Intergovernmental Panel on Climate Change which won the 2007 Nobel Peace Prize with Al Gore and of the Millennium Ecosystem Assessment which won the Zaved Second Prize.

drs. K. (Kitty) van der Heijden

Director Europe Office, World Resources Institute

Works at World Resources Institute, Brussels, Belgium.

T. (Torgny) Holmgren

Executive Director, Stockholm International Water Institute (SIWI)

Mr. Torgny Holmgren is Executive Director of SIWI and former Ambassador at the Swedish Ministry for Foreign Affairs and Head of the Department for Development Policy. He is a board member of Water Aid (Sweden) and member of World Economic Forum Global Agenda Council on Water, the European Advisory Group of the Bill & Melinda Gates Foundation and the Swedish Expert Group for Aid Studies.

D. (Dina) Ionesco

Head of the Migration, Environment and Climate Change (MECC) Division

Dina Ionesco is the Head of the Migration, Environment and Climate Change (MECC) Division since 1st January 2015. In this capacity she oversees policies, programmes and publications related to migration, environment and climate change and coordinates IOM's contributions to policy processes, such as the climate change negotiations and Nansen Initiative. Dina worked as the institutional focal point on MECC between 2011 and 2013 developing IOM's portfolio of activities and engagement on this topic.

C. (Colin) Kelley (PhD)

Climate scientist, PACE Postdoctoral Fellow, University of California

Colin is a climate scientist working predominantly with hydro climate. He received his PhD from Columbia University's Lamont-Doherty Earth Observatory in early 2014 and is currently completing a two-year PACE (Postdocs Applying Climate Expertise) fellowship at the University of California, Santa Barbara. His current research focuses on regions that are water-scarce and countries that are highly vulnerable to the emerging effects of climate change.

dr. M. D. (Marcus) King

Professor of International Affairs, George Washington University, Elliott School of International Affairs

Marcus D. King is John O. Rankin Associate Professor of International Affairs and Director of the Elliott School's Master of Arts in International Affairs Program. King previously served as Director of Research and Associate Research Professor. As a professor, Dr. King draws on experience in public service, research and the private sector.

H.E. I. R. (Rhonda) King
Permanent Representative, Permanent Mission of Saint Vincent and the Grenadines, United Nations
Permanent Mission of Saint Vincent and the Grenadines to the United Nations, New York, United Nations of America.

A. (André) Kuipers
Astronaut, European Space Agency
André Kuipers is the first Dutchman with two Space missions to his name. At the time his second mission was the longest spaceflight in European history. He spent a grand total of 204 days in Space: 11 days during his first flight, the DELTA Mission in 2004 and 193 days during the PromISSe mission in 2011/2012. On board the International Space Station (ISS), as flight engineer, he performed many diverse tasks including scientific experiments, coupling of spaceships and vital maintenance and repair work.

Prof. dr. W. (Walter) Kälin
Envoy of the Chairmanship of the Nansen Initiative, Professor of constitutional and international law, Nansen Initiative, University of Bern, Faculty of Law
Walter Kälin is professor of constitutional and international law at the Faculty of Law of the University of Bern, Switzerland (since 1985) and currently Envoy of the Chairmanship of the Nansen Initiative. He is one of the world's foremost experts on international human rights law and protection issues related to internal and cross-border displacement.

G. (Glada) Lahn
Senior Research Fellow, Energy, Environment & Resources Department Chatham House
Glada Lahn has 12 years experience in international oil and gas investment and resource governance policy. She has worked closely with many organizations and policy-making bodies internationally, formulating policy recommendations on energy access and sustainable energy security issues focusing on Asia, Africa, the Middle East, Europe and the Arctic.

S. (Sylvia) Lee
Water Manager, Skoll Global Threats Fund
Sylvia Lee has over a decade of experience in the water sector. She most recently worked as a Water Resources Specialist for the South Asia Region of the World Bank based in Kathmandu, Nepal. Her work at the World Bank focused on transboundary water issues and climate change adaptation & resilience building for vulnerable communities.

