The Green Climate Fund and climate justice

by

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Declaration of Authorship

I, **Reinout Debergh**, hereby declare that I am the sole author of this work; no assistance other than that permitted has been used and all quotes and concepts taken from unpublished sources, published literature or the internet in wording or in basic content have been identified with precise source citations.

08/09/2020
Date

Signature

Preface

This Master thesis has been written to fulfil the graduation requirements of the EnvEuro Program at the University of Natural Resources and Life Sciences (BOKU), Vienna, Austria. I was engaged in researching and writing from December 2019 to August 2020. This thesis stands on its own and is not part of a larger project. The topic was developed after several months of brainstorming and following a suggestion of my supervisor. Developing this research proposal from scratch was difficult, but thanks to the help of my supervisor a final topic was decided, and the work was able to begin in December 2019.

I would like to thank my supervisors for their help and guidance throughout the past year. Especially my supervisor Prof. Reinhard Steurer, as without his patience and experience, this work would not have come to fruition. Also thanks to Carina Lalyer, former EnvEuro student, who's experience has been useful many times. Next, I want to thank the GCF for answering any questions I had. It is not an easy topic and any help has been welcome. Special thanks go out to my father, who helped me with many grammar and spelling issues. Also thanks to my friends and family, who really helped me stay cheerful and motivated throughout these exceptional times of isolation and uncertainty during the Covid-19 pandemic, which were added above the already stressful times of writing a thesis.

Abstract

Climate change is probably the most challenging issue of the 21st century. But climate change does not affect everyone the same way. Developing countries are more severely impacted even though developed countries are mostly responsible. In 2010 at COP16 in Cancun the Green Climate Fund (GCF) was established, funded by developed countries. It aims to be the largest climate fund and to help developing countries adapt to and mitigate climate change. It currently serves as the financial mechanism to the UNFCCC and the Paris Agreement. This study will first examine how the GCF developed its procedure for raising resources. Secondly, how have pledges to the GCF evolved and how have they been influenced by national politics. The third part will investigate whether contributions to the GCF are fair and whether allocations to developing countries are fair. These questions have been answered from a climate justice perspective.

In the first part, a search through GCF documents and COP decisions was done to put together a chronology of the development of its procedure for raising funds. The second part was answered by going through news articles and government documents to link political changes to changes in pledges. To determine whether contributions are fair, the preference score compromises (PSC) approach was used. A country's fair share was calculated based on its historical emissions (both consumption- and production-based) and its GDP. To see if allocations have been fair, the amount of funding for different regions were calculated using data from the GCF website and compared to results from Cui et al. (2014).

The results show that the GCF looked at other funds and decided to use a similar approach. It considered several aspects such as burden-sharing, earmarking and linking voting to contributions, but these were not implemented due to disagreements within the GCF. For now pledges are voluntary. Pledges have been influenced by national politics, most notably in the US. Important factors include a focus on costs and obligation vs focus on opportunities and responsibilities and leadership. No developed country has pledged a fair contribution to the GCF. To calculate those contributions, the method of emission accounting does not make much of a difference. The results of the allocation analysis show that Africa received significantly more funds than what would be fair based on Cui et al. (2014). China and the Middle East are significantly underfunded, possibly for political reasons. The analysis also showed that mitigation is favoured over adaptation and that most funding goes to middle-income countries.

Overall the picture of the GCF is negative, which fits within the larger international climate regime. The GCF seems a continuation of business as usual in the climate finance regime. Progress has been slow and calls for just climate policies remain strong. There is still a lot of work required to make the GCF a just instrument. Current procedures for raising funds are ineffective. There is a need for more clarity of how much money should flow through the GCF and from which sources (public vs private). The dividedness within the GCF has been an issue which needs to be resolved. And mostly, it is time for developed countries to step up and take responsibility.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Climate change is happening now, and it is driven mostly by economic and population growth (IPCC, 2014). The IPCC has stated that “human influence on the climate system is clear” and that recent changes in climate have had global impacts (IPCC, 2014, p. 40). The three decades from 1983 to 2012 were likely the warmest 30-year period of the last 1400 years in the Northern Hemisphere. The global surface temperature has increased by 0.85 (0.65 to 1.06) °C from 1880 to 2012 (IPCC, 2014). This temperature increase has meant that climate change impacts are increasingly being felt. The frequency of extreme climate-related disasters, such as extreme heat, droughts, floods and storms, has doubled since the early 1990s. This has led to increased losses in agricultural productivity for major crops such as wheat, rice and maize, which in turn has led to income losses and malnutrition (UNFCCC, 2018a).

Of all the countries, developing countries are likely to be disproportionately affected by the negative impacts of climate change. They rely much more on sectors that are vulnerable to changing climatic conditions, like agriculture, forestry and tourism (Wade and Jennings, 2015). However, those countries have contributed considerably little to global warming (Baatz, 2018). This “double inequity” has led to increased attention to climate justice (Munk, 2018; Stern, 2007).

There is no single definition of climate justice and it is interpreted differently by different people (Jafry et al., 2018). The Glasgow Caledonian University’s Centre for Climate Justice did a review of climate justice definitions and came up with the conclusion that climate justice *“recognises humanity’s responsibility for the impacts of greenhouse gas emissions on the poorest and most vulnerable people in society by critically addressing inequality and promoting transformative approaches to address the root causes of climate change*” (Meikle et al., 2016, p. 497). Jafry et al. (2018) identified several approaches to climate justice from literature which are based on burden-sharing, (in)equity and human rights. The approaches particularly focus on vulnerable groups such as the poor, women and indigenous people. In 2001, the first climate justice summit was held at The Hague together with COP6 (Whitehead, 2014). Here, several environmental justice groups, academics, advocacy and climate justice groups discussed what constitutes climate justice, formulating ten principles of climate justice, based on the US Environmental Justice Movement (Hendriks, 2017). In 2002, the Bali principles of climate justice were established (International Climate Justice Network, 2002). The principles were seen as the first major statement of the climate justice movement of the idea of climate justice on an international stage. They are strongly influenced by the US environmental justice movement from the 1990s and form a key link between environmental and climate justice (Schlosberg and Collins, 2014).

The debate around climate justice has long been dominated by the distribution of emission rights. First, developing countries often argue that since developed countries gained their wealth in a way that produced many emissions, they should be able to do so as well (right to develop). But this becomes increasingly difficult to accept. Developing countries, constituting 80% of the global population, were responsible for 63% of total emissions in 2015 (Sayegh, 2017). Secondly, mitigation and adaptation are costly and developing countries have a very limited ability to pay for this (Government of Canada, 2019). The International Institute for Sustainable Development (IISD) estimated that by 2030, US$ 205 billion is needed annually to return global greenhouse gas emissions (GHG emissions) to 2005 levels, US$ 75 billion of it for developing nations. The UNFCCC estimates the additional funding required annually to adapt to climate change between US$ 49 to 171 billion globally in 2030, and US$ 28 to 67 billion of this would have to go to developing countries (Tirpak and Parry, 2009). A report of

UNEP estimated that the cost of adapting to climate change in developing countries could vary between US$ 140 and US$ 300 billion per year in 2030 and between US$ 280 and US$ 500 billion per year in 2050. International public finance for adaptation in 2014 was around US$ 22.5 billion, showing that a significant increase is required (Puig et al., 2016). The IPCC SR1.5 estimated average annual mitigation costs for non-OECD countries between 500 and 2250 billion USD and between 350 and 850 billion USD for OECD countries for the period 2016–2050 (Rogelj et al., 2018).

This “development challenge”, the challenge to successfully mitigate climate change and for poorer countries to develop at the same time, is what climate finance aims to resolve (Sayegh, 2017;2018). Climate finance is “local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change” (UNFCCC, n.d. a). Climate finance has to be new and additional (Sayegh, 2018). This means “finance over and above what would have been provided anyway” (LSE, 2018). It should not be diverted away from development assistance (Sayegh, 2018). However, how additionality should be exactly determined, is still unclear (UNCTAD, 2015; Weikmans and Roberts, 2019).

Given the transboundary aspects of climate change impacts and equity concerns, it is clear that no single country alone can deal with climate change. It is an international problem requiring global cooperation (UN, n.d. a.). The international community has been trying to come up with a coordinated response to tackle climate change since the establishment of the Intergovernmental Panel on Climate Change (IPCC) in 1988 (IPCC, n.d.; UNFCCC, 1992). In 1990, the IPCC published their first assessment report. In this, it said that it was certain that anthropogenic emissions had led to global warming (IPCC, 1990). This marks an important year, as countries could no longer claim they were unaware of the harmful effects of their emissions (Sayegh, 2017). In 1992, countries established the UN Framework Convention on Climate Change (UNFCCC) (UNFCCC, 1992). Countries were differentiated into Annex I (developed) and non-Annex I (developing) groups (Metz, 2000). Annex I countries minus the economies in transition (such as Central and Eastern European countries) are also called Annex II countries (Luchsinger and Adams, 2009). The objective was to achieve “stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system” (UNFCCC, 1992, p. 9). This objective shows that mitigation dominated the early discussions in the international climate change regime. This is also evident in the signing of the Kyoto Protocol in 1997, which only sets emission reduction targets (for developed countries only) (Luchsinger and Adams, 2009; Reena, 2017).

In 2009, a successor to the Kyoto protocol was supposed to be adopted at the Copenhagen Climate Change Conference. But this effort failed (Reena, 2017). However, developed countries did commit to providing US$ 100 billion annually by 2020 (Sayegh, 2018). The text of the Copenhagen Accord only refers to developed countries, no specific countries are mentioned (UNFCCC, 2009). At the same time, the idea of a new fund was established: the Green Climate Fund (GCF) (GCF, n.d. a). It would specifically support the objectives of the UNFCCC and limit global warming to well below 2°C and to operate at a much larger scale than other climate funds (Conservation International, n.d.; Horstmann and Hein, 2017). In 2010, the Conference of Parties to the UNFCCC (COP) established the GCF at COP16 in Cancun. The GCF aims to help developing countries with reducing their greenhouse gas emissions and improve their ability to respond to climate change. The GCF aims for a balanced funding between mitigation and adaptation in developing countries (GCF, n.d. a).

The GCF is governed by a Board, which is supported by the Secretariat. The Secretariat is responsible for the day-to-day management of the fund (GCF, n.d. b). The Board consists of

twelve members from developing and twelve from developed countries (GCF, 2011). It is independent and guided by the COP and has full responsibility for funding decisions (GCF, 2011, n.d. c). The World Bank serves as its trustee (GCF, n.d. d). Access to the fund can only be obtained by accredited entities (AEs) (GCF, 2011). AEs develop, in cooperation with countries, and submit funding proposals. They are responsible for the oversight of the management and implementation of projects and programmes (GCF, n.d. e). Countries are represented through National Designated Authorities (NDAs), which connect the GCF to the recipient country. They provide oversight of the GCF's activities in the country and communicate the country's financing priorities regarding low-emission and climate-resilient development (GCF, n.d. f). Their approval of a proposal is required before submission to the GCF (GCF, 2014a).

It is unclear how much of the 100 billion USD should flow through the GCF (Schalatek et al., 2015). Since its establishment, countries, regions and one city (Paris) have pledged to give a certain amount to the GCF (GCF, n.d. g). Funding of the GCF has so far been done in two pledging phases: the Initial Resource Mobilisation (IRM) in 2014–2018, and the first formal replenishment conference in 2019 (Schalatek, 2019a). The GCF receives project proposals, it does not implement projects itself, which can then be approved or rejected (GCF, n.d. h). So far, 128 projects have been approved (GCF, n.d. i). The GCF will be the focus of this study.

The rest of chapter 1 will discuss the research gap concerning the GCF, state the research questions and how they will be answered. Chapter 2 will give an overview of climate justice and relevant principles. Chapters 3 to 5 will present the results, while chapter 6 will discuss those results. Chapter 7 will provide a conclusion of this study.

1.1 Research gaps and research questions 1: design and governance

This part summarizes relevant literature related to the design of the GCF and its mobilisation of resources. Based on these syntheses, research gaps will be identified. Then the research questions will be formulated which will aim to address those research gaps.

Literature related to the design of the GCF focused on the earlier stages between 2009 and 2015. It describes what happened during those COPs regarding the GCF and climate finance (Lattanzio, 2014). Several design challenges are discussed such as (Bird et al., 2011; Lattanzio, 2014):

- The relationship between the fund and the UNFCCC;
- The role of the World Bank as trustee of the GCF;
- Mobilisation of funds;
- Operational modalities such as how the fund would complement other climate funds, who would be eligible to receive GCF funds, the structure of the fund, how countries would access funds and which type of instruments should be used.

Other authors specifically looked at the role of civil society in the design process and its interaction with other stakeholders (Abbott and Gartner, 2011; Bracking, 2014; Bruun, 2019). Civil society (CS) only managed to introduce some movement concepts such as "country-owned", but there was a significant imbalance in power between CS and other actors who used several strategies to limit the CS's influence (Bracking, 2014). Green governmentality and ecological modernisation dominated within the GCF design process. This resulted in an overall emphasis on finance, which undermined the values of civic environmentalism which focus on human rights and pro-poor climate finance (Bruun, 2019). For definitions of those concepts,

see van der Heijden (2008). It is argued that more involvement of civil society can improve the GCF (Abbott and Gartner, 2011).

A third stream of authors focused only on the design issue of raising funding. They look at issues such as additionality, misappropriation and whether to use a top-down or bottom-up approach (Donner et al., 2011). Other authors look at the viewpoints from different stakeholders. They concluded that developing countries want a larger share of the US$ 100 billion to flow through the GCF than developed countries, more public finance and more funding for adaptation. They found that disagreements on how much to channel through the GCF is mostly related to views on how much funding should go to adaptation (Fridahl and Linnér, 2016). However, another author concludes that the design of the GCF does not meet most of the current donors' preferences. The author argues that unless the governance structure of the GCF is made attractive enough for donors, it will not play a significant role in climate finance and it will remain under-funded for a long time (de Sépibus, 2014).

However, the above-mentioned literature does not describe any specific GCF policies regarding mobilisation of resources or how they decided on the method of resource mobilisation. This study will look first at the practical side of raising money, which is a precondition for the effective and just operation of the GCF. There is no climate justice without sufficient amounts of money available to be distributed. The following questions will help to look further into this:

- What procedures have been/are foreseen to ensure that the desired amount is raised?
    - Are they implemented?
    - Are they adequate?
    - If they are inadequate to raise the money, why are they so weak?
- If current procedures for raising funds are ineffective, are there efforts to change them?

1.2 Research gaps and research questions 2: fair contributions and allocations

This part summarizes relevant literature related to where the funding for the GCF should come from and how it should be distributed. Based on these syntheses, research gaps will be identified. Then the research questions will be formulated which will aim to address those research gaps.

The literature on climate justice and climate finance can be separated into two groups. One group focuses on qualitative assessments, while another group quantifies how much countries should contribute and receive based on climate justice criteria. The first group includes assessments of the UNFCCC using the common but differentiated responsibilities (CBDR) principle (e.g. Salazar, n.d.; Vanderheiden, 2015) or other climate justice principles such as those from the Mary Robinson Foundation for Climate Justice (Sheridan and Jafry, 2018). A brief justice-based assessment of the GCF was done by Hendricks (2017) who focused on three types of justice: distributive, compensatory and procedural (see chapter 2 for more explanation on these types of justice). He concluded that not enough money is going to vulnerable countries and adaptation and that its effectiveness has yet to be determined. Baatz (2018) used three criteria for a justice-based assessment of instruments that could be used to generate adaptation finance. He states that the criteria can also be used for other issues, with some changes. The criteria are fairness, effectiveness and feasibility. He applied the criteria on four instruments including contributions from domestic budgets, which is the instrument used for the GCF. Sayegh (2018) provides a normative framework to answer several questions such as what agents should contribute to climate finance and how much, and what counts

towards the US$ 100 billion target. The framework is based on the principles of historical responsibility and respective capabilities.

The second group involves work done by several authors who proposed mechanisms to determine fair contributions to the GCF (e.g. Cui et al., 2014; Cui and Huang, 2018; Egli and Stünzi, 2019; Sayegh, 2018). Cui et al. (2014) examined how to distribute contributions to the GCF among Annex II countries in a fair manner. They focused on Annex II countries because they have to provide financial and technical support to developing countries according to the UNFCCC. The authors determined what a fair contribution is based on environmental/historical responsibility and economic capacity. Historical emissions were used as an indicator of environmental/historical responsibility (HR), while GDP was used as a measure of a country's economic capacity, also called their respective capabilities (RC). The more historical emissions a country has, and the higher its GDP, the higher its contribution would be. To aggregate those two indicators, they used the preference score compromises (PSC) approach, which will be explained in the methodology section 1.3 together with an example. Their results concluded that the US and the EU are the two largest contributors, with over 80% combined. But the US stopped funding the GCF (Bowman and Minas, 2019). The challenges resulting from that, which included capitalization, governance and guidance, were analysed by Bowman and Minas (2019) and Chai et al. (2017). No other country has declared that it would cover the gap left by the US. There will be an additional 8.8–13.4% increase in the global emissions reduction deficit. The gap in GCF funding will increase by US$ 2 billion and the gap in long-term climate finance is expected to increase by approximately US$ 5 billion a year (Chai et al., 2017).

Cui later expanded this method to include 40 developed countries that had pledged to the GCF and included other schemes besides HR and RC such as UN membership dues, Official Development Assistance (ODA) and the Global Environmental Facility (GEF) (Cui and Huang, 2018). Then they combined the different approaches using the PSC approach. They found that, first, current shares are due to different reasons like voting rights, the coverage of contributors, and the purpose of the fund. Secondly, a combination of HR, UN membership dues, and GEF came the closest to what has happened during the IRM of the GCF. GCF financing relies significantly on contributions from developed countries even when emerging economics are included.

Besides calculating fair contributions, Cui et al. (2014) also determined how to allocate funds among different developing regions: China, India, Central and South America, the Middle East, Other Asian Economies, Africa and the Rest Of the World. Funds are distributed based on needs and efficiency. Half of the funds are distributed based on adaptation needs. Adaptation funds are allocated based on climate damage suffered and GDP. The most vulnerable countries, thus those with more climate damage and lower GDP, should receive more funds. The other half was based on mitigation potential.

Egli and Stünzi (2019) also used historical responsibility and respective capabilities, just as Cui et al. (2014), to calculate fair contributions towards the US$ 100 billion target, but with some differences. Namely, they included a dynamic component that allowed for countries to reduce their contribution to the GCF if they set more ambitious mitigation targets. The component also took into account vulnerability to climate change, so that more vulnerable countries have to contribute less. They included developed country parties (49 countries), but also did the calculations including all parties to the Paris Agreement. They concluded that some European countries had pledged more than what they had calculated. And some countries currently asking for funding would have to contribute rather than receive after 2025.

Sayegh (2017) discussed several principles of climate justice and selected the principles of historical responsibility and capacity (or respective capabilities) to determine the responsibilities of different countries to contribute to climate finance just like Egli and Stünzi (2019) and the two papers from Cui mentioned above. But he used a different approach than Cui to aggregate both principles to determine fair contributions towards the US$ 100 billion

goal. Instead, he used the HR approach for half of that amount and the RC approach for the other half, similar to Egli and Stünzi (2019). The author argued that differentiation should not apply to mitigation, but rather to climate finance. Differentiating in mitigation results in the "development challenge" (which was mentioned in the introduction before) and only setting targets for developed countries like in the Kyoto Protocol is no longer feasible since developing countries are some of the largest emitters.

Antimiani et al. (2017) assumed all Annex I countries, except Russia, would contribute to the GCF and countries' contributions were calculated based on their current amount of CO2 emissions, which is different than the previously mentioned papers, but was also used in a paper by Markandya et al. (2015). To allocate GCF funding to different countries, they used a complex computer model. Distribution of funds is based on GDP, vulnerability and capacity to cope. The authors concluded that, even though there are high costs associated with mitigation, most developing countries would incur even higher costs when doing nothing.

The above-mentioned papers used production-based emissions. Dawkins and Croft (2017) argued that, while emissions occur within national territories, due to growing international trade and widening wealth disparities, it is important to look further than just simple territorial (or production-based) accounting of emissions. He states that consumption-based emissions accounting can offer useful lessons regarding questions of responsibility for emissions and fairness in burden-sharing. Production-based accounting allocates emissions to the country where they occur. This is the basis for international negotiations under the UNFCCC. Consumption-based accounting is the allocation of emissions to where the goods and services, produced by those emissions, are consumed. He found that OECD members' consumption-based emissions are higher than their production-based emissions. It is the opposite for middle-income countries. Consumption-based emissions have increased more rapidly than production-based emissions in high-income countries (Dawkins and Croft, 2017).

Several aspects have not been addressed in the above-mentioned literature:

- Calculations on what would constitute fair contributions have not been done using consumption-based historical emissions;
- No comparison between fair contributions based on production or consumption-based emissions and both pledging phases of the GCF has been done;
- Cui et al. (2014) also calculated how much funds certain regions (China, India, Other Asian Economies, Middle East, Africa, Central and Southern America and the Rest of the World) should receive. So far, those values have not been compared to the GCF;
- Baatz' (2018) justice-based assessment of contributions from domestic budgets, which is the case for the GCF, has not yet been compared to the GCF.

The above-mentioned research gaps will be addressed by answering the following sub-questions:

- In the assessment by Baatz (2018) of the instrument "contributions from domestic budgets: 'Pledge and Review", some interesting conclusions were made that will be looked at whether they apply to the GCF as well:
    - Has funding been significantly affected by changing political situations and thus fluctuated considerably?
    - Is there naming and shaming of those pledging very low amounts (soft enforcement mechanism)? Is the lack of a hard enforcement mechanism problematic?
    - Have wealthy countries made meaningful long-term finance commitments resulting in a predictable flow of funding?

- Does the way of accounting (consumption-based or production-based) make a significant difference in determining the contributions?
- How do the calculated fair contributions compare to the pledges made during the Initial Resource Mobilisation and during the first formal replenishment process of October 2019?
- How are GCF funds distributed? How do they compare to the numbers determined by Cui et al. (2014)?

1.3 Data and Methods

The research questions from section 1.1 mainly address compensatory justice, which is "the provision of resources to a victim of injustice with the goal of minimizing or reversing the impact of harm done by the injustice" (Mullen and Okimoto, 2015, p. 478). This part will be answered by looking through various documents to find relevant information. GCF documents such as Board decisions and GCF policies can be downloaded directly from the GCF website. COP decisions can be found on the UNFCCC website. Other documents such as news articles, reports, etc. will be searched for through Google. This approach will also be used to answer the research questions of section 1.2 regarding the assessment of Baatz (2018).

For the other research questions of section 1.2, more data is needed. The focus will be on developed countries, or as Egli and Stünzi (2019) called it, the Cancun scope (Table 1). The name refers to COP16 in Cancun, where the promise of USD$ 100 billion annually from 2020 onwards, became official. This commitment was made by developed country parties (49 countries) (Egli and Stünzi, 2019).

Table 1. List of developed countries as in Egli and Stünzi (2019).

Albania	Czech Republic	Israel	Monaco	Serbia
Australia	Denmark	Italy	Montenegro	Slovak Republic
Austria	Estonia	Japan	Netherlands	Slovenia
Belarus	Finland	Latvia	New Zealand	Spain
Belgium	France	Liechtenstein	Norway	Sweden
Bosnia and Herzegovina	Germany	Lithuania	Poland	Switzerland
Bulgaria	Greece	Luxembourg	Portugal	Ukraine
Canada	Hungary	Macedonia, FYR	Romania	United Kingdom
Croatia	Iceland	Malta	Russian Federation	United States
Cyprus	Ireland	Moldova	San Marino	

Population data will be obtained from Worldometer (2020). Data on production and consumption-based emissions are obtained from Gütschow et al. (2019) and Moran et al. (2020) and were downloaded from the same website from the file "*national.cba.report.1970.2015.txt*". This data includes all Kyoto greenhouse gases expressed in CO2-equivalent (Gütschow et al., 2019). Data exists for all 49 developed countries and is available from 1990–2016. GDP was obtained from Countryeconomy.com (2020) and the World Bank (n.d.). The total amount of cumulative emissions and GDP of the 49 countries will be calculated. Then the GDP and historical emission shares for each country will be determined. They will be used as the basis to calculate how much each country would finance based on the principles of historical responsibility (HR) and respective capabilities (RC). There is no standard to aggregate those indicators (Sayegh, 2017). Two ways are found in literature: Egli & Stünzi (2019) and Sayegh (2017) attribute an equal weight to them (50 billion based on HR and 50 billion based on RC). Cui et al. (2014) and Cui and Huang (2018) use the preference score compromises approach. Here the final contribution will be calculated using the PSC

approach, as it is deemed to be less arbitrary than just splitting it 50/50. The same will be repeated for production-based emissions for comparison.

