Clingendael

Netherlands Institute of International Relations

Beyond scares and tales: climate-proofing Dutch foreign policy

Clingendael report for the Netherlands Environmental Assessment Agency (PBL)

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Acronyms

AGIR	Global Alliance for Resilience Initiative
AIM	Amsterdam Initiative against Malnutrition
CDM	Clean Development Mechanism
CERF	Central Emergency Response Fund
CGIAR	Consultative Group on International Agricultural Research
COP	Conference of the Parties
CR&OC	Crisis Response and Operational Coordination Department
DAC	Development Assistance Committee
DGGF	Dutch Good Growth Fund
DRR	disaster risk reduction
EC	European Commission
ECHO	European Commission's Humanitarian Aid and Civil Protection department
EEAS	European External Action Service
EU	European Union
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FSF	Fast Start Finance
GACSA	Global Alliance for Climate-Smart Agriculture
GCCA	Global Climate Change Alliance
GCF	Green Climate Fund
GDP	Gross Domestic Product
GFDDR	Global Facility and Disaster Reduction and Recovery partnership
GPG	Global Public Goods
HFA	Hyogo Framework for Action
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
IPCR	Integrated Political Crisis Response
IPG	International Public Goods
JPI	Joint Programming Initiative
MENA	Middle East and North Africa
MINUSMA	Multidimensional Integrated Stabilization Mission in Mali
NGO	non-governmental organisation
NWP	Netherlands Water Plan
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
PBL	Planbureau voor de Leefomgeving (Netherlands Environmental Assessment Agency)
PROVIA	Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (hosted at UNEP)
R&D	Research and Development
SHARE	Supporting Horn of Africa Resilience
UN	United Nations
UNCLOS	United Nations Convention of the Law of the Sea
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations Office for Disaster Risk Reduction
UNMISS	United Nations Mission in the Republic of South Sudan

Disclaimer and acknowledgements

This report is a ‘think piece’ that is meant to stimulate further discussion and debate by researchers and policymakers on the relationship between international consequences of climate change and foreign policy. Responsibility for the content of the report lies with the authors only. They would like to thank Charles Aangenendt, Grégory Chauzal, Ko Colijn, Annika Fawcett, Marcel Kok, Willem Ligtvoet, Henk Massink, Rob Schoonman, Ante Sellis, Bas ter Haar, Luc van de Goor, Vincent van den Bergen and Marit van Zomeren for their useful and constructive comments on earlier drafts. In particular, the authors would like to express their gratitude to Arno Bouwman, Rijk van Oostenbrugge and Marijke Vonk for their help in shaping the research and comments provided and for their support in bringing this project to its present state.

About this report

This study aims to explore the impact of international consequences of climate change on Dutch foreign policy, thereby taking into account the interconnectedness of large parts of this policy with broader EU policies. The research was conducted by the Netherlands Institute of International Relations 'Clingendael', with support from the Netherlands Environmental Assessment Agency (PBL) in the context of its study *Global Climate Impacts Risks and opportunities for the Netherlands* as commissioned by the Netherlands Ministry of Infrastructure and the Environment in light of the planned 2017 update of the National Adaptation Strategy. The purpose of this study is to generate new insights that will hopefully be useful for related policy discussions, as well as international discussions on climate change.

Executive summary

The consequences of climate change are typically treated as a local national affair or as a specific challenge for developing countries lacking the resources to respond adequately. However, climate change impacts in other parts of the world may also affect a country like the Netherlands, since it may lead to local physical, economic and political instability with consequences inter alia for international development, trade and investment. This study analyses whether Dutch foreign policies in the fields of development cooperation, foreign economic relations and security are climate-proof. Climate change is not presented as a foreign policy scare, but rather as a factor in relation to which some policies might need adjustments or out of which new opportunities may arise. Where relevant, a brief analysis of EU policies is added, since many of the Dutch policies in the chosen fields are so closely intertwined with them. Throughout the report specific attention is paid to water and food security, which are key sectors both for climate adaptation and for Dutch aid and trade policies. Possible effects for other sectors (e.g. health), the diplomatic infrastructure and the positioning of the Netherlands and the EU within multilateral forums are not incorporated into the analysis.

The analysis reveals a greater degree of awareness of climate change in the realm of development and – to a lesser extent – in the realm of security. The possible effects of climate change on trade policies have not received much consideration yet, whereas a true integration of climate change into security policies is still very much work in progress if compared to development, where there has been much more integration. Because food and water are two of the four spearheads of Dutch development cooperation, and the link with climate adaptation needs in these two sectors is frequently obvious, climate change is often implicitly taken into account in development projects. However, more could be done to make climate impacts more explicit and to increase the level of funding for achieving climate adaptation objectives. This would enable the Netherlands to highlight its contribution to the global adaptation challenge, as well as in relation to the international climate negotiations, which are accelerating towards the crucial summit in Paris at the end of 2015. It could also bring into sharper relief the opportunities for the Dutch food and water sectors to deal with the climate adaptation challenge.

In the field of **development cooperation** the 15 development partner countries selected by the Netherlands are all very vulnerable to climate change. Since 2013, climate impacts are more explicitly taken into consideration, particularly in the funding dedicated to food and water. Dutch support to, for instance, water infrastructural projects clearly contributes positively to climate resilience, but still more could be done to ensure that climate change – and strengthening resilience to cope with it – is a top priority in the choice of projects and their implementation. Despite increased focus on the international consequences of climate change, the Dutch pledge to the Green Climate Fund of 100 million Euros was low in comparison to other (EU) donors (e.g. France and Germany each pledged 1 billion Euros). Nevertheless, the overall contribution of the Netherlands to climate adaptation, according to Development Assistance Committee (DAC) criteria, compares well to that of other donors.

In the realm of **foreign economic relations** it is striking how little information is available on how climate change might impact trade and investment flows, at both national and EU levels. For instance, little insight is available into the climate vulnerability of raw materials the Netherlands imports (and usually re-exports), whereas the relationship between climate change and food security is increasingly signalled as point of concern, for instance in the

latest IPCC report and arguments in favour of setting up the Global Alliance for Climate Smart Agriculture. It seems to be taken for granted that, due to the openness of the Dutch (and European) economy and its capacity to innovate, a shift towards alternatives will be made when needed. More research, notably stress tests, needs to be undertaken on how climate change affects countries and sectors of high economic value to the Netherlands, for instance in the context of the Dutch top-sectors approach or EU-funded research.

In the field of **international security** climate change is widely recognised as a threat multiplier, underlining its aggravating effects on other conflict risk factors such as tensions over natural resources. However, climate insights are not yet well integrated into mainstream security policies, such as political strategies and military planning and material. Scares about water wars and climate migrants appear exaggerated, above all to draw attention to the need to act on climate change mitigation, but they cannot be ruled out in a longer-term perspective when high temperature scenarios become a reality. Therefore, it is to be welcomed that the most recent update (in autumn 2014) of the Netherlands international security analysis does place more emphasis on the need to integrate resource risks and climate impacts into early warning mechanisms. Demands for humanitarian aid and disaster risk reduction are most likely to increase in a more immediate timeframe as a result of climate change and will thereby increasingly compete with the funding for structural development cooperation.

Of particular concern is the Arctic region, where melting of the ice is increasing geopolitical tensions over the ownership of new shipping routes and minerals that become more accessible. In particular, tensions between Russia and NATO members pose a threat to international security and may involve the Netherlands. If escalation of these tensions can be prevented, the region provides many opportunities for the Netherlands. The Port of Rotterdam would have a much shorter transport lane to Asia, at least in the summer months. Also, Dutch companies in the energy and extractive industry sector already have relevant experience of extracting energy in a difficult territory, making them well placed to secure projects in the Arctic.

In preparation for updating the National Adaptation Strategy, on the basis of this research it can be concluded that carrying out a stress test on the climate vulnerability of natural resources (including food products) would be advisable. It would also be desirable to consider what a possible increase in migrants due to climate change might imply for the number of refugees and asylum seekers. In terms of finance, pressure is likely to mount for humanitarian assistance and climate-related ODA. In preparation and planning for military missions, climate change impacts should be taken into account, and efforts should be stepped up to integrate the issue into early-warning and risks analysis.

The Dutch and EU position for the international climate change talks and the debate on climate finance is likely to evolve further after the UN Climate Summit in Paris at the end of 2015. For example, more could be done to acknowledge the global effects of climate change, even if serious mitigation efforts had been made, since even in a serious mitigation scenario adaptation needs will still increase. Acknowledging more strongly this viewpoint may enhance trust in the EU on the part of developing countries who are most vulnerable to climate change. Moreover, this report clearly illustrates the relevance of incorporating climate change into development cooperation and security policies, and points to the need to further analyse the likely impact on trade and investment. More awareness of these topics is warranted as the government attempts to secure continued public support for adaptation-related climate finance. In turn, a higher overall level of climate finance and a larger share of it being dedicated to adaptation could provide additional opportunities for the Dutch agro-food, horticulture and water sectors.

1 Introduction

The Netherlands and the EU acknowledge that a certain degree of climate change has become inevitable and that countries have to prepare for its effects. They have realised that adaptation to climate change is not only a concern for developing countries, which are likely to suffer most, but is also an immediate domestic policy challenge requiring attention. In response, the Netherlands and the EU have started to devise and implement climate adaptation policies (Dutch Ministry of Infrastructure and the Environment (I&M), 2013; EC, 2009; EC, 2013; EU, 2013). The focus in these policies is on the direct and local effects of climate change, such as the rise in sea levels, the increase in extreme weather events, and droughts. Less attention is devoted to more indirect climate change effects, particularly those that emerge in other parts of the world, such as an increase in natural disasters or tropical diseases. Some analysis has been devoted to international security implications, with climate change being referred to as a threat multiplier (e.g. EU, 2008a; EEAS and EC, 2011; EU, 2011). Efforts have also been made to make development cooperation more climate sensitive. However, a still largely neglected topic is the structural effect of climate change abroad for Dutch and EU foreign policy objectives and related instruments. For instance, how will climate change influence foreign direct investments and the way in which the Ministry of Defence needs to prepare for conflicts? And, what foreign policy opportunities might arise from the international consequences of climate change?

This study looks at how the international consequences of climate change affect foreign policy objectives without presenting scares and tales not based on empirical evidence. It focuses on the need for timely adaptation to the effects of climate change and not on mitigation of greenhouse gas emissions. It analyses the societal consequences of climate change from a global public goods perspective. It is thereby assumed that many local consequences of climate change also have impacts that transcend national borders and that may have global consequences. Our aim is to identify how relevant insights can be taken into account in the various aspects of foreign policy. In this way, the study aims to provide input to the Dutch government's call to integrate climate change into foreign policy, specifically with regard to climate financing and the identification of business opportunities (Dutch Ministry of I&M, 2013). The report thus also tries to work with the EU Council (2013) acknowledgement that adaptation is an "important challenge for external relations, in particular as regards cooperation and development". The report aims to provide an integrated perspective, in that it aims to add a focus on (possible) consequences for foreign, economic and security policies. This approach differs from a traditional focus on adaptation in relation to development and finance. For instance, in debates taking place within the United Nations Framework Convention on Climate Change (UNFCCC) adaptation is typically referred to as a key problem for developing countries and linked to the debate on climate finance with a focus on aid and technology transfers (mainly aid, but also technology) from the Global North to the Global South. This report also aims to link up with the ongoing international debate on adaptation as it unfolds within the context of the UNFCCC negotiations and the Green Climate Fund (GCF) and other funding channels. It illustrates why a more proactive international adaptation policy is needed and that financial investments in this regard should not primarily be considered as charity. For the Netherlands specifically, opportunities can be identified when climate-related risks in the water and food sectors are identified in greater detail at national and sub-national levels.

1.1 International consequences of climate change

The September 2014 floods in Pakistan and India affected over two thousand villages and left tens of thousands displaced. The event illustrated the pernicious and interrelated effects of extreme weather events, which are increasing in number and gravity due to climate change (IPCC, 2014a), specifically how precipitation and floods frustrated the work of structural aid projects and complicated humanitarian operations by destroying the physical infrastructure. The natural disaster wrecked agricultural production and broke down communication networks, while Islamist militant groups in Pakistan took advantage of political unrest by taking part in rescue efforts, gaining in popularity and further straining relations with neighbouring India. As flood disasters following the yearly monsoon are expected to become ever more frequent, intense and unpredictable, dams and reservoirs are desperately needed to avoid future catastrophes. The disaster shows that the consequences of climate change may have widespread implications, ranging from the frequency and organisation of military and humanitarian missions to investment risks and conflict assessment analyses.

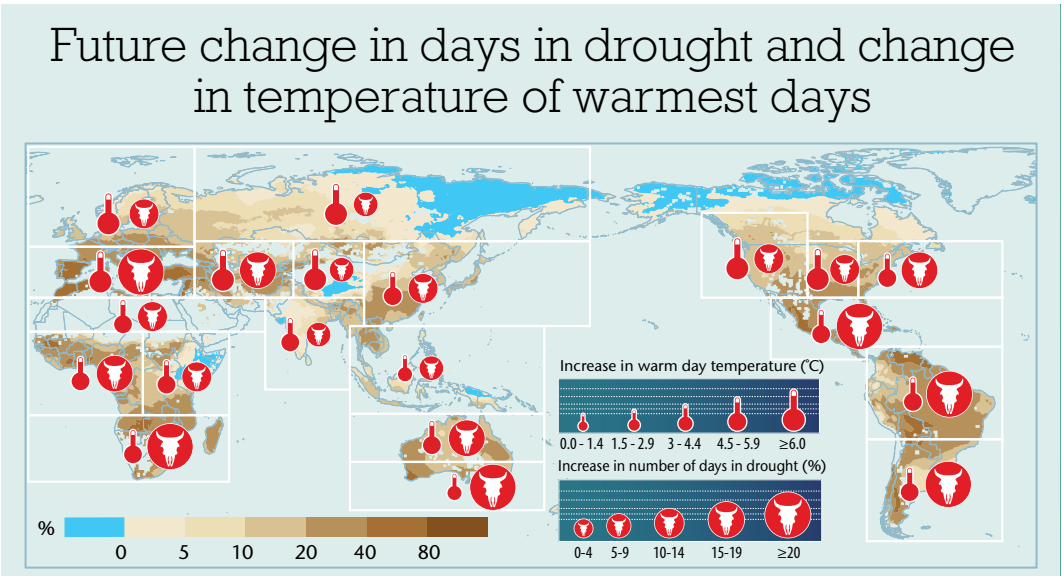
In addition to coastal flooding, climate change is expected to increase the frequency and magnitude of a range of extreme weather events, such as heat waves, storms, cyclones and precipitation patterns (IPCC, 2014a). Furthermore, slow onset events such as sea level rise, ocean acidification, land and forest degradation, desertification and glacial retreat are expected to have wide-ranging impacts on water availability and crop yields in cultivated areas, coastal ecosystems and infrastructure, as well as on biodiversity (UNFCCC, 2012). A shift in regional cultivation areas is expected, as crops vulnerable to heat and water will need to be moved inland or to higher ground to sustain productive harvests. Furthermore, heat waves, changes in local ecosystems, and increased temperature variability encourage the outbreak and spread of water-, food- and vector-related diseases such as malaria, dengue and cholera (PBL, 2013; IPCC, 2014b). Climate change may also lead to deteriorating air, water and food quality, putting people further at risk of infectious diseases through contamination (WHO and WMO, 2012).