H.E. dr. F. P. (Pa'olelei) Luteru
Ambassador of Samoa, Independent State of Samoa
H.E. Fatumanava III Dr Pa'olelei Luteru is the Ambassador of Samoa based in Brussels. Previously, he was Samoa's Trade Commissioner to New Zealand. From 2000 to 2005, he was Assistant Secretary-General of the ACP Group, Political Affairs and Human Development Department in Brussels, Belgium. Dr Luteru held various positions leading Pacific-EU matters in the design and facilitation of projects for Pacific ACP member states under the Lome IV Convention.

N. (Nick) Mabey

Founding Director & Chief Executive, Third Generation Environmentalism (E3G)

In addition to his management role, Nick leads E3G's work on European climate change policy, climate diplomacy and foreign policy, and the security implications of climate change and resource scarcity. Nick is currently the vice-chair of the European Alliance to Save Energy, and sits on the steering group of the Global Stranded Assets Advisory Council.

dr M. (Malin) Mobjörk

Researcher, Department of Political Science at Stockholm University

Malin Mobjörk is a researcher at the Department of Political Science at Stockholm University, Sweden. Malin holds a PhD in Water and Environmental Research from Linköping University, Sweden. Her research focuses on security challenges posed by climate- and environmental change and how decision-making can develop to respond to the complexity characterising these challenges. Her research also encompasses interdisciplinary and transdisciplinary research. Previously Malin has worked as a Deputy Research Director at the Swedish Defence Research Agency, FOI. Malin is a member in the Swedish Expert group for aid analysis.

B. (Bessma) Mourad

Program Officer for Water, Skoll Global Threats Fund

Bessma Mourad has worked in the areas of natural resources, development, and women's rights over the last decade. Prior to joining SGTF, Bessma held positions at Global Footprint Network as Project Manager, and at United Nations Environment Programme's Post-Conflict and Disaster Management Branch, as Project Advisor, researching and writing on topics of natural resources management, conflict prevention and peacebuilding.

Major General (Retd.) A.N.M. Muniruzzaman

President & CEO, Bangladesh Institute of Peace and Security Studies (BIPSS)

Major General Muniruzzaman (Retd) is a career military officer who served 38 years in active duty. He is an experienced peace keeper, he has taught the subject as a faculty member and has experience in the field. He was a member and head of the country contingent to UNTAC in Cambodia. He also served as the Military Secretary (Principal Military Advisor) to the President of Bangladesh.

R. (Rami) Nakhla

Syrian Pro-democracy Activist, Yale World Fellow

Rami Nakhla is a Syrian pro-democracy activist and Yale World Fellow who has worked to advance political, social, and security sector reform in Syria since 2006. Mr. Nakhla, has served as Executive Director of "The Day After Association" and as Syria Program Specialist at the US Institute of Peace (USIP), coordinating "The Day After" project on the Institute's behalf.

B. (Bernice) Notenboom

Professional Adventurer and Climate Journalist

Bernice Notenboom is climate journalist, science writer, filmmaker, keynote speaker and professional adventurer. In 2008 she became the first woman to reach the North, South, and Cold Pole (in Siberia) and traversing Greenland's icecap on skis in one year. In 2009 she reached the top of the Mount Everest.

Prof. dr. S. (Sebastian) Oberthür

Research Professor Environment and Sustainable Development, VU University, Institute for European Studies

Trained as a political scientist with a strong background in international law, Sebastian Oberthür focuses on issues of international and European environmental governance, with an emphasis on institutional issues and perspectives. He is a member of Climate Strategies – an international research network focusing on climate and energy policy.

drs. A. (Bram) van Ojik

Special Envoy for Migration, Ministry of Foreign Affairs of the Kingdom of the Netherlands

Bram van Ojik studied economics at the VU University Amsterdam where he specialized in development economics. He started his career at Amnesty International, where he worked as coordinator of Southern Africa. He has been active as a freelance journalist in Central America and Caribbean and has done research on migration in Ghana. In 1993 and 1994, Van Ojik was member of the House of Representatives for GroenLinks and in 2012 he became the party leader.