The PSC approach works as follows. A country prefers the method (HR or RC) under which it would contribute less. For example, if a country would contribute 5% using HR, but only 4% using RC, then it will prefer RC. A number of votes, corresponding to the population of that country, is assigned to that method. In total, HR receives x% of the votes and RC y% of the votes. If A is the country's contribution (in %) under HR and B is the country's contribution (in %) under RC, then the country's final contribution (FC) is: FC = x*A + y*B. Table 2 shows the results of Cui et al. (2014). Thus in their case, x = 67% and y = 33%. For the EU_27, A = 40.93% and B = 41.36%. Its final contribution FC = 40.93%*0.67 + 41.36%*0.33 = 41.07%. Thus FC will always be between shares based on HR and RC separately, representing a compromise.

Table 2. Burden-sharing based on the PSC approach. Example from Cui et al. (2014).

Region	HR (%)	RC (%)	Votes for HR (million)	Votes for RC (million	Fair share (%)
USA	45.92	37.08	0.00	303.29	42.97
JPN	6.94	13.51	127.65	0.00	9.13
EU_27	40.93	41.36	505.21	0.00	41.07
CAN	3.51	3.37	0.00	33.15	3.46
AUS	1.88	2.31	21.52	0.00	2.02
NWZ	0.22	0.33	4.26	0.00	0.26
SWZ	0.33	1.14	7.66	0.00	0.60
NOR	0.27	0.91	4.75	0.00	0.49
Total	-	-	671.05 (67% of total)	336.44 (33% of total)	100.00

Then those calculated fair contributions will be compared to both pledging phases of the GCF. Contributions of both rounds are available at GCF (n.d. g).

To answer the third research question regarding a fair allocation of resources, a list will be made of every approved project with relevant information. Then the received funds will be summed up according to the regions determined by Cui et al. (2014) and compared to their values. They use two approaches and the allocation shares calculated using the ANIC approach will be used here. AN stands for adaptation needs and countries which are more affected by climate change and have a lower GDP will receive more funds. IC stands for incremental cost and GCF funding pays exactly the mitigation costs of projects and there is no profit for developing countries. The other approach ANCC, where CC stands for carbon reduction contribution, involves more money for countries who mitigate more, and they can profit from this if their abatement costs are lower than the money they receive. Such an approach involving profits for developing countries is unlikely to be politically acceptable for developed countries (Cui et al., 2014).

However, five projects include countries from more than one region. Since it's not clear how the funds will be distributed between the different countries/regions of those projects, their funds will first be allocated to each region based on population. Population data will be obtained from Worldometer (2020). Then the shares will be calculated again without the multiregional projects. Some of the multiregional projects include caps on funding allocation, but only FP086 provides a specific number of allocating GCF funds. It allocates no more than 25% of GCF funds to each country. Its funding proposal can be found on the GCF website (GCF, n.d. i).

While the methodologies of both Cui et al. (2014) and Antimiani et al. (2017) have their drawbacks, the method of Cui et al. (2014) is preferred. Its climate damage is based on actual

data of past events. Though it does not consider sea-level rise, glacier melting, ocean temperature increase and ocean acidification (Harmeling and Eckstein, 2013). Antimiani et al. (2017) use modelling and results thus depend on several variables which can be chosen arbitrarily. This includes a damage function adopted from Bansal et al. (2016). This is modified from the DICE model, which has no empirical or theoretical basis (Pindyck, 2017). Therefore, Cui et al. (2014) is preferred. Currently, no better method is available.

Chapter 2: Climate justice

There is no single definition or climate justice concept. The discourse of climate justice is characterised by a broad variety of concepts. Boran (2018) identifies two different ways of involvement in pursuing justice. There is “climate justice as a social movement” in which civil society and activists focus on social practices and driving changes (section 2.1). On the other hand, there is “climate justice as normative inquiry” in which academics attempt to formulate norms and principles of justice resulting in an increasing amount of work in the field of moral and political philosophy (sections 2.2 and 2.3) (Boran, 2018).

2.1 Environmental and climate justice as movements

This section mentions several important events in the history of climate justice, its movement and its relationship with environmental justice (Schlosberg and Collins, 2014; Widick, 2018).

According to the Mary Robinson Foundation of Climate Justice (MRFCJ) (2013) and Schlosberg and Collins (2014), the term climate justice was supposedly first used in academic literature by Edith Brown Weiss in 1989. Dietz (2014) attributes the origin of the concept of climate justice to a 1999 report by NGO Corpwatch called “Greenhouse Gangsters vs. Climate Justice”. In describing climate justice, they connect climate change with the environmental justice movement and their struggle with the fossil fuel industry (Bruno et al., 1999). Tokar (2018, p. 15) writes that the Corpwatch report is “the first generally acknowledged reference to climate justice”. The report saw climate justice in the following way (Bruno et al., 1999):

- Climate justice is removing the causes of climate change by reducing GHG emissions. While all countries should reduce their emissions, developed countries, given their historical responsibility, should take the lead.
- Climate justice requires that solutions to climate change should not be disproportionally burdensome on vulnerable groups and the transition should be just. Assistance should be provided to communities at risk of climate change impacts.
- Climate justice means holding fossil fuel companies accountable for the important role they play in contributing to global warming, opposing their destruction at every step of the production chain and removing transnational corporations of the power they have over our lives. International organisations should stop funding them.

Corpwatch was actively supporting the environmental justice movement in the US (Tokar, 2018). They “work to foster democratic control over corporations by building grassroots globalization - a diverse movement for human rights, labour rights and environmental justice” (Drainville, 2004, p. 88). In their report, it is stated that “on a global scale, climate change is likely to be the biggest environmental justice issue ever (Bruno et al., 1999, p. 5).

According to Schlosberg and Collins (2014), to understand the development of climate justice, one must be familiar with environmental justice. They also stated that the influence of environmental justice on climate justice is the clearest in grassroots movements (Schlosberg and Collins, 2014). A grassroots movement is a “movement that is started by people at the local level, rather than at the centre of a major political activity” (Wharton School, 2011). It tries to mobilise individuals to take action to influence an outcome, which is often political. (Bergan, 2016).

The origin of the environmental justice movement is generally attributed to protests in 1982 against the dumping of very toxic waste at a landfill in Warren County, North Carolina. This was a poor community where the majority was African-American (Schlosberg and Collins,

2014). Their protests were unsuccessful, but started a national environmental justice movement. Disadvantaged groups (e.g. the poor, minorities) organised against the targeting of their communities by industry to undertake environmentally hazardous activities (Office of Legacy Management, n.d.). Studies into this “environmental racism” followed and in 1987 it was concluded that “race was the most significant factor in siting hazardous waste facilities” (Office of Legacy Management, n.d.; Schlosberg and Collins, 2014). In 1991, African-American, Asian-American, Latino, and Indigenous community activists came together in Washington DC for the First National People of Color Environmental Leadership Summit (Schlosberg and Collins, 2014). This produced a document called “the Principles of Environmental Justice” (Office of Legacy Management, n.d.). The environmental justice movement differed from environmental organisations in their definition of “environment”. The latter considers the environment as the wilderness, areas without people, while the former considers the environment as both the wilderness as areas where people “live, work, and play" (Novotny, 2000). The movement combined environmental concerns with social justice and aimed at “remedying existing and imminent injustice in the distribution of environmental costs, benefits, and conditions on the grounds that all are equal and have equal rights” (Schlosberg and Collins, 2014, p. 3). From the US, it eventually spread to other countries and started to include other topics (Schlosberg and Collins, 2014). An example of this is the creation of the Brazilian Environmental Justice Network in 2001 which focused on more than environmental racism in selecting sites for toxic waste dumps, including land-grabbing and clear-cutting in the Amazon (Carruthers, 2008).

Also in 2001, the Environmental Justice and Climate Change Initiative (EJCCI) was created at the Climate Justice Summit in The Hague, a first key event in the relationship between environmental justice and climate justice. In 2002, they created the document “10 Principles for Just Climate Change Policies in the U.S.”. The fact that an environmental justice organisation defined key principles of climate justice, which were based on the experience of environmental justice groups in the US, was crucial (Schlosberg and Collins, 2014). These ten principles focused on reducing emissions, protecting vulnerable groups, adapting to climate change, a just transition, community participation, global cooperation, abandoning fossil fuels, carbon markets, US leadership, the precautionary principle and impacts on future generations (EJCCI, 2002). Another set of principles was also created in 2002, namely the Bali Principles of climate justice. In these principles, the influence of the US environmental justice movement is obvious (Schlosberg and Collins, 2014). In the document, it is written that these principles were “adopted using the "Environmental Justice Principles" developed at the 1991 People of Color Environmental Justice Leadership Summit, Washington, DC, as a blueprint.”. (International Climate Justice Network, 2002).

The EJCCI resulted in a conference on Environmental Justice and Global Climate Change in March 2004 at the University of Michigan and produced “The Climate Justice Declaration” (Cassegard et al., 2017). The influence of the environmental justice movement is clear once again. The declaration starts as follows: “The Environmental Justice movement and scientific research have demonstrated that pollution's effects fall disproportionately on the health of people of colour, Indigenous Peoples, and low-income communities”. The declaration includes fourteen principles, which were drawn from the “Principles of Environmental Justice”, "10 Principles for Just Climate Policies in the U.S." and the Bali Principles of Climate Justice. They were presented at COP6 in Buenos Aires (University of Michigan, 2004). Just like those principles, they include the protection of vulnerable groups, US leadership, community participation, ecological debt, just transition, the role of the fossil fuel industry and financial institutions, protection of future generations, individual choices and education.

In July 2004, a second key event in the relationship between climate and environmental justice occurred. This was the publication of what Schlosberg and Collins (2014, p. 4) called “a crucial report on the environmental justice impacts of climate change”: “African Americans and

Climate Change: An Unequal Burden" by Congressional Black Caucus Foundation, Inc. (CBCF), a non-profit organisation (CBCF, 2004; Schlosberg and Collins, 2014). They found that African Americans are disproportionally burdened by climate change impacts, that African Americans are the least responsible among US citizens for climate change and that mitigation policies can be beneficial or detrimental for African Americans, depending on how they are designed (CBCF, 2004). The Report states that "unless appropriate actions are taken to mitigate its effects or adapt to them, climate change will worsen existing equity issues within the United States" (CBCF, 2004, p. 2). The first two findings sound very similar to the "double inequity" mentioned in the introduction (Baatz, 2018). Their third finding is reminding of the "yellow vest" protest in France in 2018, which was triggered by a carbon tax on petrol (BBC, 2018). Their statement about equity issues sounds similar to a deepening of global inequality (Worland, 2019). The report shows that climate justice is not only about developing vs developed countries. Climate injustices can also be caused by and affect people within the same country, which can be a developed or a developing one.

In October 2004, The Durban Group for Climate Justice, an "international network of independent organisations, individuals and people's movements who reject the free market approach to climate change", published the Durban Declaration on Carbon Trading (TNI, n.d.; Widick, 2018). This declaration argues that "carbon trading will not contribute to achieving this protection of the Earth's climate" ("The Durban Declaration on Carbon Trading," 2004, p. 1). It says that it will only worsen already existing inequalities. They reject the commodification of natural resources such as water, land, forest and carbon and condemn the Clean Development Mechanism. They consider approaches such as carbon offsetting, carbon trading for forests and agrofuels as false solutions ("The Durban Declaration on Carbon Trading", 2004).

A third key event in the relationship between climate and environmental justice was hurricane Katrina in 2005. The environmental justice movement started to see climate change as another environmental condition that shows the wider social injustice of vulnerable groups such as the poor and minorities. It also helped change focus from local consequences of environmental problems to global consequences. Then, many from the environmental justice community started to see the environment and climate system not just as symptoms of existing inequalities, but as preconditions for achieving social justice. More and more environmental justice organisations were looking at climate change. Some of them saw climate change mitigation as a way to solve other environmental issues too. Adaptation was seen as a way to bring together environmental, climate and social justice and as a chance to address many social justice issues (Schlosberg and Collins, 2014).

In 2007, at COP13, the Climate Justice Now! (CJN!) network was established (Schlosberg and Collins, 2014). Until that time, environmental civil society was represented in the UNFCCC process by the moderate Climate Action Network (CAN). A group of NGO's broke away from CAN because it did not represent southern interests enough and because of its pro-market opinion (MRFCJ, 2013). Just like in the Durban Declaration, CJN! sees market-based solutions as "false solutions" (Widick, 2018).

In 2009, the Climate Justice Action Network (CJAN) formed in the lead-up to COP15 in Copenhagen. It is a network of individuals and groups with an anti-capitalist stance and opposing UNFCCC negotiations. They worked together with CJN! to organise actions of civil disobedience (MRFCJ, 2013). CJAN was behind the organisation of "Klimaforum", also called the People's Climate Summit (Klimaforum09, 2009; Schlosberg and Collins, 2014). This produced the next major statement of the climate justice movement (Schlosberg and Collins, 2014). They listed six demands including the phasing out of fossil fuels, compensation for the victims of climate change, the end of deforestation of primary forests, no market-oriented and technology-centred solutions such as carbon capture and storage or the Clean Development

Mechanism. They also want an equitable carbon tax and democratic and equitable institutions (Klimaforum09, 2009).

Both CJN! and CJAN have similar arguments and show a movement away from the long list of principles presented in the Bali Principle of Climate Justice. Instead, they combined their concerns into four issues: leaving fossil fuels in the ground, funding to the South provided by the North to pay off their ecological debt based on historical responsibility, food and land sovereignty for vulnerable communities including a just and sustainable transition, opposing pure market-based solutions to climate change (Schlosberg and Collins, 2014).

In 2010, President Morales of Bolivia organised the World People's Conference on Climate Change and the Rights of Mother Earth. He was disappointed in the results of COP15 and decided to organise a climate process independent of the UN. The result was the Universal Declaration of Rights of Mother Earth and the Peoples Agreement (MRFCJ, 2013). This declaration differed from those above in the sense that its structure is just like the UNFCCC and similar UN documents with a preamble and articles (1–4). Its focus is more on ecosystems than humans, reminding of the first principle of the Bali Principles for Climate justice and the Environmental Justice Principles. It lays out several rights of Mother Earth and obligations for human beings to Mother Earth ("Universal Declaration of Rights of Mother Earth," 2010). But just like previous declarations and principles, the People Agreement blames the current growth-based economic model for "the submission and destruction of human beings and nature". They also reject so-called market-based "false solutions" and demand that fossil fuels stay in the ground ("PEOPLES AGREEMENT," 2010).

Friends of the Earth International, the world's largest grassroots environmental network, keeps showing strong leadership for the climate justice movement both inside the COPs and across the world (FoEI, n.d.; Widick, 2018). Their focus remains on the same four issues mentioned before (FoEI, 2017). Over the past few years, the climate justice movement has grown fast. There is an increasing and wider recognition that climate change solutions require significant economic change. Recent organisations such as Extinction Rebellion (XR) and Fridays for Future started in the UK and Sweden respectively, but then spread across the world (Molyneux, 2019). Featherstone (2019) argues that "we may be witnessing the first stirrings of a climate movement that's big enough to tackle the coming disaster — and radical enough to name the system responsible for it". Molyneux (2019, p. 39) refers to this as a "new wave of environmental activism and resistance" and at the core of it are Fridays For Future and XR. The publication of the IPCCSR1.5 was a turning point and it had a big impact on public awareness. Strengthened by natural disasters such as wildfires in California and Australia and cyclones in Mozambique, it provided a sense of urgency that was not really there before (Molyneux, 2019).

2.2. Concepts of climate justice

This section explains several types of justice that are relevant to climate change. The first section explains different types of justice. It starts with general types of justice. After that, several other types are explained. The second section explains two concepts that are also important: ecological debt and fairness. These concepts will be valuable for understanding and evaluating the results of this study (chapters three to five).

2.2.1 Concepts of justice

Justice is usually divided into three types and climate justice generally considers the same three types of justice i.e. distributive justice, procedural justice and justice as recognition (Jurjonas et al., 2020; Munk, 2018).

Distributive justice is about how the benefits and burdens of living together are to be distributed among people (Armstrong, 2012). Justice has mostly been defined in terms of a just distribution of social goods (Schlosberg, 2007). There are three important questions when it comes to distributive justice: distribute what, how, and among whom (Meyer and Roser, 2006). Distributive justice relates to entitlements and duties. Entitlements are key interests or needs that people should receive (food, water, housing, etc.). If they do not get it, an injustice has taken place. Duties refer to obligations that we have to do no harm and to provide others with certain goods which they cannot get themselves (Armstrong, 2012). Responsibilities should be allocated in a way that is sensitive to wealth or income inequalities around the world. Those who are richer have an obligation of justice toward those who are less wealthy (Boran, 2018). What entitlements and duties entail exactly, differ between theories of distributive justice. There are also disagreements as to whether it should focus on one society or the whole world (Armstrong, 2012).

Examples of theories of distributive justice are Rawlsian justice, utilitarianism, egalitarianism, sufficientarianism and prioritarianism (Knight, 2014; Meyer and Roser, 2006). According to Rawlsian justice, there are three requirements of distributive justice. First, basic rights should be provided on an equal basis. Secondly, everybody should have the same opportunities to become richer. Thirdly, economic inequalities have to be rearranged to maximise benefits for those worst off (Rawls, 1999). The second requirement corresponds to social justice (Hospers, 1985). Social justice focuses more on just relations between groups within society rather than individuals. It relates to the favouring or punishing of different social groups based on “value judgements regarding historical events, current conditions, and group relations”. Economically, this translates into a redistribution of wealth, income, and economic opportunities from groups that oppress, to those groups who are oppressed (Chappelow, 2019). The concept of social justice originates from the early 19th century during the Industrial Revolution and other civil revolutions that came later in Europe. Social justice aims at creating more egalitarian societies and opposes the capitalistic exploitation of human labour. It initially focused on economics, but later included the environment, race, gender, and other factors causing inequality (Pachamama Alliance, n.d.).

Utilitarianism is about choosing the option that results in the highest utility, meaning selecting the policy that results in the largest amount of good. If of ten people, seven prefer policy A and three prefer policy B, and they get the same utility from their preference, then policy A should be adopted (Nathanson, n.d.). Egalitarianism states that “when persons’ opportunities or life outcomes are unequal in some important respect, we have a reason to lessen that inequality”. This is done by equalizing the distribution of something quantifiable such as income or wealth (Long, n.d.). According to sufficientarianism, everyone doesn't have to have the same, but everyone should have enough. Every individual has to reach a certain level (the threshold of sufficiency) and whether others are above or below this threshold is irrelevant (Meyer and Roser, 2006). In the view of prioritarianism, providing benefits to people matter more the worse off these people are. Benefits are given a weight depending on the welfare of people (Parfit, 1997).

In terms of climate change and what is distributed, it is usually either emission rights or costs that are distributed. Initial literature focused on distributing emission rights based on a carbon budget (Sayegh, 2017). Assuming a safe temperature and thus an amount of emissions left before that temperature would be exceeded, one can create a carbon budget, which can be distributed (Caney, 2011). For example, Neumayer (2000) mentions several ways to do this: equal per capita emissions, equal per capita emissions taking into account historical responsibility and grandfathering. Grandfathering is the view that “prior emissions increase entitlements to future emissions” (Knight, 2013, p. 410). But climate change imposes costs on societies and distributive justice is also concerned with how to distribute those costs (Armstrong, 2012). Sayegh (2017) argues that differentiation should apply to climate finance instead of climate change mitigation. As mentioned in section 1.2, several authors have

calculated what would constitute fair contributions (Cui et al., 2014; Cui and Huang, 2018; Egli and Stünzi, 2019; Sayegh, 2018; Waslander and Vallejos, 2018a). Some of them also tried to answer the question of how much funding should go to different regions (Antimiani et al., 2017; Cui et al., 2014). The principles they used will be explained in section 2.3.

Procedural justice refers to "the fairness of processes used by those in positions of authority to reach specific outcomes or decisions". According to research, when citizens judge the legitimacy of those in power, they are most concerned about procedural fairness (how they are treated), rather than about the outcomes (Bennet et al., 2018). It involves questions such as: who is included in the decision-making process, how is the decision-making power distributed, what is the voting procedure, are vulnerabilities recognised, can communities participate, etc. (Hendriks, 2017). When it comes to climate change negotiations, there is a significant asymmetry in numbers, technical, language and informational capabilities between developed and developing countries. When looking at the number of delegates present during those negotiations, the difference is massive. This limits the ability of developing nations of exerting influence on the decision-making process. Another common procedural injustice mentioned in literature is that decision-making is mostly done at the state level, even though individuals and local communities can also affect or be affected by climate change (Okereke and Charlesworth, 2014).

Justice as recognition addresses the underlying causes of distributive and procedural injustices (Munk, 2018). Young (1990) argues that unjust distributional patterns happen due to certain social, cultural, symbolic, and institutional conditions. It looks at how the reputation of a community or derogatory views held by the government, which is representative of the demographic majority, of that community affects marginalized groups, their struggles and their claims for equity (Jurjonas et al., 2020). Justice as recognition demands recognition of the existence rights of various groups while respecting their differences (Burnham et al., 2013). Recognition and its link to both distributive and to procedural justice are currently under-theorized even though it is the "key to the distributional concern" (Schlosberg, 2007, pp. 11–12).

However, literature includes more than just those three types of justice. Compensatory justice entails "the provision of resources to a victim of injustice with the goal of minimizing or reversing the impact of harm done by the injustice" (Mullen and Okimoto, 2015). It refers to "the extent to which people are fairly compensated for their injuries by those who have injured them" (Velasquez et al., 2014). It deals with the question of whether individuals have duties of compensation for adverse consequences of climate change. Those consequences seen today are due to past emissions and it could be argued that is not fair for present generations to compensate for something in which they did not participate and could not prevent (García-Portela, 2019). Compensatory justice focuses on the victims, while a similar concept, corrective or retributive justice, focuses on the perpetrator. Corrective justice requires that "those who cause a problem have the responsibility to make up for it" (McDonald, 2005, p. 217). It refers to "the extent to which punishments are fair and just" (Velasquez et al., 2014). Corrective justice applies to situations where people do what they should not or do not what they should. Person A has a claim under corrective justice against person B if: (1) the harm to A is due to human actions, (2) person B caused the harm through his/her agency, or is responsible for the harm, (3) A's claim against B is a claim for compensation. Corrective justice does not consider whether person B can pay or whether person A is wealthy. In case person A is very poor, A can be exempted from providing compensation and it can be obtained from elsewhere (McKinnon, 2009). Meyer and Roser (2010) distinguish compensatory from distributive justice in the following way. They start from a baseline just distribution of goods. Then a deviation from this baseline can occur. If this deviation is due to a wrongful act, then it

is about compensatory justice. If the deviation is due to harmful but not wrongful actions (such as a natural disaster), it is about distributive justice (Meyer and Roser, 2010).

While McKinnon (2009) sees them as separate concepts, Khatchadourian (2006) uses the terms compensatory and corrective justice interchangeably. He discusses the two forms of compensatory/corrective justice discussed in Boxill (1979): compensation and reparation. The difference between the two is that compensation can be required in situations where no injustice has taken place, such as in the case of hurricanes or earthquakes. There are limited resources and coveted positions, so competition is needed. Compensation needs to be provided so that competition is fair, and losers are protected. Everyone deserves an equal opportunity. Reparation aims at correcting a prior injustice (Boxill, 1979). In this sense, compensation and reparation sound similar to distributive and compensatory justice as defined by Meyer and Roser (2010).

Intergenerational justice discusses how people should act towards future generations. The costs of emissions now might be paid by future rather than present generations (Armstrong, 2012). Allocating emission rights in accordance with distributive justice does not mean justice is fulfilled. If the total amount of emission rights allocated is too high, it might result in significant damage later so that it would cause future generations harm, reducing their welfare (Vanderheiden, 2008). According to Thompson (2010, p. 6), a society complies with intergenerational justice when “each generation does its fair share to enable members of succeeding generations, both inside and outside its borders, to satisfy their needs, to avoid serious harm and to have the opportunity to enjoy things of value”. But what exactly is a fair share? If we put future generations at risk, we and our immediate successors should act, to do our fair share, to reduce this threat. How much do we need to sacrifice for future generations? What resources do we need to pass on? They should have the same opportunities as us to appreciate and enjoy things that are good and of value, even if people now value different things and future generations might value different things. How far into the future do we have obligations? Is it fair to discount future costs (Thompson, 2010)?

Caney (2014) distinguishes two types of climate justice: burden-sharing justice and harm avoidance justice. The latter is a forward-looking approach, while the former can be both forward and backwards-looking. The former focuses on how to share the burdens among the duty-bearers. Each of them then has to do his fair share. This corresponds to the concept of distributive justice. Harm avoidance justice starts from the need to prevent climate change. It then works back from this to determine who should do what. The focus is to make sure to prevent the worst climate change impacts or minimize them. Harm avoidance justice is concerned about the most effective way to limit the adverse consequences of climate change and based on that, it determines who should do what. Ideally, both justices are the same, but this not always the case (Caney, 2014).