Climate change will accelerate water stress and scarcity, on top of the growing demand for water that is likely to result from population and income growth (World Bank, 2009; WWAP, 2009; IPCC, 2014a). This will affect food scarcity, another pressing issue likely to be aggravated by climate change (IPCC, 2014a; FAO et al., 2011). Food scarcity is highly interrelated with water scarcity problems, since agriculture currently consumes 70% of the world's fresh water supply, and up to 95% in some developing countries, with most of the water being used for irrigation in arid regions (FAO, 2008; OCHA, 2010). Agricultural production is also affected by the rising sea level and by desertification, as agricultural land is lost. Climate change is especially likely to aggravate water and food insecurity in sub-Saharan Africa, where rain-fed agriculture covers 96% of all cultivated land (OCHA, 2010; FAO, 2013; FAO, 2011). Some predictions even suggest that by 2020 in some parts of Africa, especially in the densely populated Sahel, agricultural production will be halved (OCHA, 2010). Effective water management is therefore fundamental not only for securing drinking water, but also for agricultural production. These impacts, combined with existing levels of vulnerability and population growth forecasts, can therefore be expected to result in slow-onset disasters.

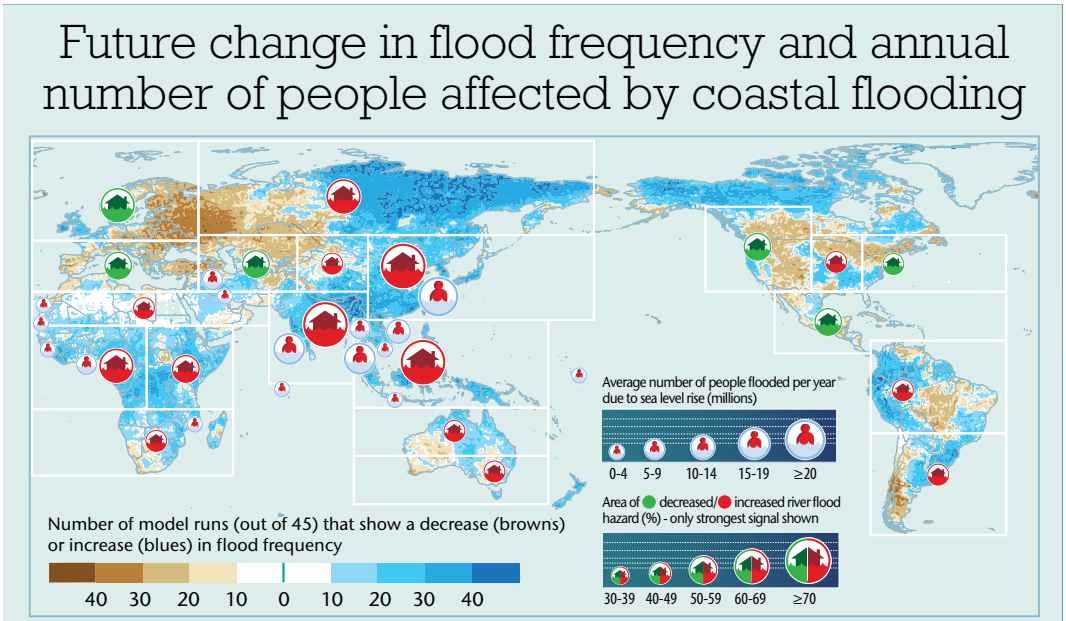
The many effects of climate change vary considerably across regions (see Figure 1). Heat waves, for instance, are expected to have an especially negative impact on living conditions in the tropics and subtropics, with average temperatures estimated to be higher by the end of this century than the most extreme temperatures the region experienced in the entire 20th century

(Battisti and Naylor, 2009). While the temperature rise in Europe is expected to be greater than the global average, the effects on living conditions are expected to be relatively moderate, and with positive effects – such as an increasingly moderate climate leading to expected increases in crop yields (see Figure 1). In global terms, however, droughts and an increasing number of extreme weather events are expected to lead to poor-quality and low-yield harvests which, in combination with population growth, land degradation and market failures, is considered one of the greatest challenges to ending hunger and starvation (see Figure 1).

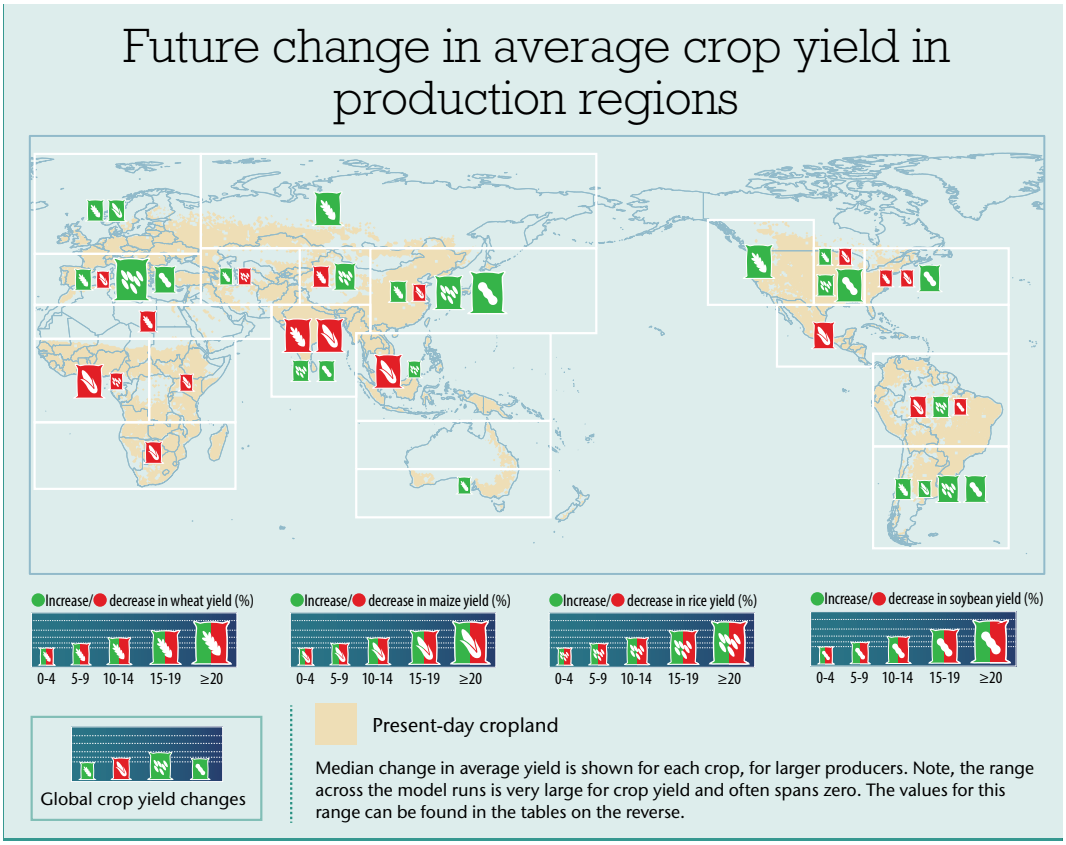
Figure 1 Global impacts on droughts, floods, and average crop yield



The background spatial pattern and the drought icons show the change in the number of days in drought, where drought means a large shortfall in water run-off compared to the average for the time of year. Also included in this map is the change in the temperature of the warmest days of the year.



The flood icons show the percentage of the area within a region that is projected to have an increase or decrease in flood frequency, while the background spatial pattern shows the level of confidence across the models in this change (increase or decrease). Also shown are the average numbers of people projected to be affected by coastal flooding, assuming no additional adaptation, for a selection of the worst affected countries.



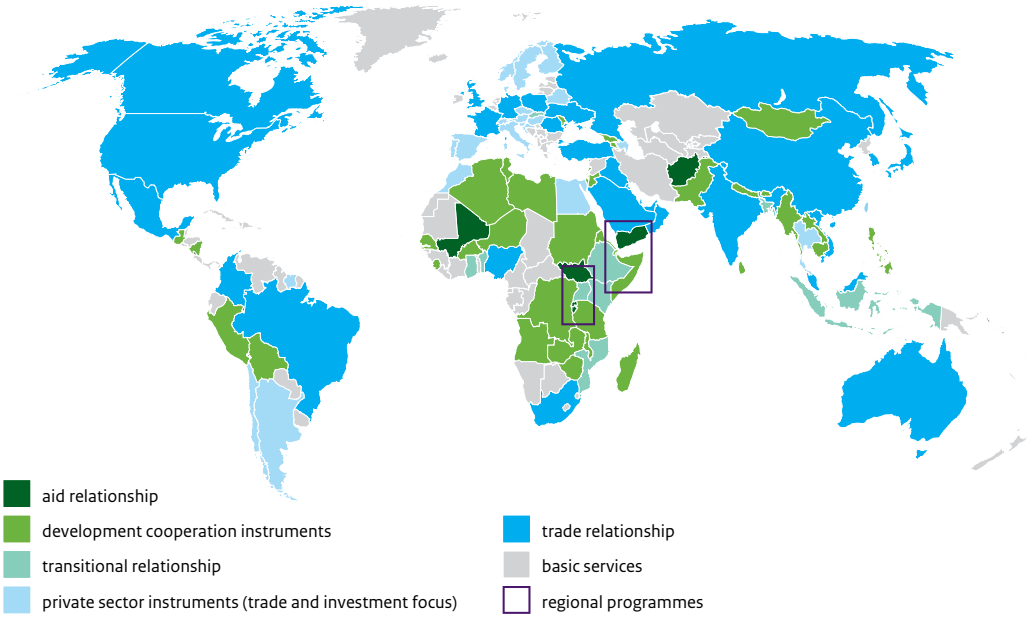
Source: UK MetOffice, 2014. The figure shows projected climate and populations impacts on droughts, floods and crop yields by the end of the 21st century (2071–2100) following a 'business as usual' greenhouse gas concentration scenario.

1.2 Focus of the report: policy areas, countries and themes

Throughout this report we will distinguish between three key areas of foreign policy: development cooperation, foreign economic relations, and international security. The Netherlands has a close development relationship with 15 partner countries, and has selected 32 focus countries on which to concentrate its trade policy efforts (see Figure 2). Its trade, and to a lesser extent its aid and security policies, are Europeanised to a considerable degree. In terms of security, the Netherlands currently contributes to missions in Afghanistan (NATO ISAF), Mali (UN MINUSMA), Somalia (EU NavFor-Atalanta and NATO Ocean Shield), and South Sudan (UNMISS).

We realise that, in reality, aid, trade and security policies are interrelated and some subtopics chosen in this report (e.g. disaster risk reduction, migration) do not fit neatly into one of these categories. The choice of focus also implies a concentration on national policies as developed by the Ministry of Foreign Affairs, with less consideration devoted to the possible effects of climate change on diplomacy, consular affairs and the contribution of other actors such as multilateral organisations, businesses, NGOs and cities. To illustrate the relevance of looking at the influence of international climate change for Dutch foreign policy throughout the report, we have included examples of countries, recent policy initiatives and the private sector to show how they relate to Dutch foreign policy.

Figure 2 Aid, trade and investment relationship of the Dutch government



Source: Dutch Ministry of Foreign Affairs, 2013b.

Specific attention throughout this report is devoted to the themes of water and food. These are the areas where the international consequences of climate change are expected to have significant impact and they are very relevant for the Netherlands. Since roughly half of the Netherlands lies below sea level, the greatest challenge to adaptation within the country lies in the water sector. This makes it understandable that the Dutch government and companies are particularly interested in this sector abroad. Furthermore, as the Netherlands is the second largest agro-exporter in the world and is an importer of a wide variety of agricultural raw materials, the relevance of looking at climate-related risks and opportunities for food production abroad is clear. The water and food sectors are also development priority themes and increasingly linked to debates on international security.

1.3 Outline of the report

In order to address the consequences of climate change effects for Dutch foreign policy, this report proceeds in the following way. First, Chapter 2 deals with how Dutch development activities are influenced by the consequences of climate change. The vulnerability of partner countries is addressed, paying specific attention to two thematic priorities of Dutch development policy: food and water. Chapter 3 explores how Dutch trade interests might be affected by climate change. It provides an overview of trade flows and foreign direct investments and identifies opportunities related to climate change in the context of the Dutch policy to promote carefully selected 'top sectors'. Chapter 4 discusses how climate change could affect Dutch international security interests with regard to increased conflict potential, possibly also in the context of changing geopolitical developments in the Arctic region, migration risks, and the impacts on Dutch military presence abroad. Since the Netherlands is part of the EU, the position and contribution of EU aid, trade and security policy in response to climate change is included throughout the chapters where relevant and possible. Finally, Chapter 5 draws out conclusions and recommendations.

2 Dutch development policy and climate change

This chapter will discuss the effects that climate change has or may have on Dutch development policy by analysing the vulnerability of partner countries, by examining the coherence between climate change and the Dutch development spearheads of food and water, and by addressing development and climate financing. It will also briefly discuss how EU development policy is mainstreamed with climate adaptation objectives.

2.1 Climate change in Dutch and EU development cooperation

A World to Gain: A New Agenda for Aid, Trade and Investment (Dutch Ministry of Foreign Affairs, 2013b) sets out the Dutch agenda for aid and trade. It focuses on policy coherence, new forms of cooperation, new forms of financing, a new Official Development Assistance (ODA) definition, and transparency of financial flows. Dutch development policy is based on four spearheads: security and legal order; food security; water; and sexual and reproductive health and rights (Dutch Ministry of Foreign Affairs, 2011a). In 2010, the number of partner countries for Dutch development cooperation was reduced from 33 to 15.[1] Choices for both the spearheads and the partner countries for development cooperation were based on the aim of bridging global problems and on Dutch expertise. This means that the large body of knowledge the Netherlands possesses on water and food security management and planning is now being encouraged to be used for development purposes. Even though not official spearheads, climate change, gender and private sector development are nearly always explicitly addressed in Dutch development policy documents and multi-annual programmes, and can therefore be considered cross-cutting themes in Dutch development policy.

The EU has also invested in mainstreaming climate change insights into its development cooperation policy. In the context of helping partner countries implement the UNFCCC and Kyoto Protocol, in 2007 the European Commission launched the Global Climate Change Alliance (GCCA) aimed at establishing a platform for dialogue and strengthening cooperation between the EU and developing countries most vulnerable to the consequences of climate change, by providing technical and financial assistance to climate-related projects. Its main priorities are: mainstreaming climate change into the development policies of member states and recipient countries; climate adaptation; emission reduction; strengthening the Clean Development Mechanism (CDM); and disaster risk reduction (DRR). The 2010 consolidated version of the Cotonou Agreement, which covers the relationship between the EU and 79 developing countries in Africa, the Caribbean and the Pacific (ACP), for the first time recognised global climate change as a major issue for the EU-ACP Partnership. Between 2010 and 2012, EU member states and the European Commission provided 7.34 billion Euros to developing countries as part of Fast Start Finance (FSF), which finances projects such as the

1 These countries are: Profile 1 (low-income countries): Benin, Ethiopia, Mali, Mozambique, Rwanda, Uganda; Profile 2 (fragile states): Afghanistan, Burundi, Palestinian territories, Sudan, Yemen; Profile 3 (countries with healthy economic growth): Bangladesh, Ghana, Indonesia, Kenya.

