EVALUATION OF CLIMATE CHANGE ADAPTATION MEASURES

Portfolio and Allocation Analysis

2019

DEval
GERMAN INSTITUTE FOR DEVELOPMENT EVALUATION

Abstract:

This portfolio and allocation analysis is the first report of the DEval evaluation on climate change adaptation measures. The subject of the study is the German Federal Government's international climate policy commitment in the field of climate change adaptation. This report focuses on the relevance and coherence of the German adaptation portfolio. The methodological approach of the evaluation is essentially based on a macro-quantitative portfolio and allocation analysis. The evaluation combines methods of statistical data analysis with a document study and qualitative interviews.

The portfolio and allocation analysis arrives at the following key findings:

The objectives of the Federal Government's international commitment to climate policy are consistent with relevant strategic frameworks and (global) agendas. Germany sets relevant thematic priorities through the work of several ministries and is clearly oriented towards international priorities.

A more nuanced picture emerges with regard to the actual allocation of funds: the more vulnerable to climate change a country is, the more likely it is to receive funds from Germany for adaptation measures. Germany is more likely to make commitments to countries with low adaptive capacity. However, the level of vulnerability has no effect on the level of commitments. In addition, Germany is more likely to commit a higher level of funds, and go to countries where many other donors are already active in the field of climate change adaptation, thus contributing to donor fragmentation. Contrary to the Federal Government's claims, the Small Island Developing States, which are often severely affected by the consequences of climate change, benefit less commonly and to a lesser extent from German adaptation commitments than other countries.

In the overall evaluation, the German adaptation portfolio therefore only partially conforms to its own as well as international standards with regard to the relevance and coherence of the Federal Government's international climate policy commitment.

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EXECUTIVE SUMMARY

Background, Objectives and Subject of Evaluation

Development policy is an integral part of German climate policy. Already for the period 2011-2017, around a quarter of Germany's official development assistance funds were allocated to the German Federal Government's international commitment to climate policy. For 2020, the German Federal Government has committed a target value of four billion EURs in new annual public budget funds.

Climate protection and climate change adaptation enjoy political parity. The equal importance of the two pillars of international climate policy is determined by the United Nations Framework Convention on Climate Change and is shared by the German Federal Government. This positioning is rooted in a growing awareness that despite of (or because of insufficient) climate protection, certain consequences of climate change are either already apparent today or will occur in the future, making it imperative that adaptation measures are taken. According to the assessment of the Intergovernmental Panel on Climate Change, climate protection measures seek to reduce greenhouse gas emissions, while adaptation measures address actual and expected climatic conditions and their impact. The aim is to mitigate potential damage and exploit beneficial opportunities provided by climate change.

For some years now, the German Federal Government has been attaching increasing importance to climate change adaptation measures. Today Germany is one of the largest aid donors in the field of climate change adaptation finance within the Organisation for Economic Cooperation and Development (OECD). German development cooperation (DC) promotes adaptation measures in a number of different regions and sectors. The predominantly bilateral, project-based approaches address challenges, ranging from gradual climate change to the increase in extreme weather events. Germany's technical cooperation (TC) and financial cooperation (FC)'s adaptation tools include nature-based options, infrastructure measures, promotion of institutional and regulatory frameworks, financial market development and information technologies. In recent years, most of Germany's contribution to international climate finance has been implemented through the Federal Ministry for Economic Cooperation and Development (BMZ). The German Federal Government's overall international climate policy commitment extends to various programmes and projects run by other ministries, for example in the scope of the Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)'s International Climate Initiative (ICI). The primary governmental implementing organisations are the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and KfW Development Bank (KfW). A number of multilateral and non-governmental organisations are also putting adaptation measures supported by Germany into action.

In line with the increasing importance of climate change adaptation in the context of international and German climate policy commitment, a growing number of studies and evaluations are addressing questions with regard to the significance and success of adaptation measures. At the same time, there are considerable gaps in evidence in this comparatively new field of DC, and certain major questions concerning the relevance, effectiveness, efficiency, impact, sustainability and policy coherence of the German adaptation portfolio have not been answered to date. Offering a sequence of different evaluation modules, DEval seeks to contribute to closing the existing gaps in evidence. The portfolio and allocation analysis at hand is the first evaluation module in the overall evaluation.

The study is DEval's contribution to the promotion of strategic development of the German DC's climate change adaptation portfolio. The objectives of the study include an analysis of German portfolio allocation patterns in comparison with (inter)national strategies and agreements as well as an examination of the factors influencing effective allocation decisions. The focus of the study at hand are the total official development assistance funds for adaptation measures. Due to the high proportion of total commitments, the study's emphasis is on the BMZ portfolio. The evaluation period covered by the study is 2011 to 2017.

The overarching evaluation question (EQ) central to the portfolio and allocation analysis is as follows:

To what extent is the German adaptation portfolio relevant and coherent with regard to global development agendas and the priorities of those involved and affected?

The overarching question comprises the following sub-questions:

EQ1	To what extent is the portfolio consistent with international development agendas and German priorities?
EQ2	To what extent does the portfolio reflect the priorities of the development partners and the scientific evidence?
EQ3	To what extent does the allocation of adaptation commitments relate to climate vulnerability in partner countries?
EQ4	To what extent are the approaches and tools of various actors of German development cooperation complementary and coherent?
EQ5	To what extent are the approaches of the German development cooperation complementary and coherent to the policies of other bilateral and multilateral aid donors?

Methodological Approach

The evaluation's methodological approach is based on theory-building and theory-testing procedures within the scope of a macro-quantitative portfolio and allocation analysis. The evaluation combines statistical data analysis with document analysis and qualitative interviews. Such an approach is suited to the evaluation of cross-sectoral issues, which are usually connected to different thematic or sectoral strategies and can therefore rarely be dealt with using strictly deductive evaluation approaches. The theory-building component operationalises the research interest through empirically verifiable expectations or assumptions. The theory-testing component confirms or refutes the identified expectations and forms the basis for this evaluation module's conclusions and recommendations. The central data base for this study is the creditor reporting system of the OECD's Development Assistance Committee (DAC). The OECD data is supplemented with statistical data from other organizations, publicly accessible strategy documents, scientific literature and interviews with key informants.

Key Results, Conclusions and Recommendations for Assessing the Relevance of the Adaptation Portfolio for Development Cooperation

Compliance with Relevant Strategic Frameworks and (Global) Agendas

In consideration of the German Federal Government's objectives, the study at hand assumed that Germany's commitments in the international climate policy sector will increase over time and approach the target value of four billion EUR in public funds by 2020. With these objectives, Germany is conforming to its own standards and committing itself to the goals of international climate finance. Based on OECD data, a significant increase can be observed for commitments of public funds over the period 2011-2017: By 2017 commitments were already at three billion EUR, and so the target value of annual new commitments of four billion EUR is likely to be met by 2020. To date, however, it remains unclear whether Germany will commit itself to comparable target values beyond 2020.

In German and international climate policy, both pillars of climate protection and climate change adaptation enjoy equal political importance. Against this background, the study at hand assumed that the overall increase in funds over the past years would be reflected in expanding budgets for both climate protection and climate change adaptation. This expectation can be confirmed on the basis of OECD data for the proportion of public fund commitments and also reconstructed on the basis of the German Federal Government's reporting to the United Nations. In terms of overall international climate commitments, about as many public funds have been allocated to climate change adaptation as to climate protection.

However, in comparison with climate protection, significantly more adaptation funds are implemented through projects with significant climate activities (and less through principal climate activities). Furthermore adaptation measures are mainly based on public subsidies and receive much less market funding through German FC. A highly probable increase in global demand for adaptation measures will pose new challenges for the current finance design of German adaptation measures. Thus, the expectation that the political parity between climate change mitigation and adaptation will also be reflected in allocation patterns (separately for public subsidies and market funding) can only be partially confirmed.

In view of the discussion about a "financing gap" in international climate finance and corresponding German strategies, the study at hand assumed that German DC is increasingly supplementing public funds with private funds. Only data from FC was available to review this expectation. The results showed that hardly any private funds had been mobilised in the field of climate change adaptation thus far. Due to the limited data availability, however, a final evaluation was not possible and so further analysis is required in the course of the overall evaluation.

In addition to the involvement of private funding sources, it was also expected that the proportion of adaptation funds implemented through civil society would increase overproportionately in time. The expectation cannot be confirmed on the basis of OECD data at this point. On the contrary, the proportion of total commitments implemented through civil society has remained consistent at around 10 percent. Since many civil society organisations are not eligible for loan funds, the trend analysis was also carried out for the grant funding sub-sector only, and the findings show no increase for the evaluation period. The proportion of civil society in the allocation of grant funds remains constant at around 16 percent. Interviews with representatives from politics and civil society have revealed controversial answers to the question what proportion of public funds from adaptation-related DC would be appropriately implemented through the civil society channel. This leads to the following recommendation:

Recommendation 1:

BMZ should examine the causes of stagnating developments of the portfolio relating to civil society engagement and develop measures in consultation with civil society to achieve an appropriate increase in the proportion of funds implemented through civil society actors.

Germany's international climate policy is subject to a number of international agreements. The level of compliance with relevant frameworks forms a further part of the relevance evaluation. In concrete terms, the study at hand assumed that German strategies were consistent with the international agreements of the Paris Agreement, Agenda 2030 for Sustainable Development, the Sendai Framework for Disaster Risk Reduction and the New Urban Agenda. In addition to the relevant strategy documents and agendas, the basis of assessment for this assumption was formed by statistical data from OECD and interviews with representatives in policy and implementation. As a result, basic compliance of German DC focal points with aforementioned international agreements can be confirmed. The level of financial commitments, the objectives for establishing new partnerships or support of a comprehensive approach to dealing with climate risks are politically consistent with international adaptation goals. Furthermore German DC focuses on relevant adaptation tools and increases the promotion of climate risk insurances' visibility through global partnerships, for example.

German DC does not, however, have a stand-alone climate or adaptation strategy. BMZ currently locates its climate policy priorities in a variety of sectoral and regional strategies. Thereby climate change adaptation is also part of general risk management, including disaster risk management and transitional aid/reconstruction. BMU's climate policy priorities are included in individual funding lines of the ICI. Against this background, the level of compliance with strategic reference frameworks and (global) agendas can only be evaluated to a limited extent in the scope of the study at hand. Further evaluation work within the framework of the overall evaluation is required.

Compliance of the Portfolio with the Needs of the Target Groups, the Partners' Objectives and Scientific Evidence

German DC emphasises partner orientation as the guiding principle in the process of expanding the adaptation portfolio. Against this background, the study at hand assumed the partner countries' priorities to be reflected in the effective allocation patterns. The review of this assumption is based on a comparison of information about the partner countries' respective Nationally Determined Contributions (NDCs) with the OECD allocation statistics. The results of the analysis indicate a partner orientation. However, the partner countries' sectoral priorities have had only limited influence on the actual distribution of adaptation funds so far. As an incipient tool of the United Nations Framework Convention on Climate Change, NDCs have a number of methodological limitations and so the findings are not reliably conclusive with regard to causal links and relationships. However they give a clear indication that there is scope to further increase partner orientation within the framework of sectoral priorities. A comparison of all adaptation funds in the agriculture and food security sector shows that there is already a high level of partner orientation, while the trend is much less pronounced in the field of biodiversity. This leads to the following recommendation:

Recommendation 2:

BMZ should continue to support the partner countries in the implementation of NDCs and take these into account even more than previously throughout the process of establishing climate change adaptation priorities in the individual partner countries.

Furthermore the portfolio and allocation analysis assumed that commitments in the field of climate change adaptation focused on sectors and tools backed by strong evidence of the respective measures' effectiveness. This expectation is premised on the assumption that scientific evidence of the effectiveness and efficiency of DC tools plays a potential role in the allocation of limited funds. To engage with this possible connection, the evaluation draws on the results of an Evidence Gap Map (EGM) prepared by DEval in collaboration with the Green Climate Fund. The study found no clear link between the allocation of adaptation funds and rigorous scientific evidence for the effectiveness of adaptation measures. Sectors with a high level of evidence benefit from adaptation tools as well as sectors where there is currently little scientific evidence for effectiveness. The use of funds for certain tools is also not statistically related to scientific evidence. Thus, the initial expectation of evidence-based policy decisions cannot be confirmed with regard to the adaptation portfolio.

Supporting the countries and people most affected by climate change is one of the central objectives of German DC in the field of climate change adaptation. In this context, the allocation analysis was premised on two expectations: Firstly, it was assumed that increasing climate vulnerability would have a positive impact on the probability of a country receiving adaptation funds and on the level of committed funds. Secondly, it was expected that the poorest partner countries and the Small Island Developing States (SIDS) would receive overproportionately high level of per capita funds for adaptation measures. The study examined the impact of different levels of vulnerability on commitments – controlling for important country-specific characteristics – with the help of multivariate regression analyses. The analysis shows that climate vulnerability significantly increases a country's probability of receiving German adaptation finance. The more vulnerable a country is, the more likely it is to receive funding for adaptation measures. In addition, Germany is more likely to make commitments to countries with low adaptive capacity. However, the SIDS, which are often severely affected by the consequences of climate change, are particularly unlikely to receive German adaptation commitments. Countries vulnerable to climate change also do not receive a consistently higher level of commitments. The group of SIDS actually benefit below average from German adaptation commitments. Considering the overall findings on the relationship between climate vulnerability and the allocation of German funds, it can be concluded that countries with high level of exposure and sensitivity to the negative consequences of climate change and with low adaptive capacities are more likely to receive German adaptation commitments and also tend to receive a higher level of funds. The results only partially confirm the expectations and demonstrate limited relevance with regard to the needs of the target groups. This leads to the following recommendation:

Recommendation 3:

Against the background of international agreements that support countries particularly vulnerable to climate change and Small Island Developing States, BMZ should consider the partner countries' respective climate vulnerability when allocating adaptation funds, to attach increasing importance to climate vulnerability in future as a factor in allocation decisions in the field of climate change adaptation.

Complementarity and Coordination

Within the framework of DC, the German Federal Government's climate policy is attached to several federal ministries. BMZ is responsible for most of the funds. BMU also funds a number of relevant adaptation projects through ICI. In accordance with the German Federal Government's claims with regard to complementarity and coordination between the individual federal ministries, the evaluation assumed that the federal ministries respectively set their own funding priorities, which are complementary and interlinked. To review this expectation, statistical data analysis was supplemented with key informant interviews. In the process, complementarity of BMZ and BMU priorities was revealed on policy level of the German adaptation portfolio. However, currently neither a common strategic framework nor systematic and active coordination of a joint commitment in the field of climate change adaptation exist, and so the different procedures, approaches and regional priorities merely indicate interministerial synergy potential. In this case, more in-depth studies are required within the scope of the remaining evaluation modules.

In addition to the expectation of complementarity and coordination at policy level, the study was premised on a collaborative implementation of measures. The sectoral cooperation between GIZ and KfW was examined as an example. Statistical data analysis was supplemented with interviews. At implementation level, the study at hand did not indicate any specific factors that would obstruct the coordination efforts of German TC and FC in the field of climate change adaptation. GIZ and KfW implemented most of the adaptation measures in the priority sectors water, agriculture and environmental protection. Climate change adaptation measures in these sectors promise the greatest synergy potential. Whether the two implementing organisations work coordinately and collaboratively cannot be conclusively assessed in this context.

Key Results, Conclusions and Recommendations for Assessing the Coherence of the Adaptation Portfolio

Coherence with Other Donors and Development Partners

German DC has set the objective to implement the principles of the international development effectiveness agenda. By promoting the complementarity and coherence of individual donors' development measures, the German Federal Government also aims to reduce donor fragmentation. Fragmentation refers to the concentration of parallel development measures, not or only marginally coordinated by various development actors in one country. In line with the principle of international cooperation, the study at hand assumes that German DC is particularly active in countries where comparatively few other donors are involved in adaptation finance. This study considers the overall portfolio and specifically the aspect of donor concentration. The potential complementarity of different donors in a country's field of climate change adaptation is not considered at this point in time. On the basis of multivariate regression analyses, the allocation analysis concludes that Germany is particularly active in countries where many other donors are active in the field of climate change adaptation. A higher number of other donors committing funds in the field of climate change adaptation thus increases the probability that Germany will make a commitment in the field of climate change adaptation to a country. Analysis of interaction effects shows that donors are concentrated in certain populous and strategically important recipient countries. A higher number of other donors in turn means that Germany will commit a higher level of funds. Thus the expectation that Germany will concentrate its adaptation funds on countries in which fewer other donors are active in the field of climate change adaptation cannot be confirmed. The result contradicts the expected aspiration level, and so the coherence expectation can only be partially confirmed with regard to the aspect of donor concentration. Against the background of the previous finding that the Smaller Island Developing States

benefit significantly below average from adaptation commitments, however, there is a danger that individual countries in need will be "forgotten" by international DC. This leads to the following recommendation:

Recommendation 4:

Within the framework of the "Development Policy 2030" strategy, BMZ should address the aspect of donor concentration in the field of climate change adaptation and – considering questions of donor complementarity – advocate for adequate international cooperation.

Coherence of Different Policy Fields in the Federal Republic of Germany

In addition to complementarity and coordination, the extent to which the federal ministries' work is coherent in terms of development policy is further matter to be discussed. In the context of the study at hand, this coherence could only be reviewed for BMZ and BMU international climate policy, respectively. The statistical data analysis was supplemented with information from key informants. From the point of view of coherence, too, there is no indication of any contradictions between the BMZ portfolio and the BMU portfolio, revealed in the scope of the portfolio and allocation analysis. However, the extent to which the objectives and effectiveness of the respective ministries in the field of climate change adaptation actually correspond cannot be conclusively assessed due to the lack of a common strategic framework. Seeking an answer to this question should be made the subject of future studies.

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ABBREVIATIONS AND ACRONYMS

AR5	IPCC Fifth Assessment Report
BMU	Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
BMZ	Federal Ministry for Economic Cooperation and Development
CCA	Climate Change Adaptation
CLA	Climate Change Adaptation Marker
CLM	Climate Change Mitigation Marker
CRI	Climate Risk Index
CRS	Creditor Reporting System
DAC	Development Assistance Committee
DC	Development Cooperation
DEval	German Institute for Development Evaluation
DV	Dependent Variable
E	Expectation
EGM	Evidence Gap Map
EUR	Euro, the European Union currency
EU	European Union
EQ	Evaluation Question
FC	Financial Cooperation
GDP	Gross Domestic Product
GI	Group Interviews
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ICI	International Climate Initiative
IPCC	Intergovernmental Panel on Climate Change
KfW	KfW Development Bank
LDC	Least Developed Country
Mio.	Millions
NAPs	National Adaptation Plans
ND-GAIN	Notre Dame Global Adaptation Initiative
NDCs	Nationally Determined Contributions
ODA	Official Development Assistance
OECD	Organisation for Economic Co-operation and Development
SIDS	Small Island Developing States
TAAN	Tool for Assessing Adaptation in the NDCs
TC	Technical Cooperation
UN	United Nations
UNFCCC	United Nations Convention on Climate Change
USD	United States Dollar
VENRO	Verband Entwicklungpolitik und Humanitäre Hilfe deutscher Nichtregierungsorganisationen (transl.: Association of German Development and Humanitarian Aid NGOs)

1. INTRODUCTION

1.1 Background

Development policy is an integral part of German climate policy. The German government has set itself the goal of expanding its international commitment to climate policy. On the one hand, the negative impacts of climate change threaten current and future development successes in partner countries of German and international development cooperation (DC). On the other hand, DC can contribute directly to dealing with climate change. Against the background of such interactions, the German Federal Government has set itself the goal of expanding its international climate policy commitment. By 2020 the annual new commitments are to increase to a record level of four billion EUR (BMZ, 2019).

Climate protection and climate change adaptation are the pillars of German and international climate policy. Adaptation measures contribute to the reduction of climate risks. According to the assessment of the Intergovernmental Panel on Climate Change, climate protection measures seek to reduce greenhouse gas emissions, while adaptation measures address actual and expected climatic conditions and their impact. The aim is to mitigate potential damage and exploit beneficial opportunities provided by climate change (IPCC, 2018). According to the IPCC, climate change adaptation measures contribute to a reduction in exposure and vulnerability and thus also to climate risk reduction (IPCC et al., 2014).

Climate protection and climate change adaptation enjoy political parity. Climate change adaptation is becoming increasingly important. The international political debates initially focused on climate protection. There is an increasing awareness that the consequences of climate change are already apparent today or will occur in the future despite (or because of) too little climate protection, and that climate change adaptation must therefore be considered as equally important in climate policy. This is happening against the background of growing scientific insights and knowledge, for example in the context of the IPCC Assessment Reports and the Stern Review on the Costs of Climate Change (Stern, 2008), and in line with the priorities of numerous developing countries already particularly affected by climate change. The 2015 Paris Agreement and the negotiations under the United Nations Framework Convention on Climate Change (UNFCCC) define the aforementioned two pillars of international climate policy as equally important (BMZ, 2017).

Climate change adaptation poses a cross-regional and cross-sectoral challenge for DC and is to be promoted through a variety of different measures. Along the so-called climate risk continuum, the portfolio of adaptation measures spans a broad spectrum of events - from the effects of gradual climate change, e.g. rising sea levels or ocean acidification, to the increase in extreme weather events such as storms and heavy rainfall. Against this background, various German public institutions promote tools of financial (FC) and technical cooperation (TC) in all sectors and regions (BMZ, 2016). Adaptation tools include, for example, nature-based options, infrastructure measures, promotion of institutional and regulatory framework conditions, financial market development and information technologies.

Increased funding, the momentum of international debates, public visibility and political pressure to act pose major challenges for the development of Germany's DC adaptation portfolio. Compared to the long-term focus of German DC, climate change adaptation is a dynamic and, in terms of reporting[1], comparably young field in the DC portfolio. An anticipated increase in funding, – also against the background of international commitments – combined with increasing public visibility and (international as well as national) political pressure to meet expectations is one of the fundamental challenges of climate change adaptation as a key issue for the future in DC. This applies in particular to cross-sectoral issues and their particular claims with regard to coordination, complementarity and coherence.

[1] While other environmental issues such as biodiversity, reduction of greenhouse gas emissions and desertification have been reported on since 1998 within the framework of the Organisation for Economic Cooperation and Development (OECD)'s Creditor Reporting System and on the basis of the so-called Rio markers, a corresponding marker for adaptation to climate change only exists since 2010 (OECD-DAC, undated).

In view of these challenges, the German Institute for Development Evaluation (DEval) supports further development of the German DC adaptation portfolio by means of a comprehensive evaluation of measures to adapt to climate change in German DC. This portfolio and allocation analysis forms the first evaluation module of the overall evaluation and addresses relevance and coherence issues at the macro-level of the German adaptation portfolio. In recent years there has been a worldwide increase in studies and evaluations in the field of climate change adaptation. At the same time, there are considerable gaps in evidence (Doswald et al., forthcoming) in this comparatively new field of DC, and certain major questions concerning the relevance, effectiveness, efficiency, impact, sustainability and policy coherence of the adaptation portfolios have not been answered to date for German or international DC. With the evaluation of adaptation measures in German DC, DEval seeks to contribute to closing the existing gaps in evidence. Due to the range of issues and the breadth of the German adaptation portfolio, the evaluation is divided into three modules.

Modular structure of the DEval evaluation for climate change adaptation:

- **Module 1** constitutes the portfolio and allocation analysis at hand. It deals with questions of relevance and coherence of the adaptation portfolio at overarching strategic level. Questions of complementarity are also considered as part of the relevance evaluation.
- **Module 2** evaluates the relevance, efficiency, effectiveness and sustainability of measures to support adaptation-relevant processes and structures as well as in key sectors of German DC.
- **Module 3** evaluates the relevance and effectiveness of measures to deal with residual climate risks.

The individual evaluation modules each conclude with a separate evaluation report. Their respective results, conclusions and recommendations lead to a final synthesis report that draws general conclusions and offers recommendations, where appropriate. The synthesis report also includes an assessment of the structures and processes of programming and evaluating adaptation measures in development cooperation.

1.2 Objectives of the Portfolio and Allocation Analysis

The objective of the evaluation is to support the strategic development of the climate change adaptation portfolio as one of the key issues for the future of German and international DC.

In order to fulfil this objective, the portfolio and allocation analysis at hand pursues the following aims:

- **Descriptive** analysis and evaluation of the allocation patterns of the German adaptation portfolio;
- **Comparative** examination and evaluation of allocation patterns with German DC strategies and commitments as well as international commitments and agreements; and
- **Systematic** analysis and evaluation of allocation structures and their influencing factors.