2.2.2 Other concepts relevant to climate justice

Ecological debt is a recurring term in the climate justice movement (see section 2.1). Discussions about ecological debt started around 1990. There is no official definition of this concept (Sebastien, n.d.). Some examples of definitions are given here. Simms et al. (1999, p. 7) define it as “those countries that are using more than their fair share of the climate, and adding more to the damaging effects of global warming, are running up a debt to those countries that are using less than their fair allocation”. Aguillon et al. (2003, p. 13) define ecological debt as “accumulated, historical and current debt, which industrialized Northern countries, their institutions and corporations owe to the peoples and countries of the South for having plundered and used of their natural resources, exploited and impoverished their peoples, and systematically destroyed, devastated and contaminated their natural heritage

and sources of sustenance". Central to those definitions is the inequity between countries, most often between developed and developing countries. Raw materials and other products are exported from poorer countries or regions without compensation for externalities. Richer countries disproportionally use ecological spaces such as the atmosphere. Ecological debt can be a foreign debt (a public debt a country has towards other countries), a private debt (debt by a company) or a generational debt (a debt a nation has towards future generations). The concept is not without controversy. From when should the debt be calculated? Is it just for present generations to pay for the debts of previous ones? If the present generations do not pay, then who should? How do you put a value on the environment? (Sebastien, n.d.).

When applying it to climate change, it is sometimes referred to as "carbon debt": all aspects of ecological debt due to carbon emissions from fossil fuel combustion (Paredis et al., 2007). The carbon debt of a country A is defined as the excess emissions over time above a sustainable level resulting in damage elsewhere and the excess emissions above its equitable share. They distinguish a historical carbon debt (within one generation) and an intergenerational carbon debt (towards future generations) and provide formulas to calculate them (Paredis et al., 2007). Luchsinger and Adams (2009) call it a climate debt. One can distinguish an adaptation debt (related to costs of adapting to climate change dominantly caused by developed countries) and an emissions debt (related to the disproportionally large part of the atmospheric carbon sink developed countries have used) (Luchsinger and Adams, 2009). Khor (2009) calculated the emissions debt assuming that global emissions are reduced by 50% by 2050. The world has 600 Gt of carbon emissions between 1800 and 2050. Emission rights are allocated based on population. Considering past emissions, Annex I countries have a debt of 200 Gt (Khor, 2009).

There are several definitions of fairness that can be used in different situations. It is a normative principle that overlaps with other concepts such as justice, equity, equality, and morality (Suranovic, 2010). While some consider them distinguished concepts (Goldman and Cropanzano, 2015), there is clearly some resemblance between the two and they have been used as synonyms (Velasquez et al., 2014). For example, Dobrin (2012) distinguishes three ideas of fairness. The first idea is "*sameness*". Everything and everyone is equal. This is similar to egalitarianism. Fairness is here defined as equality of outcome. The second idea is "*deservedness*". You get what you deserve, following the desert principle. Fairness is here defined as individual freedom. The third idea is "*need*". People who have more should give something of what they have to help those with less. Fairness is here even defined as social justice (Dobrin, 2012). Suranovic (2010) defines several principles of fairness. *Distributional fairness* refers to "concerns about how wealth or income is distributed within a country or around the world". Fairness here means equality in wealth and income, just as distributive justice. *Non-discrimination fairness* is about equality in actions. In order to be fair, "equals should be treated equally", just as egalitarianism. No one should be discriminated based on gender, race, etc. *Positive Reciprocity* is something that occurs when "an action that has a positive effect upon someone else is reciprocated with an action that has an approximately equal positive effect upon another". If it is not equal, it is unfair. A simple example is wages that match the amount of labour. *Negative Reciprocity* occurs when "an action that has a negative effect upon someone else is reciprocated with an action that has an approximately equal negative effect upon another". If it is not equal, it is unfair. An example is trade retaliation, such as raising tariffs on an imported good to compensate for foreign subsidies on that good (Suranovic, 2010).

According to Baatz (2018), an instrument is considered to be fair if the right person pays. To determine who those agents are, he uses the principles of "polluter pays" (PPP) and "beneficiary pays" (BPP). According to the PPP, countries should pay for their excessive emissions, which he defined as the difference between actual emissions and the global average emissions (Baatz, 2018). Baatz (2018, p. 77) considered it unfair if an agent "had to bear the total remedial burden instead of the fraction of the burden for which they are both causally and morally responsible". However, only using this principle means some aspects of

climate change are not addressed, since past emissions cause damage now. Therefore he uses the BPP, which assumes that countries benefit now from past emissions, which resulted in today's wealth. There is no difference with BPP and another principle, the "ability to pay", at the level of operationalisation (Baatz, 2018).

2.3 Principles of climate justice

This section explains several principles of climate justice. Principles make the types of justice more concrete and help to operationalise them. For example, compensatory justice states that victims of injustice should be compensated (Mullen and Okimoto, 2015; Velasquez et al., 2014). The principle of historical responsibility, which is a principle of compensatory justice, states on what basis that should be done, namely the amount of historical emissions (Sayegh, 2017).

The polluter pays principle (PPP), often referred to as the principle of historical responsibility (HR), distributes the burden of paying proportionately to actual pollution and relates to compensatory justice (Alcaraz et al., 2018; Bretschger, 2013; Sayegh, 2017). The ones who have caused the problem should take care of it, which is usually determined based on historical responsibility (Cameron et al., 2013). However, those who caused current climate change are not alive anymore and one could argue that it is unfair to make people pay for the consequences of actions in which they were not involved nor could prevent. This argument is referred to as the "dead polluters objection" (García-Portela, 2019). García-Portela (2019, p. 593) argues that "individuals should bear the burdens of the atmospheric debt of their states because they also enjoy the benefits of belonging to that state". In the case of climate change, those causing the problem are the rich industrial countries. Brazil was the first to propose this in 1997 (Khan, 2017). Developed countries typically reject strong formulations of the principle of historical responsibility (Bäckstrand and Lövbrand, 2015).

There has been some discussion about from when historical responsibility should be taken into account. The question is whether compensation can be asked for any harm caused when it was unknown that certain actions, emitting GHG in this case, were causing harm (Alcaraz et al., 2018). If not, then 1990 can be chosen as the starting date, because from then onwards, all countries were aware of the issue of climate change. If yes, then 1850 can be chosen because countries have benefited from emissions since then (Sayegh, 2017). Sayegh (2017, p. 357) argues that "we cannot reasonably consider that people were expected to know that their actions were harmful before 1990". This is known as the "excusable ignorance objection" (García-Portela, 2019; Gosseries, 2004). According to Sayegh (2017), 1990 is a stronger starting point for historical responsibility because then countries cannot say that they were unaware of the problem. Another question is whether to use absolute or per capita emissions. When using per capita emissions, it is difficult to break down total global emissions by countries. By using absolute emissions, it is possible to use shares of the total emissions, which are required to be able to assign national responsibilities (Sayegh, 2017). The development of industrialized countries has come with an environmental cost and developing countries want to be able to reach the same stage of development (Mukherjee et al., 2019). This principle of the right to develop is often used by developing countries and relates to distributive justice (Alcaraz et al., 2018). In the UN Declaration on the Right to Development, it states that everybody is "entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized" (UN, n.d. b). Related to this, is the development challenge, which was mentioned in the introduction.

Another principle, the ability to pay or capacity principle (APP), states that countries with a higher ability to pay should reduce their emissions more than poorer countries. In the case of distributing emission rights, the amount of allocated rights should be inversely related to the ability to pay for abatement. In general, income is positively correlated with emissions (Bretschger, 2013). Shue (2014, p. 14) states that "when a party has in the past taken an unfair advantage of others by imposing costs upon them without their consent, those who have been unilaterally put at a disadvantage are entitled to demand that in the future the offending party shoulder burdens that are unequal at least to the extent of the unfair advantage previously taken, in order to restore equality". The APP is a principle of distributive justice (Alcaraz et al., 2018). Friman and Linnér (2008, p. 343) state that the principle of CBDR has "been operationalized more in line with capacity than historical responsibility,…, rather than in line with responsibility, liability, guilt, or debt". According to them, the UNFCCC has mainly used capacity to differentiate responsibilities rather than historical responsibility (Friman and Linnér, 2008). However, the preamble of the UNFCCC recognises that developed countries are responsible for most of the historical emissions (UNFCCC, 1992).

Related to this is the beneficiary pays principle (BPP). This says that the costs of climate change should be distributed based on how much one has benefited from past emissions (Caney, 2018). It is a principle of compensatory justice (Baatz, 2013). According to the principle, the wealthy would pay and there is little to no difference between the BPP and the APP at the level of operationalisation (Alcaraz et al., 2018; Baatz, 2018). The conceptual difference between ATP and BPP is that the BPP takes into account the causal link between harms and benefits, while ATP does not (Baatz, 2013).

Several principles focus on needs. The principle of guaranteed minimum states that "those who have less than enough for a decent human life should be given enough resources and means for living decently" (Grasso, 2018, p. 257). This is similar to the first requirement of distributive justice mentioned in section 2.2.1 (Rawls, 1999). According to the Rawlsian justice principle, "the underprivileged should be favoured in dividing costs or benefits" (Metz, 2000, p. 113). According to the principle of basic needs or the priority principle, rights to survival emissions should first be allocated and what remains should be distributed to the benefit of those least well off (Metz, 2000; Okereke, 2010). The desert principle looks at factors that would justify higher individual claims (Bretschger, 2013). According to the principle, desert is a relation between three elements: subject S deserves something M (money, jobs, etc.) because of B (effort, performance) (Celello, n.d.). To support a desert-claim, two conditions have to be fulfilled. S has to be responsible for B and B has to be of value. Some also say that people deserve compensation for adverse situations when they are not responsible for them (Moriarty, 2018). Needs can also be considered to be a desert base (McLeod, 1996).

According to Okereke (2010), there are several distinct, but overlapping equity principles that occur often in literature and policy debates and he interprets them as a burden-sharing rule. The principle of mutual advantage states that benefits and burdens should be allocated in a way that benefits all parties. The principles of basic needs and historical responsibilities were already explained above (Okereke, 2010). The egalitarian principle states that everyone has an equal right to atmospheric resources (Bretschger, 2013). This means that emissions per capita would be the same in every country (Alcaraz et al., 2018). The principle of grandfathering was very briefly mentioned in section 2.2.1. It is also known as the proportionality or sovereignty principle (Cameron et al., 2013; van den Berg et al., 2019). Caney (2009) states that this principle is the one most used as a distributive criterion. He defines it as 1) "the fair share of emissions for any actor should be a function of its past share of emissions" and 2) "the emission rights should be handed out free of charge to these actors" (Caney, 2009, p. 127). Thus, grandfathering distributes a large amount of emission rights to

those who emitted a lot in the past and little to those who emitted a small amount (Meyer and Roser, 2006). This is in contrast with the principle of historical responsibility. In the Kyoto protocol, obligations to reduce emissions were only established for Annex I countries, while developing countries had no legal obligations to do so (Luchsinger and Adams, 2009). This distinction has not been without contention. Particularly the US has opposed any waiving of burden for developing nations (Okereke, 2010). The criterion used to determine emission reductions was based on the principle of grandfathering, meaning that mitigation obligations were determined as a percentage of their current emissions. This means that higher emitters received more emissions rights. This would disadvantage developing nations, but since they were excluded, this was not contested (Shukla, 2019).

Tomlinson (2011) discussed several principles of procedural justice. The all affected principle (AAP) states that those who are affected by the outcome of a decision-making process need to be able to participate in that process. The all-inclusive principle states that all individuals should be represented. But this is highly unfeasible. Another alternative is the sufficiently affected principle, which states that those who are significantly affected, should be able to participate. This could be done by using human rights as a baseline criterion (Tomlinson, 2011). The all subjected principle states that "everyone who is subject to the laws should be allowed to participate in making them" (Karlsson, 2006, p. 23). The principle of proportionality states that "power should be distributed in proportion to people's stakes in the decision under consideration (Brighouse and Fleurbaey, 2010, p. 137). It accounts for the fact that everyone is affected to a different extent. The all coerced principle states that "decision-making processes should include all those who will be coerced by the outcomes of the decisions that are made" (Tomlinson, 2011).

Leventhal (1980) defined six procedural justice rules which allocative procedures have to follow to be fair: consistency, the ability to suppress bias, decision quality or accuracy, correctability, representation, and ethicality. Consistency is about whether treatment remains the same in time and for all people (Leventhal, 1980). The ability to suppress bias is about being able to prevent favouritism or other external biases. Decision quality or accuracy refers to whether a procedure can produce objective solutions. Correctability refers to whether one can modify and reverse decisions. Representation is about whether affected parties are involved in decision-making (Tyler, 1988). Ethicality refers to the extent to which the decision-making process is in line with common standards of fairness and morality (Leventhal, 1980).

2.4 Summary

Section 2.1 shows that climate justice is not a concept limited to academics or UNFCCC negotiations, but that regular citizens also have their ideas about what is just and what should be done to achieve climate justice. When reading principles established by climate justice movements, it seems they are less concrete compared to academic literature. While both are strongly connected, and climate justice movements often refer indirectly to academic concepts, the latter are better operationalised and are more easily used when doing an assessment. For example, principle seven of the Bali Principles of Climate Justice: "Climate Justice calls for the recognition of a principle of ecological debt that industrialized governments and transnational corporations owe the rest of the world as a result of their appropriation of the planet's capacity to absorb greenhouse gases" (International Climate Justice Network, 2002). This relates to compensatory justice and the principle of historical responsibility. But it is not specified what exactly the debt is and how that debt would have to be paid off. Academics make it more concrete by using past emissions from a specific starting date and use it as a basis for determining fair financial contributions. The movement also differs from the academic circle by not questioning the obligations of present towards future generations.

For this thesis, distributive and compensatory justice are the most important ones. Part one mainly addresses compensatory justice. Whether funding is sufficient and predictable is also important. Sufficiency can be determined by looking at pledges and disbursed funds and compare them to estimates of the required amount. Predictability can be evaluated by looking at how funds are raised and what potential points of contention are. Several other principles will be used to assess the procedure of raising funds and whether some decisions were in line with such principles or not. Part two will address both distributive and compensatory justice. Distributive justice will be operationalised through the principle of ability to pay. GDP will be used as an indicator of a country's ability to pay. Compensatory justice will be operationalised through the principle of historical responsibility. As an indicator of how much a country is responsible, past greenhouse gas emissions will be uses from 1990 onwards. By using this year, the "excusable ignorance objection" is avoided. By using past emissions, this is also a way of taking into account the carbon debt owed by developed countries to developing ones. By combining the principles of historical responsibility and ability to pay, the concept of fairness as defined by Baatz (2018) is operationalised.

Chapter 3: Raising funds

This first section starts with a brief overview of existing climate funds. Given the large costs of tackling climate change, the international community addressed climate finance early on. In article 4 paragraph 3 of the UNFCCC, it states: “The developed country Parties and other developed Parties included in Annex II shall provide new and additional financial resources to meet the agreed full costs incurred by developing country Parties in complying with their obligations…” (UNFCCC, 1992, pp. 13–14). Several climate funds have been established since then: the Global Environmental Facility, Adaptation Fund, Special Climate Change Fund, Least Developed Countries Fund, REDD+ programme, Clean Technology Fund and the Strategic Climate Fund (Conservation International, n.d.). This section states when they were created, their main goal, how much money they have raised and how much money they currently have.

Numbers for climate finance from developed to developing countries for the years 2011–2017 are also provided. Next, the basic structure of the GCF is explained and its most relevant actors. The GCF itself is only one aspect of the whole process and acts as a nexus to actors involved in climate finance. Lastly, as the GCF was established at COP15, an overview of COPs 15–25 is given and any mentions of justice-related concepts and decisions related to the GCF (UNFCCC, 2009).

3.1 Climate finance

The Global Environmental Facility (GEF) was created in 1991 to deal with the planet’s most urgent environmental issues (Conservation International, n.d.; UNEP, n.d.). Funds are provided for developing countries and countries with economies in transition to help them in complying with international environmental conventions and agreements (UNEP, n.d.). For climate change, it mainly focuses on mitigation (Thompson, 2016). It does not deal exclusively with climate change, but also other topics such as biodiversity and chemicals (GEF, n.d. a). Table 3 shows it has received US$ 19.86 billion, and US$ 4.89 more in pledges, and as of May 22nd 2020, its balance was US$ 5.64 billion (GEF, n.d. a; World Bank, 2020a). It manages the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF), which were established in 2001 (NDC Partnership, 2019; UNFCCC, n.d. a, n.d. b). The SCCF funds projects relating to adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification (UNFCCC, n.d. b). Table 3 shows it has raised US$ 0.35 billion and as of May 22nd 2020, its balance was US$ 0.07 billion (World Bank, 2019a). The LDCF helps LDC’s in preparing and implementing National Adaptation Programmes of Action or NAPAs (UNFCCC, n.d. c). Table 3 shows it has raised US$ 1.58 billion and as of May 22nd 2020, its balance was US$ 0.71 billion (World Bank, 2020b). The GEF, SCCF and LDCF are funded by countries that make pledges and contributions (World Bank, 2019b, 2019c, 2019a). The Adaptation Fund (AF) was established under the Kyoto Protocol in 2001 (UNFCCC, n.d. a). It provides funds for adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are vulnerable to climate change impacts. It is funded by a share of the revenue from the Clean Development Mechanism and also receives pledges from countries (Mead, 2018; UNFCCC, n.d. d). Table 3 shows it has raised US$ 0.98 billion and as of May 22nd 2020, its balance was US$ 0.51 billion (World Bank, 2020c). Credits from the CDM and Joint Implementation mechanism are also bought by the World Bank through their Carbon Financing Unit on behalf of public and private sector entities (Horton and Fry, 2011). The World Bank itself has two Climate Investment Funds: the Clean Technology Fund (CTF) provides funding to invest in

clean technology projects in developing countries. Table 3 shows it has raised US$ 5.68 billion and as of May 22nd 2020, its balance was US$ 2.61 billion (World Bank, 2020d). And the Strategic Climate Fund (SCF) aims "to pilot innovative approaches or to scale up activities aimed at specific climate change challenges or sectoral responses" (World Bank, 2020e). Table 3 shows it has raised US$ 2.75 billion and as of May 22nd 2020, its balance was US$ 1.35 billion (World Bank, 2020e). Both are funded by national contributions (World Bank, 2020e, 2020d). These two funds were supposed to be temporary and include a "sunset clause", which would close the funds when implemented. However, the decision on how to implement it has been postponed indefinitely (Bretton Woods Project, 2019). One more climate-related fund is the REDD+ programme, established in 2008. Its goal is to "reduce forest emissions and enhance carbon stocks in forests while contributing to national sustainable development" (UN, n.d. c.). Table 3 shows it has raised US$ 0.32 billion and as of May 2020, its balance was US$ 0.026 billion (UN, 2020a). The most recent climate fund, the GCF, received pledges of US$ 20.1 billion (GCF, n.d. g). It so far has received US$ 9.78 billion and its balance, as of May 22nd 2020, was US$ 7.25 billion (World Bank, 2020f).

Table 3. Climate funds (Bretton Woods Project, 2019; GCF, n.d. g; GEF, n.d. b; Thompson, 2016; UN, 2020a; UNFCCC, n.d. a; World Bank, 2020c, 2020d; World Bank, 2020a, 2020f, 2020b, 2020g; World Bank, 2020e).

Name	Established in	Total (USD billion)	Current balance (USD billion)
Global Environmental Facility	1991	19.86/24.75 (1991–2022)	5.64 (22/05/2020)
Special Climate Change Fund	2001	0.35 (2001–2020)	0.07 (22/05/2020)
Least Developed Countries Fund	2001	1.58 (2001–2019)	0.71 (22/05/2020)
Adaptation Fund	2001	0.98 (2001–2020)	0.51 (22/05/2020)
Clean Technology Fund	2008	5.68 (2008–2020)	2.61 (22/05/2020)
Strategic Climate Fund	2008	2.75 (2008–2020)	1.38 (22/05/2020)
REDD+ programme	2008	0.32 (2008–2020)	0.026 (May 2020)
Green Climate Fund	2010	9.78/20.1 (2010–2023)	7.25 (22/05/2020)

The funds that already existed before the GCF are either not exclusive for climate change (GEF), are supposed to be temporary (SCF, CTF), are only for one specific area (REDD+) or have only received low amounts of funding (SCCF, LDCF, AF). At COP9 in Copenhagen, it was decided that a new fund would be established, purely dedicated to climate change and at a much larger scale than other funds (GCF, n.d. a; UNFCCC, 2009). The GCF was established to "support projects, programme, policies and other activities in developing countries related to mitigation (including REDD-plus), adaptation, capacity building, technology development and transfer" (UNFCCC, 2009, p. 7).

Figure 1 shows the amount of climate finance that flowed from developed to developing countries as reported by the OECD from 2013 to 2017. For 2015, the OECD report a data gap due to changes in methodology in tracking private finance. Therefore the total amounts before and after 2015 cannot be directly compared (OECD, 2019). The numbers for multilateral funding are shown separately, though are also included in the numbers shown for public and total climate finance. The figure shows that finance through multilateral climate funds has only accounted for a very small share. Public climate finance slowly increased, but accelerated between 2016 and 2017, resulting in an overall increase of 42.5% from 2013 to 2017. Private finance increased by 50% from 2016 to 2017. Overall climate finance increased significantly by 20% in one year from 2016 to 2017.

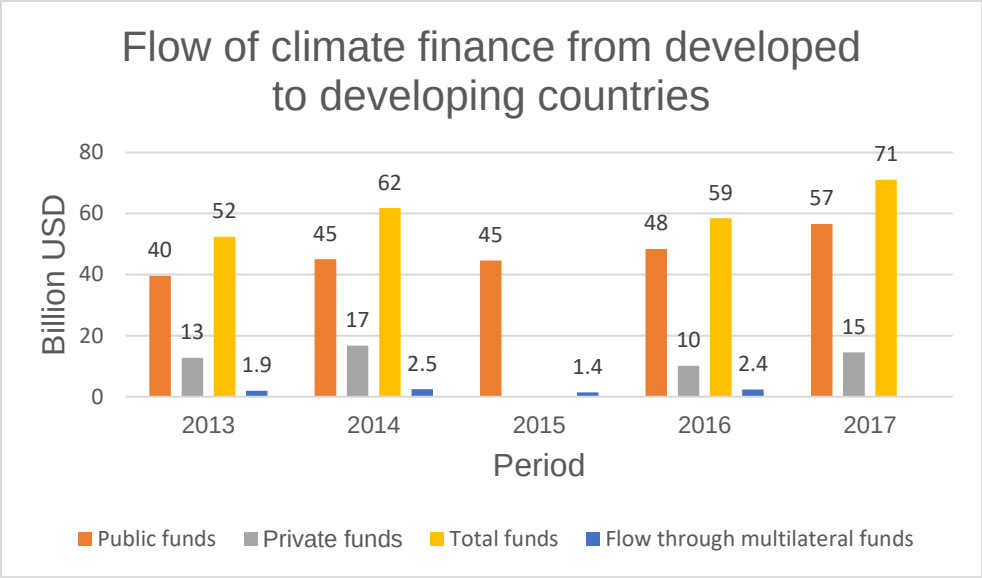


Figure 1. Time series of climate finance flow from developed to developing countries (OECD, 2019; UNFCCC, 2016a, 2018b).

In the "Roadmap to US$100 Billion", public climate finance was projected to be US$ 67 billion by 2020. Levels of mobilised private finance by developing countries will depend on a) the number of projects with a direct private finance mobilisation potential and b) the co-financing ratio. The OECD made fifteen scenarios with varying values for a) and b). Six of them resulted in total climate finance over US$ 100 billion varying from US$ 105–133 billion ("Roadmap to US$100 Billion," 2016).

However, a critical assessment by Oxfam reports much lower numbers for public climate finance. For 2013–2014, they found US$ 11–21 billion (Carty et al., 2016). For 2015–2016, Oxfam reports numbers of US$ 16–21 billion (Carty and Le Comte, 2018). According to Oxfam, the number is lower because the OECD overstates the climate relevance of projects and counts the nominal values of loans rather than its grant-equivalent (GE) (Carty et al., 2016). GE is defined as the amount advanced minus the discounted repayments (DFID, 2019). Oxfam estimates do not count non-concessional instruments. For the 2020 projection, Oxfam estimates range from US$ 18–34 billion (Carty et al., 2016).

3.2 Basic structure of the GCF process

This section provides a brief overview of the workings of the GCF and the actors involved to improve the readers' understanding of the GCF. More details can be found on the GCF website. It starts with a short mention of the donor entities, which will be the main focus of chapters four and five. Then it will explain the governance structure of the GCF followed by accredited entities and National Designated Authorities (NDAs).