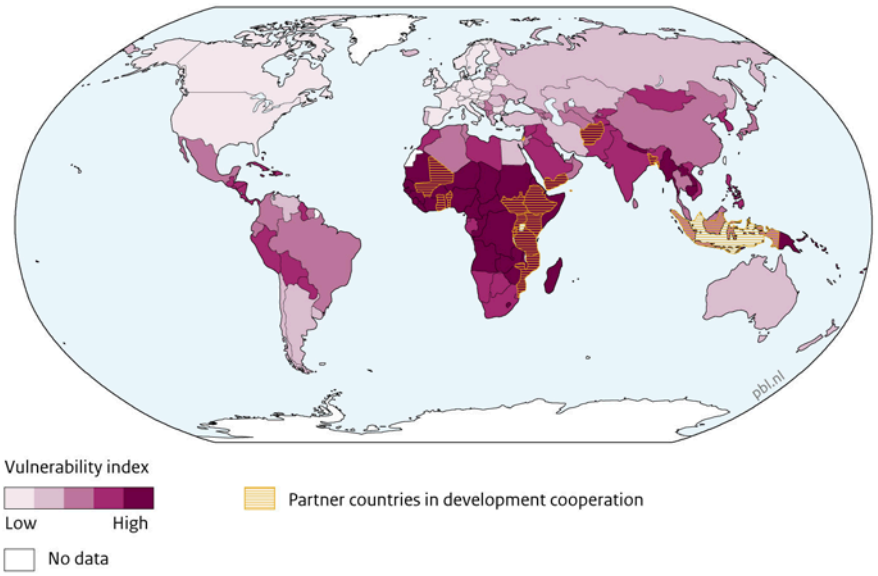
GCCA and which, apart from mitigation and adaptation, paid particular attention to halting deforestation.

Both the Netherlands and the EU have incorporated climate insights. and notably adaptation needs. into their development cooperation programmes. Climate and development objectives are not always synergetic, but often they are (see also AIV, 2013). Therefore, the mainstreaming that is in place can be considered to contribute to both aid effectiveness and environmental objectives. Debate is ongoing with regard to the division of aid going to mitigation versus adaptation, whether it is targeted at improving local circumstances or curbing negative international effects of climate change. A related issue is whether donors pay attention to climate change out of solidarity, to avert negative global impacts, or because they acknowledge a (historic) responsibility for the loss and damage caused by their high per capita emissions. It has been argued that the EU uses its climate finance offers to developing countries as a way to obtain support for its international mitigation agenda in the context of the international climate negotiations (van Schaik, 2012).

2.2 Vulnerability of partner countries

In 2012 the Netherlands disbursed in total 5.5 billion dollars as ODA (OECD DAC, 2013). These funds may be less effective in reducing poverty and promoting other development objectives when developing countries are more vulnerable to climate change, particularly where funding is for projects in the food and water sectors, which are especially vulnerable to climate change. Vulnerability has been defined by the IPCC as the degree to which a system is "susceptible to, and unable to cope with, adverse effects of climate change" (IPCC, 2014a). Vulnerability has three components: the exposure to climate change in various sectors in each country; the extent to which a sector within a country is sensitive to this exposure; and, lastly, its adaptive capacity, defined as the degree to which a country is able to cope with susceptible stresses (ND-GAIN Index, 2013; IPCC, 2014a). Figure 3 shows the location of Dutch partner countries for development and illustrates their levels of vulnerability to climate change.

Figure 3 Climate vulnerability of partner countries in 2012



Source: ND GAIN

EXAMPLE
Bangladesh

Bangladesh-Netherlands relationship

The Netherlands aims to phase out development cooperation with Bangladesh, expecting the country to reach middle-income status by 2025. Following this new direction, the programme increasingly targets trade and investment relations with Bangladesh, which is now one of 34 trade focus countries of Dutch development policy. A key focus area is the Dutch Embassy's Water Programme, which is targeting water management via climate adaptation measures to provide protection against storm surges along the coast and preventing floods in cities (Dutch Ministry of Foreign Affairs, 2014a). Although both the multi-annual strategic plan and the report on integrated water management are relevant to adaptation, a long-term comprehensive strategy for climate change adaptation, important for justifying investments, has not been carried out.

Climate change impacts

Bangladesh is extremely vulnerable as it is located in the tropical region, lies on a deltaic plain with five major river systems, and most of its elevations are within 10 metres of sea level – less in the coastal south where the land generally lies at sea level. Flooding, both in terms of extent and frequency, caused by higher sea levels and increased precipitation, may inundate as much as 60% of the country and will increase in frequency and intensity. Sea level rise in Bangladesh is higher than average because of the effects of tectonic subsidence. The frequency of storms and cyclones surging the Bay of Bengal is expected to increase. Longer dry periods are expected in combination with declining groundwater levels. High population growth and poverty rates further aggravate the challenges ahead.

Consequences for food security

The year 2007 saw examples of how climate-related shocks hit Bangladesh. Severe flooding in 43 districts from July to September 2014 along the Ganges and Brahmaputra rivers caused extensive damage to agricultural production and physical assets, and in the same year Cyclone Sidr caused over 3,000 deaths. Agriculture is a key economic sector in Bangladesh, accounting for around 20% of GDP and 65% of the labour force in the country. Increasingly, climate change-related shocks pose serious challenges to food security, which is already suffering from population growth, changing dietary patterns, and land degradation due to overuse and increasing salinity.

Foreign policy challenges for the Netherlands

- Development investments of around 60 million Euros per year at risk
- Damages to physical and financial assets abroad due to extreme weather; in 2012 the Netherland was the third largest investor in Bangladesh, investing US$116.75 million, mainly in textiles, but also in agro-food, shipbuilding, IT, chemical and energy companies (Nyenrode, 2014)
- Reduced availability of imports or volatility in prices due to transport disruptions (notably shrimp imports)
- Threats to exports (mostly seeds, e.g. for potatoes) due to problems with distribution

Foreign policy opportunities for the Netherlands

- The export of knowledge on water flood management and Disaster Risk Reduction (DRR)
- The export of knowledge on value chain development and improving efficiency in the food sector
- Investment by the Dutch private sector (notably in agro-food, infrastructure, energy, IT and industrial waste water treatment)

2.3 Thematic priorities: water and food

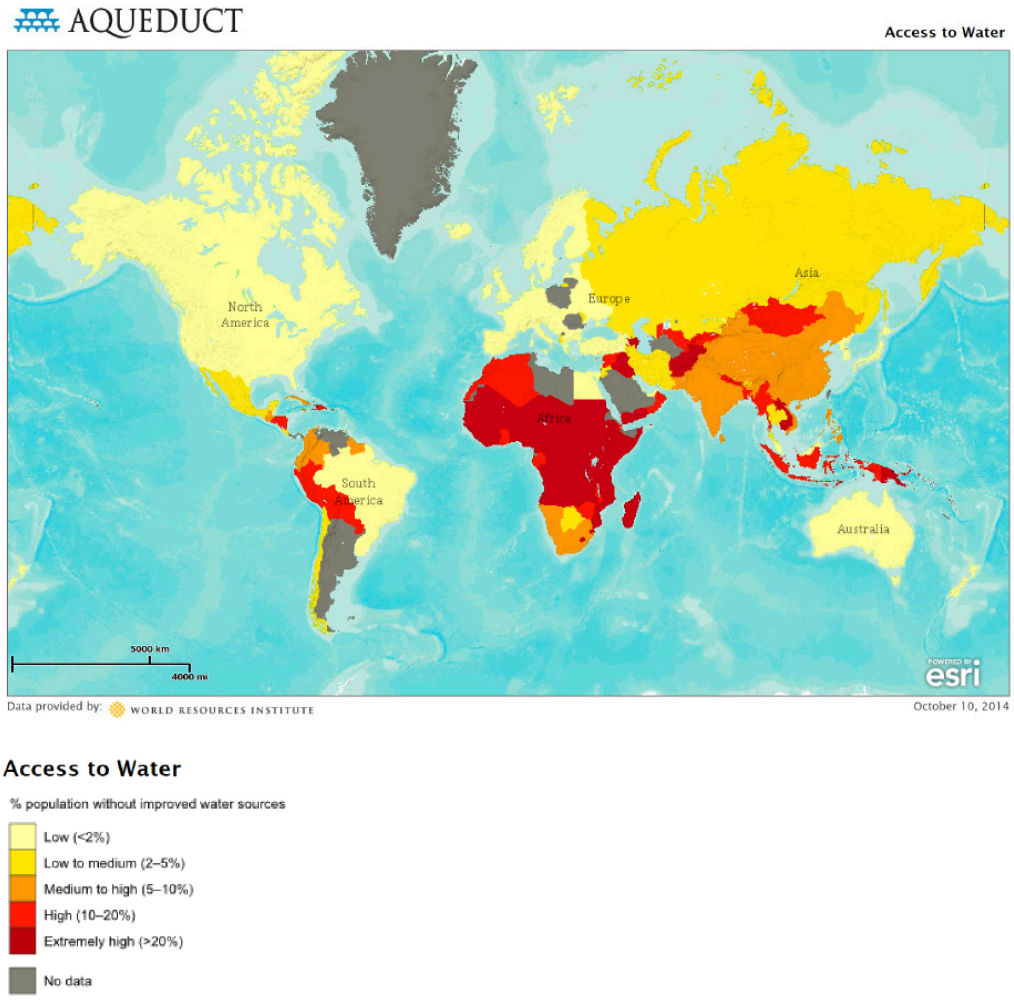
Climate change insights are most explicitly incorporated into Dutch development cooperation through the water and food spearheads. These are sectors where the Netherlands has a strong track record. Water defence is a key domestic concern influenced by climate change, and the Netherlands builds upon centuries of experience in water management and disaster risk reduction. The Netherlands is, moreover, the second biggest agro-exporter in the world and imports and re-exports many agricultural products produced elsewhere on the globe. It is therefore not difficult to understand why it is particularly relevant to integrate insights on the international consequences of climate change into these two sectors. In practical terms, for each of the Dutch partner countries, a Multi-annual Strategic Plan (MSP) is made in which climate risks, and their specific relevance for food and water projects, have on the whole been explicitly taken into account since 2013. Relevant climate insights also help to identify opportunities for future projects and to strengthen the climate resilience of investments.

Dutch international water policy – formulated as part of the Netherlands Water Plan 2009-2015 (NWP 1) – aims to contribute to three main objectives: one is climate adaptation and the other two relate to achieving the Millennium Development Goals and seizing economic opportunities. Multi-annual relations were established with a limited number of delta areas, cooperation with third parties was strengthened (most manifestly in the 'Partners for Water' initiative), and an international marketing programme was developed targeting knowledge-transfer as well as the Dutch export position. A 2012 policy letter further emphasised the importance of efficient water management, especially in agriculture, and underlined the priorities of safe deltas, good governance, and access to drinking water and sanitation (Dutch Ministry of Foreign Affairs, 2012). To finance these policy areas, aggregate expenses on water were expected to rise from 156 million Euros in 2011 to 254 million Euros in 2015 (Dutch Ministry of Foreign Affairs, 2012).

The delta countries with which cooperation on water was intensified were selected on the basis of their similarity to Dutch water challenges; they are Indonesia, Bangladesh, Egypt, Mozambique, Vietnam, South Africa, Colombia and Myanmar. These countries are expected to increasingly experience the effects of climate change – for example flooding, land subsidence, increased precipitation and rising sea levels. Dutch development policies aim to improve government capacity to effectively strengthen water management. Of those countries, only Indonesia, Bangladesh and Mozambique are development partner countries. Climate change-related insights are also generally well incorporated into the established programmes of all other development partner countries. In addition to the bilateral programmes, the Netherlands also actively contributes to World Bank activities in the water sector.

Increasingly, attention is paid not only to the risk of flooding in deltas, but also to the risk of drought aggravated by climate change and accompanying water scarcity problems. Figure 4 gives an overview of where access to drinking water is problematic, and illustrates that several of the Dutch partner countries are at severe risk as a consequence of climate change. Examples are Ethiopia, with expected extreme water variability, and Yemen, which is heavily dependent on limited and declining groundwater levels. Looking to the future, the risks of water stress are particularly alarming in the Middle East and North Africa (MENA) region, as well as in Central Asia.

Figure 4 Global Access to Water Sources

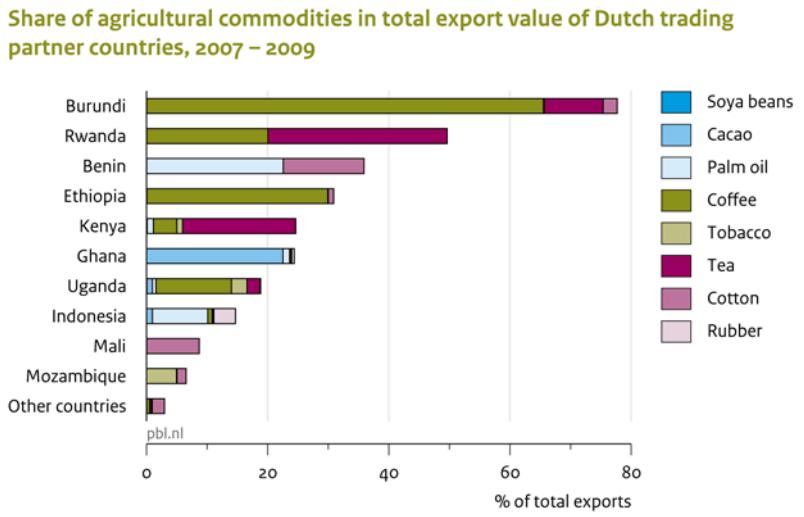


Source: World Resources Institute

Food production is highly dependent on the availability of water. In recent years, Dutch foreign policy has included significant attention to food security in different international forums, for example taking a leadership role in the UN Zero Hunger Challenge (Dutch Ministry of Foreign Affairs, 2012) and contributing to the Global Alliance for Climate-Smart Agriculture. In Dutch policy documents, the connection between food security, poverty, climate change and pressure on natural capital is recognised. Three general commitments for the Netherlands have been formulated: 1) eradicating hunger and malnutrition; 2) promoting inclusive and sustainable growth in the agricultural sector; and 3) realising ecologically

sustainable food systems (Dutch Ministry of Foreign Affairs, 2014c). To achieve these ends, a 'multi-stakeholder approach' (also known as the Dutch Diamond approach) aims to integrate companies, civil society and Dutch development policies on food through making effective use of public-private partnership and academic institutions. A good example of this is the Amsterdam Initiative against Malnutrition (AIM), a public-private partnership that cooperates with local businesses in developing countries; the partnership comprises key Dutch food companies, banks and academic institutes, as well as the Dutch Ministry of Foreign Affairs. The initiative aims to increase self-reliance in recipient countries. It emphasises the safeguarding of a responsible production process, notably through the Sustainable Trade Initiative (IDH), while at the same time strengthening the competitiveness and efficiency of the African agricultural market in particular. As such, development policy is increasingly market-oriented and encourages Dutch companies to play an important role, especially when knowledge-transfer, regulation and innovation are involved. In these efforts, knowledge of the effects of climate change on agricultural production is increasingly taken into consideration. In this respect more could be done in light of the vulnerability of partner countries in the agricultural export sector. Figure 5 gives an overview of the main export products, most of which tend to be quite sensitive to climate change (see also PBL, 2015). The challenge for the recently initiated Global Alliance for Climate-Smart Agriculture is to strengthen the resilience of agricultural production in developing countries.