1.3 Subject of the Portfolio and Allocation analysis

The subject of the portfolio and allocation analysis is the international climate policy commitment of the German Federal Government in the field of climate change adaptation. The evaluation period covered by the study is 2011 to 2017. It includes all official development assistance (ODA), which is implemented through bilateral and multilateral channels by means of various tools in different sectors, both through programme-based as well as project-based approaches, and can be identified as adaptation measures. In the scope of this study, the method of identifying adaptation measures are - based on the policy marker system in DC - the Rio markers. According to the Rio markers, the CCA marker exhibits both (primary) principal objective (CLA2) and (secondary) significant objective (CLA1). Measures not related to adaptation are identified as CLA = 0 (OECD-DAC, not dated). The Rio markers also form the basis for the choice of evaluation period (2011-2017), as the Rio markers for adaptation and mitigation (CLM, including CLM2, CLM1 and CLM0) were first introduced in the CRS data in 2010 and contain reliable data beginning in 2011. The most recent available data is from 2017.

According to the Creditor Reporting System (CRS) of the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD), most of Germany's international climate

finance was implemented through the German Federal Ministry for Economic Cooperation and Development (BMZ) during the evaluation period. Accordingly, the focus of the study is on the BMZ portfolio. In principle, however, the Federal Government's total international commitment in the field of climate change adaptation is subject of the study. In addition to the BMZ portfolio, there are various programmes and projects run by other ministries, for example the Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU)'s International Climate Initiative (ICI). The main governmental implementing organisations include the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and the KfW Development Bank (KfW). Furthermore, funds implemented through non-governmental actors also form part of the complete analysis.

1.4 Evaluation Questions of the Portfolio and Allocation Analysis

The overarching evaluation question (EQ) central to the portfolio and allocation analysis is as follows:

To what extent is the German adaptation portfolio relevant and coherent with regard to global development agendas and the priorities of those involved and affected?

The overarching question comprises the following sub-questions:

EQ1	To what extent is the portfolio consistent with international development agendas and German priorities?
EQ2	To what extent does the portfolio reflect the priorities of the development partners and the scientific evidence?
EQ3	To what extent does the allocation of adaptation commitments relate to climate vulnerability in partner countries?
EQ4	To what extent are the approaches and tools of various actors of German development cooperation complementary and coherent?
EQ5	To what extent are the approaches of the German development cooperation complementary and coherent to the policies of other bilateral and multilateral aid donors?

1.5 Structure of the Report

The structure of the report is as follows: The introduction (Chapter 1) is followed by Chapter 2, which describes the portfolio and methodological approach used in the portfolio and allocation analysis at hand. The methodology chapter is supplemented by an evaluation matrix included in the Appendix (see Chapter 8.1). Chapter 3 is devoted to theory building and operationalises the evaluation questions by means of verifiable expectations. Chapter 4 offers an overview of the portfolio. The results of the study can be found in Chapter 5, conclusions and recommendations in Chapter 6. Further background information on the evaluation's approach and in-depth analysis results are included in the Appendix.

2. METHODOLOGY

The evaluation's methodological approach is based on theory-building and theory-testing procedures within the scope of a macro-quantitative portfolio and allocation analysis. The evaluation combines statistical data analysis with document analysis and qualitative interviews. The evaluation questions listed in Chapter 1.4 contain both theory-building and theory-testing dimensions. Against this background, the portfolio and allocation analysis at hand uses a combination of explorative and explanatory evaluation procedures. Procedures of this kind are suitable for the evaluation of cross-sectoral issues which are usually linked to various thematic or sectoral strategies and can thus rarely be dealt with by using purely deductive-testing evaluation approaches. The theory-building component operationalises the research interest through empirically verifiable expectations or assumptions. The theory-testing component confirms or refutes the identified expectations and forms the basis for this evaluation module's conclusions and recommendations.

The methodological approach comprises the following four steps (see also Figure 1):

Step 1 "Operationalisation of Evaluation Questions": As part of a literature search, the evaluation identifies key strategy documents and the federal ministries' own climate-relevant publications, and supplements the findings with statements from group interviews with key informants within relevant ministries (BMZ, BMU), implementing organisations (KfW, GIZ) and civil society (represented by VENRO, the Association of German Development and Humanitarian Aid NGOs). The key informants thus include the two ministries with the largest proportion of financial adaptation commitments and the organisations that implement the majority of these funds through projects. The aim of this first step is to work out the DC's own claims for operationalising the evaluation questions EQ1 to EQ5. The DC's own claims are then translated into verifiable expectations (cf. Chapter 3). The literature search begins with a web search of the key actors' publications and is supplemented by references from the stakeholders of the evaluations at hand - essentially representatives of ministries, implementing organisations and civil society. The evaluation also conducts theory-building group interviews[2] with the aforementioned stakeholders. The DC's own claims are presented in Chapter 3, arranged according to the five evaluation questions. Step 1 concludes with determining the basis for falsifying or verifying the individual claims with regard to data and evaluation method. An overview of the individual data sources and evaluation procedures can be found in the evaluation matrix (cf. Chapter 8.1 in the Appendix).

Step 2 "Portfolio Analysis": Both the portfolio analysis and the allocation analysis are based on the evaluation of the official reporting on climate finance by Germany's to the OECD. This data consists of the contractually agreed commitments made by Germany to a partner country or a multilateral organisation (OECD-DAC, undated). In addition to reporting to the OECD's CRS, the German government also reports its governmental commitments to the UNFCCC. Compared to OECD reporting, the UNFCCC data consists of more up-to-date policy commitments that have generally not yet been formalised by treaties and also differ greatly in their system of reporting, depending on the donor (Weikmans et al., 2017).[3] Due to the higher level of reliability and comparability of the data, this portfolio and allocation analysis is based on the OECD's statistical data and thus accepts a time lag of about two calendar years. For the sake of transparency, however, reference is also made to figures according to UNFCCC data at various points throughout the report. The portfolio analysis itself focuses on distribution patterns of adaptation contributions between bi- and multilateral channels, sectors, tools as well as programme- and project-based approaches. Conforming to standards established in the scientific literature, this evaluation module uses commitments. These reflect the donor's decision more accurately than actual disbursements, as the latter can be influenced by many confounding factors (Berthelemy, 2006a; Boussalis and Peiffer, 2011). However, most commitments are

[2] The majority of the group interviews were conducted as direct, personal conversations. For logistical reasons, some key informants were included via telephone conference systems. A total of five group interviews were conducted, separated according to the individual organisations. One interview was one-on-one. All interviews were recorded and transcribed in full. In line with the principle of confidential handling of any information provided, any references to the content made in the scope of this report is pseudonomised. "GI" stands for "group interview", followed by a randomised number for each organisation."

[3] According to Weikmans et al. (2017), a transnational comparison of climate finance, for example, is problematic because the finance volume of the projects with the marker "significant objective" (here CLA-1) is taken into account with a varying proportion by the respective donor countries; this proportion is between 0 and 100 percent.

disbursed within two years (Hudson, 2013). Adaptation DC includes both projects with climate change adaptation (CLA) as (primary) principal objective (CLA2) as well as (secondary) significant objective (CLA1). The analysis is based on discounted funds (cf. also Betzold and Weiler, 2018), in which case funds for CLA = 2 (principal objective) are fully credited and funds for CLA = 1 (significant objective) are credited at 50 percent and combined in one variable. The advantage of this approach is that the results of the study at hand can be compared with the relevant academic allocation studies of (German) adaptation DC (Betzold and Weiler, 2018; Klöck and Nunn, 2019)4. The Federal Government applies this discount factor in official statistics as well.

The second step concludes with a comparative examination of the priorities identified in the strategy documents and discussions and the distribution patterns of the funds. Descriptive analyses, however, can only reveal correlations between possible influencing factors and distribution patterns of German DC. They only allow for limited causal conclusions to be drawn, partly because confounding factors cannot be taken into account. In order to measure the impact of a factor while controlling for other influencing variables, multivariate statistical methods are applied in Step 3 of the allocation analysis.

Step 3 "Allocation analysis": Based on the identified and previously contextualized distribution patterns from Step 2, the influencing factors are examined. Multivariate regression analyses are used for this purpose. They allow for the examination of the statistical impact of several factors on the distribution of DC funds, and for modelling of the relationship between different influencing factors. The impact of climate vulnerability as well as other donors' activities on Germany's commitment to climate change adaptation in a potential recipient country is of particular interest for the study at hand. In the regression analyses, the impact of these central factors is measured while keeping other influencing factors, established by literature on DC allocation, constant. Among these influencing factors are "need", "donor interest" and "merit". In addition to the CRS data already mentioned, the basis of data includes additional secondary data from various international organisations.

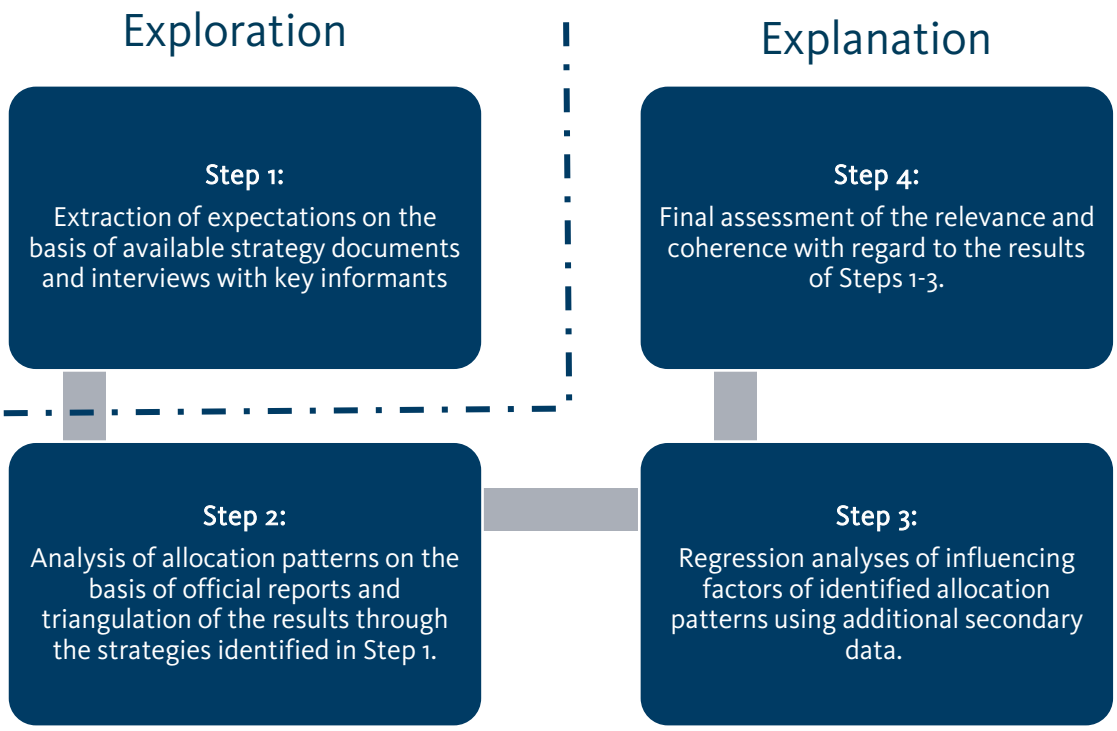
Step 3 forms the core of the allocation analysis and provides information on the German DC's allocation decisions. The dependent variable (DV) is generated by the data base from the CRS system and measures whether and to what extent individual states benefit from adaptation finance. The independent variables include various potential factors such as climate change vulnerability and the number of other donors and control variables (cf. Chapters 5.3 and 5.5). As part of an iterative approach, the triangulation with the German DC's strategic priorities as well as the descriptive portfolio analysis is repeated. The complete regression tables are included in the Appendix.[5]

Step 4 "Evaluation According to Evaluation Criteria": On the basis of the findings from Steps 2 and 3, the results are evaluated as theory-based conclusions. This involves the evaluation criteria for relevance and coherence (see Box 1 and Box 2 in the Appendix). Questions related to the assessment dimensions of complementarity and coordination are part of the relevance assessment. In the scope of the evaluation, German DC's own claims identified in Chapter 3 determine the expected aspiration level. The results are evaluated in comparison to the aspiration level on a four-step scale for each of the defined criteria (cf. Table 3 in the Appendix). In the first category, the actual allocation patterns clearly exceed the identified aspiration level ("exceeded"). In the second category, the actual allocation patterns fully comply with the demands of the aspiration level ("fulfilled"). In the third category, the allocation patterns (only) partially comply with the aspiration level. The fourth category serves to identify deviations of the results of the portfolio and allocation analysis from the identified claims.

[4] Adaptation measures of other CLA-1 donor countries are also discounted at 50 percent in the scope of these studies, in order to establish comparability with German climate finance.

[5] Finance volumes for activities that recipient countries have not been specified for cannot be taken into account for all analyses of adaptation fund allocation by recipient country. For this reason, the analyses in Chapters 5.3 and 5.4 as well as individual descriptive statistics and maps on the regional distribution of funds from Chapter 4 refer to a reduced data set.

Figure 1 Methodological Approach



Source: Own visualisation.

3. OPERATIONALISATION OF EVALUATION QUESTIONS

The first step of the portfolio and allocation analysis at hand is the identification of empirically verifiable expectations based on the DC's own claims to respond to the five evaluation questions (cf. Chapter 2). This chapter presents the individual expectations (E), organised according to evaluation questions (EQ).

3.1 EQ1 – To what extent is the portfolio consistent with international development agendas and German priorities?

The German government has set itself the goal of increasing its annual budget for international climate finance to four billion EUR in 2020. With the credo "Climate policy is always also development policy" (BMZ, 2017), German DC intends to significantly expand its current commitment in the climate field. To this end, it has set a target of increasing[6] the annual commitments of official development assistance (ODA) to four billion EUR in 2020 (BMZ, 2016, 2019). With these commitments, the Federal Government is referencing the agreements under the United Nations Convention on Climate Change (UNFCCC) on the promotion of measures in the field of climate protection and climate change adaptation (Group Interviews, GI 2, 3 and 4). If the German contribution of four billion EUR in annual commitments was to be achieved in 2020, this would correspond to about 4.5 percent of the total required international climate finance of 100 billion USD (1 USD = 0.9 EUR) annually from public and private funding sources (UNFCCC, 2016). Within the framework of this study, it is expected that the German government's international climate finance funds will increase over time, approach the target value of four billion EUR by 2020 and - in view of the international target of 100 billion USD - will not fall significantly below this value beyond 2020, or even continue to increase it.

Expectation EQ1E1: German DC's commitments in the field of climate finance will increase over time and approach the target value of at least four billion EUR in 2020.

Both pillars of international climate policy - climate protection and climate change adaptation - enjoy equal political importance in German DC. It can be assumed that political parity will also be expressed in the Federal Government's financial commitments. The Paris Agreement under the UNFCCC attributes political parity to climate protection and climate change adaptation, which also has an impact on the design of German DC as a UNFCCC contracting state. The German government has adopted equal political attention of these two pillars of international climate policy. This then raises the question to what extent the equal political importance of these two pillars is also reflected in the allocation patterns of German DC. With regard to the political commitments made to UNFCCC, BMZ points already to a close-to-balance ratio of financial commitments for climate protection and climate change adaptation for its own 2016 budget funds (BMZ, 2017). Against this background, the evaluation at hand assumes that a general relationship between the joint declaration of intent in the political sense and the actual allocation patterns can be determined. This is based on the assumption that the distribution of limited budget funds is also an expression of a political position and that an increase in funds in the field of mitigation is also reflected in an increase in adaptation funds.

Expectation EF1E2: The political parity between mitigation and adaptation is also reflected in the allocation patterns.

To implement climate policy, German DC is relying increasingly on international partnerships and new funding sources. Climate policy and development policy cannot be designed separately from one another (BMZ, 2017, 2018). To implement the Framework Convention on Climate Change, German DC relies on bilateral projects and programmes as well as on the establishment of international partnerships, platforms and initiatives. In addition to coordination and complementarity at policy level, German DC aims to supplement budget funds with capital market funds, such as measure-related individual loans, development and promotional loans and private investment (BMZ, 2015, 2016, 2017). This applies to both

[6] According to the German government, total political commitments in 2014 amounted to two billion EUR (BMZ, 2016). According to the OECD's CRS data, the total value of budget funds in 2014 was 1.3 billion EUR.

climate protection and climate change adaptation. The evaluation therefore assumes that the budgetary resources of German climate finance will increasingly be supplemented by the mobilisation of private funding sources and that this also applies to the share of adaptation funds.

Expectation EQ1E3: Budget funds for climate change adaptation are increasingly supplemented by private funding sources in German climate finance.

Adaptation funds are to be increasingly implemented through civil society in the future. According to its strategy papers " Government - Civil Society Cooperation in Post-2015 Development Policy" from 2014 and "Development Policy 2030" from 2019, BMZ wants to further strengthen the subsidiarity principle in development policy and further expand the role of non-state actors (BMZ, 2014, 2018). Non-state actors include civil society, political foundations, cities and municipalities in addition to the churches. According to BMZ (2018), the annual funds that are implemented through cooperation with non-state actors should increase overproportionately to the overall development of the development budget (considering the principles of effectiveness and efficiency). The study therefore also expects an increase in funds that will be implemented through the civil society channel.

Expectation EQ1E4: The share of adaptation funds implemented through the civil society channel increases overproportionately.

German DC is focusing increasingly on the introduction and expansion of climate risk insurance as an important tool in the adaptation portfolio. The initiative of the German Federal Government on climate risk insurance (InsuResilience Initiative, later expanded to InsuResilience Global Partnership), founded in 2015 as part of the meeting of the Group of Seven (G7) in Elmau, aims to insure an additional 400 million people in developing countries against climate risks in collaboration with the insurance industry by 2020 (BMZ, 2017). This would translate to an increase of 400 percent in the number of insured persons within five years. Further internationally promoted risk pools, such as the African Risk Capacity (ARC), complement the efforts of the InsuResilience Global Partnership and are intended to increase its broad impact (BMZ, 2015, 2019). The ambitious goals are expected to lead to a significant increase in funds for climate risk insurance.

Expectation EQ1E5: German commitments in the field of climate risk insurance will increase over time.

German DC has committed itself to a coherent implementation of international frameworks for dealing with climate change. The main frameworks include the Paris Agreement (UNFCCC, 2015), the United Nations Agenda 2030 for Sustainable Development (UN, 2015), the Sendai Framework for Disaster Risk Reduction (UNDRR, 2015) and the United Nations New Urban Agenda (GI 2, 3 and 4). Other national strategies, such as the German Sustainable Development Strategy or the German Adaptation Strategy, are less closely related to DC and therefore only play a subordinate role (GI 4). German DC has set itself the goal of coherent implementation of these agreements as principal frameworks of international climate policy (BMZ, 2019). Against this background, the present study assumes that the objectives and fields of action of both the aforementioned international agreements and the German strategies relating to climate change adaptation are consistent.

Expectation EQ1E6: The German strategies relevant for climate change adaptation are consistent with the international agreements of the Paris Agreement, Agenda 2030 for Sustainable Development, the Sendai Framework for Disaster Risk Reduction and the New Urban Agenda.

3.2 EQ2 – To what extent does the portfolio reflect the priorities of the development partners and the scientific evidence?

German DC pursues a partner-oriented development approach. On the basis of a series of international conferences on increasing effectiveness in international DC (Paris 2005, Accra 2008 and Busan 2011; OECD, 2008, 2011), German DC has committed itself to a development approach that sets the priorities, systems and procedures of the partner countries as framework for their joint efforts. The Paris Agreement of 2015 emphasises that the process of climate change adaptation must be driven by the countries themselves and that international cooperation on climate development should therefore be guided by national priorities (UNFCCC, 2015). Partner priorities are primarily defined by Nationally Determined Contributions (NDCs) and National Adaptation Plans (NAPs). Other global agendas, such as Agenda 2030 for Sustainable Development, are also based on these principles (UN, 2015). Against this background, it is expected that the partner orientation in the field of climate change adaptation will also be reflected in the allocation patterns and that adaptation funds will be distributed primarily according to the priorities set by the partners.

Expectation EQ2E1: German DC's allocation of funds in the field of climate change adaptation is partner-oriented.

Allocation decisions are made based on evidence, scientific studies and evaluations. Against the background of a financing gap in the field of international climate finance, the use of tried and tested tools that are as effective as possible for adapting to climate change is essential. Thus a further potential factor that might impact allocation decisions, especially in areas of considerable uncertainty (e.g. with regard to the effects of climate change), is the application of scientific evidence. The study at hand therefore assumes that positive or negative results from studies on the impact and effectiveness of adaptation measures - along with other influencing factors such as vulnerability, partner capacities, partner orientation, etc. - have a noticeable impact on allocation decisions.

Expectation EQ2E2: Commitments in the field of adaptation focus on sectors and tools backed by strong evidence.

3.3 EQ3 – To what extent does the allocation of adaptation commitments relate to climate vulnerability in partner countries?

Supporting the countries and people most severely affected by climate change is a central objective of German DC in the field of adaptation. In line with the Agenda 2030 principle of "leaving no one behind", it applies both at the level of individual countries as well as within these countries with particularly disadvantaged groups, such as people in fragile contexts (BMZ, 2019). In the field of adaptation, the concept of climate vulnerability plays a special role. Adaptation funds should primarily benefit vulnerable regions and countries (BMZ, 2017). This leads to the assumption that climate vulnerability has a positive impact on the (probability and level of) receipt of financial commitments. For countries with a high level of vulnerability and a low level of development, this applies primarily to budget funds. In the case of countries with a higher level of development, such as emerging countries, it can be expected that this correlation will also apply to market funds.

Expectation EQ3E1: With increasing climate vulnerability of a country, both the probability of receiving commitments for adaptation measures and the level of commitments increase.

The poorest developing countries and the Small Island Developing States (SIDS) are to be given particularly strong support because of their overproportionate vulnerability. With regard to climate change adaptation measures, the poorest developing countries and the SIDS are designated as particularly in need of said measures. Not only are they already clearly impacted by the effects of climate change but they also lack adaptation capacities. German DC has committed itself to supporting particularly vulnerable groups and aims to increase the poorest developing countries' and the Small Island Developing States' resilience to climate risks (BMZ, 2019). This suggests the assumption that the poorest developing countries and the SIDS receive overproportionately high level of per capita commitments.

Expectation EQ3E2: The poorest developing countries and the SIDS receive overproportionately high level of per capita funds for adaptation measures.

3.4 EQ4 – To what extent are the approaches and tools of various actors of German development cooperation complementary and coherent?

German DC relies on a collaborative approach to the implementation of adaptation measures through financial and technical cooperation. In the implementation of development interventions, German DC can draw on long-standing competence in the fields of TC and FC. Although TC and FC organisations differ fundamentally in their approaches and tools, individual measures often contain both TC and FC elements. In principle, the focus of German TC is on capacity-building. FC finances investments. However, FC also provides policy consultation as part of accompanying measures, while TC is also involved in the provision of microloans, for example. This notwithstanding, German TC and FC are fundamentally expected to cooperate reasonably in the individual regions, countries and sectors in order to dovetail their efforts and work collaboratively (GI 2, 3, 4, 5). Against this background, the evaluation assumes that German TC and FC also work on the basis of a collaborative principle in the field of adaptation measures.

Expectation EQ4E1: German TC and FC's take a collaborative and coordinated approach with the implementation of adaptation measures.

German DC climate policy is spread across several federal ministries with different priorities. According to OECD's ODA statistics, BMZ has implemented the majority of German total funds for climate protection and adaptation measures in recent years. In addition BMU supports adaptation measures through the ICI, among others. The ministries of economics, research and foreign policy also contribute to German climate finance, but only at 1, 1.5 and 0.34 percent of the total volume respectively (BMZ, 2016). In keeping with the German government's claims with regard to coherence, complementarity and coordination, the evaluation assumes that each ministry has its own funding priorities and approaches that complement the other ministries and are interlinked in terms of policy coherence.

Expectation EQ4E2: BMZ and BMU have their own respective priorities that complement each other.

3.5 EQ5 – To what extent are the approaches of the German development cooperation complementary and coherent to the policies of other bilateral and multilateral aid donors?