B. (Betsy) Otto

Director Global Water Program, World Resources Institute

Betsy Otto is the Director of WRI's Global Water Program. Over the past several years at WRI, she has led development of Aqueduct™, a global water risk assessment and mapping tool to inform private and public sector investment and water management decisions. Betsy works with the Water Program team to develop and apply tools and information, and to engage business, NGOs and governments for positive change in managing water resources worldwide.

H. (Henk) Ovink

Special Envoy for International Water Affairs for the Kingdom of the Netherlands, Government of the Netherlands

In his capacity as thematic ambassador, the Special Envoy for International Water Affairs reinforces Dutch ambitions in the water domain; he contributes to boosting the international market position of Dutch know-how and expertise. Mr Ovink currently serves as a senior advisor to the American Federal Government and the former Hurricane Sandy Rebuilding Taskforce instituted by President Obama.

K. (Katie) Peters

Research Fellow, Overseas Development Institute (ODI)

Katie Peters has extensive experience in the field of disaster risk reduction, climate change adaptation, emergency preparedness, conflict sensitivity, and the intersection with sustainable development. Her background includes research into the concept of resilience, disaster risk reduction in fragile and conflict affected states, climate change and conflict, and the securitisation of climate change.

C. (Conor) Phillips

Country Director, International Rescue Committee

Conor has been working with NGOs and the UN in sub-Saharan Africa and the Middle East for over 10 years. He is currently the Country Director for the International Rescue Committee in Kenya, working primarily with refugee populations from Somalia and South Sudan. He has held roles, focusing either on disaster/conflict response or environmental change (or both), in Turkey/Northern Syria, Sudan, Niger, Sierra Leone, Ethiopia and Atlantic and Indian Ocean Small Island Developing States.

Dr J (Jamie) Pittock

Associate Professor

Dr Pittock is Associate Professor in the Fenner School of Environment and Society at The Australian National University. He is also Director of International Programs for the UNESCO Chair in Water Economics and Transboundary Water Governance at ANU. Dr Pittock worked for non-government environmental organisations in Australia and internationally from 1989-2007, including as Director of WWF's Global Freshwater Programme from 2001-2007. His research focuses on better governance of the interlinked issues of water management, energy and food supply, responding to climate change and conserving biological diversity.

dr. E. (Edward) Pope

Senior Applied Scientist, Met Office

Edward joined the Met Office in 2011. Edward has published research papers on a wide range of fluid and dynamical systems phenomena in peer-reviewed scientific journals, along with articles in the New Scientist and Physics World. He has also presented talks and posters at a variety of national and international meetings, workshops and conferences. Edward is also actively involved in Met Office's STEM outreach programme.

D. (David) Reed PhD

Senior Policy Advisor, World Wildlife Fund (WWF)

David Reed, PhD, is a widely published author and global expert on the complex relationships between macroeconomic policies, social structures and the environment. His recent works, including his latest book In Pursuit of Prosperity: U.S. Foreign Policy in an Era of Natural Resource Scarcity (Routledge, 2014), explore the impacts of resource scarcity and climate change on social and economic stability. He is the Senior Policy Advisor for WWF-US.

dr. N. (Nicolas) Regaud

Special Adviser to the Director General for International Relations and Strategy, The French Ministry of Defence

Dr. Nicolas REGAUD is Special Adviser to the Director General for International Relations and Strategy (DGRIS) of the ministry of Defence. Before the creation of the DGRIS in January 2015, he was Assistant Defense Policy Director at the Delegation for Strategic Affairs (DAS) since September 2008, in charge of strategic foresight and policy planning.

Prof. dr. R. (Ruerd) Ruben

Coordinator Food Security, Value Chains & Impact Analysis

Ruerd Ruben is professor and coordinator of the research programs on food security, value chains and impact assessment at LEI-Wageningen University, The Netherlands. His research concerns the prospects for smallholder participation in tropical food value chains, the effectiveness of rural cooperative organizations and the impact of fair trade certification in value chains.

dr. A. A. (Aaron) Salzberg

Special Coordinator for Water Resources in the Bureau of Oceans, Environment, and Science Affairs, United States Department of State Washington, D.C.