Figure 5 Agricultural exports of partner countries



Source: FAO, 2012

Considering the severity of the water and food scarcity crises, the importance of food exports for the economic development of a number of the development partner countries and the likelihood of the problems becoming even bigger in the future, Dutch expertise in water management, infrastructure and agricultural practices are likely to become even more valuable in the coming years. From a climate change adaptation perspective, the water and food spearheads are well chosen and we have seen their specific relevance for many of the development partner countries.

2.4 Will climate finance become the new ODA for the Netherlands and the EU?

Studies have indicated that there is a need for 75 to 100 billion dollars a year between 2010 and 2050 for climate adaptation (World Bank, 2010; PBL, 2014) and in previous years climate-related aid rose to 16% of overall ODA in 2012 (OECD Riomarkers, 2014). At the Copenhagen UN Climate Summit of 2009 countries agreed to step up climate finance to 100 billion dollars per annum worldwide in 2020 and the EU promised, and delivered, at least 7.2 billion Euros of fast-track finance by 2013. In Warsaw (2013) countries decided to establish a Loss and Damage Mechanism to address impacts of climate change, including extreme events and slow onset events. Therefore it could be argued that the problem is recognised and that it is likely that climate finance will see a further increase. In the Netherlands this may also happen, although in recent years an intense debate on aid effectiveness has emerged and a similar debate might emerge on climate finance. Moreover, in recent years severe budget cuts have been proposed. Perhaps as a result, the Netherlands recently pledged 'only' 100 million Euros to the Green Climate Fund (GCF) for the period 2015-18, comparing poorly to the pledges of other donor countries (e.g. France and Germany each pledged 1 billion Euros).

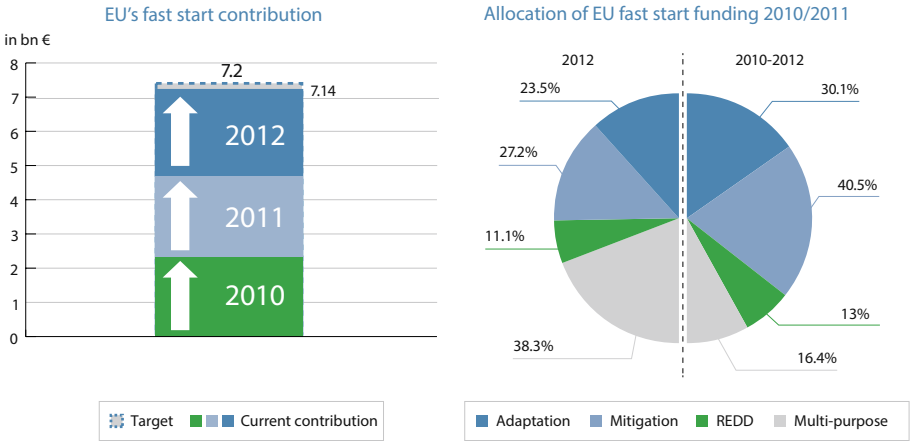
In previous decades, the Netherlands has been a rather generous donor country, spending more than 0.7% of its GDP on ODA and 0.1% on environment-related international cooperation. However, this funding was cut in recent years and the ODA level is expected to reach just 0.55% in 2017 (Dutch Ministry of Foreign Affairs, 2013b), combining regular ODA and funding for climate change (Dutch Ministry of General Affairs, 2010). Attention furthermore shifts to aligning ODA financing with Dutch strategic interests. It is unclear whether mitigation and adaptation projects in developing countries will be considered of equal importance when viewed from the perspective of Dutch interests. Within the context of the UNFCCC's Green Climate Fund, the GCF Board has decided that 50% of its finance should go to adaptation, with at least 50% of these funds going to Least Developed Countries, Small Island Developing States and Africa.

In 2012 the Netherlands spent about 340 million Euros on climate finance for developing countries, which compares well to similar donors (OECD Riomarkers, 2014). Although traditionally most of these funds were used to implement mitigation projects, in recent years funds were increasingly used for adaptation. In 2012 about 145 million Euros of Dutch ODA was spent on mitigation and about 280 million on adaptation (OECD Riomarkers, 2014). It is not entirely clear whether climate aspects of regular food and water projects were identified and made more explicit or whether climate change insights have really led to new projects, but most likely both aspects have occurred. The division between adaptation and mitigation for the EU development funds that are managed by the European Commission is rather similar to the Dutch figures, but the EU has a greater number of projects where climate is a significant but not the main objective (OECD Riomarkers, 2014).

Following commitments originally promulgated at the Copenhagen (2009) and Cancún (2010) summits, roughly a third of the combined funding of the EU and its member states was allocated to adaptation between 2010 and 2012, whereas close to half the budget was allocated to mitigation efforts (see Figure 6). The adaptation funds are predominantly directed towards countries that the EU considers most vulnerable to the effects of climate change, notably Least Developed Countries and Small Island Developing States (EC and Cyprus Presidency, 2012). The EU aims to improve government capacity and recipient-country ownership by

shifting from project funding to loans and grants, which is a challenge given that many projects are community-based and often difficult for national governments to oversee. Developing countries would also prefer the EU to finance more adaptation projects, whereas the EU tends to emphasise mitigation as a way to combat climate change and avoid future adaptation costs.

Figure 6 EU allocation to EU fast start funding between 2010 and 2012



Source: EC and Cyprus Presidency 2012

The labelling of climate finance under ODA is sensitive, as developing countries in the context of the UNFCCC negotiations have argued strongly that funding for climate change should be additional to regular ODA (which is targeted at poverty reduction and MDGs). EU countries and other donors in the past have accepted this claim, partly to obtain the support of developing countries for their international climate change agenda (van Schaik, 2012). However, the idea of climate finance being additional to regular ODA can lead to unrealistic expectations with regard to the amount of funding donor countries can make available and can be at odds with the fact that, at operational level, projects often benefit from both climate and development objectives (Persson and Klein, 2009; AIV, 2013).

Other debated issues are:

- the abovementioned division between mitigation and adaptation as the main targets of climate finance
- whether donor countries want to continue providing climate finance to middle-income countries
- whether climate finance is given primarily out of altruistic motives or as a recognition of historic responsibility for loss and damage
- who ultimately decides on what kind of projects the money is spent (i.e. the donor or receiving country)
- to what extent (public) resources can be blended with private sector funding.

These issues are subject to intense negotiation both in the context of the definition of ODA in the OECD Development Assistance Committee, as well as in relation to the UNFCCC and its related climate funds, notably the recently established Green Climate Fund, but also the World Bank Climate Investment Funds. Such negotiations are characterised by a high level of mistrust between donor and recipient countries (van Schaik, 2014). The EU is, moreover, considered to be a rather unreliable partner, since EU member states as a group cannot agree

upon how much funding they will pledge, whereas they negotiate in the UNFCCC on the basis of a single position (cf. van Schaik, 2012). Moreover, direct EU funding from the Commission-managed EU budget to the GCF is withheld due to the EU not having obtained a seat in its governing body. The issue here is related to a broader debate on the EU's status in multilateral forums and it is generally deplored that the European Commission (mis)uses its with to upgrade the EU's international status to withhold its funds.

At the same time, there is a broader debate on redefining ODA and how to climate-proof other financial streams to developing countries, such as remittances and foreign direct investment. Whether developing countries truly become more resilient to climate change depends to a large degree on decisions made by the private sector and non-traditional donors (see, e.g., Atteridge, 2011; Schalatek and Nakhooda, 2012; Buchner et al., 2012; and Venugopol and Srivastava, 2012). The idea is that these financial flows could be influenced by co-financing. The Netherlands Ministry of Foreign Affairs has indicated informally that it strives for at least 50% co-financing by the private sector for the climate finance it provides. Beyond 2020, it is estimated that the Netherlands would have to provide in total an amount of 1.2 billion Euros per year composed of both public and private funding. A complicating factor is that attracting private finance might be easier in some sectors than in others. For instance, it might be difficult to attract funding for building new water infrastructure given its public goods character.

Particularly in light of the UNFCCC negotiations gearing up to a defining COP in Paris at the end of 2015, pressure is likely to mount to step up climate finance efforts. Developing countries, in order to support EU ideas on a global agreement with hard commitments to reduce emissions, are likely to demand increased funding, additionality of this funding to ODA, a higher percentage going to adaptation, and a larger say in how the funding is spent. For the time being, such demands are not synergetic with the lack of (public and political) debate within the Netherlands and the EU on why funding for climate adaptation should increase, what type of funding we prefer, to what countries and for which purposes. In the past this could be ignored, since sums for climate finance were smaller and regular ODA budgets were less contested, but in post-economic crisis Europe (and the Netherlands) an increase of finance for climate adaptation in developing countries cannot be taken for granted.

2.5 Conclusions

The Netherlands is well on track when it comes to integrating climate change insights into its development cooperation policy, particularly when it comes to its activities in the fields of water and food. These spearheads, from a climate perspective, are well chosen since international impacts of climate change are strongly related to developments in the water and food sectors. As we will discuss in the next chapter, these are also areas where Dutch private sector knowledge and expertise is valuable and can contribute to achieving development objectives and resilience among partner countries.

Although it is clear that from a climate perspective the food and water spearheads are most relevant, that does not mean that all development initiatives linked to these spearheads contribute to adaptation – and it could be interesting to carry out more in-depth analysis and case studies in this regard. Coherence of development policy objectives and climate change goals cannot be automatically taken for granted (AIV, 2013). The EU seems to be active in mainstreaming climate change insights into its development activities, but we lack independent evaluations of how funding is actually being spent. Many questions can be posed with

regard to how and to what extent climate finance will be scaled-up and what the role of the private sector will be in that regard. The Netherlands is a strong supporter of involving the private sector in development cooperation, but uncertainties exists with regard to how and to what extent that sector can be expected to co-finance projects, notably those of a more public-sector nature. In relation to the question of financing, another point of concern is the absence of public debate on Dutch interest in financing adaptation abroad, and the benefits that may entail, not only for development but also for the Dutch economy and security. We will discuss those aspects in more depth in the following two chapters.

3 Dutch foreign economic relations and climate change

Studies have just recently begun to identify threats to economic and trade interests arising out of the international consequences of climate change (e.g. PWC, 2013; Munich Re, 2013; WTO, 2010). Extreme weather events may damage physical and financial assets abroad, and may also lead to shortages or reduced availability of imports or volatility in world commodity prices. In turn, that might lead to protectionism and, in a more indirect way, failures of transportation and distribution networks that might impede access to imports or exports. On the other hand, business opportunities may emerge, such as the export of new climate-resilient technologies or an increased attractiveness of the Port of Rotterdam due to the opening up of new sea lanes in the Arctic region. In this chapter we will zoom in on possible consequences for Dutch foreign economic relations.

3.1 Dutch and EU policy fostering trade

The Netherlands has an open, export-oriented economy and has trade relations with many countries. It is the 7th largest importer, the 5th largest exporter, the 11th largest investor and the 2nd largest agricultural exporter (Dutch Ministry of Foreign Affairs, 2013b). Companies working primarily for foreign markets are of strategic importance for the Dutch economy; while accounting for only 7% of companies in the Netherlands, they provide 44% of the jobs and 87% of research and development expenses (Dutch Ministry of Economic Affairs, 2011).

Since 2012, trade and aid policy have been combined under the responsibility of one minister. The policy document *A World to Gain* provides an overview of the combined objectives and defines 34 trade partner countries (Dutch Ministry of Foreign Affairs, 2013b). It launched the new Dutch Good Growth Fund (DGGF), with an annual budget of 250 million Euros, mainly to support small and medium-sized enterprises in exporting to 66 countries. Furthermore, it underlines the increased importance of economic diplomacy and identifies the need to step up export credit facilities and investment protection through bilateral investment treaties. It stops short of providing a fully-fledged trade policy, which is not surprising since the Netherlands is part of the EU internal market, and as a consequence has long shared authority over trade policy with the other EU member states. Trade policies are designed by the European Commission, which also negotiates bilateral and multilateral trade agreements on behalf of the EU.

The possibility of climate change affecting opportunities for the export-oriented private sector located in the Netherlands is not explicitly referred to Dutch trade policy documents. Neither is the potential effect of countries' high vulnerability on market opportunities or investment risks. The same can be said for the EU's trade policy framework (EU, 2010), which does emphasise the need for green growth, but pays little attention to how climate change could affect current trade and investment flows. Yet there are developments with respect to incorporating climate insights into public trade analyses. For example, more awareness of climate change impacts in relation to international trade can be observed in the recently developed international climate-smart agricultural policy agenda that is strongly promoted by the Netherlands (see Example: The Global Alliance for Climate-Smart Agriculture) and in the external dimension of the top-sector approach in the areas of water, agro-food and horticulture.

EXAMPLE
The Global Alliance for Climate-Smart Agriculture

A new global alliance

The UN Secretary-General's Climate Summit in New York on 23 September 2014 saw the launch of the Global Alliance for Climate-Smart Agriculture (GACSA) by inter alia the Dutch Prime Minister and the Minister for Agriculture. The Alliance strives to support agriculture in safeguarding global food security by making use of the expertise and experience of the private sector, NGOs, academia and states to collaborate with local farmers to develop sustainable production methods that are climate resilient. The aims of the Alliance are to promote:

- sustainable and equitable increases in agricultural productivity and incomes;
- greater resilience of food systems and farming livelihoods; and
- reduction and/or removal of greenhouse gas emissions associated with agriculture, where possible.

What will the Alliance bring to the table?