German DC aims to implement the principles of the international effectiveness agenda and also relies on the international division of labour in the field of adaptation. In addition to the aforementioned partner orientation, Germany has committed itself to increasing coordination between development partners and reducing transaction costs as part of the agreements to increase effectiveness (at the Paris, Accra and Busan Conferences). In the Accra Action Plan in particular, the framework for improved collaboration between individual donors was agreed (OECD, 2008). In addition to promoting the complementarity of individual donors' development interventions, the agreements also include the reduction of fragmentation. The 2011 Busan Partnership Agreement includes developing countries as key actors in coordinating DC to reduce fragmentation on the ground. Against the background of limited

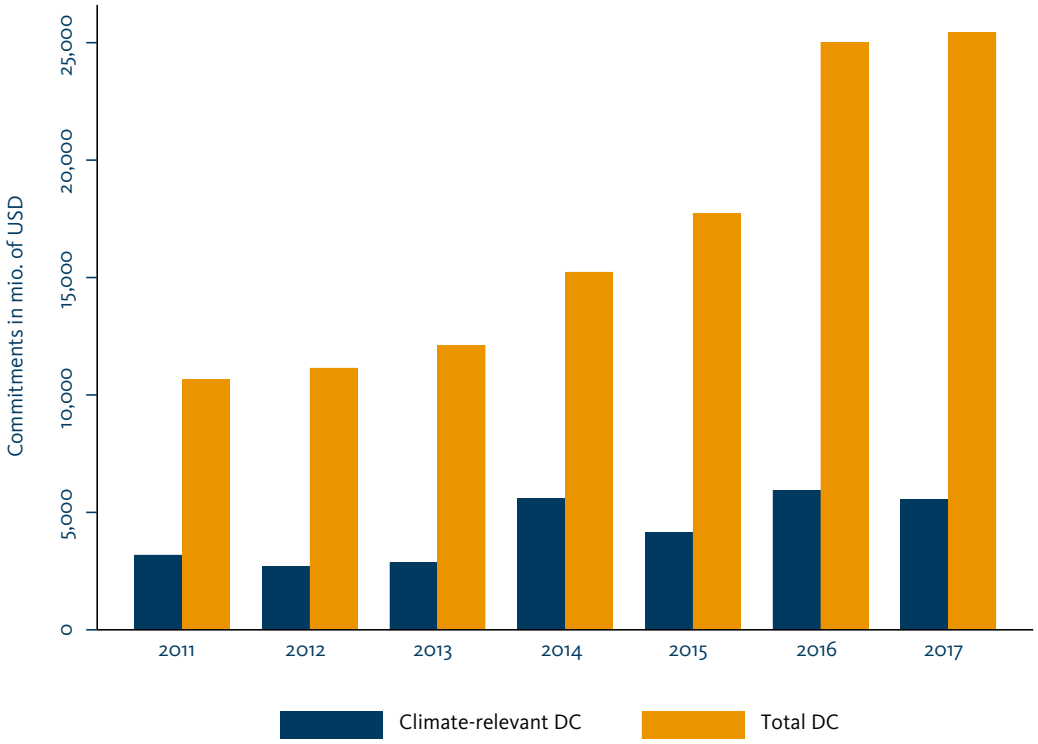
resources, it seems reasonable for donor activities to focus on individual countries (or sectors). In keeping with the collaborative principle, the present study therefore assumes that German DC is particularly active in countries with adaptation measures where comparatively few other donors are involved. At the same time, it is also plausible that several donors would bundle their commitment in one country (or sector) with the corresponding priorities in terms of need orientation. It follows that this result cannot be conclusively evaluated as either positive or negative per se in the context of the portfolio and allocation analysis but requires further investigation in the course of the case studies assessed in Modules 2 and 3.

Expectation EQ5E1: The fewer other donors are active in the field of adaptation in a country, the greater Germany's involvement with regard to adaptation funds in this country.

4. DESCRIPTION OF THE PORTFOLIO

Climate finance is an important component of the German development portfolio. According to the CRS data for 2011-2017, 15 percent of the committed grant funds and loan funds are for projects with a principal climate objective (mitigation and adaptation combined). This corresponds to a volume of around 17.5 billion USD of German climate finance for projects with adaptation or mitigation as principal objective (CLA-2). Taking the discounted commitments for projects with climate markers as significant objective into account, the climate contributions for the period 2011-2017 increase again by about the same amount to a total of 30 billion USD (which corresponds to 26 percent of German ODA over the evaluation period; cf. Figure 2).

Figure 2 German Climate Finance Compared to Other Development Cooperation Projects



Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data.

Germany is one of the most important donors in the financing of climate change adaptation measures. Analysis of the OECD's CRS data shows that between 2011 and 2017, Germany followed Japan in allocating the most adaptation funds of all OECD member states. Next to Japan, only the European Union (EU) is ahead of Germany, with France in fourth place. Germany's position in an international comparison is due primarily to commitments for projects with adaptation as significant objective (CLA-1). Considering significant objective funds on their own makes Germany the most important donor in the evaluation period, followed by Japan and the EU. However, Germany plays a less prominent role when comparing commitments relating to measures with climate change adaptation as principal objective (CLA-2). It ranks fourth behind France, the EU and the US. Apart from the EU, the Asian Development Bank, the European Bank for Reconstruction and Development (EBRD), the International Fund for Agricultural Development (IFAD), the Climate Investment Fund (CIF), the Global Environment Facility (GEF) and the Green Climate Fund (GCF) are among the most important multilateral donors.

German adaptation finance is predominantly provided through bilateral cooperation. Germany's commitments for adaptation projects are implemented through bilateral and multilateral channels. Multilateral commitments can also be divided into core contributions and earmarked funds - also known as multi-bilateral commitments (Tortora and Steensen, 2014). German multi-bilateral commitments in the field of climate change adaptation are German commitments in the CRS data that are implemented through a

multilateral actor. However, the German proportion of core contributions to multilateral organisations in the field of adaptation can only be estimated. This is due to the fact that although Germany's core contributions to various multilateral organisations as well as the commitments of these organisations for adaptation measures are included in the CRS data, Germany's exact proportion of these commitments can only be approximated. The study at hand employs the ENVIRONET WP Stat Task Team's[7] internationally recognised estimation procedure. When considering the CLA-2 projects' adaptation finance, the estimate shows that between 2011 and 2017, only about 12.7 percent (385 mio. USD) of German adaptation finance flowed into multinational organisations as core contributions. This compares with more than 2.7 billion USD in CLA-2 projects, which were implemented through bilateral and multi-bilateral channels. When considering adaptation as significant objective (CLA-1), the proportion is even lower at only 3.6 percent of the total disbursements (249 mio. USD).

German adaptation finance relies on project-based approaches. Between 2011 and 2017, project-based approaches accounted for around 87 percent of commitments, which are primarily implemented through bilateral projects. Programme-based approaches, on the other hand, are usually projects funded by several donors that are coordinated by the partner country or organisation and have a common reporting, monitoring and accounting system, etc. This result applies to both CLA-2 projects (with adaptation as principal objective) and CLA-1 projects (with adaptation as significant objective).

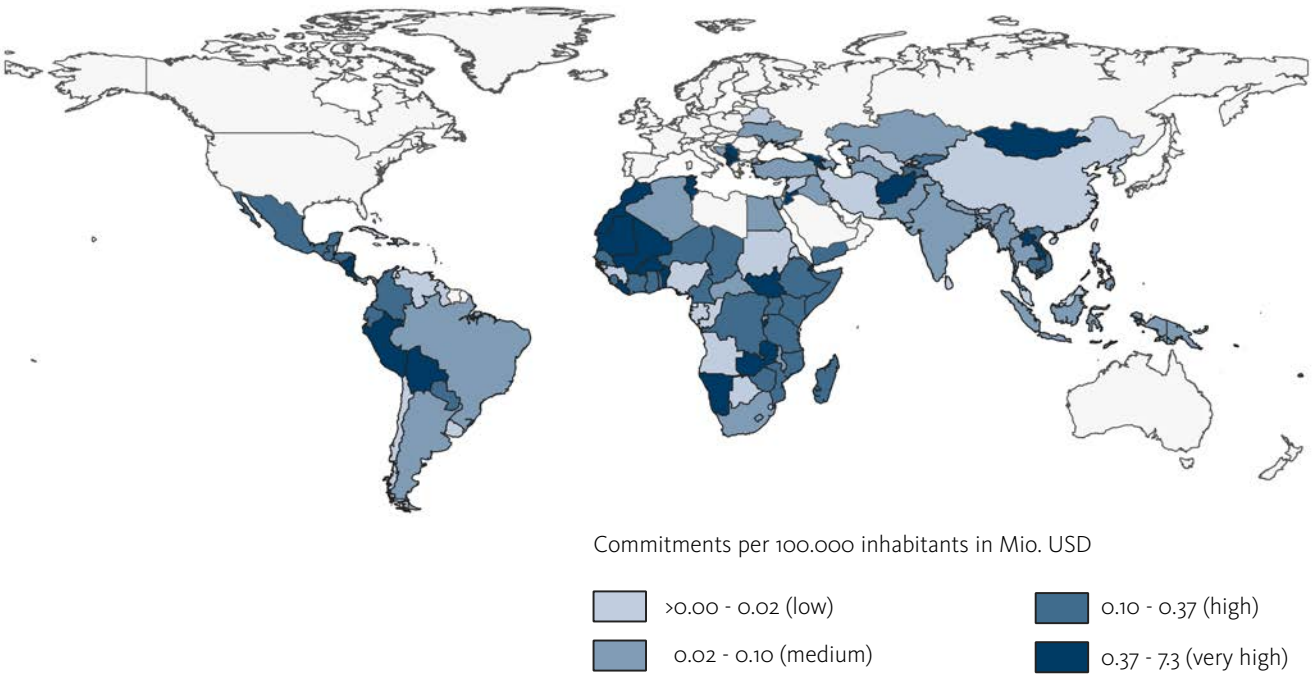
The majority of German adaptation finance is implemented in the sectors environmental protection, agriculture and water. In the environmental sector, the funds are primarily used for objectives in the field of biodiversity and in environmental policy and administration. In the agricultural sector, agricultural development, agricultural water resources and agricultural land resources are among the most important sub-sectors. In the water sector, funds are concentrated on sanitation and wastewater management, as well as water sector policy and administration.

Between 2011 and 2017, German DC implemented climate change adaptation measures in 121 countries. Regional focus was on partner countries in sub-Saharan Africa, West Africa, the Andean States and South and East Asia. Figure 3 shows that per capita commitments are spread across a large number of partner countries. The high number of partner countries in the field of climate change adaptation is mainly due to the commitments for adaptation as significant objective (CLA-1). In the purely descriptive analysis of per capita commitments, some countries receive a comparatively high level of funds (categories "high" and "very high", Figure 3), others a relatively low level of funds (categories "low" and "medium", Figure 3). [8]

[7] For the calculation of multilateral proportion, the core contributions made by Germany to multilateral organisations over a particular period of time are multiplied by the proportion paid out through these organisations for climate change adaptation (ENVIRONET-WP-Stat Task Team, 2015).

[8] Each of the quartiles includes the same number of countries ("observation points").

Figure 3 Regional Distribution of German Adaptation Commitments

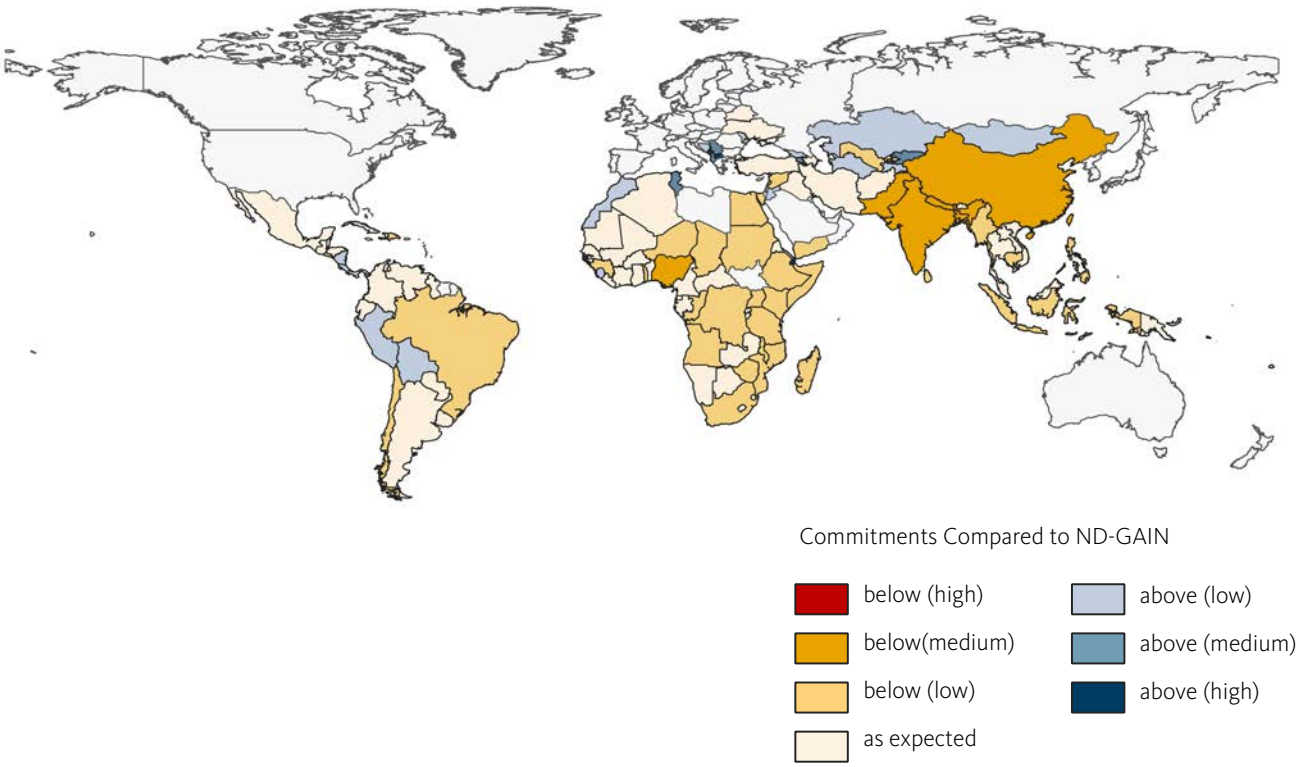


Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data.

When considering the regional distribution of adaptation resources per 100,000 inhabitants in connection with climate vulnerability, a mixed picture emerges: the vast majority of countries receive commitments for an "expected scale" in line with their vulnerability to the consequences of climate change. However, some countries receive below-average or above-average commitments. Figure 4 shows the regional distribution of adaptation funds per 100,000 inhabitants (given in mio. USD, discounted) in connection with their climate vulnerability for the period 2011-2017. For this first descriptive comparison, the operationalisation of climate vulnerability is made via the Notre Dame Global Adaptation Initiative Adaptation Index (ND-GAIN; Chen et al., 2015). Other indices taken into account in the study at hand (for details on these and other climate indices used see Chapter 5.3 and Table 7 in the Appendix) offer comparable findings and are thus not included as a separate Figure in this study. The reference category ("as expected") in Figure 4 shows the correlation between commitments and the vulnerability status of individual partner countries as expected based on the data distribution. Thus countries that are not vulnerable do not receive any commitments and countries with the highest level of vulnerability receive the highest level of commitments[9]. Countries that receive more commitments than expected in international comparison are shown in red, those that receive less are shown in blue. However, this purely descriptive presentation does not allow for a conclusive assessment of the allocation of adaptation funds across recipient countries. With regard to the allocation decision in the multivariate statistical allocation models, the findings at hand are examined to a greater extent in Chapter 5.3, taking into account various climate vulnerability indices and keeping numerous other influencing factors at a constant.

[9] The calculation is based on the calculable classification of the observation points (countries) (see Figure 3) and also includes information on the respective countries' climate vulnerability status, based on the ND-GAIN index by Chen et al. (2015). An example: A low value for commitments/climate vulnerability - "commitments compared to ND-GAIN" (classification "below (high)" of e.g. -3, colour coding in red, Figure 4) - results from a subtraction of the classified level of commitments (classification "low", of e.g. 1, colour coding white, Figure 3) and the ND-GAIN value (classification "high", e.g. 4).

Figure 4 Regional Distribution of German Adaptation Commitments Relating to Climate Vulnerability



Note: Grant funds and loan funds for adaptation per 100,000 inhabitants (in million USD) in relation to the ND-GAIN-Adaptation index are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data and the ND-GAIN-Adaptation Index (Chen et al., 2015).

5. RESULTS OF THE PORTFOLIO AND ALLOCATION ANALYSIS

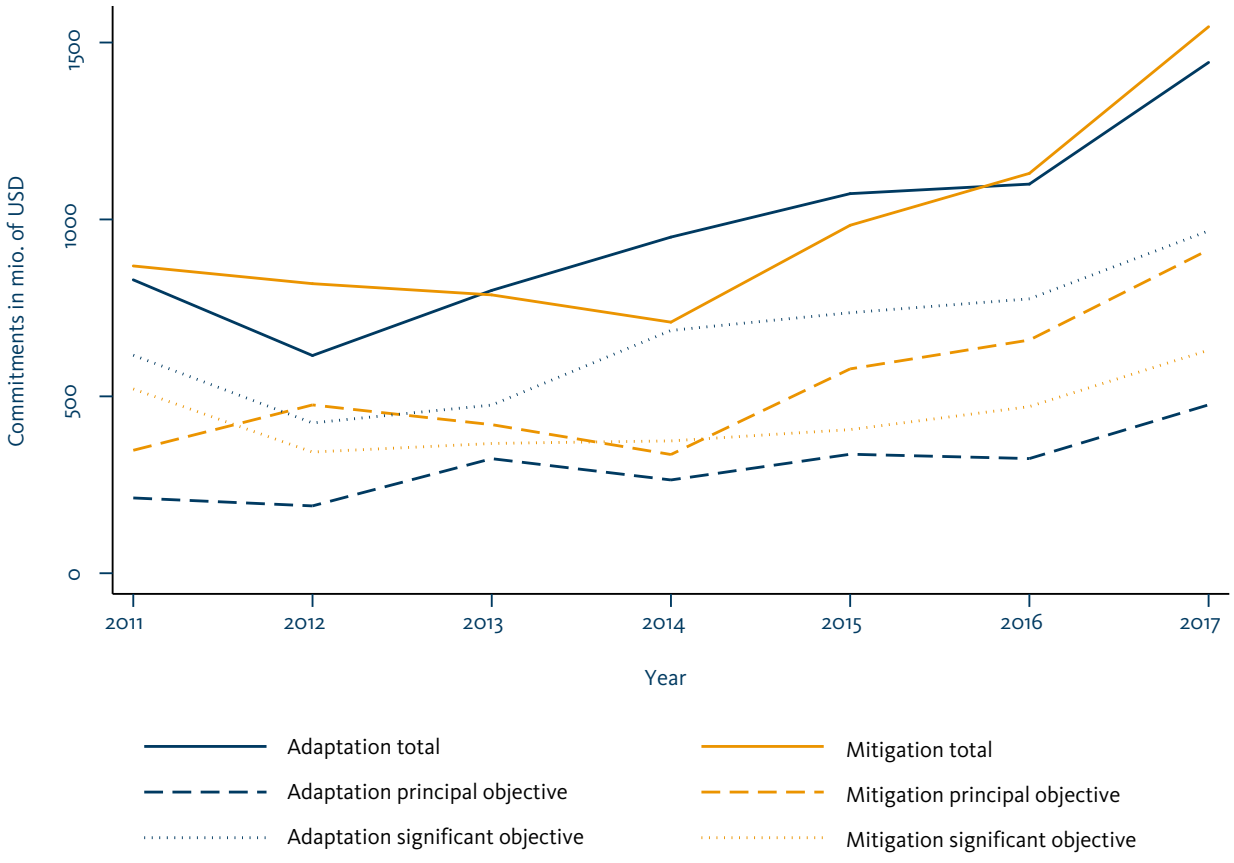
This chapter presents the results of the portfolio and allocation analysis. The five evaluation questions and the expectations derived in Chapter 3 serve as a structure. The evaluation of the findings according to individual evaluation criteria is then carried out in Chapter 5.2.

5.1 EQ1 – To what extent is the portfolio consistent with international development agendas and German priorities?

The response to EQ1 is based on a review of a total of six expectations. The development of the total volume of climate finance (EQ1E1), the distribution of adaptation and mitigation funds (EQ1E2), the supplementation of budget funds with additional funding sources (EQ1E3), the role of civil society in the implementation of funds (EQ1E4), the financing of the tool of climate risk insurance (EQ1E5), and the conformity of German strategies with international agendas (EQ1E6) were empirically examined.

The results of the portfolio and allocation analysis at hand confirm the growth in climate finance of German DC over time. The target value of annual new commitments of four billion EUR is likely to be met by 2020. Between 2011 and 2017, funding increased both in the field of mitigation and adaptation. According to CRS data, German climate finance's total commitments from budget funds already amounted to three billion EUR in 2017 (5.6 billion EUR including KfW's own funds) and are steadily approaching the climate finance target of at least four billion EUR for 2020. At the same time, the current form of reporting is not free of methodological limitations. It may be that the current practice of discounting adaptation funds in the scope of CLA-1 projects at 50 percent of the total volume overestimates or underestimates actual adaptation finance. According to the current method, a project can have a large number of significant objectives. Therefore it is not at all obvious that exactly 50 percent of a project's funds are allocated to adaptation - the percentage may well be higher or lower.

Figure 5 Commitments by German Development Cooperation in the Field of Climate Change Adaptation and Mitigation



Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data.

In terms of the proportion of budget funds, the equal policy importance of adaptation and mitigation translates into financial parity: Overall, in recent years, about as many commitments have been made for climate protection measures as for climate change adaptation measures. However, funds are distributed very differently across projects with principal or significant climate objectives. Adaptation funds are primarily implemented through significant objectives. Between 2011 and 2017, the proportion of adaptation funds in projects with significant climate objectives ranged from 54 to 65 percent. For projects with principal climate objectives, however, adaptation funds accounted for only 28 to 44 percent of all commitments. In addition, significantly more German FC market funds were allocated to climate protection than to adaptation. If market funds are included in the analysis, only 25 to 36 percent of the total commitments for climate finance were allocated to adaptation projects. One reason for the uneven finance ratio in the comparison of mitigation and adaptation projects (only principal objective) lies in the different finance claims: mitigation projects are currently more cost-intensive and also tend to mobilise private capital (GI 3, 4). In addition, mitigation projects, for example in the field of renewable energies, are more likely to be financed through loans due to their cost-effectiveness. Adaptation measures, on the other hand, are considered less profitable and are therefore more heavily financed through state subsidies.

According to the available data, hardly any private funds have been mobilised in the field of adaptation so far. Data availability is limited to German FC data. A slight increase can only be observed for the period 2012-2015. The study considers private funds whose mobilisation is attributable to public funds provided by BMZ for adaptation measures (Table 1). The following financial instruments are relevant for the period 2012-2017: credit lines, shares in collective capital investments[10] and direct investments[11]. Aggregated across all instruments, most private capital was mobilised in 2014. Compared to 2012, the figures increased slightly in 2015. However, no private capital was mobilised in 2013. Assuming that the data is complete, no private funds were mobilised for projects with a CLA-1 or CLA-2 identifier in 2016 and 2017 either. Thus, there would have been a decrease in the level of mobilised private funds. Due to the short time series and the fact that only KfW mobilisation data is available, temporal trends cannot be conclusively assessed at this point in time. This requires further analysis in the course of the evaluation.

Table 1 Private Funds Mobilised by KfW, in Thousands EUR (2012-2017)

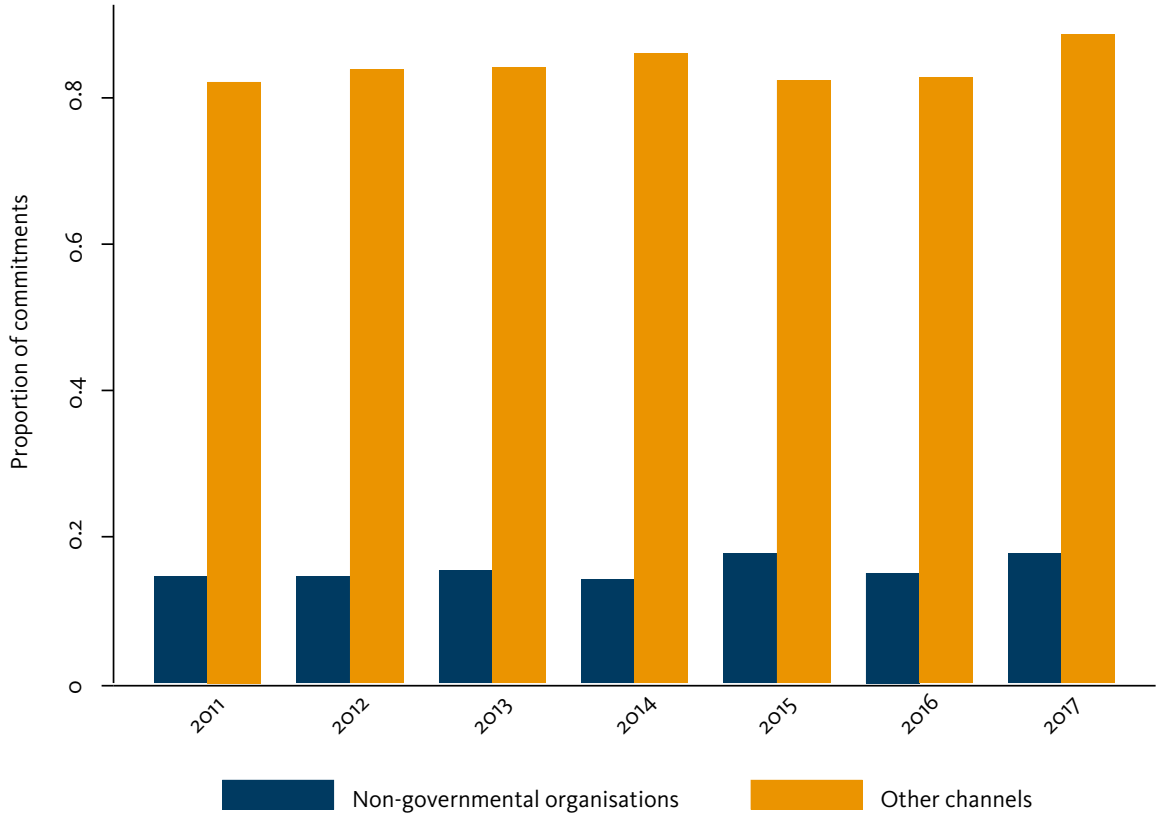
Year	Mobilised Private Funds in Thousand EUR
2012	24,241.08
2013	0
2014	116,791.88
2015	24,362.94
2016	0
2017	0

[10] The amount of mobilised private capital is derived from the total volume of private investments made during the establishment phase of investment funds. These are all investments that take place within a period of five years after establishing the fund.