Dr. Salzberg is the first person to hold this title. He is responsible for managing the development and implementation of U.S. policies on drinking water and sanitation, water resources management, and transboundary water and he leads the U.S. Government's response to the Senator Paul Simon Water for the Poor Act of 2005. He was recently awarded the 2010 Frank E. Loy Award for Environmental Diplomacy for moving water from the periphery to the center of U.S. government foreign policy.

Prof. dr. J. (Jürgen) Scheffran

Professor, Universität Hamburg, Institute of Geography

Jürgen Scheffran is professor at the Institute of Geography of Universität Hamburg and head of the Research Group Climate Change and Security (CLISEC) in the Excellence Initiative "Integrated Climate Systems Analysis and Prediction" (CliSAP) at KlimaCampus Hamburg. He is Associate Member of the Center for Science and Peace Research (ZNF) and Faculty Affiliate of the Program in Arms Control, Disarmament and International Security (ACDIS) at the University of Illinois.

dr. R. (Rod) Schoonover

Senior Analyst, United States Department of State, Bureau of Intelligence and Research

Rod Schoonover is currently a Senior Analyst in the State Department's Bureau of Intelligence and Research. Acting also as the bureau's senior scientist, Dr. Schoonover oversees the portfolio on Environment, Science & Technology Issues, in particular the national security implications of climate change, water security, strategic minerals, wildlife trafficking, emergent and disruptive technology, and space security.

S. (Simon) Sharpe

Head of Climate Risk Team, Foreign and Commonwealth Office, Science, Innovation and Climate Department

Simon Sharpe studied physics at Manchester University; worked at the financial services firm KPMG for three years; and joined the Foreign and Commonwealth Office in 2005. He spent three years in Beijing, working on political issues including nuclear non-proliferation and the rule of law; and three years in Delhi, covering counter-terrorism, cyber security, and regional foreign policy.

D. (Dan) Smith

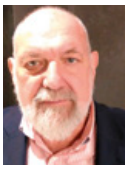
Director, Stockholm International Peace Research Institute (SIPRI)

Dan Smith is the Director of SIPRI as of September 2015. He has a long record of research and publication on a wide range of conflict and peace issues such as nationalism, identity politics, armed conflicts, ethics of intervention, gender aspects of conflict and peace building. In recent years, his work has broadened to encompass other contemporary issues such as the relationship between climate change and insecurity, peace and security issues in the Middle East and global conflict trends.

R.M. (Roger-Mark) De Souza

Director of Population, Environmental Security, and Resilience, Wilson Center

Roger-Mark De Souza leads programs on climate change resilience, reproductive and maternal health, environmental security, and livelihoods, including the Global Sustainability and Resilience Program, Environmental Change and Security Program, and Maternal Health Initiative.



T. (Tom) Spencer

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Swathi Veeravalli is an interdisciplinary research scientist at the Geospatial Research Laboratory, Engineer Research and Development Center, US Army Corps of Engineers. Since 2010, she has been Principal Investigator on several basic and applied research efforts, where she focuses on developing the capability to better understand the impact of climate variability upon humans and the environment. In this role, Swathi seeks to better utilize interdisciplinary research methodologies to create innovative demand-driven solutions to complex problems based on collaborative problem solving and strategic thinking.

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Gerald Stang is a Senior Associate Analyst with the EU ISS where he primarily works on energy, climate change and other emerging security challenges. He was recently a lead author for 'A New Climate for Peace', an independent report commissioned by members of the G7, which investigates the compound fragility risks posed by a changing climate.

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Alexander Verbeek works on international issues related to climate, water, food, energy and resources. Alexander collaborates with governments, businesses, think tanks and civil society agencies to find connections between these issues and create solutions for the environmental, resource and demographic challenges of the 21st century. Alexander is a Yale World Fellow, an Associate at the Stockholm Environment Institute and public speaker on climate change.

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Jon White joined the Consortium for Ocean Leadership in Sep 2015 as the Vice President for Science and Strategy. Prior to this he had a distinguished 32-year career in the U.S. Navy and retired at the rank of Rear Admiral. White earned numerous personal and unit awards throughout his career, which are all a tribute to the Sailors, Marines, Airmen, Soldiers, Coast Guardsmen, and civilians with whom he served.