3.2.1 Donor entities

The GCF accepts contributions from public, non-public and alternative sources. These include developed and developing countries party to the UNFCCC, countries not party to the UNFCCC, entities, and foundations (GCF, n.d. g). At the Initial Resource Mobilisation (IRM), 36 developed countries, nine developing countries, three regions (Flanders, Wallonia and Brussels) and one city (Paris) made pledges. All of them, except Peru and Vietnam confirmed their pledges (GCF, n.d. j). At the first replenishment round (GCF-1), 27 developed and two

developing countries made pledges. Only thirteen countries have confirmed their pledge or part of it (GCF, n.d. k).

3.2.2 The GCF

The GCF consists of a board and a secretariat. The secretariat is responsible for the day-to-day management of the fund. It serves and is accountable to the board. It is headed by an executive director and consists of several offices and divisions (GCF, n.d. b). The Board is independent and guided by the COP (GCF, n.d. c). It has to submit a report to the COP every year (GCF, 2011). It is responsible for the governance and oversight of the GCF's management and usually meets three times a year (GCF, n.d. c, n.d. h). It is responsible for funding decisions. The Board consists of twelve members from developing and twelve from developed countries. A member is on the Board for three years, which can be extended. Two co-chairs head the board, one from a developed and one from a developing country (GCF, 2011). Its method of decision-making was consensus until July 2019, when it was decided that decisions could be made with an 80% majority, though consensus remains preferred (Saur News Bureau, 2019). During their meetings, four active observers are present: two from civil society (one each from developing and developed countries) and two from the private sector (one each from developing and developed countries). The World Bank serves as the trustee of the fund. Its functions are: "the receipt, holding and investment of financial contributions from contributors, transfer of financial resources pursuant to instruction by GCF, and preparation of summary financial reports" (GCF, n.d. d).

The board receives an assessment and advice on funding proposals from the Independent Technical Advisory Panel (ITAP). This is an independent technical advisory body that is accountable to the Board (GCF watch, n.d.).

3.2.3 Accredited entities

Access to the fund can only be obtained by accredited entities (AEs) (GCF, 2011). They can be private or public, non-governmental, subnational, national, regional or international. The process of accreditation aims to determine if they are capable of "strong financial management and of safeguarding funded projects and programmes". They have to meet the GCF's standards regarding environmental and social safeguards, and gender. They develop, in cooperation with countries, and submit funding proposals. They are responsible for the oversight of the management and implementation of projects and programmes (GCF, n.d. e).

There are two types of AEs: direct access entities (DAEs) and international access entities (IAEs). DAEs can be subnational, national or regional. They need to be nominated by National Designated Authorities (NDAs). They can receive GCF readiness support to enhance their capacities. They can also apply for Enhanced Direct Access. In that case, funding decisions and project oversight take place at the national or regional level using pre-approved selection criteria. Instead of focusing on one project, DAEs can now manage multiple projects simultaneously. The funding proposal should include a description of the objectives, type, sector, size, and geographic locations of potential sub-projects (GCF, 2019b). So far, two projects have been approved under EDA (GCF, n.d. l). IAEs can be UN agencies, multilateral development banks, international financial institutions and regional institutions (GCF, n.d. e). AEs can also be private entities. The private sector can also work together with an AE without being accredited itself (GCF, 2019c). Accredited entities are not always the direct implementer of funding proposals. This can also be done by an executing entity on behalf of the accredited entity (GCF, n.d. h).

3.2.4 NDAs

NDAs form the connection between the GCF and the recipient country. They provide oversight of the GCF's activities in the country and communicate the country's financing priorities regarding low-emission and climate-resilient development (GCF, n.d. f). They have to make sure that proposals submitted to GCF are in line with the country's national sustainable development objectives, climate change strategies, and climate adaptation and mitigation action plans. It is responsible for implementing the No-Objection Procedure (GCF Philippines, 2019). This means that every project proposal has to be approved by the NDA (GCF, 2014a). It also gathers public, private and civil society stakeholders for consultations to determine priority sectors for funding (GCF Philippines, 2019).

3.3 Chronology of the GCF

This section provides a chronological overview of the evolution of the GCF. The overview focuses on aspects that are relevant for the mobilisation of resources. It discusses policies and discussions that occurred during Board meetings. For each period, there is also information on the COPs related to climate justice and the GCF. This paints a picture of how the current procedures came to be and what some contentious issues were.

3.3.1 Early years of the GCF (2009–2012)

Besides deciding to establish the GCF in 2009 at COP15 in Copenhagen, it was also decided that the developed countries would commit to a goal of mobilising jointly US$ 100 billion a year by 2020 to help developing countries with tackling climate change. It was US Secretary of State Hillary Clinton who came up with the number of US$ 100 billion a year that developed countries would have to provide to support developing nations in their efforts for mitigation and adaptation (Sayegh, 2018). The negotiations at COP15 were breaking down, and there was increasing pressure from developing nations for the developed countries to provide funding for handling the climate change issue, which developed nations are mostly responsible for (Roberts and Weikmans, 2016). The Copenhagen Accord specifically states that "scaled-up, new and additional, predictable and adequate funding as well as improved access shall be provided to developing countries, in accordance with the relevant provisions of the Convention, to enable and support enhanced action on mitigation, including substantial finance to reduce emissions from deforestation and forest degradation (REDD-plus), adaptation" (UNFCCC, 2009, pp. 6–7). The funds would come from many sources: public and private, bilateral and multilateral. It was stated that a significant amount of adaptation funding should flow through the GCF. No numbers regarding the previous two phrases are given. Funding for adaptation will be prioritised for the most vulnerable developing countries (SIDS, LDCs and Africa). The Copenhagen Accord does not explicitly mention any specific principle of climate justice besides the CBDR principle. Long-term action to combat climate change would be based on equity and with sustainable development in mind. It acknowledges that peak emissions will be reached later by developing countries compared to developed countries and that the former priorities are economic development and poverty eradication. They should be given incentives to develop on a low-emission pathway (UNFCCC, 2009).

The GCF was formally established a year later at COP16 in Cancun (GCF, n.d. a; UNFCCC, 2010). It became the second operating entity of the Financial Mechanism of the Convention (UNFCCC) next to the Global Environmental Facility ("Climate Finance in the negotiations", n.d.). It was decided that a Transitional Committee (TC) would design the Green Climate Fund. It consisted of 40 members, 15 members from developed country Parties and 25 members from developing country Parties (seven from Africa; seven from Asia; seven from the Group of

Latin America and the Caribbean; two from SIDS and two from LDCs) (UNFCCC, 2010). At COP16, developing nations proposed that the richer countries commit 1.5% of their annual GDP (Hanley, 2019). But the northern delegations refused to set such ambitious targets, and also refused to accept wording implying that most of the fund's money should directly come from the governments (Hanley, 2019). COP16 repeated much of what was said at COP15. It mentioned the CBDR+RC principle and equity. It states that developed country Parties should show leadership regarding mitigation and providing resources to developing countries. Adaptation should be given the same weight as mitigation. The COP requested the mobilisation and provision of scaled-up, new, additional, adequate and predictable financial resources. Parties should act fast while keeping in mind the concept of equity (UNFCCC, 2010). The COP confirmed that Parties, notably developing ones, who would carry a disproportionate burden "should be given full consideration" (UNFCCC, 2010, p. 4). The Cancun Agreement mentions historical responsibility on page eight: "acknowledging that the largest share of historical global emissions of greenhouse gases originated in developed countries and that, owing to this historical responsibility, developed country Parties must take the lead in combating climate change and the adverse effects thereof". The text recognises the commitment of US$ 100 billion annually by 2020 and agrees that funds may come from various sources. It was decided that a significant share of adaptation funding should flow through the GCF. It was decided that the GCF will be governed by a Board consisting of 24 members, twelve from developed and twelve from developing countries. The financial assets of the GCF shall be managed by a trustee, which will also maintain and report financial records and statements. It will be accountable to the GCF Board. The World Bank will serve as interim trustee, which will be reviewed three years after operationalisation of the GCF. The GCF will be supported by an independent secretariat. In the section regarding the establishment of the GCF, there is no explicit mention of any justice-related concepts, equity or CBDR+RC and no numbers of how much funds should come from who and from which sources are mentioned (UNFCCC, 2010).

At COP16 a report by the High-level Advisory Group on Climate Change Financing was presented (UN, 2010). They concluded that meeting the US$ 100 billion goal is "challenging but feasible" (UN, 2010, p. 3). They identified four groups of funding sources: public sources, development banks, carbon markets and private capital. There was no agreement on the role of public and private finance. Some saw public finance as the main source, while others stressed that private finance would be the main source, arguing that the private sector already plays an important role in climate-relevant sectors and that it is more predictable and easier to scale up. However, the report states that it was not the goal of finding an agreed formula on what should count towards the goal and what should not (UN, 2010). Direct budget contributions are expected to play a key role. Domestically based instruments have the advantage of political acceptability and flexibility. The political acceptability over the longer term will depend on national circumstances and the size of the contribution (UN, 2010).

The work of the TC, supported by members from the UNFCCC secretariat, UN agencies, international financial institutions, multilateral development banks and the GEF, eventually led to a draft governing instrument for the GCF (UNFCCC, 2011b). This was adopted at COP17 in Durban. The governing instrument states that "The Fund will receive financial inputs from developed country Parties to the Convention" and "The Fund may also receive financial inputs from a variety of other sources, public and private, including alternative sources" (GCF, 2011, p. 9). It does not say anything about how much should come from which source or what type of financial instruments can be used. It does not present a process for resource mobilisation (GCF, 2013a). At COP17, no agreement was reached on how to raise the funds and how much should flow through the GCF (Deutsche Klimafinanzierung, 2011; UNFCCC, 2011a, 2011c). It

reaffirmed previous statements such as that action will be taken based on equity and in line with the CBDR+RC principle and the goal of US$ 100 billion per year by 2020. It also stated that developing countries are already contributing to mitigation, but it depends on the provision of finance and that their share of global emissions will continue to grow. The GCF was designated as an operating entity of the financial mechanism of the Convention and that it is accountable and under the guidance of the COP. The Fund will be guided by the principles and provisions of the UNFCCC. Guidance will be provided by the COP to the Board about policies, programming and eligibility criteria and other matters (UNFCCC, 2011a). The governing instrument states that the Board will take the necessary action to follow the guidance from the COP and submit annual reports (GCF, 2011). The COP requested the Board to operationalise the GCF faster, to develop the no-objection procedure for NDAs to ensure alignment with national climate strategies and plans, to establish the necessary policies and procedures to enable an early and adequate replenishment process and to balance funding between mitigation and adaptation. It "invited" Parties to make financial contributions for the operationalisation of the Green Climate Fund. The GCF was given juridical personality through COP decision 3/CP.17 (UNFCCC, 2011a). The typical properties of international juridical personality of an international fund are a) the right to negotiate and finalize international agreements or treaties, b) the right to file international claims and appear before international courts or tribunals and c) the right to maintain bilateral diplomatic relations with states and other international actors (Legal Response Initiative, 2011).

At COP18 in Doha, the decision by the GCF Board to select the Republic of Korea as the host nation of the GCF was endorsed and work on arrangements defining the working relationship between the GCF and the COP started (GCF, 2013b; UNFCCC, 2012a). COP18 reiterated statements from previous COPs, e.g. that action should be taken based on equity and common but differentiated responsibilities and respective capabilities. It called on the Board to accelerate the implementation of its work plan, policies, etc. (UNFCCC, 2012b). It "takes note with appreciation" of the first annual report provided by the GCF Board to the COP (UNFCCC, 2012b, p. 28). The decision was taken to provide initial guidance to the GCF at COP19. It requested the GCF board to report on progress and steps taking towards the requests made in decision 3/CP.17. The COP expressed its appreciation of and welcomed contributions made by various countries to the GCF's administrative budget (UNFCCC, 2012b).

A work programme on long-term climate finance was presented. The need for clarification regarding how developed countries will raise the US$ 100 billion per year by 2020 was emphasised. The report highlighted the need for timely funding for the GCF, including via an early and sufficient replenishment process. Developed country contributions could be voluntary or based on an assessment such as done by developing nations who suggested contributions of 1.5% of GDP. No single source of financing was identified that could generate the required amount of resources and they conclude that a combination of sources will be required. Suggested sources included national budgets, taxes on international financial transactions, emission reduction units, emission trading in the maritime and aviation sector. There was an increasing agreement that multiple financing sources are required. Combining resources can be developed around different principles, such as economic efficiency, and could address equity concerns (UNFCCC, 2012c).

3.3.2 Developing a procedure for raising funds (2013)

In February 2013, the Secretariat presented a document about resource mobilisation, based on an analysis of other funds including the GEF and the CIFs. The CIFs depended on ad hoc contributions. The GEF changed from ad hoc contributions to formal replenishment processes. Another option used was a replenishment process, taking into account burden-sharing.

According to the Secretariat, the benefits of ad hoc contributions are flexibility and faster resource mobilisation. But long-term planning would be difficult and terms of agreements with different contributors could differ significantly. The advantages of a periodic replenishment process are increased certainty and uniformity in terms of agreements with contributors. However, it could take longer than ad hoc contributions (GCF, 2013a).

The Secretariat also made notes about burden-sharing. The CIF does not consider any burden-sharing at all. However, only donors that contributed at least a certain minimum amount are allowed to be in the CIF governing bodies. The GEF does use burden-sharing to determine contributions during replenishment processes. Burden-sharing is mostly based on what was agreed in earlier replenishments. In the GEF, only donor countries that contributed at least a certain minimum amount are allowed to participate in the replenishment process. The GEF allows for contributors to defer commitments to the extent that other contributors fail to fulfil their commitments, to ensure burden-sharing. The Secretariat asked the Board to consider whether to: (i) set a minimum requirement for contributions, (ii) a goal of a minimum total amount of contributions, (iii) set contributions based on burden-sharing and which criteria to use (GCF, 2013a).

The Secretariat presented three options to the board: (i) ad hoc contributions, (ii) starting with ad hoc contributions and changing to a periodic replenishment process and (iii) a periodic replenishment process. The document also discussed contribution size and in which form contributions can be made. While accepting multiple forms has the potential to mobilise more resources, it could result in more fragmentation and additional financial risk. Of the different possibilities, grants provide the most flexibility because they can be used to produce any financial output (loans, grants, etc.). Another aspect that has to be determined which could influence the mobilisation of resources, is earmarking, meaning whether contributors could determine to which funding window their money would go. The GEF does not allow this, while the CIFs do to some extent. The Secretariat states that earmarking could mobilise more resources, but that it could lead to fragmentation and limited flexibility (GCF, 2013a).

The document was presented during the 3rd Board meeting in March 2013. The need for adequacy and predictability of funding was emphasised. Some board members preferred option two, while some preferred option three. Some highlighted the need for a fair burden-sharing between contributors. Some board members stated that earmarking should not be allowed, while others wanted flexibility. Some emphasised the need for additional sources of funding outside of developed country Parties. One board member wanted that the voting right of the contributors would be based on their contributions. Voting rules had not yet been adopted (GCF, 2013c).

The Secretariat also prepared a document related to financial inputs. It discussed different types of instruments: grants, (non-)concessional loans, capital contributions, bonds and carbon credits. Again they looked at other funds such as the CIFs, GEF, Global Fund and also multilateral development banks. The main idea is that the type of financial inputs determines the type of funding the GCF can provide. There are two types of financial inputs: ones that have no claim over the assets of the Fund (i.e. grants), and those that have some claim by the provider over the assets of the Fund (e.g. loans). Loans require repayments and thus create a need for projects with a sufficient return (GCF, 2013d). Grants allow for the highest flexibility since there is no need to give money back to the contributor, but this would require a more frequent replenishment (GCF, 2013a, 2013d).

During its 5th Board meeting in October 2013, the Board decided that “the Fund’s resource mobilisation process will commence through an initial resource mobilisation process as soon as possible and transition subsequently to a formal replenishment process” (GCF, 2013e, p.

29). It would thus follow option (ii) presented by the Secretariat earlier (GCF, 2013a). The Board requested the Secretariat to make arrangements with interested contributors (GCF, 2013e). It decided that it should work first on making the fund operational to receive, manage, programme and disburse funding. During the same meeting, it was decided that the Fund will keep its flexibility to accept financial inputs on an on-going basis (GCF, 2013e). Several board members had emphasised the need for a variety of inputs. While the civil society organisation (CSO observer stressed that it should focus only on grants first (GCF, 2013d). It was decided that the GCF will "receive grants from public and private sources, and paid-in capital contributions and concessional loans from public sources, and may receive additional types of inputs at a later stage to be decided by the Board" (GCF, 2013e, p. 8). During the Board meeting, incentives for governments were discussed. Contributors need to be able to stress the added value of the Fund to show to their citizens. This is necessary for the approval of funding within domestic contexts (GCF, 2013e). There was a demand for clarity on how to raise the money, on the timeline for resource mobilisation and to start the process as soon as possible. Some board members felt that the sense of urgency was not sufficiently seen in the adopted decision. One board member wanted a reference to fair burden-sharing and suggested that the first mobilisation should be in the order of US$ billions. Another board member wanted the GCF policies on the formal replenishment process to include a system for indicative burden-sharing. The CSO observer stated that there should be an official target of the amount of mobilised resources. She stressed the obligation of developed countries to contribute and lead and the GCF should be different from other multilateral funds as this was part of the reason her constituency supported the establishment of the GCF (GCF, 2013e).

At COP19 in Warsaw (November 2013), developed countries were asked to allocate a significant portion of their US$ 100 billion per year commitment through the GCF. Every developing country is eligible for funding from the GCF (Caribbean Community Climate Change Centre, 2013). The Green Climate Fund (GCF) continued significantly unfunded, lacking even meaningful pledges (Ahmad, 2013). The resource mobilisation process had not started yet. At the fifth Board meeting in October 2013, it was decided that there were eight essential requirements, such as administrative policies, to be fulfilled before the Fund could receive funding. The full requirements can be found in Annex XXII of GCF (2013b). These were not fulfilled yet at the time of COP19, therefore no large pledges had then been made (GCF, 2014b). By June 30, 2013, pledges to the GCF amounted to US$ 9 million. US$ 7.55 of it had been received. Funding decisions made accounted for US$ 8.43 million and were meant for the Fund's administrative budget to support its activities (GCF, 2013f). Decisions of COP19 do not mention equity or the CBDR-RC principle. They highlight the urgency of implementing financial commitment and the importance of clarity on the level of financial support and recognise the US$ 100 billion target. It urges developed country Parties to continue to mobilise increasing levels of public climate finance and to use a significant share of it for adaptation activities of the GCF. The COP stressed the need to operationalise the GCF and urges the Board to accelerate its implementation. It urges the Board to finalize the requirements to receive and disburse funds. It calls for ambitious and timely contributions from developed countries. It underlines the need for the IRM to reach a significant scale to reflect the needs of developing countries. It invites financial inputs from all sources. It requested the GCF Board to balance mitigation and adaptation, to use a country-driven approach and to consider the needs of particularly vulnerable countries when allocating adaptation funding. The arrangements between the COP and the UNFCCC, which were developed by the GCF Board and the Standing Committee on Finance, were agreed. The GCF is accountable to and functions under the guidance of the COP, the GCF has to take actions based on that guidance, but has full responsibility for funding decisions. The GCF has to submit annual reports to the COP about its progress. The COP will assess the amount of needed funds to support developing countries

and the GCF has to inform the COP on resource mobilisation and the amount of available resources (UNFCCC, 2013).

3.3.3 Starting the Initial Resource Mobilisation (IRM) process (2014)

At the 7th Board meeting in May 2014, it was decided that everything was in place to start the IRM process and that the IRM process would start. The aim was to receive pledges by November 2014, with the possibility of extending the IRM period. It was decided that all interested contributors would be engaged through several meetings. When designing policies for contributions, the Board would take into account recommendations from interested contributors during the first meeting (GCF, 2014b). The Secretariat had proposed that only public contributors who intended to contribute at least US$ 5 million, could participate in those meetings and that other potential contributors could be invited as observers (GCF, 2014c). This was not included in the final arrangements adopted by the Board (GCF, 2014b).

Two meetings took place between the 7th and 8th Board meeting. A first meeting happened in Oslo between 24 developed and developing countries who were interested in making contributions, and observers (co-Chairs of the Board, four representatives of the Board (two developed/two developing), two active observers of the Board (one civil society/one private sector) and the Executive Director of the Secretariat). Participants highlighted the need to consider experiences from other funds, the need to engage several types of contributors besides developed country Parties such as the private sector and philanthropic institutions and the importance of showing leadership by the usual contributors. Regarding earmarking, participants agreed to remove a suggested banning of earmarking/targeting, while recognising the need for balance between increasing contributions and contribution conditionality. Some of them noted that only a minor share should be allowed to be targeted, while some preferred a major share. They also agreed on the need for mechanisms to ensure that pledges will be fulfilled and to provide incentives following through with pledges (GCF, 2014d). Several participants highlighted the need to clarify the link between contributions and votes, such as the UK and the US (GCF, 2014d; Raman, 2014a). Some stressed the need for more clarity on the Fund's scale and size, and how it relates to the US$ 100 billion commitment made at Copenhagen and Cancun (GCF, 2014d). The board members from Chile, Indonesia, Mexico, South Africa and India stressed the need for a number regarding the size of the fund. But no target or scale of ambitions was determined, despite persistent calls from developing countries and civil society. Developed country representatives argued that they did not have the political mandate to provide numbers (Raman, 2014a).

A second meeting took place in Bonn, Germany. They agreed that "decision-making is key to the ability of the Fund to mobilise resources and to function in an efficient manner" (GCF, 2014d, p. 10). While they agreed that consensus should remain the preferred option, the uncertainty about how to proceed in case this is not possible, impacts pledging according to the participants. They highlighted the need for a link between contributions and decision-making to incentivize more countries, including developing countries, to make higher contributions. Observers had doubts about linking voting to contributions (GCF, 2014d). The feared it might lead to too much influence in decision-making by contributors. According to the US, there was "an expectation by those who contribute that they will have a say in decision-making". According to Norway, decision-making linked to contributions was important and can provide an incentive for contributions. Developing nations were concerned that pledges might become conditioned on whether voting would be linked to contributions. The board member of Cuba strongly objected to such a link. He said that "voting should not be linked to monetary concerns but must respond to the principle of equality" (Raman, 2014b). While the majority opposed earmarking, they thought that limited and flexible targeting would help to increase

contributions (GCF, 2014d). Proponents included the UK, US and Norway among others. Other such as Sweden, Finland, the Netherlands, Denmark and Germany were more cautious (Raman, 2014b). The interested contributors recommended to the Bard that targeting would be allowed, but it should not be more than 20% of the total confirmed contributions to the Fund (GCF, 2014d). Some observers found targeting unacceptable, as did the representatives of Zambia and Cuba (GCF, 2014d; Raman, 2014b). Some participants mentioned the commitment to the US$ 100 billion per year by 2020 and that how much of that should flow through the GCF is unclear. Several observers wanted the Fund to set an ambitious target and timescale to raise resources. They highlighted the importance of predictability and certainty in funds for developing countries (GCF, 2014d). The Board member of Cuba stressed the need to determine a minimum amount on the scale of resources that should flow through the GCF to improve predictability and clarity. However, again no numbers were provided. The delegate from Norway reiterated that all developed countries are still committed to meeting the US100 billion target as climate finance (by 2020). The delegate stated that it is not clear how much of this should go to the GCF. According to him, this depends on the Fund's efficiency and he hoped that the pledges to the GCF would lead to significant amount (Raman, 2014b). No mention was made of burden-sharing in GCF (2014d).

A "Proposal for the Policies for Contributions to the Green Climate Fund" was discussed during the Board's 8th Board meeting in October 2014. Despite a significant momentum for pledges, the GCF remained far below expectations and had not reached the needed scale. A board member highlighted the responsibility of developed countries to reach the goal of US$ 100 billion. Another board member shared this concern and stated that the current pledges were only 2% of the US$ 100 billion goal and only one-seventh of the goal of the G77 to raise US$ 15 billion during the IRM and stressed that a mind shift was needed. Another board member stated that developing countries had waited 20 years for the Fund and that pledges had not reached the scale required. Two contentious issues were decision-making and earmarking (GCF, 2014f). Interested contributors saw decision-making as "key" to the GCF's ability to raise resources and that linking decision-making with contributions would provide a good incentive for making contributions (GCF, 2014e, 2014f). Several members were concerned with linking decision-making to contributions. They were worried that this would allow some members to force conditions on other board members. Other members thought that it should be linked to provide incentives to interested contributors to make pledges. One board member suggested the right to vote to be linked to the size of the country, population or stage of development and vulnerability" (GCF, 2014f). Earmarking was not directly mentioned in the draft, but was implied: "contributors may request that their contributions be targeted to the Fund's two windows (mitigation and adaptation) and the Private Sector Facility. The aggregate volume of targeted contributions to the Fund will not exceed 20% of the total confirmed contributions to the Fund" (GCF, 2014e, p. 11). This was unacceptable for some board members and the opinion was that it politicizes the Fund by favouring particular countries or projects. Several other Board members supported the idea of a targeting country cap. The Fund could not accept pledges or enter into contribution agreements until a policy is adopted by the Board (GCF, 2014f).