[11] The calculation of mobilised private capital includes all private funds invested in a company within a period of two years after the provision of BMZ funds.

During the evaluation period, the proportion of total commitments implemented through the civil society channel remained at a constant of around 10 percent (Figure 6). If only grant funds were considered, the proportion was about 16 percent. The assumption that this proportion increase continuously over time is therefore refuted. Between 2011 and 2017, the percentage of grant funds implemented through civil society organisations remained at a constant of around 16 percent. When loan funds were brought in, the average value was around 10 percent of annual commitments. The result reflects the fact that many of the civil society organisations are not eligible for loan funds and that the proportion therefore result primarily from the grant funds area of the portfolio. However no increase in funds for civil society commitment in the field of climate change adaptation can be observed here either. The saturation level for civil society organisation's implementation ability thus appears to have been around 16 percent of grant funds and around 10 percent of total funds (including loan funds) in recent years. As an explanation, conflicting views emerged in the group theory-building interviews: From the point of view of the ministries, the civil society's capacities to implement further funds are currently exhausted. From the point of view of civil society, there is a lack of suitable funding lines (GI 1, 3 and 4).

Figure 6 Proportion of Commitments for Adaptation Implemented through the Civil Society Channel

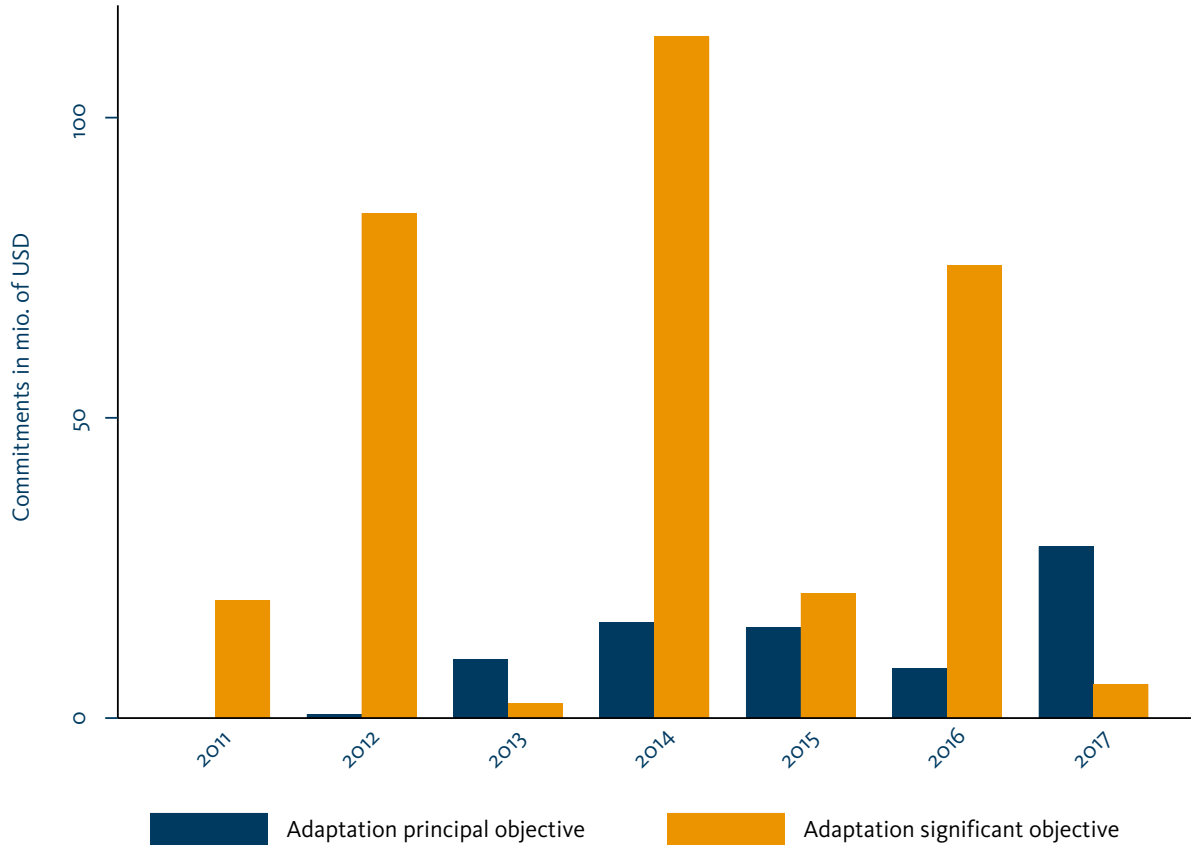


Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data.

Climate risk insurance is an important tool for integrating climate change adaptation into German DC projects. Through the InsuResilience Global Partnership, Germany has helped the tool of climate risk insurance gain increasing importance. In total, commitments for climate risk insurance between 2011 and 2017 amounted to around 623 million EUR (cf. Figure 7). Until 2016 almost all funds were allocated to projects with adaptation as significant objective (CLA-1). This indicates that the tool of climate risk insurance can be easily integrated into various types of projects, for example as a complementary measure to projects with advisory and capacity-building components. In 2017, increased funds were implemented for the first time through projects with adaptation as principal objective. The reason for this development is the

establishment of new initiatives - above all the InsuResilience Global Partnership - which are relying increasingly on climate risk insurance. By promoting this tool, German DC is meeting the needs of the partner countries (GI 1, 2, 3, 4 and 5). According to findings from the group interviews, insurance solutions remain a neglected issue in this context. However, findings from the group interviews also showed that this is by no means a panacea for dealing with climate risks and that increasing funds in the insurance sector should not be to the detriment of risk provisioning strategies (GI 1, 2 and 3). Against this background, a declared objective of the InsuResilience Global Partnership is to bring together risk finance and insurance approaches within the framework of comprehensive risk management.

Figure 7 Commitments for the Tool of Climate Risk Insurance



Note: Grants and loans for adaptation are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data.

German DC's sectoral and regional priorities in the adaptation portfolio comply with the relevant strategic reference frameworks and global development agendas. However, German DC still does not have a stand-alone climate or adaptation strategy. Due to the momentum of the international climate debate and the proven partner- and demand-driven orientation, German DC does not have its own climate strategy (GI 2, 3, 4 and 5). Neither BMZ nor BMU have a relevant climate or adaptation strategy (GI 3, 4). [12] The ministries' thematic priorities can therefore be reconstructed on the basis of selected background papers and the publicly tendered funding lines (GI 3, 4). The German Adaptation Strategy adopted by the Federal Government alone contains an explicit, albeit very brief, reference to climate change adaptation in international cooperation (The Federal Government, 2008, 2015). A systematic comparison of German adaptation strategy/strategies is therefore only possible to a limited extent.

[12] Drafting of a BMZ climate strategy was started several years ago but was not completed (GI 1, 2 and 5).

5.2 EQ2 – To what extent does the portfolio reflect the priorities of the development partners and the scientific evidence?

Two expectations are being assessed in the scope of EQ2. The first part of the analysis examines the extent to which allocation patterns in the field of adaptation reveal a partner orientation (EQ2H1). The evaluation draws on information about the partner countries' national climate contributions and uses the Tool for Assessing Adaptation in the NDCs (TAAN) (Graucob et al., 2019). On the basis of this information, the partner country's priorities for adaptation as defined in the NDCs are analysed. The sectors best suited for comparison with the allocation patterns are those defined by the partner countries as their priority for adaptation policy.[13] The results of the study show the level of compliance between the partners' sectoral priorities (based on TAAN) and the priorities of the German adaptation portfolio (based on CRS data) in the respective recipient country. Despite the time lag between the NDCs mostly submitted to the UNFCCC between 2015 and 2017 and the CRS data from 2011 to 2017, it is generally plausible that the NDCs reflect priorities that existed in the partner countries in the years prior to their publication. They can thus provide an indication of the extent to which the sectoral allocation of German adaptation funds corresponds to the sectoral priorities of the partner countries according to their NDCs.

The second part of the analysis engages with the impact of scientific findings on allocation decisions (EQ2H2). For this purpose, the evaluation draws on the results of an "Evidence Gap Map" (EGM) prepared jointly by DEval and the Green Climate Fund (Doswald et al., forthcoming). The map of evidence and evidence gaps is based on a systematic literature review of rigorous scientific studies on the effectiveness of adaptation tools. Non-rigorous studies and literature without reference to questions of effectiveness are therefore not part of the consideration. The map of evidence and evidence gaps provides information on more available evidence (quantity of solid scientific evidence) for a sector or specific tool. The EGM covers 464 studies that include a total of 1042 references from the publication period 2007-2018. Overall the basis of evidence is made up of 7 systematically gathered types of measures - for example infrastructure measures or financial and market mechanisms - in four sectors: 1) water, 2) land use and infrastructure, 3) forestry, fishery and agriculture and 4) society, economy and health. Since a scientific study usually considers the effectiveness of several tools in combination with several adaptation outcomes, the quantity of evidence is significantly higher than the number of scientific studies.[14] The study at hand compares this information with the proportion of funds, broken down by sector and tool. The extent to which evidence of the effectiveness of measures in individual fields correlates with German commitments in individual sectors is to be analysed by means of the comparison between the evidence and the allocation of funds. The applied approach may thus also reveal sectoral differences in terms of the correlation between expenditure and strength of evidence.

The results of the study at hand indicate a partner orientation. So far, however, the partner countries' priorities only had a limited impact on the actual allocation of adaptation funds. According to the findings from the group interviews, German adaptation funding is partner- and demand-oriented within the framework of established procedures for setting joint priorities with partner governments[15] (GI 2, 3 and 4). The comparative analysis of German DC adaptation contributions and the partner countries' nationally determined climate contributions by individual sectors on the basis of the TAAN (see previous paragraph),

[13] The following sectors are included in the TAAN dataset: Water; agriculture; forestry; fisheries; biodiversity and ecosystems; disaster risk reduction; food security; coastal protection; human settlement and land management; tourism, waste; finance and insurance sector; infrastructure and transport; health; energy; education (Graucob et al., 2019).

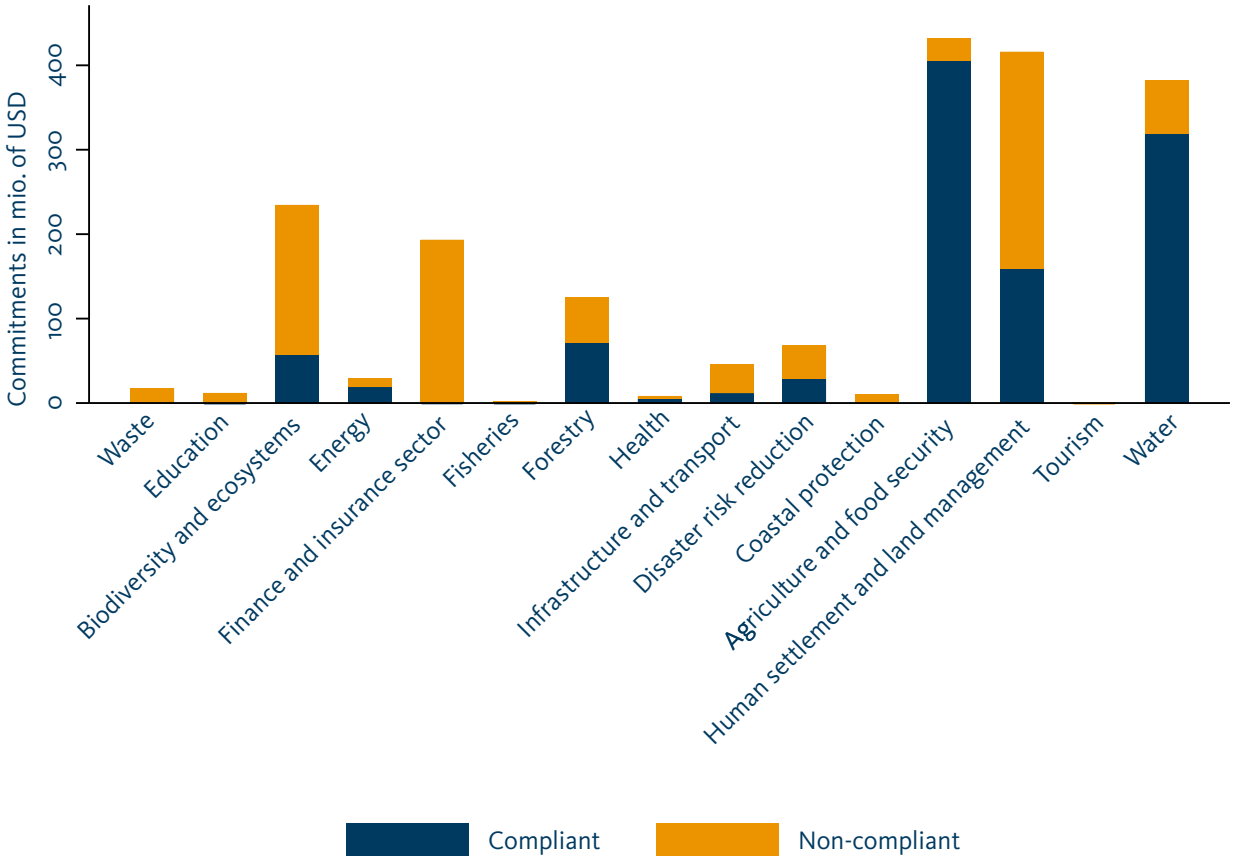
[14] The Evidence Gap Map (EGM) has several strengths. It provides an overview of the rigorous scientific evidence available on the effectiveness of adaptation measures. The methodology of systematic literature research and the search protocol of the scientific evidence is transparent and replicable. However, the EGM also has methodological limitations. Thus it is limited to English-language studies. In addition, the scientific interest impacts the number of studies on individual sectors. The effects of climate change are easier to detect in sectors such as forestry, fisheries and agriculture than in other sectors, since climate change is directly linked to productivity. This direct impact, coupled with the high dependence on natural resources and the importance of the sector for developing countries, has also shaped the political agenda of climate change adaptation in general, which may explain the high amount of evidence.

[15] Within the framework of the so-called Common Procedural Reform (CPR), the processes were revised. The decisive setting of priorities is an iterative process between the partner governments and BMZ.

however, comes to a different conclusion: The overall analysis of the total adaptation funds initially reveals a rather low level of compliance of the partners' priorities and the actual allocation patterns. Overall, 54 percent of the funds considered are implemented in line with the partner countries' sectoral priorities. Figure 8 illustrates this result in absolute figures. It shows the level of commitments by sector, broken down by compliance (blue) and non-compliance (orange) with partner priorities. In the agricultural sector, for example, about 180 million USD were committed in compliance with partner priorities (blue). The remainder (orange) was implemented either in other sectors or in other countries. If only adaptation funds for projects with adaptation as principal objective (CLA-2) are considered, the level of compliance is higher at 57 percent of the funds. Figure 9 shows the sectoral distribution of compliance with funds committed for principal objective measures.

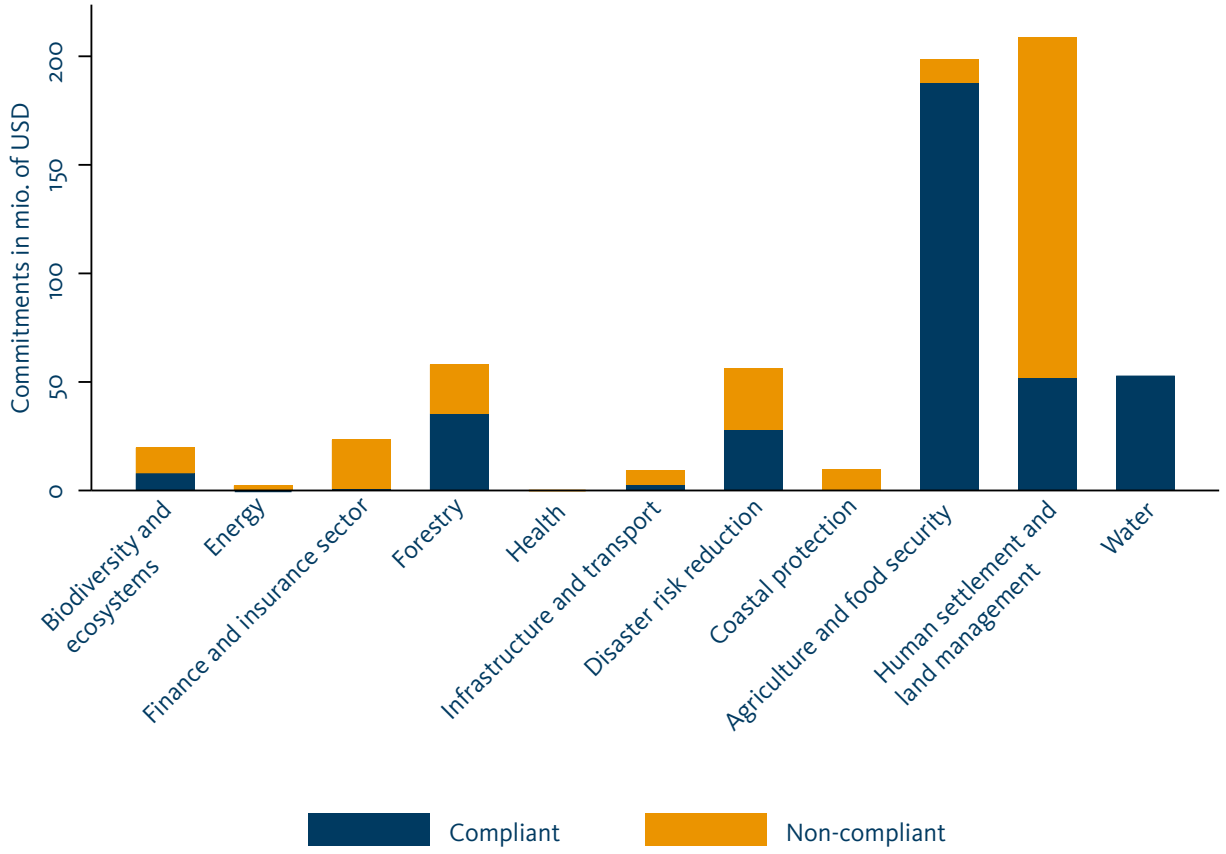
For methodological reasons, however, it is not entirely permissible to conclude causal relationships from these patterns since the method used has some limitations. The first question to be asked is to what extent the NDCs available so far - as a young tool of international climate agreements - already adequately reflect the priorities of the partner countries. This applies all the more as NDC priorities are generally future objectives. On the other hand, the NDCs and the TAAN tool are the only and thus best data sources so far that offer a systematic record of the partner countries' priorities. In its current brochure on comprehensive risk management, BMZ also refers to the NDCs' high relevance (BMZ, 2019, p. 12, own translation): "National climate contributions (NDCs) [...] offer important indication which measures are necessary in the respective sectors to promote their resilience. For example, 83 percent of NDCs contain adaptation goals. National adaptation planning is seen as a key element for operationalising and implementing these adaptation goals." However, there is still no systematic acquisition of the national adaptation plans' priorities. Furthermore, German DC was only able to offer a limited reaction to the partner countries' still very young NDCs in the evaluation period. Most NDCs were only submitted between 2015 and 2017, and changes in allocation patterns - assuming an implementation gap of two years between policy and agreed commitments - are expected to be noticeable from 2018. The CRS data for 2018 was not available at the time of the analysis. However, the evaluation assumes that the written NDCs reflect the priorities that existed in the partner countries throughout the years prior to their publication. In order to take advantage of this fact in the analyses, additional analyses with different evaluation periods were carried out. It was examined whether orientation towards the NDCs, for example in the planning period 2015-2016 (which might be indicated in the data as commitments for 2016-2017) was more pronounced than in the overall period. However, for the 2014-2017 and 2016-2017 periods, NDCs and actual fund allocation did not show any greater compliance between sectoral priorities either. Future analyses will show whether partner orientation will increase in the years following the ratification of the NDCs. The results available at present indicate that there is scope to further increase partner orientation within the framework of future thematic prioritisation.

Figure 8 Compliance of TAAN Priorities with Commitments for Adaptation Projects by Sector



Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data and TAAN data (Graucob et al., 2019).

Figure 9 Compliance of TAAN Priorities with Commitments for Adaptation Projects with Climate Change Adaptation as Principal Objective by Sector



Note: Grant funds and loan funds for adaptation as principal objective are shown.
Source: Own visualisation based on OECD 2011-2017 CRS data and TAAN data (Graucob et al., 2019).

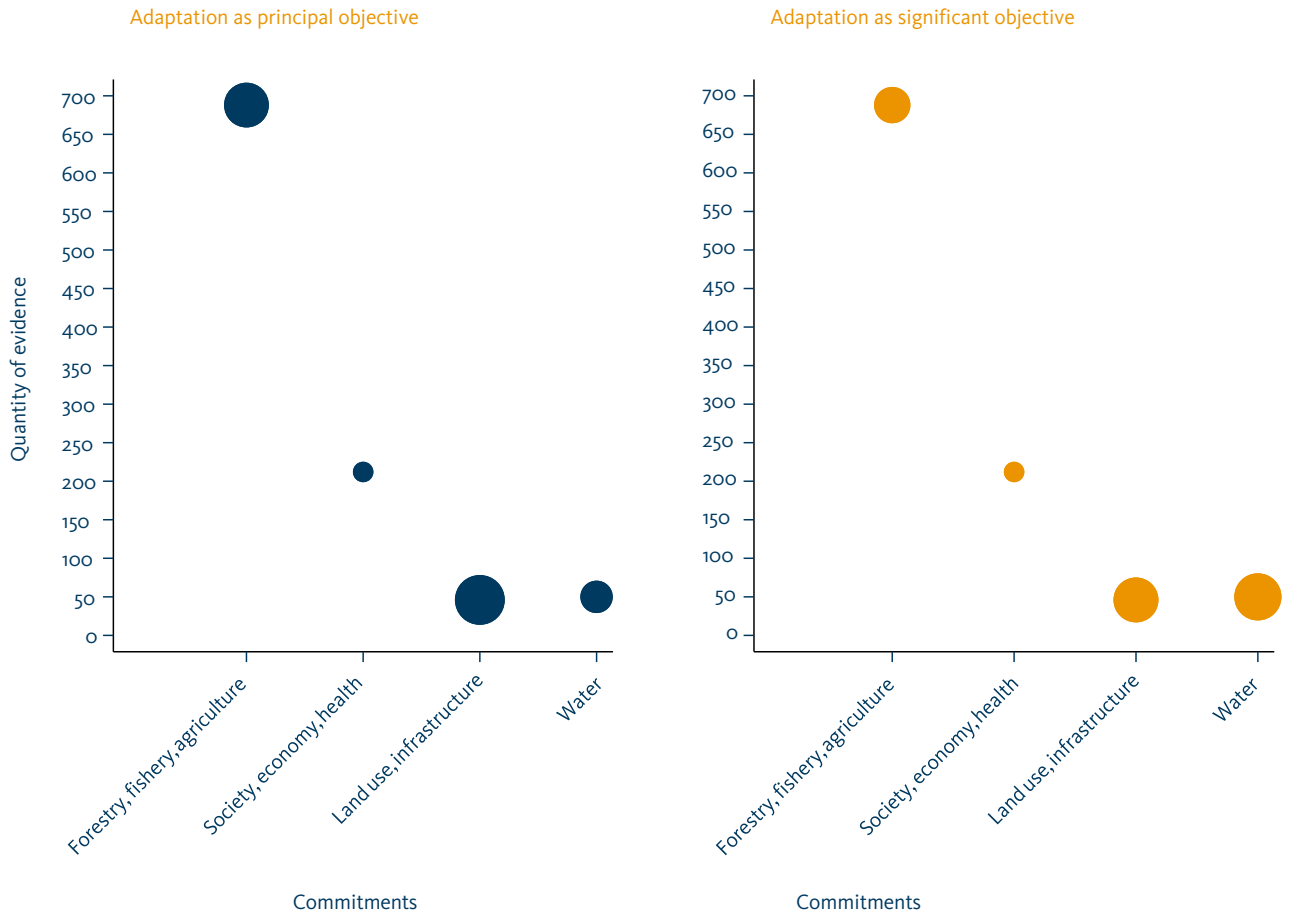
There is no clear link between the allocation of adaptation funds and available rigorous scientific evidence on the effectiveness of adaptation measures. Sectors with a high level of evidence benefit from adaptation tools as well as sectors where there is currently little scientific evidence of effectiveness. Nor is there a statistical correlation between the use of funds for certain tools and available evidence. The strongest evidence (quantity of rigorous studies on the effectiveness of individual tools per sector) is in the forestry, fishery and agriculture sector (688 supporting documents), followed by society, economy and health (212 supporting documents), water (50 supporting documents) and land use and infrastructure (46 supporting documents) (see also Table 5 in Appendix). However, the volume of funds only partially reflects this distribution (cf. Figure 10). Most funds for adaptation as principal objective are committed to the sector with the strongest evidence, closely followed by funds for land use and infrastructure - a sector with a weak basis of evidence of effectiveness.[16] Similarly, there is no clear correlation between the strength of the basis of evidence and the level of commitments for adaptation as significant objective. For example, most of the adaptation funds for CLA-1 projects are implemented in the water sector, which has a relatively weak basis of evidence. A mixed picture also emerges when looking at

[16] The strength of evidence is not synonymous with knowledge of individual sectors or measures, but with rigorous evidence of the effectiveness of measures in the respective sectors. For example, the low volume of evidence in the water sector does not reflect a lack of knowledge in this area, but rather a lack of impact analyses. This may in turn be due to the fact that cost-benefit analyses and predictive modelling are more common than the use of rigorous impact analyses in the water sector.

individual types of intervention (cf. Figure 16 in the Appendix). Types of intervention for which there is still little evidence of effectiveness cture or institutions/planning/regulation for example, receive relatively high level of commitment for adaptation as principal and significant objective. At the same time, both a high level of evidence and a relatively high volume of funds (with adaptation as significant and principal objective) are available for the field of nature-based options.