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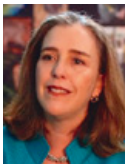

Paula Caballero

Senior Director, Environment & Natural Resources Global Practice, World Bank

Prior to joining the World Bank in July 2014, Paula Caballero, was the Director for Economic, Social and Environmental Affairs in the Ministry of Foreign Affairs of Colombia. She was a leading voice and negotiator in international fora, including the United Nations Framework Convention on Climate Change, and the Post 2015 framework.

Alexander Carius

Co-founder & Managing Director, Adelphi

Alexander Carius is co-founder and Managing Director of Adelphi. The core topics of his research and consultancy work are: resources and governance, climate and energy, and development and security. He also provides advice on institutional matters with respect to environmental and development policy, policy integration and the development regional and multilateral cooperation frameworks. He advises federal ministries, aid agencies, the European Commission and various international organizations. Since 1995, he has managed more than 200 national and international research and advisory projects with inter-disciplinary teams.

Francesco Femia

Founding Director, Center for Climate and Security (CCS)

Francesco Femia is Co-Founder & Director of CCS, where he leads the Center's policy development, analysis and research programs, and facilitates the primary forum for climate-security dialogue in the U.S. national security community. He has written and published extensively on the security implications of climate change, water stress and natural resource mismanagement in Syria and North Africa, including in the seminal report. He has over a decade of experience conducting research and policy development on the intersection of climate change, national and international security.

Kitty van der Heijden

Director Europe, World Resources Institute (WRI)

Drs. Kitty van der Heijden is the Director of WRI's Europe Office. She brings a distinguished diplomatic career with notable accomplishments in sustainable development and humanitarian aid to the global research organization. Kitty represents WRI's vision and strategy in Europe, and is responsible for managing WRI's liaison office, based in Brussels, where she facilitates engagement with European governments, businesses, and institutions. She works in close collaboration with WRI's President and Executive Team, its Program and Center Directors, and its Country Directors in India, Brazil and China.

Torgny Holmgren

Executive Director, Stockholm International Water Institute (SIWI)

Mr. Torgny Holmgren is Executive Director of SIWI, former Ambassador at the Swedish Ministry for Foreign Affairs and Head of the Department for Development Policy. He is a board member of Water Aid (Sweden) and member of World Economic Forum Global Agenda Council on Water, the European Advisory Group of the Bill & Melinda Gates Foundation and the Swedish Expert Group for Aid Studies. He served as Sherpa in UN Secretary-General's High Level Panel on Global Sustainability (2010-2012).

Johan L. Kuylenstierna

Executive Director, Stockholm Environment Institute (SEI)

Johan holds an adjunct professorship in international water resources issues at the Department of Physical Geography and Quaternary Sciences at the Stockholm University. Johan has previously worked as the Chief Technical Advisor to the Chair of UN-Water, based at FAO in Rome. Before joining the United Nations, he served as Project Director at the Stockholm International Water Institute with the overall responsibility for the World Water Week in Stockholm. He also established the Swedish Water House initiative and served as its first manager.

Glada Lahn

Senior Research, Fellow Chatham House

Glada Lahn is a Senior Research Fellow with the Energy, Environment & Resources Department at Chatham House in London. She has 12 years experience in international oil and gas investment and resource governance policy. She has worked closely with many organizations and policy-making bodies internationally, formulating policy recommendations on energy access and sustainable energy security issues focusing on Asia, Africa, the Middle East, Europe and the Arctic. Glada is a Trustee on the Board of Capoeira4Refugees working to empower vulnerable children in Palestine, Jordan and Syria.

Simon Sharpe

Head of Climate, Risk Team Science, Innovation and Climate Department Foreign and Commonwealth Office

As Head of the Climate Risk Team at the FCO since September 2013, Simon Sharpe is responsible for developing FCO assessment of climate change risks to international security and economic prosperity; leading international cooperation on climate change risk assessment (including through the G7, and in partnership with experts in the US, China and India); and overseeing climate diplomacy with the US, China and India.