During the Board meeting, the Board adopted the document "Policies for contribution to the Green Climate Fund for the Initial Resource Mobilisation". It is nearly identical to the draft drawn by the interested contributors. Key differences are that paragraphs about decision-making, trustee arrangements and targeting were excluded (GCF, 2014e, 2014g). It was decided that contributors would pledge contributions at a formal IRM pledging session, but that they would also be able to pledge contributions throughout the IRM period (2015–2018). The GCF would be able to allocate funds when 50% of pledges were converted to contribution agreement/arrangements received by the Secretariat. Potential contributors include both

parties and non-parties to the Convention, private and public entities and philanthropic organisations. Contributions could be made as grants from public and private sources, paid-in capital and concessional loans from public sources. Additional funding can also come from for example revenue from GCF investments and reflows from out-going loans. The first formal replenishment process would be triggered once the amount of approved funding is higher than 60% of the total confirmed contributions (GCF, 2014g). Funds are invested by the World Bank in a portfolio, which includes for example government bonds, with an investment horizon of one year (GCF, 2016a). Investment horizon is "the total length of time that an investor expects to hold a security or a portfolio" (Chen, 2020).

The Board decided that they will try to maximise grant contributions and that the size of grant contributions has to significantly higher than that of loans. For the total received contributions of all contributors, loans should not exceed 20% of the total. Though those percentages were preliminary. Contributions can be paid in cash or by the deposit of promissory notes (GCF, 2014g). The latter is a type of financial instrument that includes a written promise by one party (the contributor) to pay another party (the GCF). In this case, the encashment of promissory notes is done on demand (Barone, 2020; GCF, 2014g). An encashment schedule is agreed between the contributor and the Secretariat, but should not exceed nine years (2023 by the latest) (GCF, 2014g). This type of instrument usually does not include recourse mechanisms if payment is delayed (Barone, 2020). There is no minimum or maximum requirement for the size of contributions. Contributors are not obliged to fulfil their pledges at a specific time, but are "encouraged to fulfil their pledges as early as possible". Contributions are accepted/confirmed/formalized through contribution agreements, signed by the contributor, (interim) trustee and the Fund just like other multilateral funds (GCF, 2014g). These agreements are legally binding (Climate Analytics, 2015). The standard provisions applicable to the contributions to the Green Climate Fund include a provision in the case of disputes. Paragraphs 9.1 states that "The Fund, the Trustee and the Contributors shall, to the extent possible, strive to resolve and settle promptly and amicably questions of interpretation and application of a Contribution Agreement and any disputes, controversy or claims arising out of or relating to any Contribution Agreement." In case that fails, paragraph 9.2 states that the dispute will be settled using the dispute resolution mechanism from the contribution agreement if there is one (GCF, 2019d). 22 contributors (e.g. Belgium page 6 and Austria page 7) included a dispute resolution mechanism in their contribution agreement, namely the Arbitration Rules 2012 of Permanent Court of Arbitrations following the. There will be three arbitrators and the language of the arbitral proceedings shall be English. The decision will be final and binding and will be implemented without delay. The Netherlands (page 6) and Canada (page 9) included: "Any dispute, controversy or claim arising out of this Contribution Arrangement between the signatories will be settled by negotiation or other mutually accepted mode of settlement". For most, such arbitration would take place in Seoul, South Korea, though for Hungary, Luxembourg and Poland the place of arbitration is The Hague in the Netherlands and for France and Germany, it is Paris, France. All contribution agreements can be found at GCF (n.d. j). According to the PCA rules of 2012, it is advised to select arbitrators with a different nationality than the nationality of the parties. One party appoints one arbitrator and those two will appoint the third one. They have to disclose any information that would indicate they cannot be impartial or independent. An arbitrator can be challenged by a party, but a party cannot file a claim against an arbitrator regarding any acts regarding the arbitration. A party can plea that the arbitral tribunal does not have jurisdiction. The contributor could also file counterclaims against the GCF. Hearings are held in private unless otherwise agreed by the parties. A decision has to be made by a majority of arbitrators, thus two in this case. The decision can be made public if agreed by all parties or if legally required by a party. A settlement can be reached before a decision is made. The costs of arbitration are in principle for the losing

party, but can be divided among parties if deemed reasonable by the arbitral tribunal (PCA, 2012).

The policy also contains a section related to the risk of non-payment of contributions. This is the risk that (i) “pledges are not converted into signed agreements/arrangements to provide contributions and/or loans” and (ii) “instalment payments under signed agreements/ arrangements are not paid on time” (GCF, 2014g, p. 11). It lists several options of incentive/enforcement used in other funds. 1) Reducing voting shares by amounts in overdue payments (arrears), but this would need a decision-making structure based on contribution amounts. 2) Linking representation to actual contributions, but this is difficult to do in practice because Board members often represent a constituency rather than just one country. 3) Deferral provisions: contributors could restrict the use of some of their contributions if other contributors are behind their payments. This burden-sharing approach and has not been effective in other funds and can negatively impact recipient countries. 4) Reporting of received contributions and amounts in arrears so that other actors can apply moral suasion. 5) Active follow-up and lobbying efforts, which could be the only effective way to guarantee timely payments under a voluntary contribution scheme. The policy also lists the characteristics of voluntary and burden-shared funding approaches used in other funds. Voluntary pledges are based on individual interest/capacity. If it is on an ad hoc basis (e.g. CIFs, AF), it can result in programming uncertainty. If it is via replenishment cycles (e.g. Global Fund), there is greater certainty and predictability for programming and the cycles can be adjusted to budgetary cycles of contributors. Burden-sharing on an ad hoc basis is not used. Via replenishment cycles (e.g. GEF), it provides greater certainty and predictability for programming and greater planning certainty for contributors. Contributions are based on a certain measure such as past contributions, with some flexibility. However, it can create a structural funding gap if the contributors’ shares do not amount to 100% (GCF, 2014g).

On November 20th 2014, representatives of 28 governments/interested contributors met in Berlin for the High-Level Pledging Conference. Before the Conference, pledges of the IRM amounted to almost US$ 3 billion. This increased during the Conference to US$ 9.3 billion. This was the largest amount ever raised for a dedicated climate fund within such a short timeframe. Pledges later that year increased the number to US$ 10.2 billion (GCF, 2015a). However, by September 2015 this had been reduced to US$ 9.1 billion due to foreign exchange rate fluctuations. A strategy to minimize this risk would be developed later (GCF, 2015b).

At COP20 in Lima (December 2014), the COP welcomed the pledges to the GCF and recognises the US$ 100 billion goal. It welcomes the successful and timely IRM process of the GCF, making it the largest dedicated climate fund. It requests the GCF to make sure that resource mobilisation efforts are in line with the ambitions of the Fund and calls for contributions by other developed country Parties and other sources. It urges the Green Climate Fund, the Interim Trustee, and contributors to sign contribution agreements as fast as possible. It requests the Board of the GCF to finalize policies and procedures to accept contributions from private and alternative sources (UNFCCC, 2014a). The COP decision text only repeated what was decided at Cancun (Fuhr et al., 2014). Developed countries refused to accept interim targets toward the $ 100 billion a year, which should be mobilised by 2020. Pledges to the GCF were made before and during the COP resulting in a total of over USD$ 10 billion (c2es, 2014). At COP20, Parties drafted a negotiation text, from which eventually the Paris Agreement would result (Klein et al., 2017). It states that Parties “should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with historical responsibility, common but differentiated responsibilities” (UNFCCC, 2014a, p. 6). Low-carbon economies and societies should be achieved on the same principles, taking into account the historical responsibility of developed country Parties and

their leadership and the economic status of developing countries (UNFCCC, 2014a). The principle of historical responsibilities is mentioned several times in the text. It states that "Parties with the greatest responsibility and highest capability" have to show leadership, notably developed countries. It is also mentioned that developed countries have to provide financial support to developing countries in line with their historical responsibility. In the finance section, there is an optional paragraph stating the need for "adequacy and predictability in the flows of funds and the need for clarity of appropriate burden-sharing among developed countries" (UNFCCC, 2014a, p. 9). There is also an optional section about the GCF. This states that Annex I Parties/Developed country Parties have to provide 1% of their GDP per year from 2020 to the GCF, that Annex II Parties have to establish a list of funding amounts in line with the required share of climate finance to flow through the GCF. All countries that are able to should provide funding to the GCF and funding to the GCF should mainly come from public sources. There is also an option to base the provision of finance on a floor of US$ 100 billion per year. This would be based on a burden-sharing approach between Annex II Parties and a roadmap with short-term quantified goals. It could be based on an agreed formula to calculate contributions of Annex I Parties and differentiated developing country contributions based on GDP or other indicators. The text also mentions that a short-term collective quantified financing goal for the post-2020 period should be determined to improve the predictability of climate finance, and it should indicate specific levels of public sources to be provided. Regarding sources of finance, there are two options. One states that public sources are the primary source of finance, while the other one states that funding would come from a variety of sources. Decisions taken during COP20 mention once again the CBDR-RC principle, but not equity (except in the draft text) (UNFCCC, 2014a).

3.3.4 Formalizing pledges and the Paris Agreement (2015)

During the 9th Board meeting (March 2015), one Board member wanted reassurances that there would be no earmarking in contribution agreements. Another Board member noted that pledges remained far from the annual US$ 100 billion goal by 2020 (GCF, 2015c). At that time, only US$ 135 million was signed (1.3% of the pledges) (GCF, 2015d). Several Board members stressed the constraints of domestic processes (USA, UK, Australia, Netherlands). One Board member expressed its understanding of that, but one CSO observer stated that many believed that the funds were already available and could not understand the political constraints. During the meeting, it was agreed to make contribution agreements public for reasons of transparency (GCF, 2015c). By 30 April 2015, 19 countries had signed contribution agreements amounting to around US$ 3.97 billion (42.5% of the pledges). The Fund became effective on May 21st. Funds would be received from contributors from 2015 onwards until and including 2023 (GCF, 2015d). During the 10th Board meeting, several points were raised: the gap between available funding and proposed projects, was there any earmarking in the contribution agreements, are there any penalties for failing to pay on time, is there a way to enforce the commitment to pay following the encashment schedule. Regarding earmarking, a Board member referred to letters between the UK and secretariat which, according to that member, suggested earmarking for the private sector. But this has no legal standing and all agreements were respecting GCF policies. The risk of contributors not meeting payments is included in the Risk Dashboard, which shows the risk categories considered, including one of funding. Four types of funding-related risk were identified: 1) conversion: failure to convert pledges into contributions fast enough, 2) encashment: delay in expected payments, 3) reflow: delay in expected reflows to the Fund from the project portfolio and 4) concentration: lack of diversity in the portfolio of contributors. What to do in case of such risks, was not yet determined. One Board member noted that signing contribution agreements was a complex process determined by domestic

processes. One Board member stressed the need for a clear trigger for replenishment to secure continuous funding (GCF, 2015e).

By the 11th Board meeting (November 2015), 14 countries had not yet fully signed their contribution agreements, several of them were waiting for governmental approval (GCF, 2015f, 2015b). Several noted certain constraints related to domestic budgetary and parliamentary processes. The Secretariat proposed new ways of raising more funding: a) annual pledging conferences for all public sector contributors (developed, developing countries and subnational entities), b) pledging conferences for non-public sector contributors and c) accept contributions from individuals. The issue of earmarking was mentioned once again by Board members. The Secretariat confirmed that there was no earmarking (GCF, 2015f). The Secretariat also presented a proposed replenishment process. The GCF could be replenished every three years. The Secretariat states that its proposal incorporates many characteristics of best international practice used by other funds. They expect the process to take two years. The document notes the commitment of industrialized nations to raise US$ 100 billion annually by 2020. It states that the replenishment process has to provide significant, adequate and predictable funds to achieve the ambitious objectives of the GCF. The main source of funding is expected to come from the public sector. There would be two or three consultation meetings, followed by a pledging conference. The latter will take place after the replenishment has been triggered. There is some confusion about when that is, so two options are presented: one is using the 60% trigger, the other one is to trigger it in June 2017 even if the 60% was not reached (GCF, 2015g). The first option would show that more than half of the contributions had been committed, but could endanger a smooth transition from the IRM into the replenishment period. The second option would provide more predictability (GCF, 2015f). According to the proposed timeline, consultation meetings would take place from 2016 to 2017 ending with a pledging session in October 2017. The contribution agreements/arrangements would be finalized in 2018 (GCF, 2015g).

Board members agreed on the need for a formal replenishment process and the necessity of predictability. Several said that more work on the process and more clarity on the trigger was required. Two Board members stated that while ideas could be taken from the IRM and other funds, these should not be replicated and the GCF should be unique and transformative. Several Board members said that it would be difficult to get approval for additional funding in this early stage of the GCF. They stressed the need to develop political support for future replenishment, which would only be possible when the success of the GCF could be demonstrated. Contributor countries emphasised the need for a formal mid-term review of the GCF on results and impacts or else it would be hard to initiate a successful replenishment. Some Board members thought it was too soon to discuss the replenishment process. One member was disappointed with the seemingly supply-driven operation of the GCF rather than needs-driven. The CSO active observer requested more predictability and a specific overall target (GCF, 2015f). No agreement was reached (GCF, 2016b).

In December 2015 at COP21 in Paris, it was decided to extend the goal of 100 billion USD a year until 2025 and to increase it after 2025 (Neier et al., 2018). Unlike the draft text at COP20, there is no explicit mention of historical responsibilities or burden-sharing in the Paris Agreement. The preamble mentions intergenerational equity regarding action that Parties take to tackle climate change. They should “respect, promote and consider their respective obligations on …. intergenerational equity”. The right to development should also be considered. The preamble also notes the importance for some of the concept of “climate justice”, when taking action to address climate change” (UNFCCC, 2015a, p. 21). However, words such as noting, emphasising and recognising found in the preamble have no legal meaning (Kolhatkar, 2015). A big difference with the Kyoto Protocol is that developing

countries also have legal obligations to reduce emissions. Developed countries still have to take the lead and article 4 mentions the differences in national circumstances (UNFCCC, 2015a). The mentioning of the 1.5°C target is positive from a climate justice perspective, but it lacks an effective way to achieve this and it seems that target has been given up on, which seems unjust (RLS, 2016). Indigenous people's organisations called it a “trade accord”. The Global Campaign to Demand Climate Justice called it “unfair” and “absolutely unacceptable” (RLS, 2016).

The Parties reiterated the importance of adequate and predictable funding. They encouraged support for and reiterate inviting public, private, bilateral, multilateral and alternative sources (UNFCCC, 2015a). The COP welcomed the pledges to the GCF, and progress made towards the US$ 100 billion goal. It urges developed countries to keep providing a significant share of public funding to adaptation, to achieve a better balance between mitigation and adaptation. The COP urged Parties to confirm their pledges and requested the Board of the GCF to finalize arrangements for the first formal replenishment process. COP21 reaffirms statements made in previous COPs (UNFCC, 2015b).

The Board of the Green Climate Fund took its first funding decisions in 2015, allocating USD 168 million to eight projects (public and private), making the Green Climate Fund fully operational (UNFCCC, 2015b). Thus, 2016 was the GCF’s first full year of operations (GCF, n.d. a). By December 2015, pledges amounted to US$ 10.3 billion. However, due to foreign exchange variations, it would be reduced to US$ 8.7 billion if it would be converted at that time (GCF, 2016c). If it would be converted in May 2016, it would be US$ 9.0 billion (GCF, 2016a). If converted in November 2016, it would be US$ 8.2 billion (GCF, 2016d). If converted in February 2017, it would be US$ 8.5 billion and so on. A strategy would be proposed in 2017 (GCF, 2017a). The net foreign exchange loss by the end of 2015 was US$ 2.8 million (GCF, 2016a).

3.3.5 Conditions on contributions and the Roadmap to US$100 Billion (2016)

At the 12th Board meeting (March 2016), it was decided that payments as part of the IRM, could be paid up until and including 2020, extending the IRM to 2020 (GCF, 2016e, 2018a). This includes a contribution agreement of Spain, which also includes a condition that the contributions will be provided only if the Board will approve at least four projects per year (GCF, 2016c, 2016e). While normally no conditions are accepted, this condition is due to Spain’s own legislative requirements (GCF, 2016c). The Spanish administration had to show that the GCF was active to get approval for disbursing funds to the GCF. Some Board members were unsure about the implications of that since the Board had decided not to use earmarking or conditionality. The CSO active observer stated that civil society was opposed to any conditions on contributions and that this should not be seen as a precedent (GCF, 2016e). As of May 2016, 42 state governments have pledged to the Green Climate Fund, including nine developing countries. US$ 9.9 billion had been signed so far (GCF, 2016a).

Interaction between the GCF and UN thematic bodies had so far focused on information exchange (GCF, 2016f). At the 13th Board meeting, the GCF decided to hold annual meetings during COPs (GCF, 2016g). At COP22 in Marrakech, the GCF presented its progress during its first side-event at a COP. The focus was on providing support to countries to enable them to apply for GCF funding (GCF, 2016h). Just before the COP, developed countries had released a roadmap showing how they aim to meet the goal of mobilising $ 100 billion a year by 2020 (Caribbean Community Climate Change Centre, 2016). 38 countries and the European Commission were involved, with consulting developing nations. This document presents several actions that they intend to take to achieve the goal of raising US$ 100 billion annually from 2020 onwards: 1) increasing public resources, 2) considerably increasing

finance for adaptation, 3) using public finance together with policy interventions to better mobilise private finance and 4) providing support for enhanced access, capacity building, and investment readiness ("Roadmap to US$100 Billion," 2016). In the document it is stated that " the US$100 billion goal will be reached through a combination of existing pledges and announcements, in addition to increased efforts to mobilise finance from a range of sources" ("Roadmap to US$100 Billion," 2016, p. 10). The COP urged Parties, that made pledges during the initial resource mobilisation process of the GCF but did not yet confirm them by signing contribution arrangements or agreements to do so very soon. It reiterated its request to the Board to agree on the arrangements for the first formal replenishment process of the GCF (UNFCCC, 2016b). Discussions on the process of the replenishment process had started in 2013 and continued into 2017 (GCF, 2017b, 2016i).

3.3.6 Risks and replenishment (2017)

By March 2017, signed pledges amounted to US$ 10.1 billion (GCF, 2017a). During the 16th Board meeting (April), a Board member stated that the European Investment Bank (EIB) is a role model for the GCF regarding combining funding sources, blending public and private financing and mobilising private sector finance (GCF, 2017c). It was "everything they hoped that the GCF would become" (GCF, 2017c, p. 58). During the 17th Board meeting (July), a revised risk register which includes the types of risk, risk tolerance, mitigation measures and key indicators was adopted. It includes concerns about foreign exchange rate fluctuations and delayed payment of contributions. Mentioned mitigation measures for the former include monitoring of the risk by the Secretariat, conversion of cash received to one of GCF's holding currencies, FX hedging, and continuous monitoring of the resulting FX position. Mentioned mitigation measures for the latter include monitoring and evaluation of the status of resources and reaching out to contributors (GCF, 2017d). During the 18th Board meeting (September), it was stated that there were many political considerations that would affect when replenishment negotiations would start (but this was not elaborated upon). According to one Board member, if the trigger was not reached, the Board could not discuss replenishment. There was still confusion on the trigger (GCF, 2017e).

The USA signed their contribution arrangement, which also included a letter to ask for a minimum allocation of its funds to the PSF (GCF, 2017f). The arrangement states that the US "intends to make available to the Trust Fund for the benefit of the Fund the sum of three billion United States Dollars (USD 3,000,000,000), subject to the availability of funds", that "upon signature of this Contribution Arrangement, the Contributor will make available to the Trust Fund for the benefit of the Fund the sum of five hundred million United States Dollars" and that "any further intended contributions may be made through amendments to this Contribution Arrangement or a subsequent arrangement, subject to the availability of funds to the Contributor" (GCF, 2017f, pp. 2–3).

At COP23 in Bonn, there were concerns from developing countries was that developed countries were not close to delivering the promised $ 100bn per year in climate finance by 2020 (Timperley, 2017). The COP welcomed the progress of developed country Parties regarding the goal of raising US$ 100 billion a year by 2020 and recalls the commitment to that goal to address the needs of developing countries. The COP urged developed countries to keep scaling up mobilised climate finance and to channel much of public funds to adaptation and aim for a balance between mitigation and adaptation in climate finance. The COP requested Parties to further enhance their enabling environments and policy frameworks to enable an easier mobilisation of climate finance. The COP "encourages" the GCF Board to launch the first replenishment process (UNFCCC, 2017).

3.3.7 Preparing the first formal replenishment process (2018)

During the 19th Board meeting (February), several Board members highlighted that current requests from countries amounted to US$ 23 billion. One Board member stated that replenishment should be based on country needs and national circumstances. Several Board members emphasised the importance of determining the needs of developing countries and that they were fully represented during the replenishment process. It was accepted that funding would never meet demand and the Board should not be too concerned about providing a specific funding amount (GCF, 2018b). One Board member stated that replenishment was vital to SIDS and that they, as many vulnerable countries, "had not contributed to the greenhouse gas emissions that were causing global warming" (GCF, 2018b, p. 29). Several Board members said that the GCF should draw lessons from other funds and that its replenishment process should be unique. Some suggested that a consultancy firm would do a study to estimate the amount needed trough replenishment based on a set of criteria that would be determined by the Board. Then the GCF could give governments an idea of what a reasonable amount of funding would be. Some supported this proposal, while others opposed it, saying that the Secretariat would be better placed. Another Board member said that the Board does not have the competence to decide about how much a country should contribute and that is a sovereign matter to be decided by national parliaments. Another Board member stated that existing and potential contributor countries would require justifications to show to their parliaments while GCF was still at an early stage in being able to provide quantifiable evidence on the ground. Eventually, it was decided that the Co-chairs would oversee the preparation of necessary arrangements for the replenishment, with the support of the Secretariat and in consultation with Board members (GCF, 2018b). The first informal consultations took place on 6 May 2018 (GCF, 2018c). By May 2018, the signed amount was US$ 10.2 billion from 45 countries/regions/cities (± US$ 9.1 billion using the exchange rate of end of April) and around US$ 6.1 billion (using the exchange rate of 31/03/2018) had been received (GCF, 2018d).

During the 19th Board meeting, the Funding Risk policy was adopted, which addressed funding risks such as delayed payments of contributions and foreign exchange rate fluctuations. The GCF will undertake the required actions to ensure the predictability of its resources. Such actions include for example diversifying sources of contributions and managing the cancellation or postponement of contribution commitments. The risk will be monitored e.g. through total contributions received, total unpaid and unencashed contributions and their concentration levels by contributing country. If there is such a risk, a plan will be made. Regarding FX risk, received payments will be held in holding currencies and contributions in non-holding currencies will be converted into holding currencies on receipt of funds at a proportion based on expected future cash outflows. Investment commitments will be matched to sources of funding in the same currency, with currency conversion if needed. For matched sources of funds that are not available in cash and are in a different currency (such as promissory notes), the Fund sets an FX commitment risk buffer of 20% aside, not to support single projects which might suffer losses from FX fluctuation, but to reduce the risk of solvency issues. The 20% refers to 20% of the Fund's nominal investment commitment amount for which the source of funds is in a different currency (GCF, 2018b). Any hedging strategy will only be established based on recommendations from the Risk Management Committee with the agreement, if required, from the Board (GCF, 2019e).

During the 20th Board meeting (July 2018), there was significant concern about depleting resources of the Fund. According to one Board member, of the signed amount, only around US$ 7.2 billion would be received due to currency fluctuations and US$ 2 billion of pledges that were unlikely to happen. The Secretariat stated that the loss in value of the total pledged amount was due to the difference in exchange rates at the pledging conference and now.

Board members were concerned with the loss due to currency fluctuations as this was about 10% of total pledges. One Board member asked whether signed agreements offered a guarantee that the pledged funds would eventually be paid. This question was not answered in the meeting report (GCF, 2018e). During the Board meeting, a new document "Arrangements for the first formal replenishment of the Green Climate Fund" was presented. It emphasises the urgency for replenishment to provide adequate and predictable resources. The document notes the advantage of fast implementation of the ad hoc IRM, but also its disadvantage of uncertainty for the future. Approaches from other funds are mentioned: establishing regular replenishment cycles; defining terms for replenishment that apply beyond a single cycle, including arrangements for burden-sharing; and instituting dedicated governance and decision-making arrangements. The Secretariat provides an estimated timeline. All requirements to initiate the process would be fulfilled by the 21st Board meeting. Then it would take 6–12 months to conduct meetings and make pledges. Then it would take another 6–12 months to finalize the contributions (GCF, 2018c).