The ambiguous relationship between available evidence and allocation decisions is reflected and confirmed in the conducted group interviews. At present it is not comprehensible whether and to what extent allocation decisions are based on publicly accessible information, according to the statements (GI 1, 2). For example, so far there has been little information about the effectiveness of climate risk insurance, yet German DC is massively expanding the promotion of this tool at present. The analysis procedure chosen on the basis of the EGM results ultimately does not permit a conclusive assessment of the level of appropriateness of evidence-based allocation decisions in German DC. Firstly, the publication period of the studies being considered is not always prior to the commitments being considered. Secondly, the map of evidence only provides information on the quantity of reliable supporting documents, but not on whether positive, negative or no effects were measured. Thirdly, in addition to rigorous scientific evidence, there are further findings from less scientific studies and (context-specific) empirical knowledge which was not taken into account in the analysis at hand. And fourthly, it can make sense - especially in the scope of a test run of innovative tools - to be active in fields and areas for which there is little evidence to date. With regard to the issue of an informed and evidence-based allocation of limited public funds, the findings are nevertheless important since publicly accessible evidence on the effectiveness of DC measures can be used as one of many possible decision-making tools for the allocation of funds.

Figure 10 Volume of Funds by Quality of Evidence in Individual Sectors



Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent. Larger circles indicate a higher level of commitments.
Source: Own visualisation based on OECD 2011-2017 CRS data and Evidence Gap Map (Doswald et al., forthcoming).

5.3 EQ3 – To what extent does the allocation of adaptation commitments relate to climate vulnerability in partner countries?

In the scope of EQ3, the study at hand addresses the relationship between German DC commitments and the climate vulnerability status of partner countries. Two questions are considered: Firstly, the study examines whether climate vulnerability has an impact on actual allocation decisions (EQ3E1). Secondly, they study examines whether and to what extent poorer developing countries and the SIDS benefit overproportionately from German adaptation funds (EQ3E2).

Allocation analyses should provide information on which partner countries receive how much funding from which donors and why. Usually different influencing factors are compared to generate these findings. The three main groups of possible explanatory factors (hereinafter referred to as "models") impacting allocation decisions are based on "need", "donor interest" and "merit". If DC funds are allocated according to the "need" model, those most in need - often understood as the poorest - countries should receive the most funds (Dudley and Montmarquette, 1976). According to the "donor interests" model, donors allocate funds primarily according to their own strategic interests (Dudley and Montmarquette, 1976). Countries that are politically or economically important to the donor should receive the most aid. Indicators that reflect this "donor interest" include, for example, the geographical distance between donor and recipient countries, the volume of trade between the two, or the voting behaviour in the UN General Assembly. In the "merit" model,

the most aid should go to partner countries with "good" institutions. There are two reasons for this. On the one hand, DC funds are to be used as an incentive to reward "good governance". Secondly, this approach is based on the assumption that DC funds are used more effectively in partner countries with functioning institutions (Berthelemy, 2006b; Burnside and Dollar, 2000).

The study at hand engages with the factors impacting the actual allocation of German DC funds in the field of adaptation to climate change. The dependent (or explanatory) variable is operationalised in four different ways. In order to determine the impact of climate vulnerability on the probability of receiving commitments, a dummy variable is formed which assumes the value 1 if Germany makes any commitments at all per country and year. In the models engaging with impact on the level of commitments, commitments made by Germany to a recipient country are measured as a percentage of the total commitments made by Germany in one year. The advantage of this specification is that it takes temporal trends in the allocation of DC adaptation funds (for example, if German DC adaptation commitments generally increase in a year[17]) into account. In this case - as with the use of nominal commitments as a dependent variable - the population size in the recipient country is controlled, as otherwise commitments to small countries (such as the Small Island Developing States) would be underestimated. To take this point into account even more, we have used "adaptation DC per capita" as an alternative specification for our dependent variable, like Betzold and Weiler (2018)[18]. However, since donors usually make nominal commitments and do not factor in the population size of the countries (cf. Clist, 2011), a nominal measure of commitments is also used.

In the scope of the analysis focused on the criterion "need", the concept of vulnerability as an essential influencing factor is of primary interest. The concept of vulnerability is in keeping with the definitions of the IPCC. According to the IPCC's Assessment Report 4, (AR4), until 2014 climate vulnerability had been determined by a triad of exposure, sensitivity and adaptive capacity (IPCC, 2007)[19]. IPCC Assessment Report 5 (AR5) focuses on climate risk as the result of the interplay of vulnerability, exposure and hazards (Agard et al., 2014). According to AR5, vulnerability results from the sensitivity to damage and from the lack of capacity to deal with or adapt to the consequences of the damage[20]. Against the background of the evaluation period 2011-2017, this analysis takes account of both definitions of vulnerability. With this in mind, all countries have been classified according to the three dimensions of climate vulnerability. The data is based on the overall climate vulnerability indices of the University of Notre Dame (ND-GAIN) and the Germanwatch Climate Risk Index. In addition, exposure, adaptive capacity and sensitivity are measured individually using the corresponding ND-GAIN indices. The disaggregation of the dimensions of vulnerability does not only allow the impact of climate vulnerability to be examined more closely; considering the dimensions individually also allows the allocation patterns to be evaluated according to the AR5's narrower definition of climate vulnerability. According to AR5, the climate risk is influenced not only by vulnerability and exposure but also by hazards, i.e. various weather events affecting a country/region etc. (IPCC et al., 2014). The present analysis does not contain a separate index for the hazard situation. There are two reasons for this: On the one hand, the exposure measure is already part of the overall vulnerability indices of ND-GAIN and Germanwatch; on the other hand, EQ3 focuses on climate vulnerability and not on climate risk. The datasets from the University of Notre Dame and Germanwatch were selected for analysis for various methodological reasons, and as follow-ups to other studies (cf. Weiler et al., 2018). The main advantage of the ND-GAIN dataset is the disaggregation in different dimensions of vulnerability. Other data sets either include only individual dimensions or are based on definitions of vulnerability that reflect the corresponding

[17] Following Clist (2011). However, Clist uses the percentage per recipient country for all of the fields of DC that a donor is involved in, not related to issue-specific DC.

[18] The dependent variable is commitments per 100,000 inhabitants of a country.

[19] „Vulnerability is a function of the character, magnitude, and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity"(IPCC, 2007, p. 89).

[20] „The propensity or predisposition to be adversely affected [by climate change]. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt" (Agard et al., 2014, p. 1775).

concept of AR4 or AR5 less appropriately (cf. IPCC, 2007; IPCC et al., 2014)[21]. ND-GAIN's exposure measure is particularly suited for allocation analyses as it measures the physical conditions for adverse impacts of climate change (e.g. the expected increase in temperature, precipitation, agricultural yields and the proportion of land mass situated less than 10 metres above sea level) directly. Thus the index does not contain socio-economic variables that are also present in the model as operationalisation of the "need" criterion, so that multicollinearity problems are avoided[22]. Furthermore, there is no danger of (reverse) causality, as DC cannot have a retroactive effect on the degree of exposure. Quantitative indices of all phenomena - not excluding climate vulnerability - offer the advantage of reliably mapping a phenomenon with standardised and transparent methodology in different contexts (countries) in a comparable way. Of course they only ever represent an approximation of the phenomenon in each individual case. Different data sets and climate indices also classify countries differently because they use different concepts and databases on climate vulnerability or risk. In order to take this into account, the analysis at hand uses the ND-GAIN dataset as well as the Germanwatch Climate Risk Index. The latter is based on four different indicators: number of deaths, number of deaths per 100,000 inhabitants, sum of losses in USD (in purchasing power parities) and losses per unit of gross domestic product per year and country (Eckstein et al., 2018). In addition to these climate vulnerability indicators, two dummy variables are included in the models. These cover two country categories that are officially classified as vulnerable by the IPCC member countries: The variable "SIDS" measures whether a country is a Small Island Developing State. The variable "LDC" indicates whether a country belongs to the group of Least Developed Countries (LDCs). Classification into the categories is based on categorisation by the UN (UN, 2018).

This module report examines the impact of climate vulnerability on Germany's engagement in a country in the field of climate change adaptation. For other impacting factors, the models used are "need", "donor interest" and "merit". The operationalisation of these influencing factors follows current scientific studies on the allocation of DC in the field of climate change adaptation (for an overview of variables and models see Table 6 and Table 7 in the Appendix). For example, the Worldwide Governance Indicators[23] are used as indicators for "merit" and the Gross Domestic Product (per capita) and LDC status for "need". The indicators for "need" and "merit" also serve to shed more light on the results of a direct measure of adaptive capacity from the ND-GAIN dataset. A variety of factors effect a country's adaptive capacity, some of which are difficult to separate from governance; after all, well-functioning institutions contribute significantly to dealing with the challenges of climate change. According to Weiler et al. (2018), a positive correlation between the level of good governance and the allocation of DC is valued as distribution in the sense of the "merit" criterion. A negative correlation speaks for allocation of German DC funds to countries with low adaptive capacity ("need" criterion).

In addition to the usual indicator of "donor interest" - namely the geographical distance between the donor country and the potential recipient country - it is also checked whether a country is a category A or B partner country for BMZ. Other control variables include the population size of a country, German ODA funds in fields other than climate change adaptation, EU commitments for adaptation as well as the conflict status of a potential ODA recipient country (for an overview of the variables and data sources see Table 7 in the Appendix)[24]. Logistic regression models are used to measure the impact of climate vulnerability on the probability of receiving adaptation commitments from Germany. The relationship between climate vulnerability and the level of funds is investigated using Tobit models. The unit of analysis is one country

[21] Other data sets and measures of climate vulnerability include the Economic Vulnerability Index (Guillaumont, 2009), the Environmental Vulnerability Index (Kaly et al., 2004), exposure in terms of a sea-level rise of the Center for International Earth Science Information Network (CIESIN), the Index of Structural Vulnerability to Climate Change (SVCCI) (Guillaumont and Simonet, 2011), the Index for Risk Management (INFORM) (Marin-Ferrer et al., 2017) or the World Risk Index (World Risk Index) (Bündnis Entwicklung Hilft e.V. and IFHV, undated). For an overview see also Leiter and Oliver (2017).

[22] In addition, all multivariate statistical models are tested for multicollinearity using the variance inflation factor (VIF). The VIF was always below 2.5, which satisfies the most conservative evaluations of critical values. More recent research has found much higher values to be unproblematic (O'brien, 2007).

[23] All six indicators were weighted equally and combined into an index.

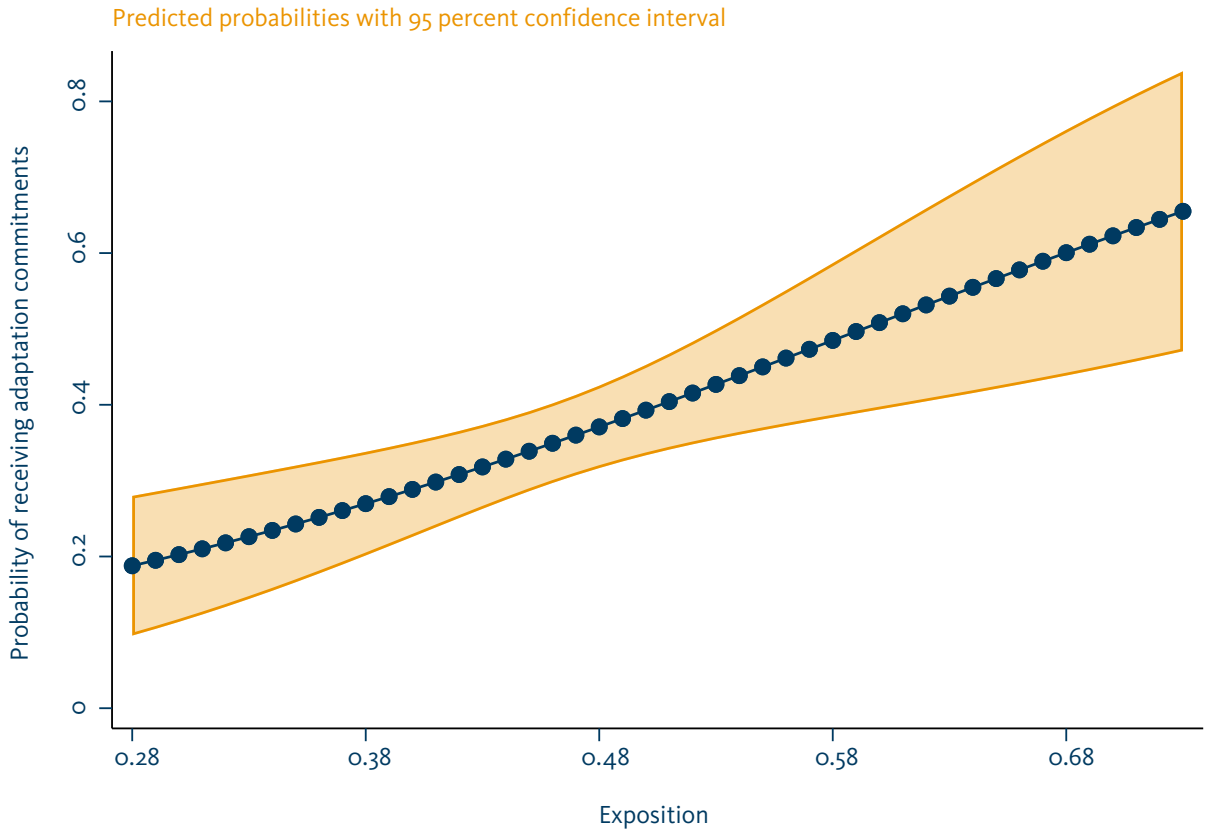
[24] The notes below the regression tables in Appendix 8.3 provide an overview of the control variables used. For reasons of clarity, their coefficients are generally not shown.

per year. The population consists of all countries (and years) in the period 2011-2017 that at least one OECD donor made commitments (in any DC field) to. Accordingly, there are 141 countries in the pool of potential German DC recipient countries[25].

Climate vulnerability increases the probability of a country receiving German adaptation funding. The more vulnerable a country is, the more likely it is to receive adaptation commitments from Germany. This applies both to the case where vulnerability is regarded as an index from different dimensions (cf. Table 8 in the Appendix) and to the individual dimensions of vulnerability (cf. Table 10 in the Appendix). Higher level of all vulnerability measures always mean a higher level of vulnerability. The results presented in Table 8 also show that this applies not only to projects with adaptation to climate change as principal objective (CLA-2, Models 1 and 2), but also to all adaptation projects (CLA-2 and CLA-1, Models 3 and 4). The positive effects of climate vulnerability continue to be evident in both the ND-GAIN Adaptation Index and the Germanwatch Climate Risk Index. Only the ND-GAIN Adaptation Index (CLA-2 and CLA-1) shows no statistically significant impact for adaptation. The positive correlation between climate vulnerability and German adaptation commitments is mainly driven by exposure and adaptive capacity of a potential recipient country, as shown in Table 10. While increased exposure and lack of adaptive capacity have a positive impact on the chance of receiving commitments, sensitivity has no statistical impact on the probability of receiving adaptation funds. This could be due to the fact that sensitivity as a dimension of climate vulnerability has particularly strong subnational variations and is therefore less suitable as a decisive factor in the decision and selection process of recipient countries. The positive correlation between climate vulnerability and the likelihood of receiving German commitments via adaptation as principal objective is also shown in Figure 11 (based on Model 1, Table 8 in the Appendix, all other variables kept at a constant average). The probability that a country with an average exposure level of 0.45 - such as Honduras or Benin - will receive German commitments for projects with adaptation as principal objective is 32 percent. It increases to 37 to 43 percent for countries with maximum exposure levels of 0.6-0.73, such as Kiribati, Tuvalu or the Maldives.

[25] Since Germany makes zero EUR adaptation commitments as shown for many of these country-year combinations, the variable on commitments is not normally spread i.e. zero inflated and is therefore not suitable for linear regression analyses. In linear models, the OLS estimator may be distorted if data is censored (no values below zero possible), but also if zero values are truncated from the sample, so that Tobit models are preferable for the existing data structure. Nevertheless, the models were also calculated in linear regression models - both inclusive and exclusive of the zero values. The main effects remain in their tendency.

Figure 11 Impact of Climate Vulnerability on the Probability of Receiving German Commitments for Projects with Adaptation as Principal Objective



Note: The probability of receiving grant and loan commitments for adaptation as principal objective depending on the exposure level of a country is shown. The predicted probabilities based on Model 1, Table 8. All control variables were kept at a constant average.
Source: Own visualisation based on OECD 2011-2017 CRS data and the ND-GAIN exposure index (Chen et al., 2015) and other secondary data sets to measure control variables.

Germany tends to make adaptation commitments to countries with low adaptive capacity. In its allocation decisions, German DC attaches greater importance to the "need" of the partner countries than to existing "merit". A lack of adaptive capacity, measured by the ND-GAIN dataset, increases the probability of obtaining German commitments for adaptation (as shown in Models 2 and 4, Table 10 in the Appendix). For example, for a country with an average level of 0.56 (e.g. India or Ghana), the total chance of receiving German commitments for adaptation is 83 percent. It increases to 90 percent for countries with a maximum lack of adaptive capacity of 0.8 and higher (e.g. Chad or Somalia) (expected probabilities based on Model 4, Table 10, all other variables are kept at a constant average). The negative correlation between the level of governance (measured by the Worldwide Governance Indicators) and the chance of obtaining adaptation funds also suggests that countries with low adaptive capacities are more likely to be the focus of German DC in the field of climate change adaptation. In principle, the results with regard to climate vulnerability - including adaptive capacity - speak in favour of a "need"-based allocation of German adaptation funds. Interestingly, the gross domestic product (GDP) of a country as a measure of prosperity is positively correlated with the probability of receiving adaptation commitments - even if the correlation is not statistically significant in all model specifications (as in the models in Table 9 in the Appendix). This finding can be interpreted as follows: On the one hand, in the overall comparison of all recipient countries, commitments tend to be received by countries with a higher level of climate vulnerability. On the other

hand, when comparing several equally vulnerable countries, the more prosperous among them are more likely to receive commitments.

SIDS are less likely to receive German adaptation commitments. All models show that countries categorized as SIDS are less likely than other countries to receive commitments. One possible explanation would be that SIDS are often not eligible for loan funds. The dependent variable in the models is based on loan funds and grant funds. Table 9 replicates the models in Table 8, but is based only on grant funds. However, it shows that the negative effect persists even when grant funds alone are considered. This could be due to the fact that the majority of SIDS are too wealthy to receive grant funds. Further possible explanations are engaged with in more detail on the basis of analyses in Table 11. These also refer only to grant funds. In order to shed more light on further possible explanations for the negative relationship between SIDS status and German involvement, the coefficients of the control variables are also shown here - unlike in other tables which chose not to display them for reasons of clarity. The correlation exists even though the population size of the recipient countries is controlled in the models. The explanation that SIDS are less likely to receive funds because they have a small population is not satisfactory. Nor does the negative effect - in the sense of the international cooperation - result from increased involvement of the EU in SIDS. It exists even though the EU controls the level of commitments for adaptation funds in all models[26]. Another possible explanation is that SIDS are less often BMZ partner countries. As expected, partner country status shows a positive and robust impact on the probability of receiving commitments from Germany across all models. This also applies to the other regression tables in Chapter 5.3. None of the SIDS countries were a BMZ category A partner country throughout the evaluation period; some SIDS are category B partner countries. Since the negative effect of SIDS status is also evident even though the partner country status is controlled, the interpretation on hand is that among the non-partner countries, SIDS are less likely to receive German adaptation funds than other countries. However, it must be noted that only funds that flow directly to a country are being considered for this purpose. Due to their small size, SIDS might receive more adaptation funds through regional projects that are not included in this analysis. Table 11 in the Appendix also examines the impact of LDC status. It becomes clear that the latter has no impact on the probability of receiving German commitments for grant funds in the field of adaptation[27].

Countries that are more vulnerable to climate change do not consistently receive a higher level of adaptation commitments. The group of SIDS actually benefit below average from German adaptation commitments. The analyses tend to show a positive correlation between the level of commitments and a country's climate vulnerability if commitments are measured in nominal terms (Table 12, Table 13) and proportionately per recipient country (Table 14). However, the effects of various climate vulnerability indicators are in part only statistically significant at the 10 percent level. Also climate vulnerability does not show any statistically significant impact on the level of commitments per 100,000 inhabitants. In addition, a clearer trend can be observed among commitments for adaptation as principal objective, whereas the resources for the principal and significant objectives taken together are rarely statistically significant. This suggests that funding for measures with adaptation as principal objective is more likely to be distributed according to climate vulnerability than commitments for measures with adaptation as significant objective. The latter is not surprising in view of the German DC claim of mainstream adaptation as a cross-sectional issue in a number of fields. In keeping with the findings on the probability of receiving German funds for adaptation, the SIDS status of a country consistently has a negative impact on the level of commitments it receives. This negative correlation is evident for all three specifications of commitments (shown in Table 12 to Table 17 in the Appendix). The negative effect of this SIDS indicator also exists when only grant funds are considered (see Table 18 in Appendix), and on the other hand under the control of population size and EU funds committed for adaptation in a country. The expectation that SIDS are the focus of German adaptation

[26] Of course, it is conceivable that other international donors - such as the Global Environment Facility and the Green Climate Fund - will become more involved in SIDS and that Germany - partly because it makes core contributions to these climate funds - will be less active in SIDS with its bilateral DC. However, the results from Chapter 5.5 show that Germany tends to concentrate more on the same countries as other donors, so that this does not provide a plausible explanation for the negative correlation between SIDS status and the probability of receiving German funds.

[27] The LDC status variable is not included in the models of the other regression tables because it is highly correlated with various climate vulnerability indicators (but not with the SIDS status of a country).

DC due to their particular vulnerability to climate change is thus refuted by the present analyses. The expectation that the poorest countries will be the focus of German DC in the field of adaptation is more nuanced. The countries that fall into the LDC category are not more likely to receive German adaptation commitments. Measured in terms of their gross domestic product, the probability of receiving adaptation commitments even increases with the level of prosperity. While prosperity as a percentage of GDP has no impact on the level of commitments, countries in the LDC category receive a higher level of funds than other countries if measured in nominal terms (Model 4, Table 18 in the Appendix) and pro rata per recipient country (Model 5, Table 18)[28]. Only per capita commitments are not effected in a statistically significant way by the LDC status.

Considering the overall findings on the relationship between climate vulnerability and the allocation of German commitments, it can be concluded that countries with a high level of exposure and sensitivity to the negative consequences of climate change and with low adaptation capacities are more likely to be recipient countries of German adaptation funds and also tend to receive a higher level of funds. However, the connection with the level of funds is less pronounced than the connection with the probability of commitments. Other factors such as the partner country status or the level of additional German DC funds in a country appear to have more of an impact on the level of commitments. The analyses at hand thus tend to support the EQ3E1 expectation. The expectation that the poorest developing countries and the SIDS will receive overproportionately high level of per capita funds for adaptation measures is refuted on the basis of the available data (EQ3E2).