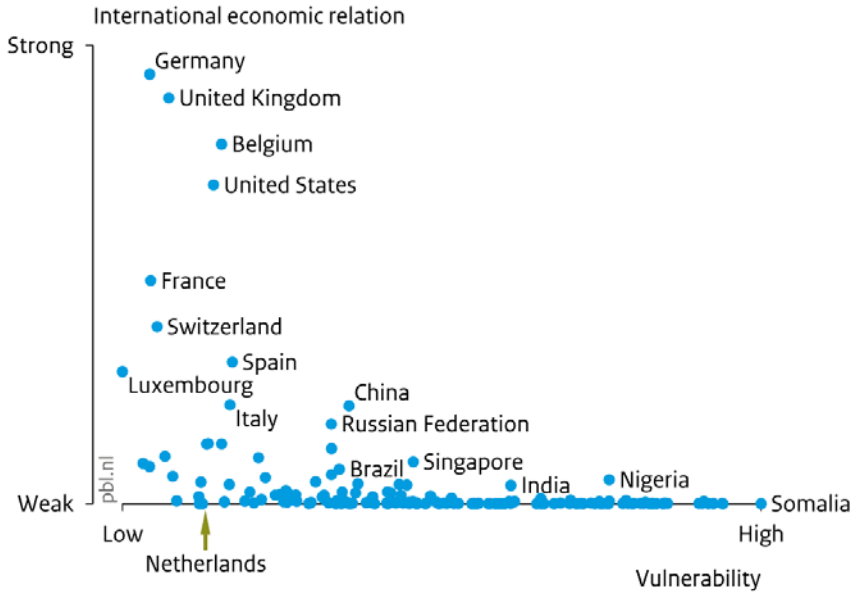
In autumn 2014, FAO hosted a first meeting in Rome to address the new priorities of the Alliance and to agree upon a working programme for the Alliance's inception year. Substantial pledges were promulgated during the conference; the Consultative Group on International Agricultural Research (CGIAR) expects to allocate over 10 billion dollars to climate-smart agriculture research in the upcoming decade, whereas the International Fund for Agricultural Development (IFAD) and the World Bank announced that by 2018 all of their agricultural investment portfolios would be climate-smart. The Alliance promises to become a strong body that will steer agricultural research and investment in years to come. Regardless, at present substantial insecurity remains with respect to the extent of state involvement and through which institutional mechanisms the Alliance will endorse its working programme.

3.2 The vulnerability of trade partner countries and trade flows in general

Economically, the countries of the EU, with Germany as most important partner for trade, constitute the key export market for the Netherlands. With 75% of export being traded in the EU, most companies do not need government support. Dutch trade policy therefore focuses on improving the functioning of the internal market. In addition, maintaining good bilateral relations with other Western, developed countries such as the United States and Canada is a continuous trade policy goal, since these countries provide ample opportunities for Dutch companies (Dutch Ministry of Economic Affairs, 2011). In the coming years, efforts to foster trade by and with Dutch businesses will focus on 34 countries.[2] These countries have been selected on the premise that (1) the country has a large economic potential, (2) the government plays an important role in economic transactions and (3) Dutch business is faced with significant trade barriers. Of these countries Ethiopia, Kenya, Nigeria, Bangladesh and Ghana are most vulnerable (see Figure 7 and Figure 3 in Chapter 2 of this report).

2 These countries are: Bangladesh, Belgium, Brazil, Canada, Colombia, China, Ethiopia, Egypt, France, Germany, Ghana, the Gulf States, India, Indonesia, Japan, Kenya, Malaysia, Nigeria, Poland, Romania, Russia, Singapore, South Africa, South Korea, Turkey, Ukraine, the United Kingdom, the United States and Vietnam.

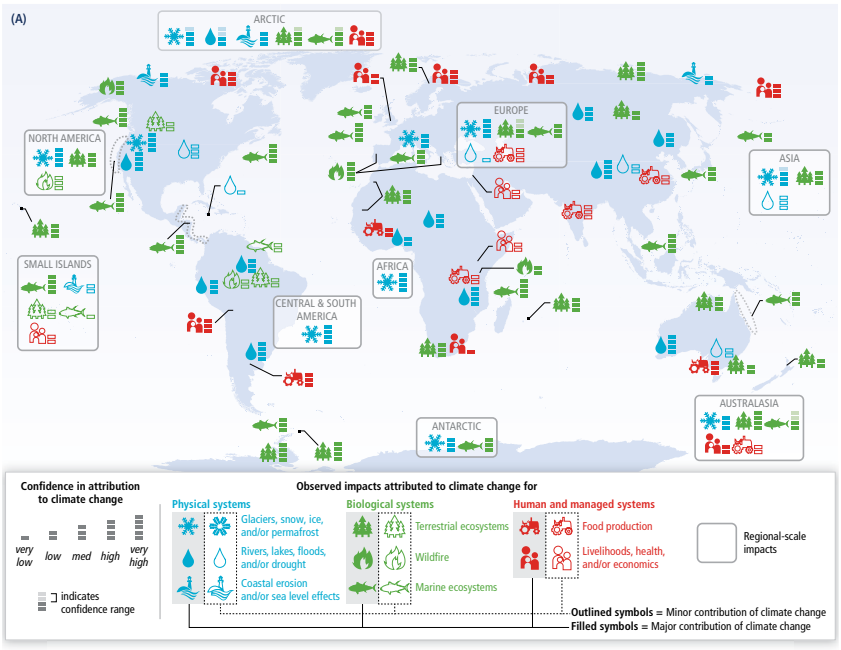
Figure 7 Vulnerability and economic relations of trade partner countries in 2012



Source: UN Comtrade; OECD; ND-GAIN

The international consequences of climate change on Dutch trade are not, however, concentrated necessarily on those focus countries. The consequences of climate change are global, and affect various aspects of international trade. Another key feature of the Dutch economy is that it imports raw materials at low economic value to re-export these materials at a much higher price; once these imports are jeopardised there may thus be more structural consequences for overall trade flows. Figure 8 illustrates the global patterns of climate change impacts in recent decades. Impacts are shown at a range of geographic scales. Symbols indicate categories of attributed impacts, the relative contribution of climate change to the observed impact, and confidence in attribution.

Figure 8 Global patterns of impacts in recent decades attributed to climate change



Source: IPCC 2014b

Possible impacts include the supply of physical commodities, such as agricultural products, mainly as a consequence of the increase of existing variations in weather conditions. Specifically with regard to wheat and maize production, negative consequences are predicted for many regions (IPCC, 2014a). Food production is a key aspect of food security, and the (detrimental) effects of climate change on food production might lead to disruptions in export and to higher food prices. In recent years food prices have become more sensitive to weather-related supply shortfalls (IPCC, 2014a). On top of this come climate change effects on the availability of water and energy resources, which may also affect food prices as well as energy and extractive industries. These two sectors are also highly dependent on water availability and may suffer from exposure to extreme weather events – for example, possible mine closures as a consequence of flooding. In addition, there are possible risks with regard to disruptions in transport routes, leading to problems with the supply of goods or to rising costs for traders (PWC, 2013). All this might cause governments to close borders to scarce goods, which would be particularly detrimental for an open economy such as the Netherlands.

PBL (2015) has considered the climate vulnerability of products that make up a large proportion of Dutch imports and related exports, since the Netherlands is an important transit country. The analysis points to the specific vulnerability of the food sector, where many raw materials are imported and re-exported. Soy, and to a lesser extent cacao, imports seem most relevant (PBL, 2015). It is not clear whether this might also increase the risk of protectionist measures being adopted by countries that want to protect their own companies or ensure the continued availability of specific products domestically. In general, this could be considered most likely with regard to staple foods and products with a highly strategic value due to their scarcity, such as specific rare earths. Soy scarcity could increase if China decides to purchase substantially more soy when higher food prices cause unrest among its own population (Van der Weijden, 2011). It might be worthwhile to carry out more specific research on the (possible) climate impact on trade flows in order to support businesses in making more climate-proof choices, for instance in the context of top-sector policy. In the respect, companies also have own responsibilities and ways to assess climate risks (see also the example on climate impacts and Dutch companies below), but in particular for small and medium sized enterprises (potential) climate vulnerabilities to their (internationalised) production chains might be difficult to estimate. Climate impacts could also be taken into account in the EU's raw material initiative that identified those resources which are of particular strategic value for the EU, and therefore whose access should be secured. The increased vulnerability of trade flows may furthermore lead to a renewed demand for targeted export credit and investment insurance facilities. At the same time, it may create new business opportunities, for instance with regard to the export of Dutch expertise in dealing with weather-related market developments in the agricultural sector.

EXAMPLE
Climate Impacts on Dutch Companies

Prominent examples
Unilever is a Dutch-British company with an annual turnover of €49.8 billion in 2013. Active in over 190 countries, Unilever is aware that it will not be spared from the international consequences of climate change. According to Chief Executive Paul Polman, the consequences of climate change cost the company €300 million in 2013 (Unilever, 2014).
Rabobank Group is among the world's 30 largest financial institutions, with 60,000 employees and a focus on the agricultural sector. Rabobank recognises that the reduction in the amount of land available for agriculture as a result of climate change, water scarcity and environmental pollution can adversely affect the group and the businesses it serves.

Relevant climate change impacts
- Disruptions in production capacity
- Increased operational costs
- Disruptions in demands
- Volatility in prices of agricultural raw materials and energy prices
- Increased credit and investment risk
- Deteriorated solvency of agricultural business

Foreign policy challenges for the Netherlands
- Taking away barriers to trade, ensuring foreign markets of raw materials are not closed
- Reconsidering conditions for export credit facilities

Foreign policy opportunities for the Netherlands
- Better investment climate in the Netherlands due to climate adaptability
- Unilever as example of how Dutch companies can profile themselves as green frontrunners
- Openness of Dutch economy enables it to differentiate, change suppliers quickly

3.3 Climate risks posed to foreign direct investments and land purchases

Dutch companies are a substantial provider of Foreign Direct Investment (FDI) in other countries. In 2012 the share of the Netherlands in the global stock of outward FDI was 4.1%, making it the fourth important FDI provider from the EU (CBS, 2013). The international consequences of climate change threaten the assets of these investors. Therefore it is not surprising that climate policy uncertainty has been identified as a notable source of risk for investors over the coming 20 years (Mercer, 2011; Munich RE, 2013; Standard & Poor's, 2014). It is estimated that of the US$170 billion overall losses in the US in 2012 around two-thirds were due to weather-related events (Munich RE, 2013). With the overall number of natural catastrophes rising partially as a consequence of climate change, these losses will rise and harm investments abroad. In addition, the extent to which this uncertainty will harm investors will depend on the effectiveness of adaptation policies and on the composition of inves-

tors' portfolios. For a representative investment portfolio, it is estimated that climate policy uncertainty contributes as much as 10% to the overall portfolio risk (Mercer, 2011). Stretching further into the future, the longer a delay occurs in taking effective adaptation measures, the higher the impact costs will be for investors. If the government manages to react to this uncertainty among investors, investment risks would be reduced, but the question is whether the Netherlands can bear the costs of investment risks in countries with high vulnerability to, for instance, floods. This may also have implications for the decision to outsource the execution of export credit facilities to a private entity, Atradius, and to reconsider conditions for these facilities.

Meanwhile, the detrimental effects of rising food prices and 'land grabbing' as a result of international involvement in agricultural markets in developing countries remains a concern, particularly in light of augmenting demand and geopolitics of food (Allouche, 2011). Fertile farmlands constitute an increasingly safe and lucrative investment option, reinforced by reassuring population forecasts that estimate an increase of around 70% relative to present production rates that will be needed in order to feed the world's population by 2050 (Dutch Ministry of Foreign Affairs, 2013b). Meanwhile, food insecurity – particularly among emerging states – is an important driver of government-backed investments in agricultural domains, which is expected to further increase in coming years (FAO et al., 2009). Government-backed buying or leasing of agricultural lands to satisfy foreign demand is particularly problematic in such developing countries as Ethiopia and Sudan, which face undernourishment among sections of their population (Brown, 2011). These investments reduce water flows from the upper Nile River, and put further stress on an already delicate political state of affairs. When foreign governments or businesses acquire land in developing countries, local villagers are frequently not informed nor compensated for the land acquisition. The resulting potential for conflict, driven by the reactions of the local population, is exacerbated by the fact that many of these land purchases are of only very limited benefit to the local population – as they are principally being used for biofuels or industrial crops. These developments inhibit the capacity of developing countries to encourage and increase domestic food production. Furthermore, they increase the potential for conflict over access to food and provide grounds for possible regional conflicts. The practice of land-grabbing in itself poses a challenge to stability, as was shown in Madagascar where citizens revolted against a foreign takeover of land. The combined negative effects of climate change and 'land grabbing' further increase land pressure, threatening food security and triggering conflict.

While the Netherlands is widely regarded as a country committed to tenure guidelines – and the Trade and Development Cooperation Minister paid special attention to addressing misappropriation of land – criticisms have been made that Dutch pension funds co-finance extensive land deals and speculate on food prices, and that the Dutch government has thus far failed to put in place robust provisions to regulate Dutch investment in agricultural land in developing countries (TNI et al., 2013). These developments may hinder the capacity of developing countries to control domestic agricultural production and that, in combination with crop failures as a consequence of drought, floods or natural disasters in the future, may increase conflict potential and furthermore might provoke protectionist counter-responses.

3.4 Identifying business opportunities: Dutch top-sector policy could become more climate sensitive

In addition to focusing on specific countries, economic policy has in recent years focused on specific sectors, which are referred to as 'top sectors'. There are nine such sectors that have

a priority in Dutch economic policy, and in which the Netherlands is said to have a strong international position: agro-food, horticulture and basic materials, high-tech materials and systems, energy, logistics, creative industries, life-sciences, chemistry and water. Efforts concentrate on investments in research and development (R&D), training and education for employees, export credit facilities and so on. Decision-making on R&D funding has been handed over in part to the private sector, which is expected to offer co-funding for innovation. As a result, research is closely connected to technological development and hardly focuses on ways to address longer-term societal challenges, such as how the top sectors might seize opportunities in a world confronted by climate change (AWT, 2013). The international strategy of the top-sector Agro&Food (2012) refers, for instance, to the importance of sustainability with regard to products and production chains, but not to how supplies of raw materials could be jeopardised by climate change or how markets for agricultural products may be influenced by it. In the top-sector water it appears to be taken for granted that more demand will arise for delta and water technologies. In the top-sector horticulture and basic materials, there is more explicit reference to climate change, identifying it as an opportunity for selling seeds and related horticulture products that use less water and are better able to survive extreme weather.

At the same time, specific policies for action, such as on climate-smart agriculture, support the resilience of Dutch top sectors to climate change. In the Global Alliance for Climate-Smart Agriculture programme (see above) methods will be developed to increase the resilience of the agricultural sector to droughts, floods and extreme temperatures. By diversifying crops, improving the quality of soils, and developing drought-resistant crops, a contribution could be made to adaptation efforts and such methods could be exported globally.

3.5 Focus on international consequences of climate change in Dutch and EU R&D policies

In the EU, innovation policies are only just starting to focus on exploring opportunities arising from climate change. The cornerstone of EU research policy, Horizon 2020, focuses on analysing how climate change poses a threat for economic development. It might, therefore, include new research on how climate change impacts could affect trade flows.

In addition, climate change impacts feature in intergovernmental research cooperation between EU states and national research programmes. To support research on adaptation efforts in developing countries, funding is provided to the Climate and Development Knowledge Network (CDKN).