There were different views among Board members about the replenishment process: whether it should be a Board-driven or contributor-driven process; the role of a performance review of the GCF; required policies to be in place before the replenishment and whether these would be preconditions for replenishment or just be worked on at the same time. There were some concerns about procedures. Some proposals for replenishment were developed between meetings and some members had been unable to attend and they did not receive information about it. Another concern was that some members had met in a small group and another Board member expressed their objection. All matters should be resolved within the full Board. Some Board members wanted the GCF to be more ambitious during the replenishment than during the IRM. Those members expected a higher amount than US$ 10.3 billion to be raised. One Board member said that the level of ambition should reflect the Paris Agreement, the needs of countries and their NDC's and NAPs.

How the first replenishment would take place, would affect the GCF's reputation. One Board member had a strong mandate from their government to go for an ambitious replenishment, but that the governance crisis made such a position hard to defend. One member stated that there is a strong link between governance and the success of the first replenishment in raising funds. Sometimes days are lost on procedural matters and this should be avoided. One member stated it was important for the GCF to display effective governance so that national parliaments would provide them with resources. The LDCs found it unacceptable that there would be little resources given all the work they had done to develop funding proposals and concept notes. Another key issue was reviewing the GCF. Some members said this was a normal step in several international institutions and such reviews were essential in making a strong case to national parliaments. Another member asked what would be reviewed as only 10% of the portfolio had been implemented. One Board member said they could not discuss another agenda item until there was an agreement on the review, which was essential. Several Board members agreed and were involved in replenishments in other organisations where there always was a review. Regarding reviewing the structure of the GCF, developing countries were ok with this, but were concerned that the replenishment would be dependent on such a review. Several Board members wanted non-contributor countries to be involved in contributor meetings, one of them stated it should be a Board-driven process. But other Board members stated that the replenishment process should be contributor-driven. Several Board members wanted to establish some policies to show a stronger case and to help them to obtain larger funds from their parliaments (GCF, 2018e). They said it was essential to show that the GCF was "a responsible and predictable institution in the wider financial market" (GCF, 2018e, p. 57). But others did not see the need for that. There was also disagreement about what policies should be resolved. One of them included decision-making. But there were different views on

that. One Board member stated it was unacceptable to make it a condition of replenishment. One Board member said the GCF should not follow the GEF as the GEF received less and less contributions. The CIFs and AF were also low on funds (GCF, 2018e). The Executive Director of the Secretariat resigned and while US$ 1 billion worth of projects were waiting for approval, none of them got approved (Waslander and Vallejos, 2018b).

In June 2018, the Secretariat created a proposal for a policy for contributions from philanthropic foundations and other alternative sources, as requested by the Board. Alternative sources include, among others, civil society organisations, sovereign wealth funds (SWFs), pension funds, individuals, insurers. The proposed policy is only for accepting grants due to the complexity of other instruments. Grants are either small (< US$ 1 million) or large (> US$ 1 million). For large grants, interested contributors would have to contact the Secretariat. Once an agreement is reached, a contribution agreement is signed. Earmarking would be allowed if approved by the Secretariat. For small grants, contributions could be made directly through a dedicated page on the GCF website and there is no full screening process. This page would also be used to crowdfund projects if their value is small enough. The draft policy is based on a note of the findings of an external consultant. The note identifies several factors that will determine the success in mobilising resources from potential contributors, regardless of type: strategic positioning, effective communication, promoting sponsorships and partnerships, demonstrating strong institutional capacity. For contributors who are mostly focused on a commercial return, decision criteria to contribute include, among others, acceptable risk and return, fast transaction processes, low transaction costs. For philanthropic organisations important decision criteria include for example alignment to its missions, additionality, crowding-in, targeting of contributions. The note also mentions other sources: issuing green bonds, setting up a lottery and taxation. Suggested taxes are an aviation tax, a carbon tax or a financial transaction tax. The document notes the problem of the regressive nature of the carbon tax. It is suggested that direct side payments from richer countries to the poorer ones could be made using a certain formula such as per capita income and/or historical emissions (GCF, 2018f). However, consideration of the policy by the Board was postponed until later in 2020 (GCF, 2018e, 2019f).

During the 21st Board meeting (October 2018), Board members further discussed a newer version of “Arrangements for the first formal replenishment of the Green Climate Fund” (GCF, 2018g). Though it was very similar to previous versions. The report on the results of consultations among Board members so far. There are two different views on the role of the Board: (i) the Board should only initiate the replenishment process and consider proposed outcomes of it or (ii) the Board should play a significant role in the whole process including timing, structure, governance, inputs and endorse its outcomes (GCF, 2018h). One Board member said it was not up to the Board to determine a replenishment amount, but to the contributors. One Board member stated that pledging countries need quantitative data on how their contributions would fund mitigation and adaptation and that the needs of developing countries should be considered. It was decided that the Board would provide “strategic inputs” to the process and that the process should consider the ambitions, actions and contributions of developing countries to mitigate and adapt to climate change. There was also disagreement on whether to include references to the replenishment trigger. One Board member argued that the Board could launch the replenishment at any point with a decision irrespective of any trigger. It was decided stated that the aim was to conclude the process in October 2019. The decision stresses the urgency for new funding and the objective of the GCF to provide new, additional, adequate and predictable funding. The Board decided to launch the replenishment process and that the period of the first replenishment will be decided by the Board in 2019. The Board would be represented during the process by the Co-chairs, five representatives of developing countries and three of developed countries. There would be an organisational

meeting, at least two replenishment consultation meetings and a high-level pledging conference. All potential contributors will be invited and there will also be two active observers (CSO and PSO), the Executive Director and a representative from the UNFCCC will also be invited. Regarding the issue of a review of the GCF's performance mentioned above, it was decided that a performance review will be done and that it will be shared during the replenishment process. Discussions regarding decision-making in the absence of consensus also took place. Two Board members stated any voting system based on contributions is unacceptable. This was seconded by the CSO. One Board member said that the idea of such linkage had prevented an agreement on a decision-making procedure in the absence of consensus. However, two other members said they were willing to weigh votes based on contribution levels. One Board member said that currently any Board member could veto a decision and suggested caution in developing a new mechanism that would result in giving up this veto (GCF, 2018g). One Board member described any voting procedure as a "nuclear option" (GCF, 2018g, p. 26).

The Initial Organizational meeting for the first replenishment took place on 22–23 November 2018 in Bonn, Germany (GCF, 2018i). 25 countries were represented. The focus was on organisational aspects. The rules of conduct were established, and discussions took place on how to make decisions, though no agreement on that was reached. Regarding a potential minimum threshold for contributions, participants agreed that all contributions would be welcome. An agreement was reached on the scope and timetable of replenishment, with the first replenishment meeting to be held in April 2019 in Oslo. The governments of Germany and Oslo announced they would double their contributions and it was hoped this would create momentum for the first replenishment process. Some developing countries did not realise that by attending, they declared themselves as possible contributors (GCF, 2019f).

At COP24 in Katowice (December) it was decided that the climate finance target for the post-2025 period will be discussed starting at COP26 in Glasgow, with $ 100 billion set as the floor for the future climate finance target (Chen, 2018; Evans and Gabbatiss, 2019). Egli and Stünzi (2019) state that such a target seems possible, but that it could be conditional on including more contributing parties. To include more countries, developed parties would have to legitimatize this by increasing current contributions for the 2020–2025 period (Egli and Stünzi, 2019). Schalatek and Bird (2017, p. 1) state that raising the collective goal in 2025 will be a "crucial yardstick" to assess the success of the Paris Agreement. According to Kasteel (2020) "it is unquestionable that the goal needs to be re-evaluated in a timely manner". Many developed countries had elections soon and could not make long-term commitments. Discussions about the post-2025 target remained inconclusive (Kasteel, 2020). Much of COP23 was repeated here. The first replenishment process of the GCF was highlighted as a chance for increasing ambition. The increase in climate finance from developed to developing countries was highlighted as well and the goal of 100 US$ billion per year by 2020 was reiterated. The COP welcomed the start of the first formal replenishment process, taking into account the needs of developing countries and emphasised the urgency of reaching pledges by October 2019 (UNFCCC, 2018c).

3.3.8 The first formal replenishment (2019)

During the 22nd Board meeting (February), one Board member said that the lack of a voting procedure had resulted in a delay of one and a half years in the start of the replenishment process. Another one expressed concern about the possible politicization of Board decisions in the sense that one country could block a project of another country (GCF, 2019f). For example in 2018, the US Board member blocked a Chinese project (Saur News Bureau, 2019).

One Board member used the expression “Polish parliament”, which referred to “an assembly where minorities could easily disrupt decision-making” (GCF, 2019f, p. 13).

The first consultation meeting for the replenishment was held in Oslo, Norway on 4–5 April 2019. Topics discussed involved ambition, conditional contributions, negative press, communication and the period of the first replenishment. Regarding ambition, there was no discussion on the size of the replenishment. The absorptive capacity of the Secretariat was estimated between US$ 3–5 billion a year, so a four-year period would constitute US$ 12–20 billion. But the meeting did not agree on any target. Some Parties called for minimum contributions if Parties wanted to participate, but smaller contributors were concerned that they could be excluded. For developing countries, everyone should be able to make contributions, no matter how small. One Board member also noted that US$ 17–21 billion worth of projects were being developed or waiting for approval and the replenishment should be ambitious to meet demand (GCF, 2019g). By October 2019, this would become US$ 30 billion (GCF, 2019h). One member noted that an increase in capacity of the GCF is also needed to be more effective and bring more money available. One Board member hoped for pledges to be doubled or tripled. Another Board member wanted a clear statement that the aim was to double the IRM. The Board member representing the Asia-Pacific countries also noted an apparent conditionality about contributions. Developing nations were strongly opposed to such conditional contributions.

An issue of communication was also reported. According to a Board member, the African Heads of State did not understand the importance of the GCF or why they needed it. The potential of a scaled-up GCF needs to emphasised. The Secretariat had developed an outreach strategy, which included the Climate Action Summit in New York, briefings with Heads of State and outreach materials. Another Board member noted that, based on the GCF performance review, the GCF had delivered and that the Board was functional and the GCF effective. But another Board member stated that the GCF had played a significant role so far, but that it had failed to live up to expectations. Pledged resources only represented 1% of the needs of developing nations. The first replenishment needed to fill this gap. Regarding the period of the first replenishment, potential contributors strongly supported a four-year period for predictability, planning and sound financial management reasons. One Board member stated a preference for a trigger of replenishment because of uncertainty about the outcome of the replenishment process. If a fixed period would be used, political leaders needed to ensure a strong replenishment or else it would send a negative political message. The Board decided the first replenishment would finance the period 2020–2023 and that the four-year period would be incorporated in the Policy for Contributions (GCF, 2019g).

It was during the 23rd Board meeting (July 2019) that a decision was made about how to proceed when no consensus was reached. Such a procedure would only be used as a last resort. First, all efforts to reach consensus should be exhausted: (i) consultation among Board members and Co-chairs, (ii) stating reservation about a decision, but not preventing consensus, (iii) requiring their position to be recorded in the meeting report, (iv) not joining consensus by not being in the Boardroom and (v) meeting in smaller groups for informal discussions. The Co-chairs will determine whether all efforts have been exhausted unless there is an objection. Then at least 80% of the Board members (20) have to vote in favour of putting it to a vote. The Co-chairs can vote, and each Board member has one vote. Votes are cast simultaneously. Options are in favour, against or abstain. For a decision to be adopted, an 80% majority is required of present and voting Board members to vote in favour, unless at least four developed country or four developing country members vote against (GCF, 2019g).

On August 29–30th, the second meeting for the replenishment took place in Ottawa, Canada (GCF, 2019h). 27 potential contributors and the eight Board members met to discuss several

issues, particularly: (i) review of the performance review, (ii) finalizing the GCF's Replenishment Summary Report, (iii) review of possible updates of the policy on contributions and (iv) agreeing on the next steps of the replenishment process (GCF, 2019i).

The pledging conference took place in Paris on 24–25th of October. 27 potential contributors, the GCF Board Co-chairs, six GCF Board members, the GCF Executive Director, one observer each from the UNFCCC and GEF, one civil society observer (CSO) and staff from the GCF and the Trustee were present. Total pledges made at the conference amounted to US$ 9.777 billion. The CSO asked countries to at least double their contributions, to contribute in grants, to sign contribution agreements as fast as possible and to refrain from earmarking. Board members stressed that contributions should not be conditional (GCF, 2019j). Several countries had doubled their pledges compared to the IRM. However, several Board members noted that the numbers were still largely insufficient for meeting the needs of the developing nations (several trillions of USD). It was also far from the US$ 100 billion target for 2020. This was also highlighted by the CSO. Several Board members also stated that contributor countries, with GDP's of hundreds of billions to trillions, still had more potential to contribute. The CSO also stated that several developed countries did not provide contributions or only small amounts compared to their fair share. 28 developed countries had pledged by November 2019 (GCF, 2019e).

During the 24th Board meeting in November 2019, the Board approved the "Policy for contributions to the Green Climate Fund for the first replenishment", which is a slightly updated version of the policy for contributions for the IRM. While it mentions the formal first replenishment pledging conference from 24 to 25 October 2019, the GCF would still be able to receive funding after the conference on an ongoing basis. There are no minimum or maximum contribution thresholds, though this would be revised for future replenishments. The secured finance would be used for the period 2020–2023. The GCF's commitment authority for the first replenishment period would become effective when 25% of the pledged amount at the conference has been confirmed by contribution agreements/arrangements. The next replenishment would be started 30 months after the start of this replenishment period. Some resources left from the IRM would be carried over to the first replenishment phase. Sources of funds and types of contributions were the same as for the IRM process (GCF, 2019e, 2014g).

The Board also adopted the Policy on Co-financing. The policy defines co-financing as "financial resources required, whether Public Finance or Private Finance, in addition to the GCF Proceeds, to implement the Funded Activity for which a Funding Proposal has been submitted". It defines the aims of co-financing as achieving the highest possible impact and ambition, strengthen country ownership and ensure long-term viability of climate actions (GCF, 2019k, p. 1). Co-financing can come from both public and private sources (GCF, 2019l). The private sector is particularly engaged through the Private Sector Facility (PSF). The PSF has a particular focus on LDCs, SIDS and African countries (GCF, 2019c). Its aim is "to fund, engage, mobilise local and global private sector actors" (GCF, 2019c, p. 6). There are no minimum requirements for how much co-financing should be provided for a project. There are also no specific sources that have to be used. Co-financing ratios will not be used on its own for deciding which projects to approve as a low ratio does not necessarily imply low impacts and low paradigm shift potential (GCF, 2019k). Co-financing ratio is defined as "the total non-GCF resources provided for a project compared to the GCF resources" (Cui et al., 2020, p. 97). In the "efficiency and effectiveness" criterion in the GCF investment framework, assessment factors related to co-financing include: "the expected volume of finance to be leveraged by the proposed project/programmes" and the co-financing ratio (GCF, 2018j, p. 2). The appropriate ratio is determined on a case-by-case basis. The GCF recognises that co-financing is not always possible or realistic (GCF, 2019k).

COP25 in Madrid failed to deliver any concrete decisions on how developed countries plan to scale up and mobilise financial support for developing countries. Discussions about issues regarding climate finance, especially long-term climate finance (LTF) and the pledge of US$ 100 billion, remained unresolved. The issue of LTF was postponed to COP 26 in Glasgow, which has been postponed to 2021 due to the Covid-19 pandemic (Haque and Hossain, 2020; UN, 2020b). The COP welcomed the adoption of voting procedures, the adoption of a policy on co-financing, the pledges made during the first formal replenishment process and encouraged countries to make more pledges/contributions and to confirm their pledges as soon as possible (UNFCCC, 2019).

By the end of 2019, US$1.1 billion had been lost due to currency fluctuations. US$ 7.1 billion had been received, while US$ 38 million (of the signed US$ 10.2 billion) had yet to be received and US$ 80 million (of the pledged US$ 10.3 billion) was not yet confirmed. ± US$ 232 million had been received from investment income and reflows (GCF, 2020a).

3.3.9 Recent developments (2020)

By February 2020, the first replenishment period delivered US$ 9.68 billion in pledges (US$ 9.8 incl. credits), but only US$ 3.37 (US$ 3.41 incl. credits) of that has been confirmed (GCF, 2020b). Some donor countries decided to advance their payment schedule. For them, a credit will be added to the nominal pledge amount (GCF, 2019m). This credit has been calculated as "the difference between the present value of the standard encashment schedule and the contributor's encashment schedule" (GCF, 2019m, p. 6). This possibility was also there during the IRM, but was not used (GCF, 2014g, n.d. j). Money received earlier can be invested by the Trustee. This results in an additional return that would not have been earned if the payment was not made earlier (GCF, 2019j).

To summarize, the GCF looked at other funds to develop procedures for raising funds (GCF, 2013a). First, there are meetings with interested contributors, which have influenced the GCF's policies for resource mobilisation (GCF, 2014d, 2014e, 2014g). Then, a pledging conference takes place, where most of the pledges are made (GCF, 2015a). Each replenishment phase will last four years. Pledges are completely voluntary and there is no minimum or maximum amount that can be made. Pledges can come from all countries and also subnational entities (GCF, 2019e). Pledges are then turned into legally binding contribution agreements (Climate Analytics, 2015; GCF, 2014g). Some of them include a dispute resolution mechanism, which could be used in the case of non-payment, but the inclusion of such a mechanism is voluntary (GCF, 2019d). The GCF has developed policies to reduce the risk of pledges not being signed, delayed payments and FX fluctuations (GCF, 2019e). Pledges are not the only source of funding for GCF projects. Co-financing is an important source and accounts for a significant part of project funding (GCF, 2018j). The GCF is also developing a policy to raise money from alternative sources such as philanthropic organisations and Sovereign Wealth Funds, but discussions on this have been postponed (GCF, 2019f). Overall, there is no hard mechanism to ensure sufficient funding is raised and it relies on the goodwill of governments. Though there is no official number for what sufficient funding for the GCF would be (Raman, 2014b).

Chapter 4: Funding sources

This section looks at different sources that are currently funding the GCF. The first one is pledges from public entities, mostly national governments. Contributions from regional governments (Paris, Flanders, Brussels and Wallonia) have been included in their respective countries. Section 4.1 compares countries' pledges from the Initial Resource Mobilisation (IRM) with those made for the first formal replenishment phase (GCF-1). It also compares the total amounts of the IRM with the GCF-1. Section 4.2 looks at political changes in some of the top contributors to see what could explain differences in pledges between countries and over time. Section 4.3 looks at the other current source of funding for GCF projects: co-financing. It explores how different projects have different amounts of co-financing. This chapter deals with compensatory justice as it is generally recognised that most of the historical global emissions of greenhouse gases came from developed countries and they should thus transfer resources to developing countries (Saran, 2015; UNFCCC, 2010).

4.1 Pledges

Figure 2 shows the amount of pledges for the top ten contributors during the IRM. The USA and Australia had pledged US$ 3 billion and US$ 187 million respectively during the IRM, but nothing during GCF-1. Japan and Italy pledged similar amounts during both rounds: US$ 1500 million twice for Japan and US$ 334 during the IRM to US$ 338 million for GCF-1 by Italy. The UK, France, Germany, Norway and Sweden significantly increased their pledges from 1211 to 1852, 1037 to 1743, 1003 to 1689, 272 to 417 and 581 to 853 US million dollars respectively. Canada reduced its pledges from 277 to 226 US million dollars. The other countries increased their combined pledges from US$ 918 million to US$ 1064 million. Of those countries, fifteen increased their pledges. Spain, the Netherlands, Finland and Slovakia only pledged slightly more. Switzerland, Denmark, Monaco and Ireland increased their contributors by more than half. South Korea, Russia, New Zealand, Iceland, Indonesia, Poland and Slovenia at least doubled their contributions. Slovenia had not pledged the IRM. Countries that pledged during the IRM, but not during GCF-1 are: Mexico, Colombia, Peru, Czech Republic, Estonia, Panama, Vietnam, Malta, Cyprus, Latvia, Chile, Bulgaria, Lithuania, Mongolia and Romania. Six countries decreased their pledges. Austria, Liechtenstein and Luxembourg pledged slightly less. Belgium, Hungary and Portugal more than halved their contributions.

For the exact amounts, see Table 13 the appendix. Only France and Canada during the IRM provided part of their contributions as a loan. The UK provided part of its IRM contribution as capital (GCF, 2019n). Developed countries that did not pledge during the IRM or the GCF-1 are Albania, Belarus, Bosnia & Herzegovina, Croatia, Greece, Israel, North Macedonia, Moldova, Montenegro, San Marino, Serbia and Ukraine. Those twelve countries account for 3.2% of fair shares.

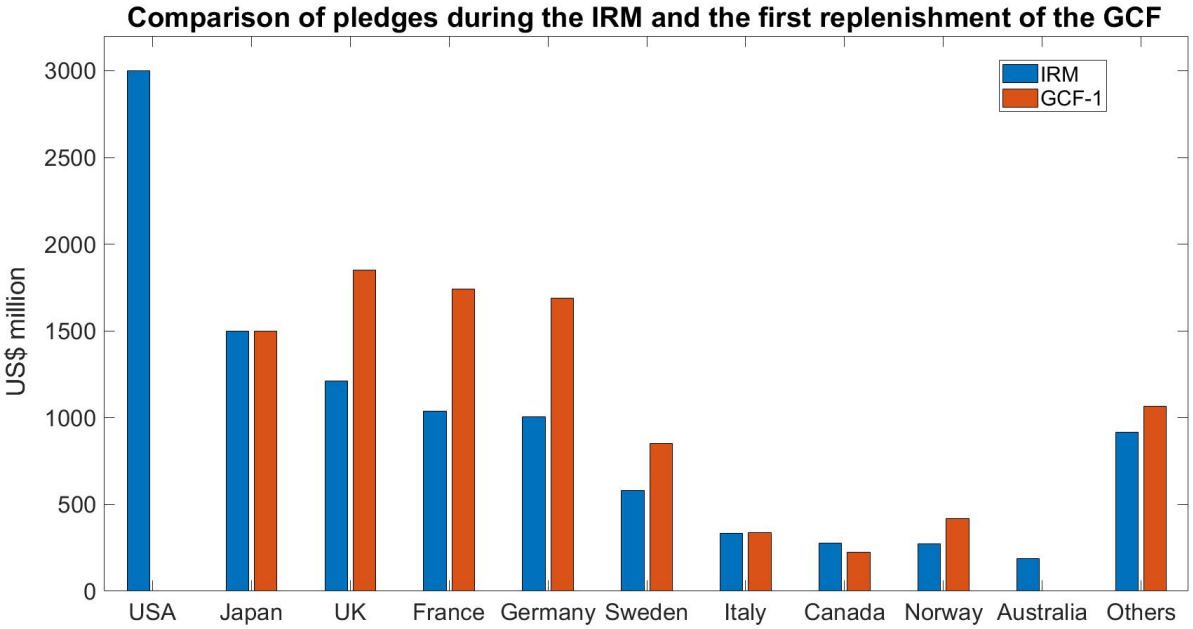


Figure 2. Pledges by the top ten IRM contributors and others (GCF, 2020a).

Why countries changed their pledged amounts, is probably due to domestic politics and the availability of resources. This will be further explored in section 4.2.

Table 4 shows the total amount of pledges during the IRM and GCF-1 and the difference in million USD. The difference between the nominal and 2019 value is that the latter accounts for inflation. The nominal difference is US$ 640 million. When excluding the US, the pledges increased with US$ 2.36 billion. When accounting for inflation, pledges decreased by US$ 1.46 billion. When excluding the US, the pledged amount increased with US$ 1.78 billion. Since the GCF-1 and IRM funding account for nine years, this amounts to an annual value of US$ 2.31 billion (including the US, expressed in 2019 value) (GCF, 2019e). This is far short from the goal of mobilising US$ 100 billion per year from 2020. Pledges are completely voluntary, and countries are not obligated to channel climate finance through the GCF (Vanderheiden, 2015). And even less of it actually reaches developing countries. By 04/05/2020, the GCF had only disbursed US$ 985.1 million (GCF, n.d. m). For the calculation of the 2019 values, see Table 14 in the appendix.

Table 4. Total pledges for the GCF.

	IRM	GCF-1	Difference
Nominal	10322.16	9682.33	-639.83
Nominal (excl. USA)	7322.16	9682.33	+2360.17
2019 value	11143.74	9682.33	-1461.41
2019 value (excl. USA)	7903.96	9682.33	1778.37

NGO's have criticised countries for failing to do their fair share. Brandon Wu, a climate finance expert at the Johannesburg-based charity Action Aid, said: "Up to now, rich nations have been sitting around plucking numbers out of thin air to pretend to deal with the climate crisis. Meanwhile, people in poor countries are already battling its vicious storms. This approach is no longer good enough" (Darby, 2015). The Climate Action Network said about the US and Australia that they "have turned their backs on the world's poorest and have once again isolated themselves in global efforts to respond to the climate emergency". Oxfam International called the decision of the US and Australia not to provide funding "appalling" (Associated Press, 2019). Liane Schalatek, associate director at the Heinrich Böll Foundation in Washington, said that "more generous public grant financing support, and especially increased

financing for adaptation is needed to take responsibility and provide climate justice" (Rowling, 2019a). The Climate Action Network urged countries to double their contributions for the replenishment (Kilani, 2019).