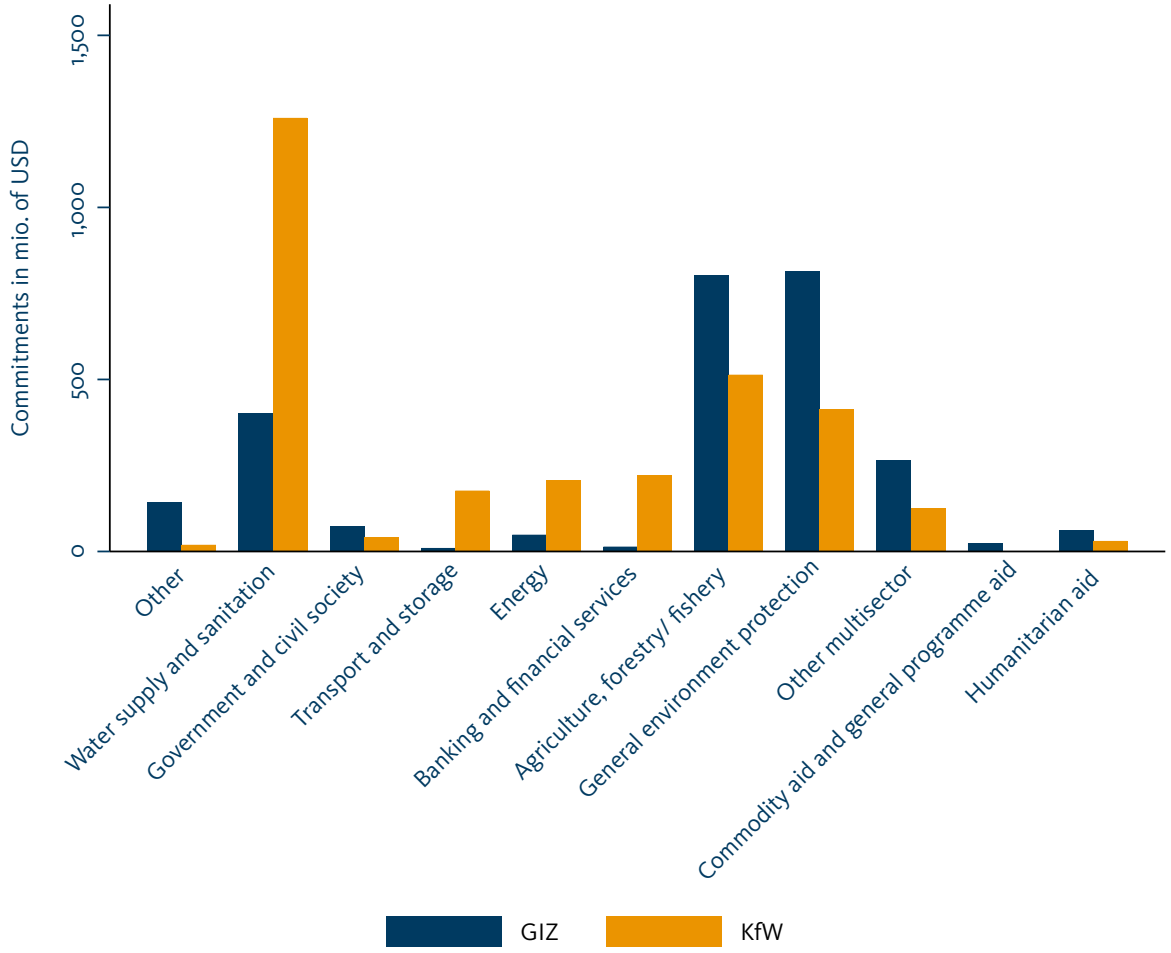
5.4 EQ4 – To what extent are the approaches and tools of various actors of German development cooperation complementary and coherent?

EQ4 engages with the complementarity and coherence of German DC actors. The first part of the analysis is devoted to the cooperation between German TC and FC (EQ4E1). The second part examines the complementarity of BMZ and BMU's respective priorities (EQ4E2).

The two large German TC and FC implementing organisations, GIZ and KfW, implemented most adaptation funds in the priority sectors water, agriculture and environmental protection. The greatest synergy potential with regard to climate protection can be expected in these sectors. Measured in terms of pure financial volume, GIZ and KfW have many years of comprehensive work experience in the climate-relevant sectors of water, agriculture and environmental protection (cf. Figure 12). To date, however, cooperation in these sectors is by no means a matter of course (GI 2, 3 and 5, cf. also Meyer, 2019). In the field of adaptation to climate change, too, the implementing organisations have different procedures, timeframes and processes in place. An anchor point for identification of the coordinated cooperation between TC and FC in the field of adaptation are the nationally determined contributions (NDCs) of the partner countries, which both GIZ and KfW should use as a guideline in their funding applications (GI 2). In principle, joint offers are possible, according to the statements; however, there have been hardly any so far, for example in the context of the ideas competition of BMU's International Climate Initiative (GI 4, 5). Another point of intersection at an early stage in the conception of new projects is the implementation of climate risk analyses or cooperation in the process of developing climate risk profiles for individual partner countries. According to the group interviews, there is also considerable synergy potential here (GI 2, 3 and 5).

[28] However, LDCs only receive proportionately higher commitments per recipient country if total adaptation funds are considered, and not only commitments for projects with adaptation as principal objective.

Figure 12 Project Commitments from Implementing Organisations (GIZ, KfW) by Sector

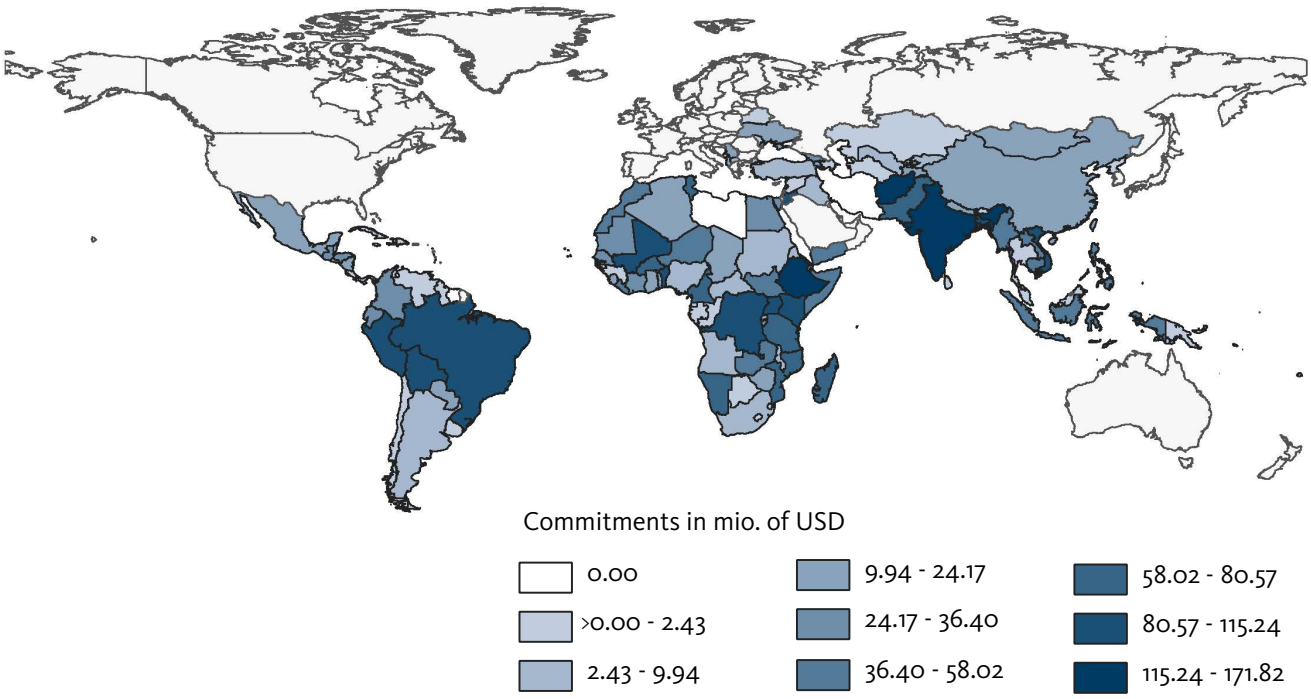


Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data.

BMZ and BMU set their own respective priorities, which differ according to the type of funding approach and the region. Synergy potentials can be identified at implementation level. BMU projects are mainly to be found in so-called emerging countries (cf. Figure 14). BMZ tends to be less active in emerging countries and cooperates more with developing countries in the field of adaptation (cf. Figure 13). There are also conceptual differences. BMZ pursues a broad, poverty-oriented development approach and has integrated adaptation as a cross-sectional issue into a large number of projects. BMU promotes various projects with adaptation as principal objective (CLA-2) through the ICI in the fields of ecosystem-based adaptation (EbA), risk management and national adaptation planning. Further differences exist at the level of funding guidelines, above all between the ICI ideas competition and the BMZ application procedure. On the basis of these structures, BMU initially supported smaller, temporary measures, while BMZ implements a higher level of adaptation funds per project and finances measures on a long-term basis via follow-on modules. Initiated by a reform process that launched in 2017, BMU is expanding its international commitment to climate policy and is now primarily supporting larger projects along country-specific and thematic lines. The ICI programme for the promotion of small-scale global projects is the exception.

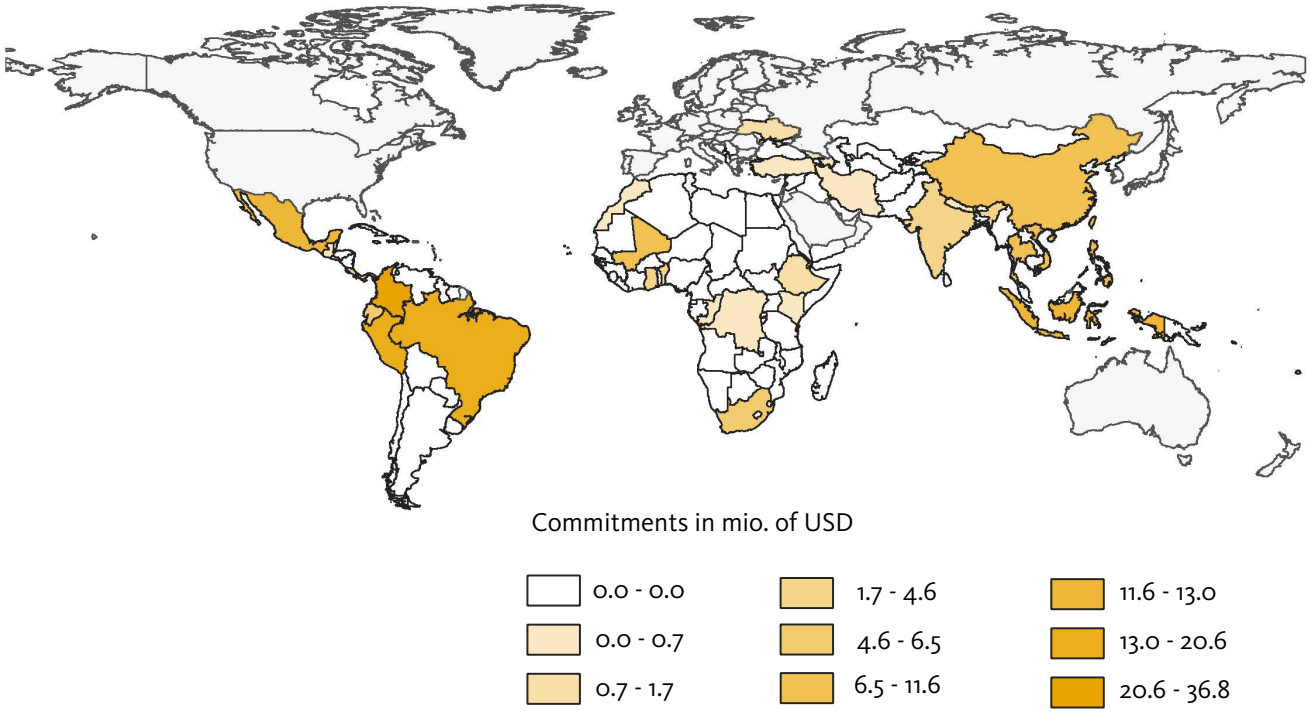
Against this background, at first there are no obvious contradictions between the ministries in terms of assessing coherence. However, the interviews highlighted the differences between the two ministries (GI 1, 2, 3, 4, 5). Accordingly, the different procedures and approaches suggest interministerial synergy potential. So far there has been no systematic approach for interministerial integration of the funding areas beyond an increasing exchange of information (GI 1, 2, 3, 4, 5). The funded tools only "come into contact" at implementation level (GI 2).

Figure 13 BMZ Project Commitments in the Field of Climate Change Adaptation



Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent. Countries that do not receive official development assistance are shown in grey.
Source: Own visualisation based on OECD 2011-2017 CRS data.

Figure 14 BMU Project Commitments in the Field of Climate Change Adaptation



Note: Grant funds and loan funds for adaptation are shown. Significant objective projects are discounted at 50 percent. Countries that do not receive official development assistance are shown in grey.
Source: Own visualisation based on OECD 2011-2017 CRS data.

5.5 EQ5 – To what extent are the approaches of German development cooperation complementary and coherent to the politics of other bilateral and multilateral aid donors?

EQ5 addresses the issue of international cooperation and examines the relationship between Germany's commitment to climate change adaptation and the activities of other bilateral and multilateral donors (EQ5E1). Statistical allocation models are used for this purpose, similar to those in Chapter 5.3 (for details on the methodological approach, see the Evaluation Matrix in Table 2). The first step is to examine the impact of the number of other donors on the probability of receiving German commitments. The second step is to determine the impact on the level of commitments in the case of the countries and years that Germany makes adaptation commitments for. [29]

EQ5 thus examines more closely whether Germany is active in the same countries as other donors. The phenomenon of donor concentration is known in the literature as "herding" (Annen and Moers, 2017). One reason for donors concentrating in specific sectors or countries may be that existing DC infrastructure and capacity-building can be utilised. In addition, if more donors are active in a sector or country, the level of funds provided by individual donors decreases (Chong and Gradstein, 2008). Also the involvement of donors in a recipient country sends a signal to other donors. This may indicate a partner country's sufficient absorptive capacity, the potential effectiveness of funded measures (Olivié and Pérez, 2016) or the need of a recipient country.

Another motive for engaging in the same countries as other donors may be to seek to limit the political influence of other donors in a particular recipient country. However, despite these reasonable motives for "following" other donors, herding bears the risk of donor fragmentation (Annen and Moers, 2017).

When considering German commitments for adaptation as principal objective, non-German donors' commitments are measured by quantity on the basis of their funds for adaptation as principal objective (per country and year). When considering total German adaptation commitments, the number of non-German donors is calculated on the basis of their total funds for adaptation (CLA-1 and CLA-2).

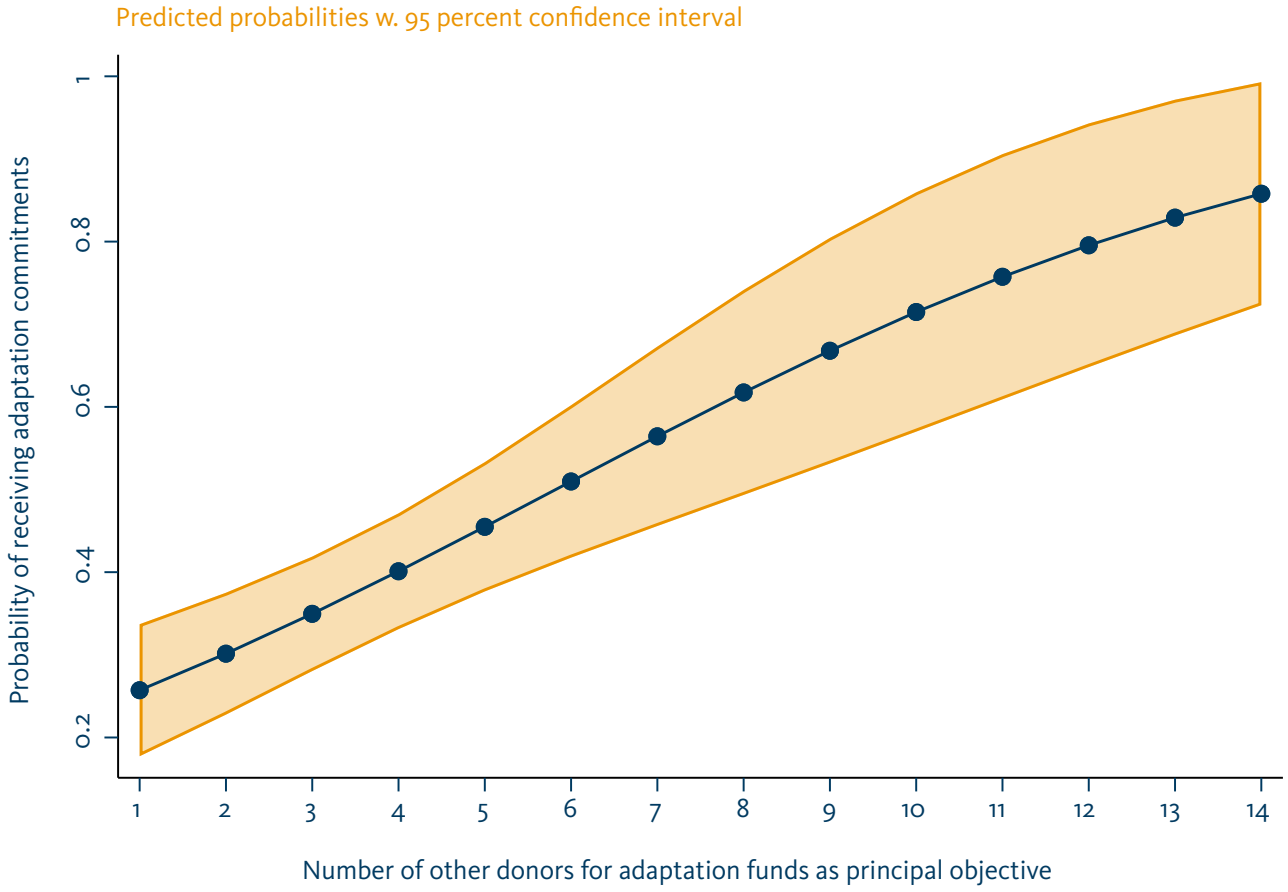
Following other studies (Klöck and Weiler 2019), a positive correlation between the number of other donors in the field of adaptation and German commitment is interpreted as an indicator for herding. On the other hand, a negative correlation is interpreted as a sign of donor coordination. The statistical models contain the same control variables as in the allocation analyses for EQ3 (described in more detail in Chapter 3.3). The same measurements for the dependent variables are used (dummy commitment/none, nominal level of commitments, pro rata level per recipient country and per capita commitments).

Germany is particularly active in countries where many other donors are engaged in the field of climate change adaptation. The number of other donors in the field of adaptation increases the probability that Germany will make adaptation commitments for a country. This finding emerges from the results of the multivariate regression analysis presented in Table 19 in the Appendix, both for total adaptation funds and for funds with adaptation as principal objective. Based on Model 1 in Table 19 (cf. Appendix), Figure 15 shows the positive impact that the number of other donors in the field of adaptation as principal objective in a recipient country has on the probability of German commitment in this field (control variables are kept at a constant average). Models 2, 3, 5 and 6 in Table 19 shed more light on potential reasons for the herding phenomenon. It is plausible that donors are active in the field of adaptation in the same populous and

[29] The statistical models for the level of commitments have also been calculated for a sample including all countries and years that receive DC commitments from any OECD donor in the period during which Germany makes no commitments. The positive correlation between the number of donors and the level of German commitments remains. In linear models, the OLS estimator may be distorted if data is censored (no values below zero possible), but also if zero values are truncated from the sample. Therefore Tobit models were also calculated, whose estimators are not distorted by these problems. In all specifications the main effects remain. In the models with zero values, only the coefficient of the number of other donors becomes statistically significant faster and more robustly, especially in the Tobit models. Thus, the results of the sample without zero values reported here represent a conservative estimate.

strategically important recipient countries as other donors in order to ensure a certain level of influence. This is indicated by the positive interaction effect between the number of other donors as well as the size of the population and the probability of German involvement (Models 2 and 5). The larger the population in a potential recipient country, the greater the effect of the number of other donors in the field of adaptation on German involvement. The positive interaction effect between the number of non-German donors and a country's physical climate vulnerability (measured with the ND-GAIN Exposition Index) offers another potential explanation for herding (Models 3 and 6): The engagement of other donors may function as an indicator for climate vulnerability and thus for a recipient country's need for commitments in the field of adaptation.

Figure 15 Impact of the Number of Other Donors on the Probability of Receiving German Commitments for Projects with Adaptation as Principal Objective



Note: The probability of receiving grant and loan commitments for adaptation as principal objective depending on the exposure level of a country is shown. The predicted probabilities based on Model 1, Table 19. All control variables were kept at a constant average.
Source: Own presentation based on CRS data and other secondary data sets to measure control variables.

The higher the number of donors pledging adaptation funds in a country, the higher the level of funds Germany allocates. The expectation that Germany will concentrate its adaptation funds on countries in which fewer other donors are active in the field of climate change adaptation cannot be confirmed. The findings on the probability of German commitments are also reflected in the impact that the number of other donors has on the level of German commitments (shown in Table 20 in the Appendix). This applies both to the total funds for adaptation and to the funds for adaptation alone as principal objective. The level of nominal commitments (Models 1 and 2) and pro rata level of commitments per country (Models 3 and 4) is higher the more other donors make adaptation commitments in a country and year. Only the impact of other donors on per capita commitments is not effected in a statistically significant way (Models 5 and 6).

The findings of the allocation analyses for EQ5 refute the expectation that Germany will focus on countries with a lower level of commitments from other donors. This fact bears the risk that individual countries that are in need (so-called aid orphans) will be forgotten by international DC in the field of climate change adaptation. The extent to which the concentration of German adaptation aid in recipient countries that many other bilateral and multilateral donors are also active in makes substantial sense or whether it should be evaluated more critically, is examined in more detail in case studies of the other evaluation modules and explained in the synthesis report.

6. CONCLUSIONS AND RECOMMENDATIONS

In this chapter the results are assessed accoding to the criteria "relevance" and "coherence". The evaluation follows the system introduced in Chapter 2 (see also Table 3 in the Appendix). On the basis of the conclusions derived from these results, the evaluation offers four recommendations. Since the majority of international climate finance is implemented through BMZ, the recommendations are primarily, but not exclusively, directed at BMZ.

6.1 Evaluation of the Allocation Portfolio's Relevance

In the portfolio and allocation analysis at hand, relevance as an evaluation criterion refers to the extent to which the portfolio and allocation patterns complies with the needs of the target groups, the policies and objectives of the partners and implementing agencies, global development agendas as well as broad development policy orientation of the Federal Government in the field of adaptation to climate change. The evaluation is carried out on the basis of individual evaluation dimensions, shown in Chapter 8.2 in the Appendix.

6.1.1 Consistency with Relevant Strategic Frameworks and (Global) Agendas

With the target value of four billion EUR in annual new commitments from budget funds in 2020, German DC is conforming to its own standards and underlining its commitment to the international climate finance targets. In addition to climate protection, adaptation also benefits from increasing financial significance. At the same time, there is uncertainty about German DC financing intentions after 2020. By increasing its annual commitments in the fields of climate protection and adaptation, German DC is meeting the growth targets of international climate finance. With the declared the target value of four billion EUR in annual new commitments from budget funds in 2020, German DC would contribute around 4.5 percent to the 100 billion USD promised by international initiatives for international climate finance. The "four billion target" indicates a clear commitment to international agreements and attaches increasing importance to adaptation to climate change within German DC. In terms of the proportion of budget funds, the equal political significance attributed to adaptation and mitigation translates into financial parity: Overall, in recent years about as many commitments have been made to climate protection measures as to adaptation to climate change measures. However, funds are distributed very differently across projects with principal or significant climate objectives. In the case of projects with principal climate objectives, funds for climate protection measures predominate. In addition, significantly more market funds from German FC are allocated to climate protection. Adaptation measures are therefore primarily financed through grant funds and to a much lesser extent with loan funds, compared to climate protection measures. As a result, there are only a few large-scale adaptation projects financed through German FC. With regard to the development partners' priorities, this ratio is currently considered reasonable from a German perspective (GI 2, 3 and 5). However, with regard to increasing climate risks, this view should be continuously re-evaluated (GI 5). Global demand for adaptation measures will very likely increase, potentially posing new challenges for the current financing structure of German adaptation measures. In addition, the question arises as to whether Germany will commit itself to maintaining the "four billion target" of annual new commitments beyond 2020.

With the stagnating proportion of funds being implemented through the civil society channel, German DC only partially complies with its own as well as international declarations. Although around 10 percent of all commitments (16 percent of all grant funds) were implemented annually through the civil society channel in the period 2011-2017, no increase over time can be observed. In addition to the percentage proportion, the diverging explanatory approaches to a supposed "coverage ratio" between supply and demand for civil society involvement in adaptation are a key finding of the study at hand.