The intergovernmental Joint Programming Initiative (JPI) 'Water Challenges for a Changing World' points to EU actors jointly spending 500 million Euros annually on research, development and innovation in the water sector. It recognises the need to invest in efficient water-use systems and adaptive water management in the short term, but developing water-conserving farming and forestry practices and future-proof agricultural water use in light of climate change are priorities for the medium to long term only (Water JPI, 2014: 40).

JPI Climate is another initiative formed by 14 European countries that predominantly focuses on research on climate adaptation. The group aims to complement and support research initiatives at European level by formulating a strategic research agenda that pays particular attention to four interrelated themes: 1) moving towards reliable decadal climate predictions; 2) researching climate service development and deployment; 3) sustainable transformations

of society in the face of climate change; and 4) improving tools for decision-making under climate change. Likewise, the Joint Programming Initiative on Agriculture, Food Security and Climate Change (FACCE-JPI) is a collaboration between 21 countries that aims to promote sustainable agricultural production and economic growth in a form that maintains and restores ecosystems in the light of present and future climate change scenarios.

3.6 Conclusion

The Netherlands has an open economy and is therefore particularly likely to be influenced by the international consequences of climate change on trade and investment flows. Dutch and EU trade policies aim to open up markets and encourage trade liberalisation. However, the international consequences of climate change, resulting in, for instance, bad harvests and scarcity, might lead to more protectionism. Currently, this risk is hardly taken into consideration and there are as yet no studies of how climate change impacts may affect Dutch and EU trade flows and policies.

The extent to which the Netherlands will be harmed by possible disruptions in trade depends on the availability of alternatives. In this regard, the openness of the Dutch economy could serve as an advantage as it can relatively easily access materials available abroad and switch to alternative trade partners if necessary. Nevertheless, the lack of attention to how climate change could affect key economic interests of the Netherlands is surprising, particularly since international trade and investments are so vital for economic growth and because many businesses rely on increasingly internationalised supply chains. Currently, climate change is hardly recognised as a risk to international trade in the Netherlands, whereas it could cause disruptions of and volatility in production. More could be done to explicitly recognise it as offering opportunities to investors in adaptation technologies, services and goods. In particular, the Dutch top sectors on agro-food, horticulture and water could take a more strategic long-term perspective into consideration.

4 Dutch international security interests and climate change

Recent conflicts from Syria to Darfur have been highlighted as examples of what the future may hold, as droughts and mass migration increase the likelihood of instability and violence (Stang, 2014). The international security implications of climate change have been widely recognised. In this light, reference is often made to the 'threat multiplier' effect of climate change. This chapter will focus on how Dutch international security interests are influenced by climate change. The main factors considered are the influence of climate change on instability caused by potentially a growing number of conflicts, increasing international migration flows, and the potential for reinforced geopolitics in the Arctic. This chapter discusses possible consequences for Dutch military presence abroad as well as humanitarian aid and disaster relief efforts.

4.1 International examples of climate change incorporated into security policy

The EU, the US, the UN and NATO have recognised climate change as a threat multiplier (Behrend, 2015). Countries with extensive global interests, such as the United Kingdom, France and Germany, address climate change as a threat to (national) security because of its effects on conflict around the world, whereas countries with a predominantly local focus, such as Finland and Greece, mainly refer to climate change as threatening their local security (ASP, 2013). However, in contrast with the US, European national security strategies rarely include detailed analysis of the expected impacts, and how to respond to them (Stang, 2014).

In the EU a paper by the High Representative and the European Commission set the issue firmly on the agenda, resulting in a prominent place for climate change and security in the updated version of the European Security Strategy in 2008. Ever since, several initiatives, such as the 2011 Strategy for Security and Development in the Sahel and the 2011 EU Strategic Framework for the Horn of Africa addressed the issue. Moreover, in 2011 and 2013 the EU adopted Council Conclusions on Climate Diplomacy, which in 2015 was followed up by an action plan to intensify outreach for the Paris Climate Summit to be held at the end of 2015. Drawing attention to the security risks of neglecting climate action is a central element in the EU's outward communication. The security angle of climate change is also often referred to in its common positions for international climate change negotiations.

Both Germany and the UK pushed climate change as topic for debate in the UN Security Council with the Secretary-General acknowledging extensively the security implications of climate change. Also in the UN context the possible security implications of climate change have become an issue on the agenda, and as of 2010 NATO has included climate change in its New Strategic Concept (UN, 2009a; NATO, 2010).

In the United States, the integration of climate change insights into security policies has recently become contested. For a long time, IPCC reports on climate change served as guidelines for policymaking. However, in 2014 the House of Representatives decided that the US Department of Defense should no longer base its policies on the IPCC's climate

science findings (US House of Representatives, 2014). Measures to reduce energy use and to increase the use of renewable energy were thereby effectively reversed. The decision was mainly targeted at the Department of Defense's efforts on mitigation and it is not yet clear whether it will also affect its efforts to take into consideration the global impacts of climate change, for instance with regard to sea level rise that could affect military bases in the Pacific. The Quadrennial Defence Review of 2014 stated that "[t]he impacts of climate change may increase the frequency, scale, and complexity of future missions, including defence support to civil authorities, while at the same time undermining the capacity of our domestic installations to support training activities. Our actions to increase energy and water security, including investments in energy efficiency, new technologies, and renewable energy sources, will increase the resiliency of our installations and help mitigate these effects" (US Government, 2014a).

4.2 Dutch security policy

In public documents Dutch recognition of climate change as a potential threat to security is largely limited to its inclusion in analyses of the changing security environment, but recently more attention has been given to including resource impacts in early warning mechanisms. The International Security Strategy of 2013 recognised climate change as a 'new' theme of growing importance in the future. The Future Policy Survey (2010) thus far provides the most detailed exploration of the consequences that should be drawn from this observation, and identifies possible policy consequences. Climate change is identified as one of the eight driving forces of particular importance to Dutch security. Possible consequences include an increase in humanitarian emergency relief activities and possible support to civil authorities in case of flooding in the Netherlands (Dutch Ministry of Defence, 2010). The Survey recognises that there is a need to adjust military technology used in operations to more extreme weather conditions.

The Ministries of Defence and Foreign Affairs have not yet worked out specifically how thinking on the security implications of climate change should be integrated into practice in everyday policy decisions. The international security strategy identifies various possible and likely security implications with regard to the Arctic and to migration flows, damage to public and private property, disruptions to essential infrastructure and, indirectly, more fluctuation in food prices, water shortages and the spread of infectious diseases as possible consequences (Dutch Ministry of Foreign Affairs, 2013b). However, no operational policy implications are distilled from these implications. Reference is made to preventive action focusing on promoting international agreements and multilateral cooperation to mitigate greenhouse gas emissions. This approach does not seem to take into account the implications of climate change that are already visible today and will become more tangible in the coming years.

The inclusion of global issues and climate change more specifically in the most recent update of the international security strategy at the end of 2014 seems to aim at such a more comprehensive approach towards the inclusion of climate change consequences into Dutch foreign security policy. The policy brief not only recognises climate change as a potential source of conflict and a multiplier for existing tensions, but also states that climate, water and resource problems should become part of early warning systems (Dutch Ministry of Foreign Affairs, 2014b). In addition, building sufficient resilience to climate change impacts in rural communities and densely populated areas is recognised as a challenge for Dutch foreign policy in the coming decades. The strategy therefore presents a first step towards a comprehensive understanding of climate change not solely as an environmental issue but as a security issue

as well, with the ultimate goal of comprehensively integrating the impacts of climate change into strategic planning.

In general, climate change is likely to affect (possible operations of the) Dutch armed forces in two ways. First, climate change will shape the operating environment, roles and missions that our armed forces undertake. It is likely to lead to an increased need for responses to instability and a broader variation in types of deployments. Second, the Ministry of Defence may need to adjust its facilities, infrastructure, training and testing activities, and military capabilities. Insights regarding climate change impacts can therefore be incorporated on a more structural basis in Dutch international security policy. In particular, the integrated approach, combining defence, development and diplomacy, for which the Netherlands is recognised internationally, offers potential for integrating climate change considerations into security policy. Steps in this direction have been made, but they were mainly driven from a development perspective, with climate change insights not yet being incorporated into mainstream risk analysis and preparations for military operations.

4.3 The potential for climate-related conflicts and its link to water and food scarcity

In security terms, it is necessary to underscore the importance of not perceiving climate change as either a detrimental or positive phenomenon in itself, but as an aggravating influence that may put further stress on current local frustrations, regional tensions, and, some argue, global power equilibriums. A wide range of climate change effects has been put forward that in some form could have security implications. Increased intensity and frequency of droughts or floods disrupt agricultural livelihoods, rural incomes and local systems of ensuring food security, thereby triggering conflict over water and land. An increasing number of extreme weather events leads to social instability and state instability. It is also claimed that climate change will induce economic losses, aggravate conflict over resources and borders, and contribute to increased migration, state fragility and ideological radicalisation (EU, 2008a). Furthermore, climate change effects may frustrate global energy supplies and endanger the character of the present global governance system (Government Office for Science, 2011).

Due to its effects on food and water scarcity, droughts, floods and natural disasters leading to human catastrophes, climate change can be seen as a threat that might contribute to an increase in the number of conflicts. Climate change is typically considered to be an indirect but aggravating factor in conflict dynamics, even though its exact contribution to conflict is still subject to some academic controversy (cf. Gleditch, 2012; Bernauer et al., 2012). For example, when natural disasters hit, the underlying institutional and economic weaknesses of a state can be exposed. Such events may display a complex interaction between the conflict-erupting potential of natural disasters and a multitude of grievances emerging from high poverty rates, socio-economic inequality, population growth, urbanisation, and food and water insecurity that may affect conflict escalation and continuation patterns.

A degree of restraint is needed when presaging the climate-related conflict potential of water and food-related problems. Despite substantial emphasis placed recently on the threat of ‘water wars’, the historic evidence of water conflicts resulting in formal war is limited (Barnaby, 2009). More often, water scarcity leads to cooperation between parties (Yoffe et al., 2003). At the same time, various parties have warned that the lack of historic precursors is no guarantee that water scarcity will not increasingly have an impact on conflict dynamics in

the coming years – in its potential to either remedy or exacerbate inter-regional and national tensions (Adelphi, 2014). Because of the limited incidents of 'water wars', despite numerous alarming warnings, attention to the impact of water on security has to a large extent focused on the effects of such natural disasters as flooding on the capacity of state institutions.

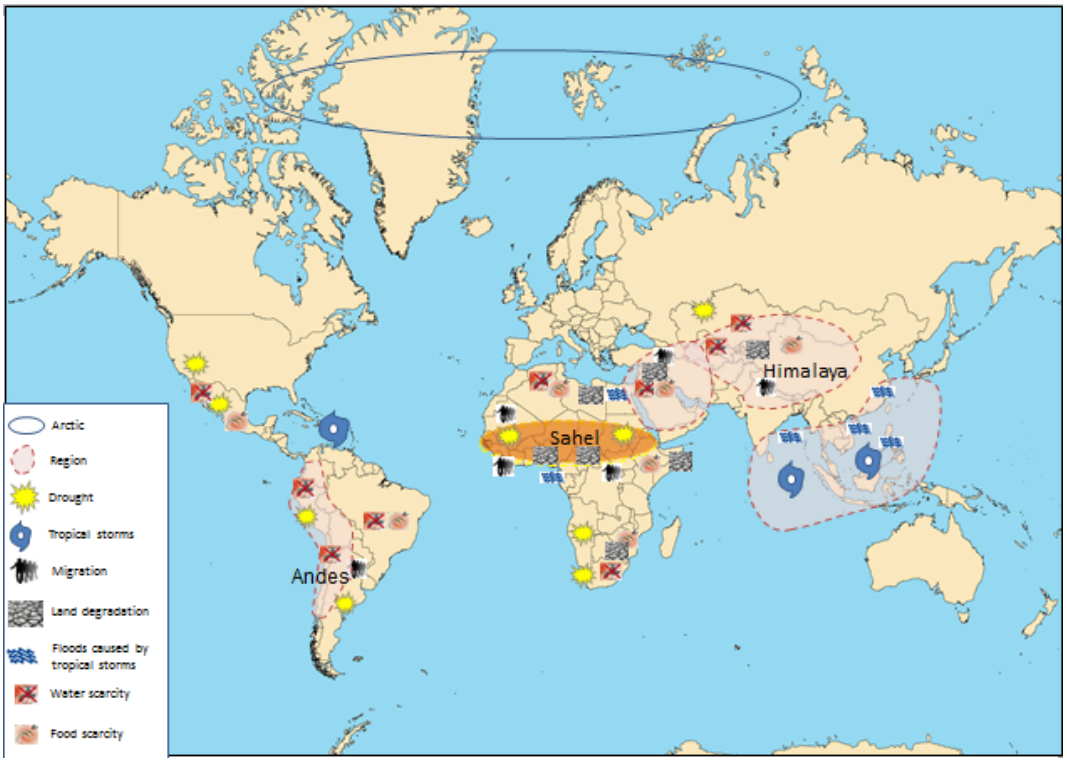
While uncertainty exists over the gravity of climate change impacts in the years to come, it is likely that food and water insecurity will put further strain on current local and regional tensions, especially in areas where climate change is likely to have significant impact and where the ability to cope with these impacts is limited. Therefore, one aspect of the adaptive climate change challenge for the international community over the next decades will be to appreciate and cope with the present and emerging interaction between these factors and the effects of climate change, in order to prevent them from constituting nationally and globally disruptive impacts. Recognising the need to integrate climate change in military or security/conflict early warning systems is a first step towards the comprehensive inclusion of climate change consequences into Dutch and EU security policy and the thinking on long-term foreign policy strategies.

4.4 Regional instability and climate change

Many Asian and South American countries have a higher vulnerability to climate change impacts than countries in Europe and North America. African countries and some South Asian countries are clearly in the category of the most vulnerable. In sub-Saharan Africa, climate change is most likely to put an additional strain on fragile social and political systems. In, for example, in the Sudanese region Darfur sustained violence in combination with extreme drought has had a profound impact on the economic circumstances of both government and population, leaving large groups without access to sufficient stable food supplies (UNEP, 2007; 2009). Also, countries in the Sahel such as Chad, Niger, Mauritania, Mali and Burkina Faso deserve specific attention with regard to food security risks due to armed conflict, political instability, changing rainfall patterns and local infections that are aggravated by climate change. The MENA region is already torn by conflict, and unrest in Tunisia and Egypt have, in part, been related to rising food prices in 2011 (Lagi et al., 2012); the region is also expected to be especially vulnerable to climate change in the years to come. Countries with the highest risk to food and water insecurity across the MENA region include Yemen, Syria, Iraq and Libya (Maplecroft, 2013). These food and water risks will add to other destabilising tendencies, thereby increasing the (political) urge to devote Dutch and EU budgets to stabilisation in the region. In Darfur, Mali and Iraq the Netherlands has already been involved with aid and military assistance to stabilise conflict areas.

Figure 9 shows the hotspots of possible impacts of climate change on security, including drought, tropical storms, migration, desertification, inundations by tropical storms, water scarcity and food scarcity.