4.2 National politics of GCF contributors

Baatz (2018) concluded that funding will be significantly affected by changing political situations and will fluctuate a lot. This section provides an overview of political changes in ten countries, which were selected because they are the ten highest contributors (when looking at the pledged amount). Significant political changes will be identified mostly by going through news articles, but also some governmental documents. Such changes or lack thereof could then potentially be linked to changes in pledges. Predictability of funding is key for developing countries and also for the efficient operation of the GCF. Limitations of this include language barriers and access to documents.

Canada

Canada was governed by a conservative government from 2006 to 2015. During that time, the country's scientists were not allowed to discuss their work with the media (Keehn, 2015). The conservative government had committed US$ 1.2 billion towards climate action for the period 2010–2013 (Hadley and Bhushan, 2019). Their view on carbon pricing was that it would endanger Canada's economic stability and competitiveness and that middle-class families would suffer from it (Hussain, 2015). Canada had developed a reputation for climate obstructionism. Under the conservative prime minister Harper, Canada pledged US$ 277 million to the GCF, inconsistent with its historical contributions to multilateral efforts (Taraska, 2015). In 2002, Harper called the UN climate change efforts "a socialist scheme to suck money out of wealth-producing nations" (Goldstein, 2014). He has often been criticised for not doing enough about climate change. Former UN Secretary-General Kofi Anna once accused Canada of being a laggard on climate change (Blanchfield, 2015). It was Harper's government that decided to withdraw from the Kyoto Protocol. The environmental minister at that time arguing that it would save Canada 14 billion dollars in penalties and that it had no choice given the economic situation. They argued that they only emitted less than 2% of global emissions and that large emitters such as China and India did not have to reduce their emissions. They would aim for a new international agreement that includes commitments from all large emitters (CBC News, 2011).

In October 2015, a liberal government came into place, under the leadership of prime minister Trudeau (Keehn, 2015). Under his leadership, Canada committed to rejoining the international effort to tackle climate change (Taraska, 2015). Trudeau stated in a speech that: "Canada's years of being a less than enthusiastic actor on the climate change file are behind us. It is important that Canada demonstrates a level of positive engagement on the environmental file, on the international stage. I look forward to demonstrating that we have a Canadian government now that understands that the way to build a strong economy is to protect and defend our environment at the same time. Canada could have taken a different tack towards issues of energy and environment the past few years and that's what I'm focused on now going forward" (Reuters, 2015). Foreign minister Dion stated that "We are convinced that Canada should do more to fight climate change. The government is committed to making climate change a priority and working with the international community." Canada announced contributions of US$ 2.65 billion over five years to developing countries (National Post, 2015). Dion also mentioned the Canadian government's goal of mobilising 800 million dollars annually by 2020, which would come from public and private sources and would attract private partners

resulting in a total of 4 billion. Though he did not specify how to attract private funds (Campbell, 2015). The liberal's position on climate change is that is an 'immediate and significant threat to our communities and economy" (Hussain, 2015). Canada eventually came into a global climate leadership role. Though criticism on Trudeau's decision to back a new pipeline for fossil fuels, "presents a critical credibility challenge for Canada" according to Greenpeace East Asia campaigner Li Shuo (Darby, 2018a).

Australia

Australia has been governed by the Liberal Party since 2013: Tony Abbott (2013–2015), Malcolm Turnbull (2015–2018) and Scott Morrison (2018–present) (Eldridge et al., 2018; Nick, 2012; Palmer, 2015). Abbott was known as a climate denier and Australia developed a reputation for climate obstructionism (Taraska, 2015). In 2009 he described the "so-called settled science of climate change" as "absolute crap". During his leadership, he tempered his strong views (Mathiesen, 2017a). In 2014, he cancelled the carbon tax, established two years earlier by the Labor Party. He contested any links between extreme events and human activities. He put climate change deniers in important government positions. He tried to dissolve the Australian Renewable Energy Agency (Palmer, 2015). In December 2014, Australia pledged US$ 187 million (GCF, 2020a; Griffiths and Sturmer, 2014). Australia had faced criticism for not committing to the GCF. The Australian government indicated that it would not contribute at all, but according to Abbott, the situation had changed, and he stated: "We've seen things develop over the last few months. I think it's now fair and reasonable for the Government to make a modest, prudent and proportionate commitment to this climate mitigation fund: I think that is something that a sensible government does." Though the money would come from Australia's aid funding, which the leader of the Green party called "especially galling" (Griffiths and Sturmer, 2014).

In September 2015, Turnbull replaced Abbott as prime minister. In 2008, he lost the leadership of the Liberal Party due to his support for a carbon emissions trading scheme. Turnbull then said: "I will not lead a party that is not as committed to effective action on climate change as I am". Though he promised to continue the Liberal Party's policy on climate change (Palmer, 2015). At COP21, Turnbull pledged to provide 1 billion Australian dollars over the next five years to support vulnerable countries to address climate change. This included the pledge from December 2014 (200 million Australian dollars). And just like that pledge, the remaining amount would be redirected from the existing foreign aid budget. He also announced Australia's plan to double its investments in clean energy. Turnbull also pledged to ratify the second phase of the Kyoto Protocol (SBS News, 2015). In August 2018, Turnbull tried to set emissions targets for Australia, but a group within the Liberal Party, led by Abbott, refused to accept any targets for the power sector. This resulted in a leadership challenge by another member of the Liberal Party, a challenge that only just failed. The week after that, several ministers throughout the government resigned. Turnbull said that there are anti-science forces in the Liberal Party and as a result, the Party cannot agree on climate policy. He said: "emissions issues and climate policy issues have the same problem within the coalition of bitterly entrenched views that are more ideological views than views based, as I say, on engineering and economics" (Mathiesen, 2018). Thus, in late August 2018, Morrison took over as prime minister (Peatling and Bagshaw, 2018). Less than two months later, Morrison said Australia will not "tip money" into the Green Climate Fund. Abbott and others wanted him to withdraw from the Paris Agreement. But Morrison said that was not necessary as it did not impose obligations on Australia to limit global warming to 1.5°C nor to provide money to the GCF. He stated that "I'm not going to spend money on global climate conferences and all that

sort of nonsense" (Stefanini, 2018). In May 2019, the Liberal Party won the federal elections, with Morrison continuing as prime minister (BBC, 2019a).

Mark Butler, Labor's shadow climate change minister, criticised the Liberal Party for missing its "already inadequate" Paris targets. He said that "the Liberal Party has capitulated to the hard-right and will continue to wage their anti-science, anti-renewables, anti-climate change agenda". Labor wants to set a goal to increase its share of renewable energy to 50% and reduce emissions by 45% by 2030, eventually reaching net-zero emissions by 2050 (Stefanini, 2018). Labor's shadow foreign minister Wong said in a speech in May 2018 that "it goes without saying" that a Shorten Labor Government "will be willing to work with other third parties, whether they are major institutions such as the Asian Development Bank, the Asian Infrastructure Investment Bank, the Secretariat of the UNFCC and the Green Climate Fund that continues to implement important parts of the Paris Agreement, or other nations that wish to contribute of climate change mitigation and adaptation programs in our region." She aimed to "rebuild Australia's credibility and standing in the climate change domain" (Wong, 2018). Green leader di Natale said in 2018 about the Liberal government that "they have no climate policy, no energy policy and no economic policy and the paralysis is likely to continue. They are unfit to govern". He called them "a bunch of spiteful, backwards-looking, anti-immigration, climate deniers with no economic plan. It's time to turf them out and make a fresh start" (Mathiesen, 2018).

USA

During the Georgy Bush government, annual climate change spending decreased by 7% per year. When Obama won the elections in November 2008, he promised that his government would create a "new chapter in American leadership on climate change" (Troilo, 2012). In 2009, US Secretary of State Hilary Clinton proposed the goal of US$ 100 billion annually by 2020 to help developing countries to address the issue of climate change. But his would only happen if growing countries like India and China agree on binding commitments and international inspection and verification. Clinton said that funding would come from public and private sources. She did not specify what the US' share would be. Republicans, however, warned of the political difficulties domestically in agreeing on such a large contribution given the economic conditions (Friedman and Samuelsohn, 2009). In 2010, Obama announced the Global Climate Change Initiative. It focuses on adaptation, clean energy and reducing emissions from deforestation and forest degradation (REDD). However, it lacked bipartisan support and Republicans still publicly doubted the existence of climate change. From 2010–2015, US Congress approved US$ 2.6 billion for adaptation, US$ 4.6 billion for clean energy and US$ 1.5 billion for REDD (DOS, 2016). His plan for a US cap and trade system, which could raise US$ 5 billion a year failed due to the House of Representatives being controlled by Republicans (Troilo, 2012).

After his re-election in 2012, Obama recognised the limited progress on climate change but promised to remain personally involved to find an agreement between Republicans and Democrats (Goldenberg, 2012). In November 2014, the US pledged US$ 3 billion to the GCF. Obama stated that "along with other nations that have pledged support, we'll help vulnerable communities" and that they'll "help developing economies reduce their carbon pollution and invest in clean energy" (Feast and Gardner, 2014). However, the US pledge still would have to be approved and Republicans committed to blocking the first funding request of US$ 500 million. Senator James Inhofe, the chair of the committee on the environment and public works, stated he will do everything possible "to prevent US$3 billion in taxpayer dollars from going to the Green Climate Fund, where the money will be spent by unelected UN bureaucrats to dictate

U.S. policy and hinder developing countries' ability to aggressively address the economics of poverty" (West, 2015). When the Paris Agreement was reached in 2015, Obama stated that "today the American people can be proud, because this historic agreement is a tribute to American leadership. Over the past seven years, we've transformed the United States into the global leader in fighting climate change. In 2009, we helped salvage a chaotic Copenhagen summit and establish the principle that all countries had a role to play in combating climate change. We then led by example with historic investments in growing industries like wind and solar." Though Republican senator Inhofe stated that "the United States is not legally bound to any agreement setting emissions targets or any financial commitment to it without approval by Congress" (Pengelly, 2015).

In November 2016, Republican Donald Trump became president of the US. He had promised he would withdraw from the Paris Agreement or renegotiate it (Chemnick, 2016). On April 29th, 2017 he claimed that "our government rushed to join international agreements where the United States pays the costs and bears the burdens while other countries get the benefit and pay nothing. This includes deals like the one-sided Paris climate accord, where the United States pays billions of dollars while China, Russia and India have contributed and will contribute nothing. On top of all of that, it's estimated that full compliance with the agreement could ultimately shrink America's GDP by $ 2.5 trillion over a 10-year period. That means factories and plants closing all over our country" (Schipani, 2017). On June 1st, 2017, Trump officially announced that the US would leave the Paris Agreement (Shear, 2017). Trump also decided to stop contributing to the Green Climate Fund, claiming it would cost the US "billions and billions and billions" of dollars (Popovich and Fountain, 2017). Trump's claim to renegotiate the Paris Agreement was rejected in a joint statement by the Germany, France and Italy: "We deem the momentum generated in Paris in December 2015 irreversible, and we firmly believe that the Paris agreement cannot be renegotiated, since it is a vital instrument for our planet, societies and economies". They called on their allies to increase and accelerate efforts to tackle climate change and to provide more help to developing countries to adapt (Watts and Connolly, 2017).

Merkel called Trump to express her regret at the US' withdrawal and emphasised that Germany would stay in the agreement. Macron said Trump "committed an error for the interests of his country, his people and a mistake for the future of our planet. I tell you firmly tonight: we will not renegotiate a less ambitious accord. There is no way. Don't be mistaken on climate: there is no plan B because there is no planet B". British PM Theresa May also expressed her "disappointment" at his decision and highlighted that the UK was still committed to the agreement (Watts and Connolly, 2017). May said that the Paris Agreement is needed for "the prosperity and security of future generations". The Canadian government said "we are deeply disappointed that the United States federal government has decided to withdraw from the Paris Agreement. Canada is unwavering in our commitment to fight climate change and support clean economic growth. Canadians know we need to take decisive and collective action to tackle the many harsh realities of our changing climate. This is about an ambitious and unshakable desire to leave a cleaner, healthier and more sustainable planet for our kids and for generations to come" (Choi, 2017). Boris Johnson said, "Let's see what Donald Trump does before we rush and wave fingers at him, accuse him of this, that or the other". Putin said "Don't worry, be happy… This agreement has not yet even come in effect. It will come into effect in 2021. So we still have time". Japan said: "Japan believes the leadership of the developed countries to be of great importance" (Carbon Brief Staff, 2017).

Domestically, there were positive and negative reactions. Barack Obama said, "this Administration joins a small handful of nations that reject the future". The senator of Rhode

Island said, “Trump is betraying the country”. Former Secretary of State John Kerry stated that “The President who promised ‘America First’ has taken a self-destructive step that puts our nation last”. Positive reactions came from Senate Majority Leader McConnell who applauded “President Trump and his administration for dealing yet another significant blow to the Obama Administration’s assault on domestic energy production and jobs”. The House Speaker said, “The Paris climate agreement was simply a raw deal for America”. Energy Secretary Perry said, “President Trump’s decision will prove to be the right course of action and one I fully support”. The Texas House representative Smith said, “President Trump has freed America from a bad deal that would have cost billions of dollars but have little significant environmental benefit”. Chair of the Republican National Committee said “the president is sending a clear message that we will no longer remain beholden to burdensome international deals at the expense of our taxpayers. I commend the president for making this decision that will save the U.S. economy from the loss of millions of jobs and trillions in economic output” (Mccaskill, 2017).

On November 4th, 2019, Trump formally started the process of withdrawing the US from the Paris Agreement. Secretary of State Pompeo stated that the Paris Agreement gave an advantage to the developing countries, particularly China and that “President Trump made the decision to withdraw from the Paris Agreement because of the unfair economic burden imposed on American workers, businesses, and taxpayers by US pledges made under the agreement”. Completion of the withdrawal would take one year, thus until November 4th 2020, the day after the US presidential election. Democratic candidate Joe Biden called Trump’s decision “shameful” and pledged to re-enter the agreement if elected. The process of re-entering could be completed within 30 days. According to polls, most Americans (77%) would support the US staying in the Paris Agreement (Farand, 2019).

On March 26th, 2019, Republican Luetkemeyer introduced the “No Tax Dollars for the United Nations Climate Agenda Act” in the House of Representatives. This would prevent federal agency funds to be provided to the IPCCC, the UNFCCC or the GCF. It has been referred to the House Committee on Foreign Affairs and has not yet been voted upon (Luetkemeyer, 2019). In June 2019, Luetkemeyer proposed an amendment to the “Labour, Health and Human Services, Education, Defense, State, Foreign Operations, and Energy and Water Development Appropriations Act, 2020” (House Rules Committee, 2019). This bill approved budgets for several federal agencies and departments (DeLauro, 2019). It would do the same as the previously mentioned proposed act by Luetkemeyer. Republican Gosar, who defended the amendment, called UN climate change organisations “international slush funds for ineffective climate change research and projects”. He argued that there was a lack of oversight and accountability. He states that “unelected bureaucrats and foreign leaders across the globe should not have greater control over U.S. policy than our citizens and elected officials, especially when we are paying for it.” He argued that no new project had been approved since 2017, that 30% of the pledges would never materialize and that funds are going to wealthy nations with little effect on emissions. He said those organisations have no track record of success and a proven history of funding corruption. The democratic representative Lowey argued against the amendment stating that “climate change is a real global threat and our military also believes this.” According to her, prohibiting the US from making contributions to the GCF is short-sighted, harmful and does not prepare the US to face the issue of climate change. She stressed that climate change is worsening conflicts and that demand for humanitarian and other resources will increase (Gosar, 2019). The amendment failed with all Democrats and 9% of the Republicans voting against (“FINAL VOTE RESULTS FOR ROLL CALL 329,” 2019).

On November 5th, 2019, the Green Climate Fund Authorization Act of 2019 was introduced into the House of Representatives by Democratic representative Espaillat from New York. The proposed act states that it is "the responsibility of the United States Government to work with its global partners to promote environmental justice and climate justice". It contains fragments of the Paris Agreement, including the references to intergenerational equity, the importance of climate justice and the need for urgent action. It acknowledges the higher capacity of developed countries. It states that the fair share of mitigation and adaptation activities should be based on the historic GHG emissions of each country and the current capacity of all countries to mitigate and adapt to climate change. It recognises the higher share of historical emissions for developed countries, the economic benefits they gained from it and that thus they have a larger responsibility to take climate action than developing countries. The latter need financing to be able to take climate action. It includes the goal of US$ 100 billion per year by 2020 by developing countries and states that all US$ 100 billion refers to public funding. It is recognised that that goal does not meet the needs of developing countries. It states that it "upholds the principles of environmental justice and climate justice". It authorizes the appropriation of funding to the GCF from 2020 and onwards to limit global temperature rise to 1.5°C and to exceed the goal of US$ 100 billion per year by 2020. The act was referred to the House Committee on Foreign Affairs and the act has not yet been voted upon (Espaillat, 2019).

France

In 2012, Hollande became the first socialist president of France in 17 years (Bamat, 2017). On September 23rd 2014, president Hollande gave a speech about climate change. He said: "Our commitment is to be clear, we need to do everything we can, so that we can curb and contain below 2C the increase in temperature. I would like to emphasise the responsibilities of France. Not only are we hosting this conference, we need to make the gestures that are necessary on behalf of France, that is why the Green [Climate] Fund is a new prospect, France will provide US$ 1bn over the next few years, as our contribution to the Green [Climate] Fund" (Vaughan and Mathiesen, 2014). In 2015, France adopted the Law on Energy Transition for Green Growth, which sets the objective of reducing emissions by 40% by 2030, increase the share of renewables to 32% by 2030, reduce reliance on nuclear energy from 75% to 50% and increase the carbon tax from €14.5/tonne to €56/tonne by 2020. According to the French environment minister Royal, this made France "the nation of environmental excellence" because it made France the first country to integrate its commitments from COP21 into law. Royal criticised the negotiations as inadequate and she wanted heads of state and government to take responsibility. President Hollande had stated before COP21 that "it all hangs by the financing. That's the key… If there's not a firm commitment to financing, there will be no accord, because the countries of the south will reject it" (Marlowe, 2015).

In 2017, Macron came to power (Darby, 2017). He previously served as an economic advisor for Hollande and became economic minister for the socialist party in 2014 (BBC, 2017). He only had 2.7% more than Marie Le Pen (Front National) in the first round (Clarke and Holder, 2017). Le Pen's second-place represented an improvement to her third place in 2012 (Bamat, 2012; Clarke and Holder, 2017). In the 2nd round, which only involved Le Pen and Macron, le Pen got 34.2% and Macron 65.8% (Burn-Murdoch et al., 2017). While Le Pen presented herself as environmentally friendly, she believes international climate talks should be abandoned and prefers national action (Keating, 2017). Macron said that "France will be active and mindful of peace, of the balance of power, of international cooperation, of respect for the commitments made on development and the fight against global warming". His climate policy included the phasing out of coal power and doubling the amount of renewables by 2020 and raise the carbon price to €100 per tonne by 2030. He proposed trade sanctions against

countries with lower environmental standards and invited American climate researchers to come to France (Darby, 2017).

In 2019, the new Executive Director of the GCF was chosen to be Yannick Glemarec of France, who had jobs at the UN before (Voanews, 2019). At the G7 top in late August 2019, France made efforts to put the replenishment of the GCF high on the agenda (Rowling, 2019b), 2019). At the end press conference of the G7, Macron stated that "Protecting those most vulnerable to the impacts of climate change is everyone's responsibility and that is why France, the United Kingdom and Germany have doubled our funding to the Green Climate Fund". The Executive Director of the GCF said that "we also appreciate the leadership of France in prioritising the GCF replenishment as part of the G7 Presidency" (GCF, 2019o). At the climate summit in September 2013, 2019, Macron asked other countries to increase their pledges to the GCF. His target was to reach US$ 10 billion to compensate for the US withdrawal (RFI, 2019).

Germany

Germany has been led by chancellor Merkel, member of the Christian Democratic Union (CDU), since 2005 (Barkin et al., 2020; Petrikowski, 2019). She had been minister of environment, conservation and reactor safety from 1994–1998 and presided over the first COP to the UNFCCC in 1995 in Berlin (Petrikowski, 2019). According to Merkel, "the faster industrialized countries cut their emissions, the more willing other countries will be to do their bit" (Vidal et al., 2008). A month before COP15, Merkel gave a speech at the US Congress urging for legally binding obligations. Obama later praised her leadership on climate change (Barkin and Cornwell, 2009). At COP15, Merkel promised to provide € 1.26 billion in additional climate finance by 2012. However, in March 2010, it was announced that it would only be € 210 million. The rest would be covered by other aid resources or earlier commitments. The Magazine Der Spiegel claimed this was due to pressure from the minister of finance (The Local, 2010). In 2015, Merkel promised to double Germany's contribution to international climate finance from € 2 billion in 2014 to € 4 billion by 2020 annually. While the target is expected to be reached, Oxfam accused Germany of creative accounting by including components to the definition of international climate finance that were not included in 2014 (Wettengel, 2019). Germany expects to provide US$ 10 billion annually by 2020 when including leveraged finance from the private and financial sector, meaning Germany would contribute 10% of the US$ 100 billion commitment (Appunn, 2015).

At the World Economic Forum in Davos in 2020, Merkel asked for fast decisive climate action and said that she was "convinced that the price of inaction would be far higher than the price of action". Reaching the objectives of the Paris Agreement could a matter of "survival" and rich countries have the "obligation to do more". Merkel stated that international cooperation is essential to achieve anything (Gehrke, 2020).

Japan

Japan has been governed by prime minister Abe from the Liberal Democratic Party, a conservative and pro-business party in a coalition with the moderate socialist New Clean Government Party since 2012 (Jansen et al., 2020). In November 2014, Japan published a joint statement with the US pledged a combined amount of US$ 4.5 billion, a third of which would come from Japan, "making good" on their "commitment to support efforts to curb greenhouse gas emissions and build climate resilience worldwide". By pledging significant amounts, they wanted to create significant momentum for the climate change negotiations regarding a post-2020 agreement that includes all countries making ambitious and transparent mitigation targets. The statement says the pledge "builds on a history of collective leadership

by the United States, Japan, and other countries". Their pledges are a "continuation of spirit of leadership" (Ministry of Foreign Affairs of Japan, 2014).

At COP21, Japan committed to raising US$ 10.6 billion from private and public sources by 2020 (SBS News, 2015). At COP24, a climate change official at Japan's foreign ministry said: "given that we are the largest donor… in that sense we have the largest responsibility to secure the fund's smooth operation, both in regard to the international community and those who are taxpayers as well". Japan nominated a candidate to become Executive Director, but South African Board member stressed that the amount of contributions do not count towards selecting an Executive Director. Japan waited to pledge as the climate change official said: "We have to secure the accountability of the secretariat. They will probably have to speak out a bit more about their achievements. We have not heard back quite enough for the justification of $1.5 billion yet" (Darby, 2018b). Japan pledged another US$ 1.5 billion for the replenishment of the GCF, making it the second-largest donor to the GCF with US$ 3 billion, US$ 63 million less than the UK (GCF, 2020a).

The UK

The UK has been governed by a Conservative prime minister since 2010. From 2010–2015 the Conservatives formed a coalition with the Liberal Democrats, while from 2015 to now, they led the government without a partnering party (Historic UK, 2020). In February 2015, leaders of the Conservatives, Liberals and Labour signed a pledge together to address climate change. The pledge said that "climate change is one of the most serious threats facing the world today. It is not just a threat to the environment, but also to our national and global security, to poverty eradication and economic prosperity. Acting on climate change is also an opportunity for the UK to grow a stronger economy, which is more efficient and more resilient to the risks ahead. It is in our national interest to act and ensure others act with us". All three parties promised to aim for a "fair, strong, legally binding, global climate deal which limits temperature rises to below 2C", the level seen as the threshold of dangerous global warming" (Carrington, 2015). Cameron (prime minister 2010–2016) said during COP21 that "world leaders will have no excuses to tell their grandchildren if they fail to reach agreement to tackle climate change when the planet is in peril" (Gosden and Samuel, 2015; Historic UK, 2020). Cameron stated that an agreement must include a "binding legal mechanism" and financial support for poor and vulnerable countries and mechanisms to measure and verify progress. He said that the UK was thriving, not suffering, due to the legally binding goal of reducing emissions by 80 per cent compared to 1990 levels by 2050 (Gosden and Samuel, 2015).