The political side explains the stagnation of annual commitments in the field of civil society engagement with limited capacities of the individual organisations. Civil society, on the other hand, emphasises the high relevance of adaptation measures as part of its portfolio and points to a lacking number of suitable funding lines. This contrasts with BMZ's declaration of intent to continuously expand the role and involvement of non-state actors and to overproportionately increase the funds implemented through the civil society channel. This leads to the following recommendation:

Recommendation 1:

BMZ should examine the causes of stagnating developments of the portfolio relating to civil society engagement and develop measures in consultation with civil society to achieve an appropriate increase in the proportion of funds implemented through the civil society channel.

German DC's sectoral and regional priorities in the adaptation portfolio are consistent with the relevant strategic reference frameworks and global development agendas. However, German DC still does not have a stand-alone climate or adaptation strategy. To what extent a further development of strategic key points of climate policy would increase the relevance of German DC in the field of adaptation cannot be conclusively assessed in this evaluation module and will be examined in the further course of the evaluation. With its strategic goals regarding financial commitments, the inclusion of additional funds on the basis of new partnerships, the support of a comprehensive approach to dealing with climate risks and the promotion of relevant tools, German DC conforms both to its own as well as international standards and makes a relevant political and financial contribution to climate policy. However, Germany does not have a verifiable climate or adaptation strategy. BMZ currently places its climate policy priorities in sectoral and regional strategies. In addition, they are part of general risk management, which also includes disaster risk management and transitional aid/reconstruction (BMZ, 2019). The BMU's climate policy priorities are included in individual ICI funding lines. A final relevance rating is only possible to a limited extent on the basis of the documents at hand. The elaboration of a strategic climate policy key issues paper could not only increase the verifiability but could also be useful in general allocation decisions and thus increase the relevance of German DC in the climate field. Ultimately, a comprehensive estimation of potentials cannot be carried out within the framework of this module. It should be taken into account in the other modules of this evaluation.

6.1.2 Coherence of the Portfolio with the Needs of the Target Groups, the Partners' Objectives and Scientific Evidence

German DC emphasises partner orientation as the guiding principle for allocation decisions in the field of adaptation. With regard to the partners' corresponding sectoral priorities, however, there is a discrepancy between this claim and the actual allocation decisions. The discrepancy between the claim of partner orientation and the actual allocation patterns emerges in the course of the study at hand by comparing sectoral priorities within the partners' NDCs with German DC sectoral commitments. Even though comparing these two factors is only one of many potential indications of the degree of converging priorities, and even though the NDCs are a very young tool, they nevertheless make for a potentially important determining factor - not least because of the international agreements within the framework of the UNFCCC process and German support for the NDC tool. In addition to the NDCs, national adaptation plans and other climate action or disaster control plans provide the essential basis of partner orientation in the field of adaptation to climate change, according to BMZ (2019). Against this background, the following recommendation emerges:

Recommendation 2:

BMZ should continue to support the partner countries in the implementation of NDCs and take these into account even more than previously throughout the process of establishing climate change adaptation priorities in the individual partner countries.

The study at hand finds no clear link between the allocation of adaptation resources and available rigorous scientific evidence on the effectiveness of adaptation measures. Sectors that have a strong basis of evidence benefit from adaptation tools as well as sectors with a weak basis of evidence. The predominantly weak relationship between the basis of evidence and the allocation of resources in the individual sectors suggests several conclusions. On the one hand, there are fields that Germany invests heavily in but for which there is still uncertainty with regard to the effectiveness of the interventions. In these cases it might make sense to place a stronger focus on impact evaluation for German activities in order to incorporate these findings into further planning processes. On the other hand, there are fields with a strong basis of evidence that receive little funding, such as society, economy and health. In these cases it would be worthwhile to take a closer look at the effects of the measures and, if necessary, to invest more in fields with proven positive effects. Of course, the strength of evidence - like partner orientation - cannot be the sole criterion for allocating resources. If, however, a balance is struck between investments that are similarly relevant or that have similarities on the basis of other criteria, then partner orientation and the basis of evidence are key orientation marks.

As climate vulnerability increases, so does the probability that a country will receive financial commitments for adaptation measures. However, vulnerability has less of a clear impact on the level of commitments. Contrary to expectations, SIDS also receive funds less commonly and at a lower level. The results of the evaluation show that the claims of German DC are only partially met and demonstrate limited relevance with regard to the needs of partners and target groups. There is no set of criteria for allocation decisions at overall portfolio level. The identified connections apply to the partners' priorities in bilateral government negotiations and - in sum of the individual decisions - also to the overall portfolio. The positive correlation between climate vulnerability and the fundamental decision to promote adaptation measures corresponds to expectations and promotes the relevance of the portfolio. Whether this positive correlation (from the perspective of German DC climate policy) can, however, be maintained and expanded in the future if necessary is an open question and will also depend on whether climate vulnerability will play a role in future allocation decisions. Against the background of the strategic declaration of intent within the framework of the UNFCCC process to support SIDS and vulnerable countries, this aspect would definitely have to be taken into account. For example, the role of regional projects in the allocation of adaptation funds could be examined.

Recommendation 3:

Against the background of international agreements that support countries particularly vulnerable to climate change and Small Island Developing States, BMZ should consider the partner countries' respective climate vulnerability when allocating adaptation funds so as to attach even greater importance to climate vulnerability as a factor in allocation decisions in the field of climate change adaptation in future.

By promoting climate risk insurance as a central tool of the German adaptation portfolio, German DC meets the demands of the development partners. At the same time, it gains international visibility. In line with the needs of the partners, German DC promotes a relevant tool with climate risk insurance as part of the German adaptation portfolio. German DC attempts to counter the potential risk of over-focusing on one single tool from the risk-pooling field by applying the concept of comprehensive climate risk management, in particular through interministerial integration of risk provisioning tools (BMZ, 2019). The extent to which this approach is already reflected in practice shall be examined in the evaluation at hand as part of the other evaluation modules (Modules 2 to 4).

6.1.3 Complementarity and Coordination

Complementarity between BMZ and BMU's priorities was revealed on the policy level of the German adaptation portfolio in the scope of the portfolio and allocation analysis at hand. However, currently neither a common strategic framework nor systematic and active coordination of a joint commitment in the field of climate change adaptation exist, and so the different procedures, approaches and regional priorities merely indicate interministerial synergy potential. In this case more in-depth studies are required within the framework of the other evaluation modules.

At implementation level, the study at hand did not indicate any specific factors that would obstruct the coordination efforts of German TC and FC in the field of climate change adaptation. However, whether the two large German implementing organisations GIZ and KfW work in a collaborative and coordinated manner cannot be conclusively assessed within the framework of this portfolio and allocation analysis. Both organisations have many years of comprehensive work experience in the climate-relevant sectors of water, agriculture and environmental protection and implement most of their adaptation funds there. The question of collaboration in the conception and implementation of TC/ FC measures cannot be conclusively assessed at this point and requires comprehensive empirical examination within the framework of the other evaluation modules. Synergy potential may exist in the field of joint applications within the framework of the ICI ideas competition (BMU) and in the joint implementation of climate risk analyses.

6.2 Assessing the Coherence of the Adaptation Portfolio

The study at hand aims to identify and evaluate synergies and contradictions between German development policy in the field of adaptation and the development policies of different donors, the policies of development partners, the various policy fields of the Federal Republic of Germany and the development policies of multilateral institutions through the criterion of development policy coherence. The assessment dimensions of the coherence criterion are shown as an overview in Box 2 in the Appendix.

6.2.1 Coherence with Other Donors and Development Partners

Germany is particularly active in countries where many other donors are active in the field of climate change adaptation. A higher number of other donors in turn means that Germany will commit a higher level of funds. Thus the expectation that Germany will concentrate its adaptation funds on countries in which fewer other donors are active in the field of climate change adaptation cannot be confirmed. The coherence expectation can only be partially confirmed with regard to the aspect of donor concentration. This study considers the overall portfolio and specifically the aspect of donor concentration. The potential complementarity of different donors in a country's field of climate change adaptation is not considered at this point in time. However, the extent to which questions of complementarity and coherence can be taken into account in the other evaluation modules, possibly in the framework of selected country case studies, will be examined by DEval in the course of the overall evaluation. Against the background of the previous finding that the SIDS benefit significantly below average from adaptation commitments, however, there is a danger that individual countries in need will be "forgotten" by international DC. In principle, in individual cases it might make sense to combine the funds from several donors in the interests of demand-driven orientation, for example by combining them in multi-donor trust funds. However, the German government's global goal of reducing donor fragmentation should be taken into account.

Recommendation 4:

Within the framework of the "Development Policy 2030" strategy, BMZ should address the aspect of donor concentration in the field of climate change adaptation and – considering questions of donor complementarity – advocate for adequate international cooperation.

6.2.2 Coherence of Different Policy Fields in the Federal Republic of Germany

From the point of view of coherence, too, there is no indication of any contradictions between the BMZ portfolio and the BMU portfolio. BMZ and BMU pursue the international climate policy goals of the Federal Government while setting their own respective priorities, which differ according to the type of funding approach and the region. BMU projects are mainly to be found in so-called emerging countries. BMZ tends to be less active in emerging countries and cooperates more with developing countries in the field of adaptation. There are also conceptual differences. BMZ pursues a broad, poverty-oriented development approach and has integrated adaptation as a cross-sectional issue into a large number of projects. BMU promotes various projects with adaptation as principal objective (CLA-2) through the ICI. However, the extent to which the objectives and effectiveness of the respective ministries in the field of climate change adaptation actually correspond cannot be conclusively assessed due to the lack of a common strategic framework. Seeking an answer to this question should be made the subject of future studies.

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8. APPENDIX

8.1 Evaluation Matrix

Table 2 Evaluation Matrix

Evaluation Question	EQ1	To what extent is the portfolio consistent with international development agendas and German priorities?
Expectation	**EQ1E1**	**Expectation EQ1E1: The commitments made by German DC in the field of climate finance will increase over time and approach the target value of at least four billion EUR in 2020.**
Data base:		CRS data 2011-2017, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		The evolution of grant and loan fund commitments for adaptation and mitigation is analysed as principal and significant objective. Commitments for significant objective projects are discounted at 50 percent.
Expectation:	**EQ1E2**	**The political parity between mitigation and adaptation is also reflected in the allocation patterns.**
Data base:		CRS data 2011-2017, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		The evolution of grant and loan fund commitments for adaptation and mitigation is analysed as principal and significant objective. Commitments for significant objective projects are discounted at 50 percent. Commitments for principal and secondary objective funds are measured separately as well as in sum.
Expectation:	**EQ1E3**	**Expectation EQ1E3: Budget funds for adaptation to climate change are increasingly supplemented by private funding sources in German climate finance.**
Data base:		KfW reports to the OECD on the instruments of private investment from credit lines, shares in collective capital investments and direct investment for the period 2012-2017.
Analytical method:		The evolution of the private funds mobilised by KfW through grant funds and loan funds for adaptation projects is analysed in sum. The unit of analysis is a year. Assessment of private mobilised funds is intended to reconstruct the causal relationship between public and private investments. The only German adaptation funds that the proportion of private mobilised funds is currently systematically recorded are KfW funds. Measuring mobilised private funds is based on the 2018 OECD-DAC approach. The approach is instrument-specific and considers five funding instruments (guarantees, syndicated loans, shares in collective capital investments, direct company investments and credit lines). This makes it possible to capture various financial characteristics and the role and position of all actors involved. The available data includes private investment from credit lines, shares in collective capital investments and direct investments for the period 2012-2017. Project financing is not included as it has not yet been recorded. The analysis includes all climate-relevant projects that have are identified as adaptation projects, i.e. projects with adaptation as significant objective (CLA-1) and adaptation as principal objective (CLA-2). The funds mobilised come

		either from the recipient country or from a (third) OECD high-income country. The share of mobilised private capital in projects with a CLA-1 identifier are discounted at 50 percent.
Expectation:	**EQ1E4**	**The proportion of adaptation funds implemented through the civil society channel increases overproportionately.**
Data base:		CRS data 2011-2017, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		The evolution of the grant and loan fund commitments for adaptation and mitigation as principal and significant objective is analysed, comparing the commitments implemented through non-governmental organisations with those implemented by Germany through other channels (including state, multilateral). Commitments for significant objective projects are discounted at 50 percent.
Expectation:	**EQ1E5**	**German commitments in the field of climate risk insurance will increase over time.**
Data base:		CRS data 2011-2017, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		The evolution of grant and loan fund commitments for adaptation in the field of climate risk insurance is analysed. Commitments for significant objective projects are discounted at 50 percent. The variable for climate risk insurance was operationalised on the basis of the purpose codes "agricultural financial services", "formal sector financial intermediaries" and "Informal/semi-formal financial intermediaries".
Expectation	**EQ1E6**	**The German strategies relevant for climate change adaptation are consistent with the international agreements of the Paris Agreement, Agenda 2030 for Sustainable Development, the Sendai Framework for Disaster Risk Reduction and the New Urban Agenda.**
Data base:		Selected background papers, publicly tendered funding lines, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		Content analysis of various strategy documents as well as coding and evaluation of qualitative interviews.

Evaluation Question	EQ2	To what extent does the portfolio reflect the priorities of the development partners and the scientific evidence?
Expectation:	**EQ2E1**	**German DC's allocation of funds in the field of climate change adaptation is partner-oriented.**
Data base:		CRS data and tool for assessing adaptation in NDCs (TAAN), group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		The allocation of German commitments for adaptation funds by country and sector is compared with the priorities recorded via TAAN in the Nationally Determined Contributions (NDCs). Priority sectors (according to their NDCs in the field of adaptation) for 52 countries are defined in TAAN. The 15 sectors from the TAAN tool were allocated purpose codes from the CRS data. About one third of the NDCs (59) explicitly specify the priority adaptation fields. The population analysed for expectation EQ2E1 is 42 countries and all funds for which commitments are made, corresponding to the 14 sectors from TAAN. On this basis, it is calculated how the funding volumes committed in line with country priorities compare with those committed in non-priority sectors. Commitments for grant and loan funds for adaptation are analysed. Commitments for significant objective projects are discounted at 50 percent.
Expectation:	**EQ2E2**	**Commitments in the field of adaptation focus on sectors and tools backed by strong evidence.**
Data base:		CRS data and Evidence Gap Map (EGM) from Green Climate Fund and DEval.
Analytical method:		The allocation of German commitments for adaptation funds by sector is compared with the number of EGM studies on the effectiveness of intervention types in these sectors. EGM distinguishes four sectors: forestry, fishery and agriculture, society, economy and health, land use and infrastructure, and water. These sectors include seven types of intervention that corresponding allocations have been made to from the CRS data. The analysis refers to commitments of 7.6 billion USD, reflecting 82 percent of German commitments over the period 2011-2017 (or 92 percent if only funds with adaptation as principal objective are considered). The EGM intervention types considered have 5 to 199 supporting documents. Commitments for grant and loan funds for adaptation are analysed. Commitments for significant objective projects are discounted at 50 percent.

Evaluation Question	EQ3	To what extent does the allocation of adaptation commitments relate to climate vulnerability in partner countries?
Expectation:	**EQ3E1**	**With increasing climate vulnerability of a country, both the probability of receiving commitments on adaptation measures and the level of commitments increase.**
Data base:		CRS data 2011-2017, various climate vulnerability indices and macro country characteristics from different data sets (see Table 7), group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		Logistic regression models are used to measure the impact of climate vulnerability on the probability of receiving adaptation commitments from Germany. The relationship between climate vulnerability and the level of funds is investigated using Tobit models. The analysis unit is one country per year. The statistical population consists of all countries (and years) in the period 2011-2017 that at least one OECD donor makes commitments (in any DC field) to. Accordingly, there are 141 countries in the pool of potential recipient countries of German DC. Commitments for grant and and loan funds for adaptation are analysed. Commitments for significant objective projects are discounted at 50 percent.
Expectation:	**EQ3E2**	**The poorest developing countries and the Small Island Developing States (SIDS) receive overproportionately high level of per capita funds for adaptation measures.**
Data base:		CRS data 2011-2017, various climate vulnerability indices and macro-country characteristics from different data sets (see Table 7), group interviews with key informants from ministries, implementing organisations and civil society.
Analytical Method:		Multivariate regression analysis based on CRS data 2011-2017 and data from other hosts (see EQ3E1), qualitative group interviews with BMZ, BMU, GIZ, KfW and civil society organisations (VENRO). Commitments for grant and loan funds for adaptation are analysed. Commitments for significant objective projects are discounted at 50 percent.

Evaluation Question	EQ4	To what extent are the approaches and instruments of German development cooperation complementary and coherent?
Expectation:	**EQ4E1**	**German TC and FC's take a collaborative and coordinated approach with the implementation of adaptation measures.**
Data base:		CRS data 2011-2017, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		Expectation EQ4E1 is verified via descriptive statistical analysis based on CRS data. Commitments for grant funds and loan funds for adaptation are analysed. Commitments for significant objectives are discounted at 50 percent. It is shown to what extent GIZ and KfW concentrate their adaptation measures on different or identical countries, sectors and objectives. This analysis is supplemented by interviews with KfW and GIZ representatives. The variable "Channelreportedname" indicates which project commitments were made by GIZ, KfW or other implementing organisations.
Expectation:	**EQ4E2**	**BMZ and BMU have their own respective priorities that complement each other.**
Data base:		CRS data 2011-2017, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		For Expectation EQ4E2, the distribution of BMZ- and BMU-financed interventions by country, sector and tool is used to analyse up to what extent the two ministries have different priorities. Commitments for grant and loan funds for adaptation are analysed. Commitments for significant objectives are discounted at 50 percent. In addition, the coherence of the two ministries' respective strategies is assessed on the basis of qualitative content analyses of relevant strategy documents. These studies are supplemented by interviews with BMU and BMZ representatives.

Evaluation Question	EQ5	To what extent are the approaches of the German development cooperation complementary and coherent to the policies of other bilateral and multilateral aid donors?
Expectation:	**EQ5E1**	**The fewer other donors are active in the field of adaptation in a country, the greater Germany's involvement with regard to adaptation funds in this country.**
Data base:		CRS data 2011-2017, group interviews with key informants from ministries, implementing organisations and civil society.
Analytical method:		A methodology developed in network models for DC allocation is used to measure coordination (Klöck and Weiler, 2019). The number of donors (excluding Germany) financing DC in a country in the period 2011-2017 is determined. This measure is used to capture the impact of the number of other donors in a country on Germany's involvement in the field of adaptation in multivariate statistical allocation models. The impact of the number of donors on both the probability of German involvement in a country and the level of commitments for a recipient country will be examined. As far as possible, the same control variables are used as in the models for EQ3E1 and EF3E2. Thus the impact of other donors on German involvement is estimated under the control of various indices for "need", "donor interest" and "merit". If CLA-2 funds form the dependent variable, then the other bilateral and multilateral donors are counted for all CLA-2 funds in a country and year. If the dependent variable is based on total funds, the number of other donors also refers to these funds. The population consists of all countries (and years) in the period 2011-2017 that at least one OECD donor makes commitments (in any DC field) to. Accordingly, there are 141 countries in the pool of potential recipient countries of German DC. Commitments for grant and loan funds for adaptation are analysed. Commitments for significant objective projects are discounted at 50 percent.

8.2 Evaluation Criteria and Standards

Box 1 Assessing Relevance

In the portfolio and allocation analysis at hand, relevance as an evaluation criterion refers to the extent to which the portfolio and allocation patterns are consistent with the needs of the target groups, the policies and objectives of the partners and implementing agencies, global development agendas as well as broad development policy orientation of the Federal Government in the field of adaptation to climate change.

In the portfolio and allocation analysis at hand, the following assessment dimensions and questions were applied in the course of the relevance assessment:

Consistency of the Portfolio and Allocation Decisions with the Relevant Strategic Reference Frameworks and (Global) Development Agendas

- To what extent are the priorities of the portfolio consistent with the objectives of relevant strategies and agendas (global, regional, partner countries, BMZ) from the present perspective?

Consistency of the Portfolio and Allocation Decisions with the Needs of the Target Groups and the Partners' Objectives (Country, Region, World)

- To what extent is the portfolio geared to the developmental needs of the target groups?
- To what extent is the portfolio geared towards particularly vulnerable regions and target groups?
- To what extent is the portfolio consistent with the needs of target groups and objectives of the developmental partners (country, region, world) from the present perspective?

Complementarity & Coordination

- To what extent is the portfolio complementary within German DC and is it designed and implemented on a collaborative basis?
- To what extent does the portfolio offer comparative advantages?
- To what extent are the allocation decisions complementary with the commitment of other donors?

Box 2 Assessing Coherence

In the scope of the portfolio and allocation analysis at hand, policy coherence refers to the assessment of synergies and contradictions between German development policy and 1) the development policies of different donors and development partners and 2) different policy fields of the Federal Republic of Germany.

In the portfolio and allocation analysis at hand, the following assessment dimensions and questions were applied in the course of the coherence assessment:

Coherence of the Portfolio with Other Donors and Development Partners

- To what extent do synergies and/or contradictions exist between German DC and development policies of other donors and development partners?
- Which comparative advantages can be determined for German DC and how should these be evaluated?

Coherence of Different Policy Fields of the Federal Republic of Germany

- To what extent do synergies and/or contradictions exist between the policies and measures of German DC and other policy fields (environment, foreign and security policy, trade, agriculture, etc.) of the Federal Government?

Coherence with Policies of Multilateral Institutions

- To what extent do synergies and/or contradictions exist between the German adaptation portfolio and the policies of other relevant multilateral institutions (OECD, UN agencies, World Bank, etc.)?

Table 3 The Four-point Rating Scale for DEval Evaluations

Categories	Insight	Example
Exceeded	The portfolio and allocation patterns clearly exceed the aspiration level with regard to the evaluation criterion applied.	The aspiration level of the portfolio and allocation patterns' relevance assessment is exceeded.
Fulfilled	The portfolio and allocation patterns fulfil the aspiration level with regard to the evaluation criterion applied.	The aspiration level of the portfolio and allocation patterns' relevance assessment is fulfilled.
Partially fulfilled	The portfolio and allocation patterns (only) partially fulfil the aspiration level with regard to the evaluation criterion applied.	The aspiration level of the portfolio and allocation patterns' relevance assessment is (only) partially fulfilled.
Failed	The portfolio and allocation patterns clearly failed the aspiration level with regard to the evaluation criterion applied.	The aspiration level of the portfolio and allocation patterns' relevance assessment is failed.

8.3 EQ2 – Methodology and Additional Results

Table 4 Allocation of CRS Data Purpose Codes to Sectors and Intervention Types from the Evidence Map

EGM sector	EGM intervention type	CRS resource allocation
Forestry, Fishery and Agriculture	Nature-Based Options	Fuelwood/charcoal
		Agricultural land resources
		Food crop production
		Agricultural development
		Livestock
		Forestry development
		Fishery development
		Industrial crops/ export crops
	Built Infrastructure/ Structural	Forest industries
		Fertilizer plants
		Agro-industries
		Agricultural water resources
	Technological Options	Chemicals
		Fishery services
		Agricultural inputs
		Plant and post-harvest protection and pest control
		Livestock/ veterinary services
		Agricultural services
		Forestry services
	Informational/ Educational	Forestry education/ training
		Environmental research
		Forestry research
		Fishery research

EGM sector	EGM intervention type	CRS resource allocation
		Agricultural extension
		Fishery education/ training
		Environmental education/ training
		Agricultural research
		Agricultural education/ training
	Institutional/ Planning/ Policy/ Laws/ Regulations	Forestry policy and administrative management
		Agrarian reform
		Agricultural policy and administrative management
		Fishing policy and administrative management
	Financial/ Market Mechanisms	Agricultural financial services
	Social/ Behavioural	Agricultural co-operatives
		Agricultural alternative development
Land use and Built Environment	Nature-Based Options	Biodiversity
		Site preservation
	Institutional/ Planning/ Policy/ Laws/ Regulations	Urban development and management
		Environmental policy and administrative management
		Rural development
	Built Infrastructure/ Structural	Reconstruction, relief and rehabilitation
Society, Economy and Health	Nature-Based Options	Biosphere protection
	Built Infrastructure/ Structural	Immediate post-emergency reconstruction and rehabilitation
		Medical services

EGM sector	EGM intervention type	CRS resource allocation
		Disaster prevention and preparedness
		Material relief assistance and services
	Technological Options	Tuberculosis control
		Malaria control
		Infectious disease control
	Informational/ Educational	Medical research
		Health personnel development
		Health education
		Basic nutrition
	Institutional/ Planning/ Policy/ Laws/ Regulations	Health policy and administrative management
	Financial/ Market Mechanisms	Food assistance
	Social/ Behavioural	Relief co-ordination and support services
		Emergency food assistance
		Multisector aid for basic social services
		Non-agricultural alternative development
Water	Nature-Based Options	Water resources conservation (including data collection)
	Built Infrastructure/ Structural	Waste management/ disposal
		Water supply – large systems
		Basic sanitation
		Basic drinking water supply
		Water supply and sanitation – large systems

EGM sector	EGM intervention type	CRS resource allocation
		Basic drinking water supply and basic sanitation
		River basins development
		Flood prevention and control
		Sanitation – large systems
	Informational/ Educational	Education and training in water supply and sanitation
	Institutional/ Planning/ Policy/ Laws/ Regulations	Water sector policy and administrative management

Note: EGM sectors and intervention types and their allocation to purpose codes from OECD CRS data are shown.
Source: Own visualisation based on OECD 2011-2017 CRS data and Evidence Gap Map (Doswald et al., forthcoming).