Figure 9 Hotspots of security-related impacts of climate change



Source: adjusted from Behrend, 2015

4.5 Humanitarian and disaster relief assistance

Climate change aggravates slow-onset disasters such as droughts, famines and desertification and that knowledge can be integrated into humanitarian, development and security policies. As threats to security often originate from the instability caused by weak or overstretched states – even more so than from aggressive territory or resource-seeking states (Government Office for Science, 2011) – from a conflict prevention perspective safeguarding water and food security in fragile and conflict-affected countries is likely to be of increasing security and humanitarian concern for Dutch foreign policy, affecting the frequency and institutional make-up of international interventions and humanitarian assistance.

The Netherlands could provide assistance to countries in crisis through, for example, military support and knowledge-sharing. It might also become involved in the post-conflict phase, during which political and economic structures needs to be rebuilt. The exact deployment of Dutch military equipment for humanitarian purposes abroad will normally be agreed upon after a request by the country in need to aid or international organisations, and in situations where there is no armed conflict or heightened security risk (Dutch Ministries of Defence and Foreign Affairs, 2001). For instance, the armed forces of the Netherlands were involved in assistance after Hurricane Katrina in New Orleans, and humanitarian operations in Pakistan and several other countries in Asia after the tsunami (AIV, 2008). The Katrina case shows that in addition to military assistance, the Dutch expertise – in this particular case on water management – is often deployed during or after a crisis, either directly via the Ministry of Foreign Affairs or via allocated budgets to NGOs such as the Red Cross or the Central Emergency Response Fund (CERF). Part of the Dutch budget for development cooperation is reserved

for emergency relief activities. The budget for 2014 was 200 million Euros, but a proposal in September increased this amount to 350 million, because the conflicts in Ukraine, Syria and Iraq had led to higher humanitarian and disaster relief demands.

The further integration of Dutch contributions to humanitarian and disaster relief demands have received significant attention in recent years. In this field, remarkable transformations have been taking place in both Dutch and EU disaster risk reduction strategies, both in professionalising coping mechanisms and in mainstreaming climate-related insights into these approaches (see Example: Dutch and EU Crisis Management Initiatives). In some Dutch partner countries, for example Mali, climate change effects are expected to influence humanitarian involvement in the decades to come, and will have an impact on Dutch security engagement (see Example: Mali, below in text).

EXAMPLE
Dutch and EU crisis management initiatives

Dutch disaster risk reduction initiatives

The Netherlands has recognised the link between disaster risk reduction (DRR) and climate change. For the next two years the Ministry of Infrastructure and the Environment and the Ministry of Foreign Affairs, together with the business community, have pledged to provide 2.4 million Euros per year to help countries contain the consequences of water disasters. In early 2014 the Dutch Risk Reduction Team (DRR Team) was established, which, at the request of foreign governments, provides expert knowledge on preventing or effectively coping with water-related disasters. The Netherlands is a partner of the World Bank Global Facility and Disaster Reduction and Recovery partnership (GFDRR), and actively contributes to the implementation of the Het Hyogo Framework for Action 2005-2015 (HFA) – and to the formation of HFA-2, which is expected to come to fruition in March 2015 – through the United Nations Office for Disaster Risk Reduction (UNISDR). The government is currently considering expanding its commitment to DRR and incorporating DDR into its development cooperation policy.

EU crisis management and DRR initiatives

The European Union is actively expanding its capacity to respond to crises around the world. Of a deeply challenging nature are transboundary crises such as epidemics, floods, and cyber terrorism, which require substantial cooperation and coordination between states and across regions (Attinà et al., 2014). In light of these events, the European Commission's Emergency Response Centre, the EEAS's Crisis Response and Operational Coordination Department (CR&OC), as well as the EU Crisis Platform, EU Situation Room, and the EU Integrated Political Crisis Response (IPCR) all deal with crisis management (Tercovich, 2014). The EU Mechanism for Civil Protection is one of the most established and integrated policy instruments to coordinate assistance between the 31 participating states – 28 EU members plus Iceland, Norway and Macedonia – to cope with disasters in Europe and abroad (Morsut, 2014). Since its emergence in 2001, the mechanism has overseen more than 300 disasters.

EU disaster risk reduction and resilience-building
Climate adaptation and conflict prevention and preparation are being integrated through the European Commission's Humanitarian Aid and Civil Protection department (ECHO), which has been involved in, for example, the construction of disaster-resilient housing in India and the promotion of sustainable access to safe water and proper sanitation and hygiene in Haiti to prevent future cholera outbreaks. Furthermore, both the Global Alliance for Resilience Initiative (AGIR) and the Supporting Horn of Africa Resilience (SHARE) are particularly focused on conflict preparedness and resilience in light of changing climatic conditions.

Challenges to Dutch crisis management and DRR policy
Given the relatively early success of the DRR Team, similar initiatives dealing with food-related disasters (droughts, tsunamis, diseases) would promote Dutch expertise in these areas and complement the food spearhead of Dutch development cooperation. Moreover, as many disasters are both food and water related (for example, as a result of floods), attention to building resilient livelihoods and improving access to sufficient food would provide a more comprehensive approach that would benefit the ability to cope with natural disasters (FAO, 2011). Furthermore, one of the largest challenges of the Netherlands will be to effectively streamline its DRR policy at European level.

Challenges to EU crisis management and coordination
As the magnitude of transboundary crises increasingly outstrips the government capacity of nation states, coordination between states is increasingly needed to effectively cope with crises inside and outside the EU (Boin et al., 2013). In recent years, EU institutions have undergone remarkable transformations to facilitate this task. However, substantial institutional friction exists between the various EU institutions that deal with natural and man-made crises, which has resulted in calls to establish one single point of contact and coordination (Tercovich, 2014). Moreover, the imperfect reactions to the recent crises in Haiti and the Philippines suggest that work needs to be done to improve information and coordination mechanisms with non-European countries (Zanotti, 2010; van de Walle and Dugdale, 2012).

4.6 The risk of climate-related migration flows

Although economic and political factors are the dominant drivers of migration today, climate change is already having a detectable impact (Warner et al., 2009). There is broad consensus that the scale of migration, both internal and cross-border, is expected to rise with climate change (IOM, 2013; Government Office for Science, 2011; EC, 2013). That said, up until now estimates of the number of people who may become migrants as a result of climate change are highly uncertain. The complex interplay between drivers of migration and the difficulty of isolating climate and other environmental factors make it difficult to disentangle in exact numbers the contribution of climate change to migration (Lackzo and Aghazarm, 2009; EU, 2013; IPCC, 2014a).

Nevertheless, in some countries and regions the link with climate change is evident. For instance, in Bangladesh the combination of sea level rise, increasing population growth, scarcity, drought and floods in coastal zones, leads to migration to neighbouring India (IPCC,

2014a). In general, Asia – and more specifically China, Thailand and Japan – appears to be a high-risk area with regard to climate change, natural disasters and subsequent migration. However, similar cases can also be found in Colombia, where sudden disasters have also resulted in increasing migration flows. In Somalia, Almeria (Spain/Morocco), Mexico and the US more slow-onset events, and mainly drought, were among the main reasons that people migrated (IDRRI, 2011). A specific effect of climate change is its impact on megacities and inland cities (IPCC, 2014a). Often, these cities are located below sea level or in deltas vulnerable to sea level rise and other impacts of climate change, which makes them more vulnerable to environmental changes. For example, every year, Ho Chi Minh City, situated in the Mekong Delta in Vietnam, is overwhelmed by heavy rains and storms. Jakarta, the capital of Indonesia, lies below sea level and has similar problems.

International migrants are estimated to represent about 3% of the world's population (IOM, 2013), but this number is on the rise and the number of migrants moving internally is much greater and also increasing. In the foreseeable future, it is expected that most people moving because of climate change effects will become internally displaced rather than migrating to other countries. However, some migration will continue to take place across borders and possibly to the EU (UN, 2009b; FRONTEX, 2014). Migration may contribute positively to economic development. However, (illegal) migration is often related to higher crime rates in receiving countries as well as to human trafficking and tensions in over-crowded urban areas. It may therefore pose security risks. This issue is relevant in light of the recent increase in migrants to the EU (FRONTEX, 2014) and may link climate change to security in the future.

Despite the fact that no link is made between climate change and migration in policies or actions, the Dutch government has connected migration to the debate on global public goods (GPGs). However, it has not yet paid specific attention to climate migration or linked the issue to security (Dutch Ministry of Foreign Affairs, 2011c). The issue could be incorporated more explicitly into the international migration policy, which currently focuses on: improving the dialogue about migration and development; strengthening migration management; involving the diaspora in the development of their home countries; facilitating financial transfers and circular forms of migration; and supporting sustainable return and reintegration (Dutch Ministry of Foreign Affairs, 2011c). The issue could also receive more attention in a new EU migration policy announced by Commission President Jean-Claude Juncker. In this respect it is relevant to note that the agenda might also provide specific opportunities for the Netherlands, such as sharing Dutch experience with living in urban delta areas and its track-record on disaster risk reduction to prevent migration.

EXAMPLE
Mali

Mali-Netherlands relationship

Mali is a low-income country and one of the 15 partner countries of Dutch development cooperation. For the period 2014–2017, over 137 million Euros in ODA is budgeted, allocated largely on the policy areas of food security, water management, and sexual and reproductive health, as well as on restoring the rule of law and strengthening political institutions (Dutch Ministry of Foreign Affairs, 2014d). The 2012–2013 crisis halted structural development objectives of the Dutch Embassy, which temporarily reoriented its focus onto the provision of basic services. Trade relations between the Netherlands and Mali exist on a small scale and mainly concern the export of dairy products, eggs, vegetables, chemical products and machines.

As of April 2014 the Netherlands is contributing 450 personnel (including civilian workforces), four Apache attack helicopters, and three Chinook transport helicopters to the UN stabilisation mission MINUSMA in Mali, which up until October 2014 was headed by the current Dutch Foreign Minister Bert Koenders.

Climate change impacts

With 40% reduction in annual rainfall between the late 1960s and early 1990s compared to the preceding three decades, the Sahel has been described as one of the regions with the most impactful climate changes, leading to severe droughts that exacerbate tensions within local communities (land issues, access to water), an increased degree of political dissatisfaction and a spike in emigration rates (Bates et al, 2008; Scheffran et al, 2012; IPCC, 2007). Rising temperatures and decreasing precipitation is causing more frequent and intense droughts, while shifting fertile land further south. This also places energy security increasingly at risk, since 93% of the households use fuel wood, and 80% of electricity is generated from hydropower (Drakenberg and Andersson, 2008). In light of recent cholera outbreaks, a reduction in the quality of food and drinking water may also put the population further at risk of contamination with infectious diseases. With 22% of the Malian population being food insecure (2010) and 20% of children under the age of 5 being underweight (2012), climate change effects in the region may seriously affect living conditions and further undermine political stability (Dutch Ministry of Foreign Affairs, 2014d). Effects of climate change are expected to disproportionately affect the arid north, which is likely to increase tensions between nomadic and sedentary groups. The combination of desertification, land degradation, price volatility of agricultural products, political instability, conflict and regional crisis (which penalise northern Mali's exports) is expected to put food and water security increasingly under threat. Droughts in the 1970s and 1980s and the food crises in 2005, 2010 and 2012 have heavily affected northern populations dependent on cereal purchases and self-production, making the region increasingly sensitive to future climate change impacts (Bastagli and Toulmin, 2014).

Policy implications for water and food security

Water and food security are of importance both for stabilising Mali's political system as well as for development engagement in the region. In the long term, successful food production, water management, drinking water and sanitation programmes will help defuse the present conflict. Likewise, the UN mission's mandate to stabilise the country can lay the groundwork for future reconstruction work. Already, the Embassy in Bamako is expanding its options to support the peacebuilding process. Whereas considerable efforts have been made to mainstream water and food policies with climate-related insights, more work can be done in this area. Presently, only two development projects are listed on the Rio markers, and approaches to water and food security are not explicitly linked to climate change in the 2014– 2017 strategic plan. This calls for a further orientation towards incorporating climate change insights into present policy objectives, and more manifest cooperation between the Embassy and the Dutch military, both to effectively tackle present water and food concerns and to be prepared in case of future humanitarian crises.

Foreign policy challenges for the Netherlands
- Accomplishments of development cooperation at risk
- Climate change is likely to act as a threat multiplier, which may necessitate prolonged military engagement
- Exacerbation of present situation may invoke inter-regional migration
- Increased need for humanitarian aid and emergency relief

Foreign policy opportunities for the Netherlands
- Delivering technological adaptation responses
- Opportunities for Dutch food and water management sector(irrigation programmes – Office du Niger uses only 10% of its potential)

4.7 Potential for conflict in the Arctic

Apart from concerns over the immediate release of high amounts of methane, a high-impact greenhouse gas, the melting of the ice cap is changing the geopolitical landscape of the Arctic. The region was mentioned explicitly in the international security strategy of the Netherlands as a potential source of instability, and recently the Advisory Council on International Affairs (AIV) published a report on the future potential for conflict or cooperation in the region (Dutch Ministry of Foreign Affairs, 2013a; AIV, 2014). These developments give rise to substantial uncertainty with respect to the potential for both conflicts and economic opportunities in the region.

The Arctic is a possible new energy frontier area and is economically interesting for potentially providing a shorter transport route to Asia. Rough estimates project the Arctic to hold an estimated 13% of the world's undiscovered oil and 30% of its untapped gas (AIV, 2014). Most of these reserves fall within the territories of Russia and Canada, with Russia already exporting gas and oil from the region to the Port of Rotterdam. Three new shipping lanes are opening up: the northwestern passage (NWP), which runs through the Canadian Arctic Archipelago, the northeastern passage (NSR) along the Russian coast, and the shortest central route via the North Pole. Shipping through the Arctic Ocean via this NSR could save about 40% of the sailing distance from Asia (Yokohama) to Europe (Rotterdam) compared to the traditional route via the Suez Canal (Liu and Kronbak, 2010; AIV, 2014). This does not, however, indicate a corresponding cost in savings, since Russia may levy taxes on the use of the NSR and operators may face higher building costs for ice-classed ships, non-regularity and slower speeds, navigation difficulties and greater risks, as well as the extra need for ice breakers.
According to the international law of the sea (UNCLOS), the majority of northern shipping routes lie in international waters. However, both Canada and Russia claim control over what they regard as their 'national waters' and at the end of 2014 Denmark attempted to strengthen its claims on Arctic territory by pointing to an underwater ridge link from Greenland. In April this year President Vladimir Putin made a first step in what he described as 'developing the Arctic sea shelf' by unloading oil supplies from a Russian platform in the Pechora Sea (The Associated Press, 12 June 2014). Russia's undertakings in the Arctic began in 2007 when Artur Chilingarov, a Russian Arctic researcher and Duma member, planted a Russian flag on the seabed of the pole (Le Mière and Mazo, 2013). Subsequently, long-range strategic bomber flights were sent out to explore the North Pole and new military bases were opened on the New Siberian Islands and several naval deployments occurred in the Northern Sea Route.