Jamie Shea

Deputy Assistant Secretary General, Emerging Security Challenges, North Atlantic Treaty Organisation (NATO)

Jamie Shea has been working with NATO since 1980. He is involved with several prominent academic institutions and acts amongst others as professor of the Collège d'Europe, Bruges, Visiting Lecturer in the Practice of Diplomacy, University of Sussex, Associate Professor of International Relations at the American University, Washington DC, where he also holds the position of Director of the Brussels Overseas Study Program. He also lectures at the Brussels School of International Studies at the University of Kent and he is a regular lecturer and conference speaker on NATO and European security affairs and on public diplomacy and political communication and lobbying.

Dan Smith

Director, Stockholm International Peace Research Institute (SIPRI)

Dan Smith is the Director of SIPRI as of September 2015. He has a long record of research and publication on a wide range of conflict and peace issues such as nationalism, identity politics, armed conflicts, ethics of intervention, gender aspects of conflict and peace building. In recent years, his work has broadened to encompass other contemporary issues such as the relationship between climate change and insecurity, peace and security issues in the Middle East and global conflict trends. He is the author of successive editions of atlases of politics, war and peace, with a special focus on the Middle East and blogs on international politics at *www.dansmithsblog.com*.

Roger-Mark De Souza

Director of Population, Environmental Security, and Resilience Wilson Center

Roger-Mark De Souza leads programs on climate change resilience, reproductive and maternal health, environmental security, and livelihoods, including the Global Sustainability and Resilience Program, Environmental Change and Security Program, and Maternal Health Initiative. Before joining the Center in 2013, De Souza served as vice president of research and director of the climate program at Population Action International, where he provided strategic guidance, technical oversight, and management of programs on population, gender, climate change, environment, security, and reproductive health.

Gerald Stang

Senior Associate Analyst, EU Institute for Security Studies (EU ISS)

Gerald Stang is a Senior Associate Analyst with the EU ISS where he primarily works on energy, climate change and other emerging security challenges. He was recently a lead author for A New Climate for Peace, an independent report commissioned by members of the G7, which investigates the compound fragility risks posed by a changing climate. He has also researched and published on strategic foresight in international relations, the changing global environment facing the European Union, and the challenges of working with fragile states from Haiti to Pakistan.

Wouter J. Veening

Co-founder, Chairman, President, Institute for Environmental Security (IES)

Wouter Veening is Co-founder, Chairman and President of the IES, established in 2002 and headquartered in The Hague, opposite the Peace Palace. He oversees program development, methodological issues and external networking and actively participates in projects of the institute, including writing notes, project proposals and giving presentations to policy-makers, universities and other audiences on the relations and challenges concerning environmental risks and security issues.

Caitlin E. Werrell

Founding Director, Center for Climate and Security (CCS)

Caitlin Werrell is Co-Founder & Director of CCS, where she leads the Center's policy development, analysis and research programs, and facilitates the primary forum for climate-security dialogue in the U.S. national security community. She has written and published extensively on the security implications of climate change, water stress and natural resource mismanagement in Syria and North Africa. Her primary research interests include climate change, water policy and international security.

Sir Graham Wynne

Special Adviser Prince of Wales, International Sustainability Unit (ISU)

Sir Graham is a Special Advisor to HRH the Prince of Wales' ISU. He is also a member of the UK Climate Change Adaptation Sub Committee (ASC), and a trustee of the Institute for European Environmental Policy (IEEP). One strand of his work with the ISU has concerned climate change and environmental degradation as potential conflict multipliers, with particular reference to the Middle East and North Africa. A second area of attention has been the resilience of food systems, and the inter-connected nature of food, energy and water security, notable outputs from which have included a country level study in association with the Government of Kenya.

Collaborating Organisations

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"Climate change is a global threat to security in the 21st century. Climate change will put pressure on the world's economic, social and political systems. And the most serious risks will emerge when the impacts of climate change overburden weak states."

Bert Koenders, Minister of Foreign Affairs of the Kingdom of the Netherlands

"The success of this first Planetary Security conference lies in our hands. The work begins now. We cannot wait until we convene again next year. We must use the new network we have established here and the new momentum we have generated together to continue to share knowledge and insights on the nexus between climate change and security and, importantly, to translate insights into policy."

Wim Geerts, Director-General Political Affairs, Ministry of Foreign Affairs of the Kingdom of the Netherlands

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