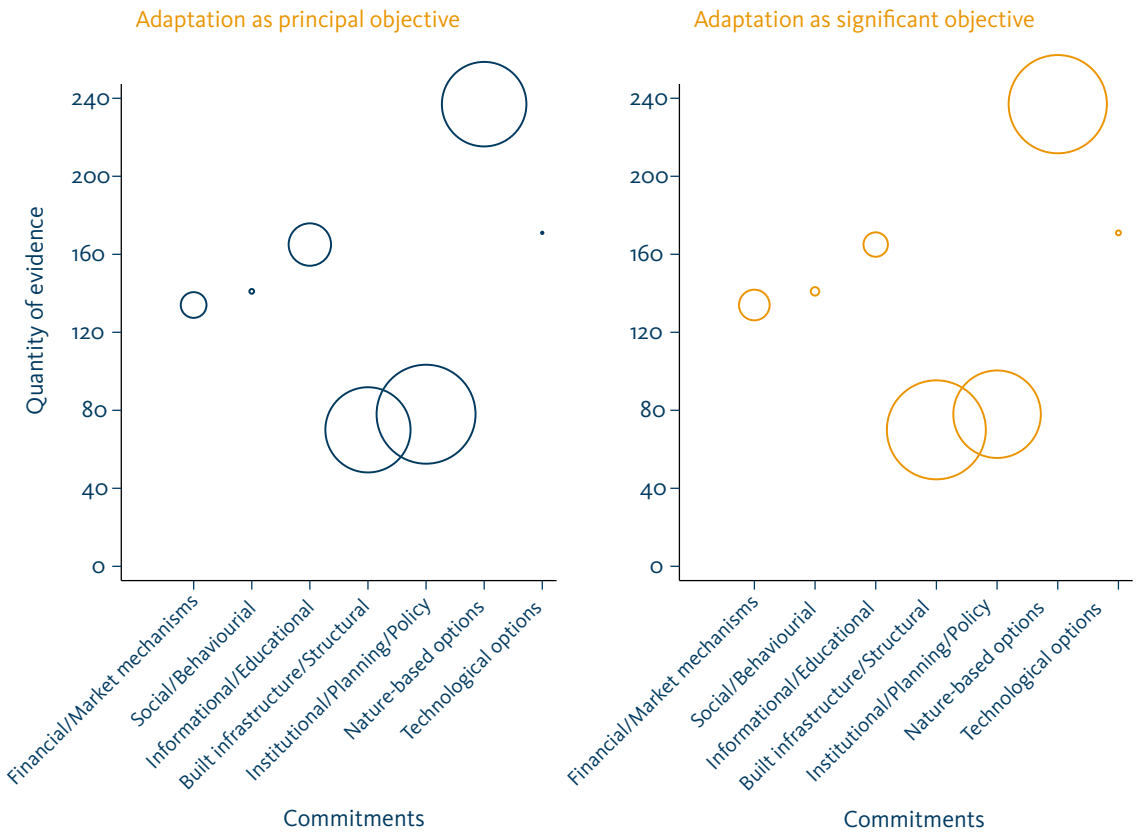
Of the 28 combinations of sector and EGM intervention type, 20 could be allocated to corresponding CRS data sub-sectors. Accordingly, the analysis refers only to these 20 combinations of sector and intervention type of EGM and 69 CRS data purpose codes (out of 187). Since the CRS data purpose codes are more detailed than EGM intervention types, several CRS data purpose codes have been allocated to a combination of sector and EGM intervention type.

Table 5 Evidence Level and Volume of Resources by Sector from EGM

Sector	Evidence level	Total level of adaptation commitments	Level of commitments for adaptation as principal objective
Forestry, fisheries and agriculture	688	1,938	835
Society, economy and health	212	439	142
Land use and infrastructure	46	2,816	1,052
Water	50	2,367	410
Total commitments		7,560	2,439

Note: Grant funds and loan funds for adaptation are given in mio. USD. Significant objective projects are discounted at 50 percent.
Source: Own visualisation based on OECD 2011-2017 CRS data and Evidence Gap Map (Doswald et al., forthcoming).

Figure 16 Volume of Funds by Quality of Evidence and Intervention Types



Note: Grant funds and loan funds for adaptation are given in mio. USD. Significant objective projects are discounted at 50 percent. Bigger circles indicate a higher level of commitments.
Source: Own visualisation based on OECD 2011-2017 CRS data and Evidence Gap Map (Doswald et al., forthcoming).

8.4 EQ3 – Methodology and Additional Results

Table 6 Operationalisations of the Dependent Variable: Commitments for Adaptation Funds

	Indicator	Source
Nominal commitments	Total commitments (for CLA-1 and CLA-2 projects) per country in mio. USD	CRS data
	Total commitments (for CLA-2 projects) per country in mio. USD	CRS data
	Commitments for adaptation funds (dummy variable): 1 = commitments for CLA-1 and CLA-2 projects / 0= no commitments (per country and year)	CRS data
	Commitments for adaptation funds (dummy variable, principle objective only): 1 = commitments for CLA-2 projects/ 0 = no commitments for CLA-2 projects (per country and year)	CRS data
	Grant funds via adaptation funds (dummy variable): 1 = grant funds (no loan funds) for CLA-1 and CLA-2 projects/ 0 = no grant funds for CLA-1 and CLA-2 projects (per country and year)	CRS data
	Grant funds via adaptation funds (dummy variable, principal objective only): 1 = grant funds (no loan funds) for CLA-2 projects / 0 = no grant funds for CLA-2 projects (per country and year)	CRS data
Percentage of adaptation commitments per country and year	Percentage of total commitments (for CLA-1 and CLA-2 projects) of German commitments per country (for CLA-1 and CLA-2 projects) in one year in mio. of USD	CRS data
	Percentage of total commitments (for CLA-2 projects) of German commitments per country (for CLA-2 projects) in one year in mio. USD	CRS data
Per capita commitments	Total commitments (for CLA-1 and CLA-2 projects) per country per 100,000 inhabitants in mio. USD	CRS data, Graham et al., 2018

Table 7 Overview of Independent Variables of Allocation Models

	Indicator	Source
Fragmentation/ coordination	Number of other donors (per year)	Own calculation, based on OECD-CRS
	Number of other donors for adaptation to climate change per year	Own calculation, based on OECD-CRS
Recipient need	GDP in constant prices (2010) (in mio. USD)	(The World Bank, 2020)
	GDP per capita (in mio. USD)	(The World Bank, 2020)
	ND-GAIN adaptive capacity (scale of 0-1)	(Chen et al., 2015)
	ND-GAIN exposition (scale of 0-1)	(Chen et al., 2015)
	ND-GAIN sensitivity(scale of 0-1)	(Chen et al., 2015)
	ND-GAIN Adaptation Index (scale of 0-1)	(Chen et al., 2015)
	Climate Risk Index (CRI) inverted (inv.) (scale of 2-166)	(Eckstein et al., 2018)
	Small Island Developing States (SIDS) (dummy variable: 1 = yes, 0 = no)	(UN, 2018)
Recipient performance	Worldwide Governance Indicators (WGI) (scale of -15-7)	(Graham et al., 2018)
	Conflicts in recipient country (dummy variable: 1 = yes, 0 = no)	(Petterson et al., 2019)
Donor interest	Exports by recipient countries to donor countries (in USD)	(UN Comtrade Database, 2019)
	GeoFigureal distance between Germany and potential recipient country (in 100 km)	(Weidmann et al., 2010)
	BMZ partner countries: categories A and B (dummy variable in the respective category: 1 = yes, 0 = no)	
Control variables	German DC for other fields, without adaptation to climate change (in mio. USD)	Own calculation, based on OECD-CRS
	Population of recipient country (in mio. inhabitants)	(The World Bank, 2020)
	State capacity (scale of 0-1)	(Grävingholt et al., 2017)
	EU commitments for climate change adaptation (in mio. USD) separately shown for CLA-2 and CLA-1	OECD-CRS-Dataset

Table 8 Impact of Climate Vulnerability on the Probability of Receiving Commitments from Germany

	AV: Commitments for adaptation funds (dummy variable, only principal objective)		AV: Total commitments for adaptation funds (dummy variable)	
	(1)	(2)	(3)	(4)
	Vulnerability ND-GAIN	Vulnerability CRI	Vulnerability ND-GAIN	Vulnerability CRI
Climate vulnerability	2.318		1.865	
	(0.053)		(0.261)	
Climate Risk Index (inv.)		0.00887**		0.00756*
		(0.002)		(0.025)
GDP (const. price 2010)	2.55e-13	-2.23e-13	-3.99e-13	-5.83e-13
	(0.706)	(0.711)	(0.780)	(0.613)
Worldwide Governance Indicators	0.0485	0.0158	-0.0311	-0.0678*
	(0.119)	(0.611)	(0.318)	(0.024)
SIDS	-1.515***	-1.143***	-1.875***	-1.709***
	(0.000)	(0.001)	(0.000)	(0.000)
Observations	873	846	873	846
Pseudo-R2	0,249	0,244	0,412	0,428

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 9 Impact of Climate Vulnerability on the Probability of Receiving Commitments of Funds from Germany

	AV: Commitments for adaptation funds (dummy variable, only principal objective)		AV: Total commitments for adaptation funds (dummy variable)	
	(1)	(2)	(3)	(4)
	Vulnerability ND-GAIN	Vulnerability CRI	Vulnerability ND-GAIN	Vulnerability CRI
Climate vulnerability	2.427*		1.969	
	(0.044)		(0.235)	
Climate Risk Index (inv.)		0.00860**		0.00737*
		(0.002)		(0.025)
GDP (const. price 2010)	2.80e-13	-2.37e-13	2.08e-13	-1.63e-14
	(0.681)	(0.692)	(0.865)	(0.987)
Worldwide Governance Indicators	0.0458	0.00999	-0.0259	-0.0562
	(0.142)	(0.749)	(0.389)	(0.053)
SIDS	-1.521***	-1.150***	-1.799***	-1.638***
	(0.000)	(0.001)	(0.000)	(0.000)
Observations	881	847	881	847
Pseudo-R2	0.252	0.249	0.424	0.434

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 10 Impact of Individual Dimensions of Climate Vulnerability on the Probability of Receiving German Commitments

	AV: Commitments for adaptation funds (dummy variable, only principal objective)			AV: Total commitments for adaptation funds (dummy variable)		
	(1) Exposition	(2) Adaptive capacity	(3) Sensitivity	(4) Exposition	(5) Adaptive capacity	(6) Sensitivity
Exposition	3.737**			-0.00197		
	(0.004)			(0.999)		
Adaptive capacity		1.543*			2.850**	
		(0.032)			(0.004)	
Sensitivity			1.520			1.400
			(0.143)			(0.295)
GDP (const. price 2010)	6.48e-14	2.13e-13	4.60e-14	-1.05e-12	5.68e-13	-9.33e-13
	(0.916)	(0.745)	(0.940)	(0.403)	(0.696)	(0.489)
Worldwide Governance Indicators	0.0394	0.0538	0.0452	-0.0536	0.000709	-0.0242
	(0.194)	(0.089)	(0.119)	(0.062)	(0.982)	(0.399)
SIDS	-1.653***	-1.421***	-1.252***	-1.983***	-1.778***	-1.739***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	923	874	829	923	874	829
Pseudo-R2	0.266	0.248	0.228	0.436	0.416	0.390

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 11 Impact of SIDS- and LDC-Status on the Probability of Receiving German Commitments

	AV: Commitments for adaptation funds (dummy variable, only principal objective)		AV: Total commitments for adaptation funds (dummy variable)	
	(1)	(2) with control variables	(3)	(4) with control variables
SIDS	-2.039***	-1.541***	-2.721***	-1.939***
	(0.000)	(0.000)	(0.000)	(0.000)
LDC	0.185	0.159	0.400*	0.0467
	(0.212)	(0.398)	(0.017)	(0.836)
GDP (const. price 2010)		-2.35e-14		-6.13e-13
		(0.969)		(0.590)
Worldwide Governance Indicators		0.0258		-0.0497
		(0.397)		(0.084)
EU commitments for adaptation as principal objective		0.0323		
		(0.191)		
Distance in 100 km		0.0164***		0.0193***
		(0.000)		(0.000)
Population size in mio.		0.0124**		0.0150
		(0.006)		(0.106)
Partner country A		1.898***		2.059***
		(0.000)		(0.000)
Partner country B		1.703***		1.822***
		(0.000)		(0.000)
Conflict		0.310		0.0582
		(0.220)		(0.869)

	AV: Commitments for adaptation funds (dummy variable, only principal objective)		AV: Total commitments for adaptation funds (dummy variable)	
	(1)	(2) with control variables	(3)	(4) with control variables
Other German DC		0.0000439		0.0306***
		(0.979)		(0.000)
Total EU commitments for adaptation				0.00983
				(0.414)
Observations	981	923	981	923
Pseudo-R2	0.083	0.261	0.213	0.444

Models are based only on grant funds.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 12 Impact of Climate Vulnerability on the Level of Nominal Commitments

	AV: Nominal commitments for adaptation funds (only principal objective)		AV: Total nominal commitments for adaptation funds	
	(1)	(2)	(3)	(4)
	Vulnerability ND-GAIN	Vulnerability CRI	Vulnerability ND-GAIN	Vulnerability CRI
Climate vulnerability	9.402		2.913	
	(0.254)		(0.739)	
Climate Risk Index (inv.)		0.0321		0.000749
		(0.104)		(0.971)
GDP (const. price 2010)	-3.36e-12**	-3.93e-12**	-3.53e-12*	-2.82e-12
	(0.008)	(0.004)	(0.022)	(0.080)
Worldwide Governance Indicators	0.395	0.241	0.419	0.326
	(0.058)	(0.236)	(0.055)	(0.121)
SIDS	-9.023***	-7.577***	-11.29***	-10.95***
	(0.000)	(0.001)	(0.000)	(0.000)
Observations	881	847	881	847
Pseudo-R2	0.076	0.075	0.080	0.083

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 13 Impact of Various Dimensions of Climate Vulnerability on the Level of Nominal Commitments

	AV: Nominal commitments for adaptation funds (only principal objective)			AV: Total nominal commitments for adaptation funds		
	(1) Exposition	(2) Adaptive capacity	(3) Sensitivity	(4) Exposition	(5) Adaptive capacity	(6) Sensitivity
Exposition	12.78			-3.322		
	(0.156)			(0.728)		
Adaptive capacity		6.297			6.692	
		(0.205)			(0.201)	
Sensitivity			9.601			1.100
			(0.166)			(0.882)
GDP (const. price 2010)	-3.53e-12**	-3.38e-12**	-3.45e-12**	-3.65e-12*	-3.27e-12*	-3.80e-12*
	(0.004)	(0.007)	(0.007)	(0.015)	(0.033)	(0.014)
Worldwide Governance Indicators	0.333	0.420*	0.429*	0.333	0.542*	0.471*
	(0.079)	(0.045)	(0.030)	(0.095)	(0.013)	(0.025)
SIDS	-9.305***	-8.696***	-7.924***	-12.04***	-11.01***	-10.45***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	923	874	829	923	874	829
Pseudo-R2	0.081	0.075	0.068	0.087	0.079	0.072

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 14 Impact of Climate Vulnerability on the Level of Pro Rata Commitments per Recipient Country

	AV: Partial commitments for adaptation funds (only principal objective)		AV: Total partial commitments for adaptation funds	
	(1)	(2)	(3)	(4)
	Vulnerability ND-GAIN	Vulnerability CRI	Vulnerability ND-GAIN	Vulnerability CRI
Climate vulnerability	0.0419		0.00278	
	(0.160)		(0.780)	
Climate Risk Index (inv.)		0.000125		0.00000287
		(0.081)		(0.903)
GDP (const. price 2010)	-1.03e-14*	-1.27e-14**	-4.77e-15**	-4.17e-15*
	(0.026)	(0.009)	(0.006)	(0.023)
Worldwide Governance Indicators	0.00154*	0.000936	0.000513*	0.000390
	(0.041)	(0.203)	(0.038)	(0.101)
SIDS	-0.0338***	-0.0279***	-0.0128***	-0.0124***
	(0.000)	(0.001)	(0.000)	(0.000)
Observations	881	847	881	847
Pseudo-R2	-0.582	-0.612	-0.189	-0.197

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 15 Impact of Dimensions of Climate Vulnerability on the Level of Pro Rata Commitments per Recipient Country

	AV: Partial commitments for adaptation funds (only principal objective)			AV: Partial commitments for adaptation funds		
	(1)	(2)	(3)	(4)	(5)	(6)
	Exposition	Adaptive capacity	Sensitivity	Exposition	Adaptive capacity	Sensitivity
Exposition	0.0489			-0.00547		
	(0.134)			(0.614)		
Adaptive capacity		0.0264			0.00746	
		(0.142)			(0.208)	
Sensitivity			0.0412			0.00144
			(0.101)			(0.865)
GDP (const. price 2010)	-1.11e-14*	-1.04e-14*	-1.06e-14*	-4.92e-15**	-4.46e-15*	-5.05e-15**
	(0.013)	(0.023)	(0.021)	(0.004)	(0.010)	(0.004)
Worldwide Governance Indicators	0.00124	0.00161*	0.00165*	0.000412	0.000656**	0.000583*
	(0.071)	(0.033)	(0.022)	(0.068)	(0.008)	(0.014)
SIDS	-0.0345***	-0.0324***	-0.0298***	-0.0136***	-0.0125***	-0.0119***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	923	874	829	923	874	829
Pseudo-R2	-0.667	-0.564	-0.466	-0.213	-0.185	-0.160

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 16 Impact of Climate Vulnerability on the Level of Commitments per 100,000 Inhabitants

	AV: Commitments per capita for adaptation funds (only principal objective)		AV: Total commitments per capita for adaptation funds	
	(1)	(2)	(3)	(4)
	Vulnerability ND-GAIN	Vulnerability CRI	Vulnerability ND-GAIN	Vulnerability CRI
Climate vulnerability	0.0663		0.0604	
	(0.577)		(0.662)	
Climate Risk Index (inv.)		0.000283		-0.000280
		(0.326)		(0.401)
GDP (const. price 2010)	2.26e-14	1.81e-14	-3.15e-15	-5.01e-15
	(0.085)	(0.213)	(0.852)	(0.787)
Worldwide Governance Indicators	0.00621*	0.00438	0.0112**	0.00760*
	(0.041)	(0.139)	(0.001)	(0.023)
SIDS	-0.0955**	-0.0805*	-0.159***	-0.159***
	(0.003)	(0.013)	(0.000)	(0.000)
Observations	879	845	879	845
Pseudo-R2	0.336	0.310	0.356	0.350

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 17 Impact of Dimensions of Climate Vulnerability on the Level of Commitments per 100,000 Inhabitants

	AV: Commitments per capita for adaptation funds (only principal objective)			AV: Total commitments per capita for adaptation funds		
	(1) Exposition	(2) Adaptive capacity	(3) Sensitivity	(4) Exposition	(5) Adaptive capacity	(6) Sensitivity
Exposition	-0.0222			-0.409**		
	(0.866)			(0.008)		
Adaptive capacity		0.0828			0.139	
		(0.257)			(0.096)	
Sensitivity			0.145			0.247*
			(0.153)			(0.037)
GDP (const. price 2010)	2.30e-14	2.72e-14	2.67e-14	1.55e-14	2.83e-14	2.82e-14
	(0.206)	(0.142)	(0.151)	(0.518)	(0.248)	(0.252)
Worldwide Governance Indicators	0.00494	0.00728*	0.00758**	0.00743*	0.0136***	0.0142***
	(0.074)	(0.017)	(0.009)	(0.018)	(0.000)	(0.000)
SIDS	-0.0994**	-0.0914**	-0.0815*	-0.160***	-0.149***	-0.149***
	(0.001)	(0.004)	(0.011)	(0.000)	(0.000)	(0.000)
Observations	921	872	827	921	872	827
Pseudo-R2	0.355	0.333	0.305	0.402	0.360	0.333

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 18 Impact of SIDS- and LDC-Status on the Level of Commitments of Funds

	Commitments for adaptation funds (only principal objective)			Total commitments for adaptation funds		
	(1)	(2)	(3)	(4)	(5)	(6)
	Nominal commitments	Partial commitments per recipient country	Commitment per 100,000 inhabitants	Nominal commitments	Partial commitments per recipient country	Commitment per 100,000 inhabitants
SIDS	-4.495***	-0.0262***	-0.0448*	-6.438***	-0.0116***	-0.0443*
	(0.000)	(0.000)	(0.013)	(0.000)	(0.000)	(0.014)
LDC	1.153	0.00622	0.00483	2.305***	0.00414***	0.00497
	(0.065)	(0.085)	(0.664)	(0.001)	(0.001)	(0.656)
GDP (const. price 2010)	-3.44e-13	-3.08e-15	1.49e-14*	-1.02e-12	-2.02e-15	1.50e-14*
	(0.581)	(0.393)	(0.025)	(0.166)	(0.126)	(0.025)
Worldwide Governance Indicators	0.142	0.000876	0.00306	0.126	0.000268	0.00306
	(0.140)	(0.115)	(0.070)	(0.206)	(0.130)	(0.070)
Total EU commitments for adaptation				0.0214	0.0000207	0.000406
				(0.432)	(0.672)	(0.378)
Observations	923	923	921	923	923	921
Pseudo-R2	0.101	-0.574	2.325	0.117	-0.228	2.315

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

8.5 EQ5 – Additional Results

Table 19 Impact of the Number of Other Donors on the Probability of Receiving German Commitments

	AV: Commitments for adaptation funds (dummy variable, only principal objective)			AV: Total commitments for adaptation funds (dummy variable)		
	(1)	(2)	(3)	(4)	(5)	(6)
	Number of other donors	Visibility	Vulnerability	Number of other donors	Visibility	Vulnerability
Number of donors for adaptation funds (only principal objective)	0.220***	0.138*	0.0294			
	(0.000)	(0.024)	(0.675)			
Exposition index	1.889	1.525	-1.150	-1.542	-3.153	-3.712
	(0.299)	(0.420)	(0.585)	(0.387)	(0.099)	(0.069)
Population size in mio.	0.00707	-0.00493	0.00640	0.0266*	-0.00682	0.0222*
	(0.056)	(0.324)	(0.054)	(0.012)	(0.653)	(0.026)
Number of donors for adaptation funds (only principal objective)*population		0.00283				
		(0.084)				
Number of donors for adaptation funds (only principal objective)*Exposition index			0.584***			
			(0.000)			
Total number of donors for adaptation funds				0.187***	0.148**	0.0769
				(0.000)	(0.006)	(0.224)
Total number of donors for adaptation funds *population					0.00542*	
					(0.041)	

	AV: Commitments for adaptation funds (dummy variable, only principal objective)			AV: Total commitments for adaptation funds (dummy variable)		
	(1) Number of other donors	(2) Visibility		(1) Number of other donors	(2) Visibility	
Number of donors for adaptation funds*exposition index						0.338* (0.025)
Observations	566	519	519	642	634	634
Pseudo-R2	0.274	0.280	0.293	0.453	0.455	0.454

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

Table 20 Impact of the Number of Other Donors on the Level of German Commitments

	Nominal commitments		Partial commitments		Commitments per capita	
	(1)	(2)	(3)	(4)	(5)	(6)
	Adaptation funds (only principal objective)	Total adaptation funds	Adaptation funds (only principal objective)	Total adaptation funds	Adaptation funds (only principal objective)	Total adaptation funds
Number of donors for adaptation funds (only principal objective)	0.873*		0.00287*		0.00671	
	(0.014)		(0.012)		(0.220)	
Exposition index	0.390	-10.74	0.00126	-0.0135	-0.0497	-0.643*
	(0.978)	(0.415)	(0.978)	(0.328)	(0.816)	(0.019)
Population size in mio.	0.0123*	0.0130*	0.0000427*	0.0000137*	-0.0000488	-0.000119
	(0.043)	(0.037)	(0.030)	(0.036)	(0.718)	(0.537)
Number of donors for adaptation funds		0.714**		0.000783**		0.00393
		(0.002)		(0.001)		(0.434)
Obervations	566	642	566	642	450	513
Pseudo-R2	0.072	0.088	-0.527	-0.214	0.433	0.324

Control variables (coefficients not shown): EU commitments for adaptation funds as principal objective, distance in 100 km to Germany, population size in mio., BMZ partner country categories A and B, conflict status, other German ODA, GDP per capita or GDP in 100 USD (in the case of per capita commitments), LDC status, SIDS status.
*Including year-fixed effects. P-values in brackets. * p < 0.05, ** p < 0.01, *** p < 0.001*

8.6 Evaluation Team and Contributors

Core team	Role
Dr. Sven Harten	Head of Department
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Dr. Mascha Rauschenbach	Evaluator
Sylvia Vogt	Project Administrator

Contributors	Role
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