Figure 10 Resources areas in the Arctic

Source: La Mière and Mazo, 2013

The EU is an active player when it comes to the Arctic region. Despite the fact that the Union, unlike China and the Netherlands, did not receive official observer status on the Arctic Council, it invests substantially in research and cooperation. For example, in 2009 the EU created the European Union Arctic Information Centre initiative: an international network of 19 leading Arctic research and outreach institutions from various European countries (Arctic Centre, 2014). Under the EU's seventh framework programme for research and development (2007-2013), the EU invested two hundred million Euros in Arctic-related research (EC, 2014). Furthermore, it invests in cooperation with partners on the following issues: environment, transport, energy, and maritime safety. In 2008 the European Commission published the report *The European Union and the Arctic*, which identified the Arctic as a source of tension with potential consequences for international stability and European security interests (EU, 2008b). In 2012 the EU's High Representative and Commission proposed the development of an EU Arctic policy and an application for EU observer status on the Arctic Council. These ideas were endorsed formally in May 2014 by the Foreign Affairs Council, which called for an integrated and coherent Arctic Policy by December 2015 (EU, 2014).

Five of the eight Arctic countries with territories north of the Arctic circle are NATO members. NATO is following the developments in the Arctic closely, although in a rather discreet way since it wants to diminish chances of a conflict with Russia – while also realising that a conflict between NATO members might also occur (e.g. between Canada and Denmark) – and because it does not want to jeopardise economic opportunities. NATO, unlike some member states, does not have its own permanent military facilities in the Arctic. Every year, several

NATO member states, including the Netherlands, take part in the NATO military exercise 'Cold Response'. In case tensions result in violent conflict in which one or more NATO members are engaged, it is not inconceivable that military troops could be sent to the Arctic (most notably the recently established Joint Expeditionary Force). Given that the Netherlands has indicated it is willing to contribute to this Force with troops, NATO could call upon the Netherlands to take part in missions or make military materials available for NATO purposes; already the Netherlands is planning to purchase a submarine in collaboration with Norway, whose Minister of Defence Ine Eriksen Søreide has repeatedly cautioned NATO not to overlook political developments in the Arctic.

Since the 1990s, the Netherlands has began to shape its so called 'polar policy'. Recently, the Netherlands acknowledged the strategic meaning and relevance of the Arctic and supports research through the Netherlands Polar Program (NPP) with approximately three million Euros per year, focusing on glaciology, climate and sea level, and polar oceans (Dutch Ministry of Foreign Affairs, 2013c). About half of the budget is spent on Arctic-related research. Innovation programmes were set up to strengthen the international rule of law, protect the environment, contribute to the management of Global Public Goods (GPGs), and uphold Dutch economic interests in the region (Dutch Ministry of Foreign Affairs, 2013c). Hence, Dutch engineering and oil and gas companies may gain from future developments in the Arctic. For example, the oil company Shell received a licence from the US government to exploit within the economic exclusive zone of Alaska. When new shipping routes arise, the Port of Rotterdam, one of the biggest harbours in the world, may see its market opportunities grow. However, with the current low oil prices and the difficulties that oil and gas companies have experienced in the region – markedly, the unfortunate troubles of Shell's drill rig 'the Kulluk' – exploration activities in the foreseeable future are likely to remain modest.

In general, thanks to the experiences of gas exploitation projects in Sakhalin, Alaska and the Caspian Sea, Dutch companies are ahead of many other countries when it comes to exploration of the Arctic and transportation of oil and gas from this region. Through the Project Delta Group (PDG), Dutch and Russian companies cooperated with regard to concepts and technologies for Arctic exploration. However, since the entry into force of EU sanctions on 1 August 2014 new technologies from Dutch companies can no longer be used for exploration in Russian territory or with Russian companies involved (AIV, 2014).
Countries with territories in the Arctic – Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden and the United States (A8) – expect to have new access to minerals, as well as to new sea lanes between the West and Asia. The A8 countries have already made efforts to strengthen their respective strategic positions in the absence of clear territorial borders. Even though cooperation prevails at this stage, conflict over the ownership of the Arctic's resources loom on the horizon. The Crimean Crisis, a situation that two years ago seemed unlikely to escalate anytime soon, illustrates this viewpoint. If claims in the Arctic region turn into a military conflict, it would likely include one of NATO's member states, implying potentially extensive implications and military involvement for the Netherlands.

In conclusion, the probability of conflict in the Arctic remains low, even though recent events have increased tensions among countries involved – especially between NATO countries and Russia. Even though cooperation in the Arctic prevails, in the evolving geopolitical reality governments should remain cautious. For the Netherlands, the most direct security-related consequence would arise in relation to its NATO membership. This may have practical implications for military equipment, training and intelligence, which could be taken into consideration in a more detailed Dutch and European security strategy on the Arctic.

4.8 Conclusion: a climate-proof security infrastructure to resist the future

This chapter discussed various elements of climate-related consequences that could affect Dutch security, in particular with regard to food and water scarcity, migration and the Arctic. We found various indications of climate change to be potential aggravating factors of conflict risks; they were also being widely acknowledged by policymakers as threat multipliers. However, the likelihood of security risks turning into an immediate crisis will depend upon various factors, including the severity of the impacts, the readiness to respond to those impacts, and the (political) responses at the moment impacts occur.

With regard to direct responses to disasters elsewhere, it has become clear that the nature of these disasters changes, and that the frequency and level of devastation will increase. In recent years, remarkable transformation has taken place in both Dutch and EU disaster risk reduction strategies, both in professionalising coping mechanisms and in mainstreaming climate-related insights into these approaches. In the EU context prevention mechanisms in the form of both disaster risk reduction and climate adaptation are increasingly integrated. In some partner countries of the Netherlands, such as Mali, climate change effects are expected to influence humanitarian involvement in the decades to come, and are likely to impact on Dutch security engagement, either bilaterally or multilaterally. Climate adaptation instruments can possibly learn from awareness mechanisms already in place for other types of disasters.

In addition to immediate natural disasters, slow-onset disasters and the long-term consequences of climate change are expected to further intensify. Migration could be considered as a slow-onset disaster impacting Dutch foreign security policy needs. It is not within the line of direct expectations that in the short term climate migration will have a direct impact on Dutch society. However, the impact on our partner countries, the need for humanitarian aid for migrants in the region, and growing pressure on EU countries may necessitate national and international policy responses on the part of the Dutch government.

The same is true for the consequences of climate change on the Arctic. Apart from economic opportunities, the region increasingly has become the centre of political tensions, which may impact the Dutch security position. As recent developments in Ukraine have illustrated, geopolitical assertiveness is a factor to consider. A similar scenario in the Arctic may imply involvement of our NATO allies. Climate consequences on both migration and the Arctic could mean that our armed forces will need to increase their readiness for direct crisis support elsewhere, including in the context of international intervention in UN and NATO contexts, and may have to prepare for a likely increase of conflict areas. Although the Netherlands seems relatively better prepared to operate in the Sahel and the Middle East, preparedness to operate in the Arctic region seems more limited.

More generally, climate change may reduce the fighting capability of military forces by putting security logistics, infrastructure and transportation systems at risk (notably in coastal areas), and by changing the environmental conditions in which they train and operate.

The EU, NATO and the Netherlands are increasingly paying attention to the potential risks and security challenges that arise from climate change – both close to and further from home. Discussions on the link between security and climate within the EU seem to have been at the forefront of this development. However, the ongoing and potential contribution of climate change to insecurity, still seems to be underestimated. Besides the acknowledgement

of these problems and investment in research and involvement in projects, there is a lack of specific policy measures operationalising the security angle of climate change. The Dutch security strategy, and specifically its latest update in November 2014, point to the increased need for preventive policies. The gradually increasing effects of climate change offer plenty of opportunity for putting this policy aim into practice.

5 Climate impacts increase risks but also create foreign policy opportunities

Awareness of the relationship between international impacts of climate change and Dutch and EU foreign policy is growing, but it is not yet fully understood as a global public goods challenge that requires policy adjustments in foreign economic and security policy. The mainstreaming of climate and development objectives has evolved to the largest extent in the area of development cooperation. In the realm of security, and to a lesser extent trade, climate change is mostly used to draw attention to alleged risks and as a factor that may jeopardise security, migration or free trade, but little empirical evidence is available to test such assertions. Neither do insights of climate impacts appear to be incorporated into adjusted security and trade policies, such as with regard to military planning and equipment and conditions for export credit facilities. It could therefore be argued that the overall level of attention to climate change in Dutch foreign policy does not yet go much beyond the level of scares and tales. The Netherlands, just like the EU, appears to treat the international dimension of adaptation above all as a development issue and much less as something that influences its own security and economic interests. Perhaps this may be due to it being easier to integrate climate adaptation needs into development planning, particularly in the food and water sector, but it is nevertheless a remarkable finding.

5.1 Climate impacts and risks for development, foreign economic relations and security

With regard to development cooperation, a key concern is the vulnerability of Dutch partner countries and how to increase their adaptive capacity, or readiness. A crucial issue is how climate finance will evolve as a factor that contributes to such efforts, both with regard to financing adaptation projects and by leveraging private investments to contribute to building resilience, for example in the food and water sector. Both the estimated needs and the fast-track funding made available to finance climate projects in developing countries are significant, particularly when compared to current ODA figures. In the Netherlands, current funding appears largely related to aid delivered to two of the four development spearheads – food and water. A scaling-up of climate finance may occur, but a risk is emerging that questions will be posed with regard to its effectiveness and the benefits that accrue for Dutch taxpayers who, in times of increasing economic austerity, ask 'What's in it for us?' To answer this question, the impacts of climate change need to be understood as a global public good, whose neglect affects not only the poor in developing countries, but also our economic and security interests. When climate finance is based on motivations of charity and international solidarity, or simply to buy support from developing countries for the EU's mitigation agenda, it is more likely to lose out, particularly in times of austerity. What is needed here is more evidence on how exactly climate change impacts in other parts of the world influence our own lives, and this information for the Netherlands specifically is hardly available, despite all the studies and reports published on climate change in the past decade(s).

In the realm of foreign economic policy, climate change impacts are hardly taken into account in analyses of trade flow disruptions and risks to foreign direct investments. The Netherlands has an open economy, and particularly its agro-food sector with high dependencies on products like soy, cacao and palm oil, may be increasingly vulnerable to climate change impacts that pose risks to the availability of these products. Such insights hardly feature in debates on export credit facilities and policies to stimulate the foreign operations of small and medium-sized enterprises. Climate impacts could be addressed more explicitly in the research and innovation angle of the top-sectors policy, where the private sector is also directly engaged.

In the realm of international security, climate change is widely acknowledged as a threat multiplier. However, the consequences of climate change seem not yet translated into specific policy measures. For instance, the Arctic is recognised as one of the areas where geopolitical tensions are on the rise, but it is not clear whether the Netherlands could contribute substantially if a conflict with one of the NATO allies should occur. Dutch foreign security policy needs to be prepared to adapt to direct crises emerging from climate change, notably the expected increase in severe weather events, as well as to long-term slow-onset disasters, such as desertification and increased pressure on food, water and land resources. Paying more attention to climate change considerations into the integrated approach could be an outstanding opportunity for the Netherlands to be a front runner in acknowledging non-traditional factors in peacebuilding. This resonates well with the numerous efforts made in recent years to streamline disaster risk reduction mechanisms and climate adaptation. This is to be applauded in light of the expected rise in the demand for emergency relief assistance and disaster risk reduction support.

5.2 Seizing opportunities for the Netherlands

Not all is doom and gloom when it comes to the international impacts of climate change. Throughout this report many opportunities have been identified where the Netherlands could make a difference and many of these have already been seized. Since climate change is reasonably well integrated into Dutch development cooperation, specifically in the food and water sector, it can link relatively easily to Dutch expertise, experience and businesses active in these fields. Such a joined-up approach to aid and trade is facilitating the search for ways to make adaptation projects more attractive to private investors, for instance by linking new water defence infrastructure to the development of a new harbour.

With regard to the selected Dutch top sectors of water, agro-food and horticulture, opportunities abound and Dutch businesses seem quite good at recognising them, for instance by developing climate-resilient seeds, and also by linking their agenda to international policy debates and topics. Examples are the recent launch of the Global Alliance for Climate-Smart Agriculture and the disaster risks reduction facility in the field of water management and floods. These are examples where the Dutch government, together with the private sector, actively sets the international agenda and contributes to the global climate adaptation challenge.

In the Arctic, the melting ice opens up, at least seasonally, new and shorter shipping routes from Rotterdam to Asia. If geopolitical tensions in this region can be averted, Dutch companies could also use their technological know-how for the exploration of oil and gas from the region. In the realm of international security, more opportunities to incorporate climate change impact insights into integrated approaches for defence, development and diplomacy

also prevail. With a focus on disaster risk reduction, climate-resilient water and food technologies can become an even larger export product than they already are.

5.3 Policy recommendations for the Dutch National Adaptation strategy, EU position towards Paris and Netherlands EU Presidency

On the basis of this study we can make a number of specific policy recommendations for the Dutch government.

With regard to the **Dutch national adaptation strategy** this report has illustrated the importance of not forgetting about the international consequences of climate change. In this respect the current focus of the government on food and water, both in development and foreign economic relations, is well chosen from both a policy relevance and business opportunities perspective. Global climate impacts may directly affect our economic and security interests. Notably, with regard to the Arctic region it is vital to follow political developments with a close eye. Therefore, Dutch foreign economic and defence policies need to be climate-proofed to a larger extent, and in order to do this knowledge gaps need to be addressed. More specifically:

- More research and analysis are needed with regard to climate impact risks for (agro-food) trade flows and FDI provided by Dutch investors abroad.
- More knowledge is needed on the increases in environmental migration that can be expected and in/from which regions of the world.

With regard to the **EU's position for the international climate negotiations on adaptation** it is important to place more emphasis on the need to step-up investments in strengthening resilience. Mitigation is needed, but should not be used to avert much-needed action on adaptation. Both are topics where a clear EU interest is at stake and offering funding for adaptation can also create new business opportunities, jobs and revenues for Europe. In light of the national adaptation plans that are being prepared, EU countries will be increasingly able to share their national experiences of adaptation with other countries around the world. The EU also needs to continue and step up its efforts to climate-proof private investments

With regard to the **Netherlands Presidency of the EU (first half of 2016)** a key issue is the outcome of the Paris Climate Summit to be held at the end of 2015. However, regardless of what is decided there on global efforts on mitigation and adaptation, it is clear that action for the most part will need to take place as part of the EU's development, trade and security policy. These are areas where, to a large extent, the European Commission, the EU High Representative and relevant EU services set the agenda. Nevertheless, the Netherlands can emphasise the need for more coherence with climate objectives and point to the need for EU aid and trade policies to better take into account climate impacts and promote European expertise, for instance in the field of water defence, disaster risk reduction and climate-resilient agriculture. A good opportunity to draw attention to this topic will be the conference Adaptation Futures, which the Dutch Presidency plans to organise in cooperation with the European Commission and PROVIA research programme on 10-13 May 2016 in Rotterdam.

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