In 2016, Theresa May took over as prime minister (Historic UK, 2020). She said that "there is a clear moral imperative for developed economies to help those who stand to lose the most as a result of climate change". In a speech on September 4th, 2018, British minister for Asia and the Pacific Mark Field said that that the UK "is among the largest contributors of international climate finance, especially through multilateral channels such as the World Bank and Green Climate Fund. We are giving developing countries over £5.5 billion between 2016 and 2020 to help them mitigate and adapt to the impact of climate change" (Field, 2018). In June 2019, Theresa May confirmed that the UK will adopt the target of net-zero emissions by 2050, stating that "ending our contribution to global warming by 2050 can be the defining decision of this generation in fulfilling our responsibility to the next" (Evans, 2019)

In July 2019, Boris Johnson became the new prime minister (BBC, 2019b). At the UN climate summit in New York, Johnson said that countries have to increase their nationally determined contributions to the Paris Agreement. He said he came with a "message of hope" as emissions

have been falling while their economy has been growing. He confirmed the UK's target for net-zero emissions by 2050. He pledged to double the UK's contribution to climate change finance to £ 11.6 billion over the next five years (Mathiesen, 2019). In August 2019, the UK confirmed it would double its pledge to the GCF compared to the IRM. Business and Energy Secretary Andrea Leadsom said about the GCF: "The Green Climate Fund has supported millions of people in developing countries deal with the impacts of a changing climate. I'm really proud to announce that we are doubling our contribution and continue to work with other nations to tackle this global issue". The Executive Director of the GCF said that it showed "strong UK international leadership in responding to the climate emergency" (Mace, 2019a).

At the G7 summit in August 2019, Johnson called for ambitious action to reverse biodiversity loss and stated that biodiversity protection and climate change are "two sides of the same coin". He said: "as the world's largest economies we owe it to all nations and to future generations to do better" (Hawkes, 2019). In September 2019, Johnson announced the creation of a £1 billion fund to help developing countries to transition to a low-carbon economy. Johnson said about the fund: "if we get this right, future generations will look back on climate change as a problem that we solved by determined global action and the prowess of technology" (Mace, 2019b). The fund will support British scientists and other scientists to collaborate with developing countries focusing on improving access to affordable energy, battery technology, clean stoves, reducing carbon output from major polluting industries, improving the efficiency of cooling systems, electric vehicles (Mace, 2019b; Ritchie et al., 2019). Money for the fund is redirected from development aid and it is not new money (Ritchie et al., 2019).

Norway

Conservative Solberg has led the Norwegian centre-right government since 2013 (Sandvik et al., 2020). She took over from a centre-left coalition government. The latter aimed to make Norway a leader in international climate policy by providing large financial contributions and taking up an active role in the UN negotiations. Parties of the new government supported the same climate policy as of the previous government. The main aspects of Norway's climate policy come from a formal political agreement between the old government coalition and three out of four parties who are part of the new government. The only party not to support the agreement is the right-wing Progress Party (Lahn, 2013). Solberg said Norway would double its contribution if the fund "ensures verified emission reductions from deforestation and forest degradation" (Carbon Brief, 2015). The REDD+ aspect of the GCF is still being developed and the pilot programme of providing results-based payments following the verification of emission reductions started in 2017 and Norway did not double its pledge then (Carbon Brief, 2015; GCF, n.d. n, 2020a). Between 2008 and 2014, Norway had put US$ 1.6 billion into tropical forest conservation, the most by any country (Mongabay, 2014). Norway is also the biggest contributor to the Amazon Fund with US$ 1.2 billion over the past ten years (Boffey, 2019).

At the UN climate summit in September 2019, prime minister Solberg announced that Norway would double its contribution to the GCF. Solberg said: "Norway is pleased to double its contribution to the Green Climate Fund. We have set a high level of ambition for the replenishment and we encourage others to match this. The Green Climate Fund is successfully supporting low-emission, climate-resilient transformation, and we are confident that a strong replenishment will enable GCF to increase its impact in the race against climate change" (GCF, 2019p). She also said that it is successful in helping the most vulnerable countries become more resilient to climate change (Hjukse, 2019). The prime minister of Jamaica responded saying it "would like to acknowledge the leadership shown by Norway, which has pledged to

double its contribution to our Green Climate Fund. This type of serious effort and bold leadership is what is required" (Holness, 2019). About two weeks before, the Greens Party (MDG) obtained significant victories during the local elections in Oslo and many other cities including left-green majorities in Oslo, Bergen, Trondheim and Tromsø. The MDG does not support oil and gas exploration in Norway, unlike the Conservatives and Labour (Berglund, 2019).

Sweden

Löfven, leader of the Social Democratic Party, has been prime minister of Sweden since October 2014. The Swedish government has since then consisted of a coalition between the Social Democratic Party and the Green Party (Enander et al., 2020; Olander, 2019). The red-green government pledged US$ 581.2 million to the GCF, which the Swedish Minister for International Development Cooperation Lövin, who is a member of the Green Party, called "the most ambitious contribution per capita of the countries that have so far announced their intention to support the GCF" and it is "imperative to show our solidarity with those who need economic support" (GCF, 2016a; Lövin, 2014). She called the GCF "pivotal" in increasing global momentum to addressing climate change. She stated that "the GCF is not a charity; it is an investment for our collective future, for a secure world where we can all enjoy the welfare that our unique living planet can actually give us" (Lövin, 2014). Löfven also appointed members of the Green Party as environment ministers and vice prime minister, the latter was a first. Löfven said that "Sweden will be a global role model for development, equality and in leading the fight against climate change. It will be a country known for human equality, self-confidence, solidarity and a belief in our ability to change the future" (King, 2014).

A few months before COP21, Lövin said that "developed countries have a special responsibility to transit quickly to clean energy systems and at the same time to support developing countries to leap-frog directly to renewables" (Lövin, 2015). In late September 2015, Löfven announced that Sweden would aim to become "one of the first fossil fuel-free welfare states in the world" (Bolton, 2015). At COP21, Löfven pledged another US$ 28.5 million for least developed countries (The Local, 2015). In September 2019, Löfven said that Sweden "remains committed to its high ambitions for climate financing" (Löfven, 2019). Sweden doubled its contribution to the GCF (in its national currency) and the Swedish Co-Chair of the GCF stated that "we have moved from millions to billions, but we need to move to trillions. Replenishing GCF is the most important climate event of 2019" (GCF, 2020a, 2016a, 2019q).

Italy

Italy has had nine governments in the last fifteen years. When a prime minister wants to pass reforms, it has to pass a confidence vote in the parliament. If the vote is lost, the entire government has to resign. There are many political parties in Italy. In the 2018 elections, nine parties gained representation in the parliament (Yamei, 2019). In 2014, Renzi of the Democratic Party became prime minister, leading a left-right coalition (BBC, 2019c). Under his leadership, Italy pledged US$ 334 million (€250 million) at the pledging conference for the IRM in 2014, though only US$ 268 million was confirmed (GCF, n.d. j). In October 2016, a bill was issued to approve the Paris Agreement and Italy's remaining contribution of €150 million. Renzi posted on Twitter that "Italy thinks of its own children" and future generations (DW, 2016). Italy ratified the Paris Agreement on November 11th, 2016 (UN, 2020c).

Later in 2016, Renzi resigns and is succeeded by his ally Gentiloni, also from the Democratic Party (BBC, 2019c). When Trump announced his decision to withdraw from the Paris Agreement, Gentiloni joined France and Germany in saying that they "will step up efforts to

support developing countries, in particular the poorest and most vulnerable, in achieving their mitigation and adaptation goals" (Sampathkumar, 2017). On the website of the Italian Ministry for the Environment, it states that Italy is "steadily supporting the Green Climate Fund". It is also helping developing countries, with accessing GCF resources and developing projects via existing AEs, through bilateral programmes (IMELS, 2018).

In June 2018, Conte, an independent proposed by the Five Star Movement, became the prime minister of the first populist coalition government in Western Europe (BBC, 2019c; Ceccarini and Newell, 2019). In August 2019, a new coalition government made up of the Five Star Movement and the Democratic Party, was formed, led by Conte (Borghese and Fox, 2019). For the replenishment of the GCF, Italy increased its pledge to €300 million (US$ 338 million) (GCF, 2020a). However, the budget law adopted in early 2020, only authorizes €33 million per year for the GCF from 2020–2023 and €66 million per year from 2024–2028 (Gazzetta Ufficiale, 2019). A search through the GCF website shows that Italy has not signed a contribution agreement yet.

To summarize the following factors are identified as factors influencing pledges:

- Focus on costs and obligation vs focus on opportunities and responsibilities;
- Leadership;
- Domestic politics
- The economic situation;
- The extent of diverging views between alternating governing parties.

Countries that focus on costs and obligations pledge little or not at all, while countries that focus on opportunities and their responsibilities towards developing countries and future generations will continue or increase their pledges. Those who emphasize taking the lead in tackling climate change and see it as a chance to improve their reputation will pledge more. But pressure from domestic groups can influence, for better or worse, part of the above mentioned positive factors as potentially shown by Australia. The economic situation is also important as shown in Italy. Countries with two main parties who have very different views on climate change and climate finance are more susceptible to fluctuating pledges as shown by the US, but also Australia and Canada are vulnerable to this. For more discussion on the influence of national politics, see section 6.2.

4.3 Co-financing

Contributions from donor countries will not be enough to reach the goal of US$ 100 billion annually. In the GEF, co-financing has been an integral part of raising additional resources, increase country ownership and create stronger partnerships on the ground. The GEF aspires a minimum co-financing ratio of six at the portfolio level, meaning that for every euro spent by the GEF, another six euros are raised by either public or private sources. For the CIFs, co-financing is not formally required. Though there is an aspiration, for concessional lending, for achieving a ratio of four (GCF, 2018j). The GCF also wants to lever extra funding, besides what it provides itself (Cui et al., 2020). One of the guiding principles of the GCF is "leveraging of other financing, including public and private financing, seeking to maximise leverage in the case of private financing" (GCF, 2013e, p. 37).

However, there has been some confusion as shown by a survey of GCF stakeholders (152 respondents) about co-financing in March 2017 by E Co, a UK-based consulting company. They looked at benefits, challenges and expectations. For the GCF, the main benefit is the

increased funding and learning from other institutions. However, only 22% of the stakeholders agreed with that (E CO, 2017). Most of them (38%) saw crowding-in, the attraction of "additional long-term investments beyond upfront commitments", as the main advantage (E CO, 2017, p. 2). Other benefits included a higher chance of approval and risk diversification. The main challenge (47%) was said to be meeting the GCF's expectations regarding volume (24%) and additionality (23%). Other challenges mentioned were the uncertainty about the required co-financing level (20%) and what sources can be used (18%). Some of the respondents found that particularly vulnerable countries (SIDS, LDCs, African states) should be free from any co-financing requirements. They feared such requirements could become an exclusionary mechanism (E Co, 2017).

Grüning et al. (2020) state that the current GCF website is not up to date with the new definitions from the policy on co-financing. It is not clear from the GCF website to which part in the GCF project cycle (before, during or after implementation) the co-financing amounts refer to (Grüning et al., 2020). This is a limitation to the analysis in this section.

Table 5 shows the comparative analysis of co-financing per theme in March 2018 (values in brackets) and March 2020. Data for 2018 was obtained from GCF (2018j). Data for 2020 was calculated directly from data on individual projects (GCF, n.d. i). Most of the co-financing goes towards mitigation and cross-cutting (=mitigation + adaptation), while the least goes to adaptation. Mitigation and cross-cutting have the highest, and a similar, co-financing ratio, which is more than double that of adaptation.

Table 5 Analysis of co-financing in the GCF per theme (GCF, 2018j, n.d. i).

Theme	Share of total co-financing	Overall co-financing ratio	Co-financing (billion USD)	GCF financing (billion USD)	Co-financing/Project-value
Adaptation	13.9% (20.7%)	1.29 (1.57)	1.895 (1.705)	1.473 (1.084)	56.3% (61.1%)
Mitigation	42.7% (51.5%)	3.04 (3.03)	5.812 (4.234)	1.911 (1.398)	75.3% (75.0%)
Cross-cutting	43.4% (27.8%)	2.99 (2.18)	5.894 (2.286)	1.969 (1.048)	75.0% (68.6%)
Total	100%	2.54 (2.33)	13.601 (8.226)	5.353 (3.530)	71.8% (70.0%)

Table 6 shows the average share of co-financing per project in the total value of GCF approved projects in March 2017 obtained from E Co (2017), which did not provide values for the overall share of co-financing, and July 2020, calculated directly from individual projects obtained from GCF (n.d. i). Mitigation has the highest average co-financing in a project, but decreased by 7%. Adaptation has the lowest average, but increased by 5%. Cross-cutting is in between and increased by 13%.

Table 6. Average co-financing share in the total value of GCF approved projects (E Co, 2017; GCF, n.d. i).

	Total	Mitigation	Adaptation	Cross-cutting
March 2017	43% ±27%	65%	30%	43%
July 2020	47% ± 28%	58%	35%	56%

Table 7 shows the differences in co-financing between the public and private sector projects in 2018 (values in brackets) and 2020. Co-financing can come from public or private entities and differs between each project. The values are sourced from the same sources as Table 5.

The private sector has an overall co-financing ratio that is 75% higher than the public sector. The median is for the private sector is almost four times higher than the public sector, while its average is more than twice as high compared to the public sector. Seven public projects do not receive any co-financing at all (four mitigation and three adaptation). 64% of GCF proceeds goes to public projects and 50% of co-financing goes to public projects.

Table 7. Analysis of co-financing per sector (GCF, 2018j, n.d. i).

Sector	Overall ratio	Median	Average	Co-financing (billion USD)	GCF funding (billion USD)
Public	2.00 (1.94)	0.71 (0.70)	1.53 (1.59)	6.84 (4.36)	3.43 (2.25)
Private	3.51 (3.00)	2.72 (2.72)	3.47 (3.18)	6.76 (4.50)	1.92 (1.50)

Table 8 shows co-financing ratios of groups of projects based on economy, priority group or not, income level and type of AE. Data comes from GCF (n.d. i) unless otherwise mentioned. Emerging economies include Brazil, Chile, China, Colombia, Hungary, Indonesia, India, Malaysia, Mexico, Peru, Philippines, South Africa, Thailand and Turkey. Russia was excluded as it is considered a developed country in this study (IG, 2019). Of the 128 approved projects, nineteen of them include an emerging economy. Four of them are adaptation, eight are mitigation and seven are cross-cutting projects. Nine are private sector and ten are public sector projects. The overall co-financing ratio in those projects is double that of those not including emerging economies. The median and average co-financing ratio are more than twice as high in those projects including an emerging economy.

Table 8. Co-financing ratios based on different criteria (in bold) and received GCF funds.

	Overall	Average	Median	GCF funds (USD million)	GCF funds per project (USD million)
Economy					
Emerging (19)	4.12	4.1	2.07	1298	68.30
Other (109)	2.04	1.54	0.83	4055	37.20
Priority groups					
PVCs (82)	2.16	1.59	0.81	3412	42.12
Non-PVCS (47)	3.21	2.49	1.15	1941	41.30
Income					
Low (21)	0.71	0.75	0.32	638	30.38
Lower-middle (53)	2.64	1.96	1.26	1960	36.98
Upper-middle (33)	1.84	1.71	0.59	1169	35.42
High (6)	8.57	5.78	2.14	293	48.83
Mixed (15)	2.57	2.40	1.97	1294	86.25
Type of AE					
International (101)	2.70	2.15	1.03	4561	45.16
Direct (national) (17)	0.99	0.71	0.25	381	22.41
Direct (regional) (10)	2.25	1.76	1.08	410	41
Direct (27)	1.64	1.10	0.64	791	29.30

Two notable projects involving an emerging economy are one in China and one in Chile. The project in China has a co-financing ratio of 13.14 and the one in Chile has a ratio of 17.23. When only looking at thirteen projects which include only emerging economies, the overall co-financing ratio increases to 4.67. While most GCF funds go to projects that are not in emerging economies, those projects receive fewer GCF funds on average than projects in emerging economies.

Projects that do not include a priority group (known as Particularly Vulnerable Countries or PVCs) are characterised by a higher overall co-financing ratio of 3.21 vs 2.16. On average,

PVC projects have a ratio of 1.59 vs 2.49 in non-PVC projects. PVC projects receive most GCF funds, but the difference is very small when looking at the average per project.

Regarding income, classification is based on World Bank (2020h). High-income countries have a much larger overall, average and median co-financing ratio. This is followed by lower-middle income countries, while low-income countries leverage the lowest amount of funds. For upper-middle countries, while having an overall and average co-financing ratio higher than one, the median is 0.59. Mixed projects have an overall, average and median co-financing ratio of 2.57, 2.40 and 1.97 respectively. Most GCF funds go to lower-middle and upper-middle income countries or projects with mixed groups. While only a low amount goes to high-income countries, they receive a relatively high amount per project. The highest amount per project goes towards projects that include countries from different income groups.

The list of AEs was obtained from GCF (n.d. o). Based on the type of AE, projects implemented by international AEs have the highest overall and average co-financing ratio, closely followed by regional direct AEs. The latter has a higher median value (1.08) than international AEs (1.03). Projects implemented by direct national AEs have co-financing ratios lower than one. Most GCF funds go to international AEs. While similar amounts go to regional and national direct AEs, the regional direct AEs receive almost twice as much per project on average.

Table 9. Co-financing ratios of other climate funds (Amerasinghe et al., 2017).

GEF-5 and 6	LDCF	SCCF	CTF	SCF
9.7	4.1 (09/2016)	7.5 (09/2016)	9.1 (06/2015)	2.2 (06/2015)

Table 9 shows the co-financing ratios of other climate funds. The GEF (5th and 6th replenishment cycle), the CTF and SCCF have the highest values: 9.7, 9.1 and 7.5 respectively. The SCF has the lowest co-financing ratio of 2.2, while the LDCF has a co-financing ratio of 4.1. Data are from their inception up until September 2016 for the LDCF and SCCF and up until June 2015 for the CTF and SCF. Data comes from Amerasinghe et al. (2017).

Chapter 5: Distributional justice

As the title states, this chapter deals with distributional justice. The chapter is split up into two parts. The first part looks at distributional justice from the supply side. It calculates fair contributions for developed countries using both consumption-based emissions and production-based emissions. It compares fair contributions to the pledges they made to the GCF. The second part looks at distributional justice from the demand side. It calculates the relative shares for different regions and compares them to the fair received shares calculated by Cui et al. (2014). A more detailed look at the type of projects in the different regions is also done.

5.1 Fair contributions

Fair contributions here are calculated based on the principles of historical responsibility (HR) and respective capabilities (RC), which are aggregated using the PSC approach as explained in the methodology section 1.3. But for HR, two types of emissions can be used: production-based or consumption-based. The former attributes emissions to where they occur = production-based accounting (PBA). The latter attributes emissions, which are associated with the production of goods and services, to the consumers of those goods and services = consumption-based accounting (CBA) (Dawkins and Croft, 2017). Both national and subnational entities have been looking at consumption-based emissions. Some examples follow next.

Several US cities, such as San Francisco and Portland, are starting to use consumption-based emissions to achieve local sustainable consumption (USDN, n.d.). By law, Scottish ministers have to present a report of consumption-based emissions to the Scottish Parliament (Energy and Climate Change Committee, 2012). Canada uses consumption-based emissions, based on carbon dioxide emissions only, as one of its climate indicators, which are part of the Canadian Environmental Sustainability Indicators (CESI) program. CESI's report from 2017 states that a focus on CBA can support climate change policy by improving the visibility of the influence of choices made by households, businesses and governments on GHG emissions (Environment and Climate Change Canada, 2017). Some local authorities in the UK have adopted consumption-based emission targets and policies. This led to new policy options targeting consumption behaviour. One local authority argued that it would be more useful even if there was a national approach, and that it would make it clearer what behavioural changes would best reduce emissions (Energy and Climate Change Committee, 2012). The UK Department of Energy and Climate Change (DECC), stated that "it could also be argued that developing countries should not be entirely responsible for emissions associated with goods and services that are mainly consumed in the developed world" (Energy and Climate Change Committee, 2012, p. 28).

Table 15 and Table 16 in the appendix show the results of the PSC approach using consumption-based and production-based emissions respectively. Based on the calculated fair shares, the ten biggest contributors would be the USA, Japan, Russia, Germany, the UK, France, Italy, Canada, Spain and Australia. Combined, they account for 85.1% of fair contributions using PBA and 85.5% using CBA. Differences in fair shares using CBA or PBA are very small with less than 1%, except for Russia (+1.24%). The only countries that changed their votes when using CBA are Belarus (RC → HR), Cyprus (HR → RC), Malta (HR → RC) and Moldova (RC → HR). Eighteen countries would pay slightly more when using CBA, while 31 would pay slightly less when using CBA. The 49 countries have emitted 531 Gt-CO2-eq between 1990 and 2016 when using CBA, and 481 Gt-CO2-eq when using PBA. CBA represents an increase of 10.3% compared to PBA. On a country-basis, CBA represents a

change in emissions varying significantly between countries from -99.8% for Belarus to +257.8% for San Marino with an average of +28.2% and a median of +16.3%.

Figure 3 shows how far short countries are from channelling their fair contributions through the GCF (based on PBA). It assumes that all of the public finance counting towards the US$ 100 billion goal should flow through the GCF. The figure includes the ten countries with the largest fair shares. Since it is not clear how much of the US$ 100 billion per year by 2020 should come from public sources, their fair shares were compared to three cases. For each case, the fair share is multiplied with the total amount that is assumed to flow through the GCF to determine the fair amount for each contributor. In case 1, the total amount is the total pledged amount, expressed in 2019 value, divided by nine which is US$ 2.3 billion (The IRM started in 2015 and the GCF-1 ends in 2023 → nine years) (blue). In case 2, the total amount is US$ 50 billion (orange) and for case 3, the total amount is US$ 100 billion (yellow). The figure shows the relative difference between the actual amount pledged and the fair amount. A value of 0% means that a country pledged its entire fair contribution through the GCF. A value of 100% means that a country has pledged nothing to the GCF. Negative values mean it has exceeded its fair contribution. An example of how the values were calculated is given in Table 17 in the appendix.

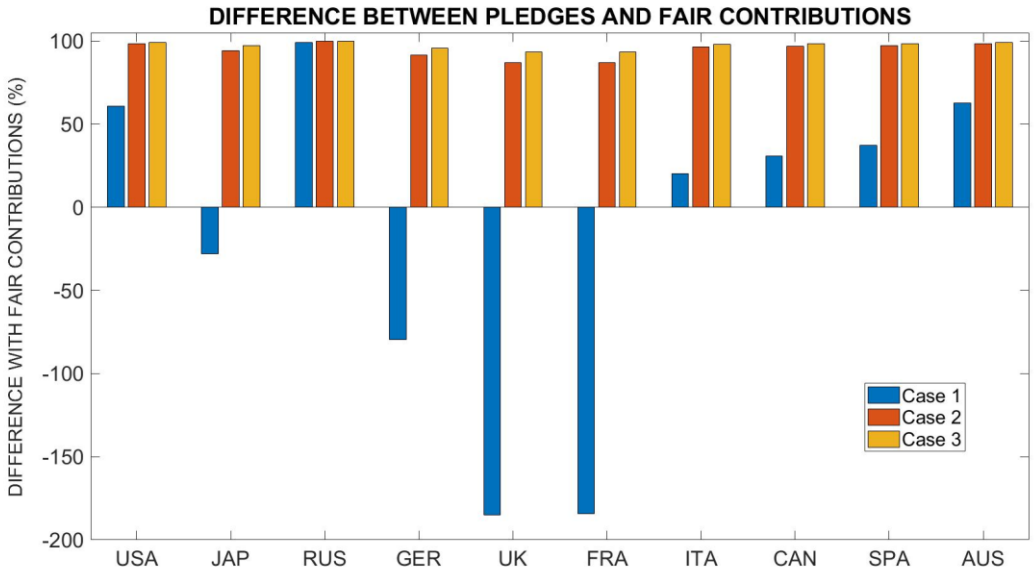


Figure 3. Differences with countries' actual pledges and what would be fair pledges (USA = United States of America, JAP = Japan, RUS = Russia, GER = Germany, UK = United Kingdom, FRA = France, ITA = Italy, CAN = Canada, SPA = Spain, AUS = Australia).

In case 1, eleven countries pledged more than their fair share: Denmark (-61%), Finland (-115%), France (-184%), Germany (-79%), Japan (-28%), Luxembourg (-396%), Monaco (-313%), Norway (-444%), Sweden (-752%), Switzerland (-40%) and the UK (-185%). Belgium, Canada, Italy, the Netherlands and Spain came short up to between 16 and 37%. The other 21 developed countries came short more than 50%, fourteen of which more than 90%. In case 2, no country pledged their fair share or more. Sweden is the best country, coming short 61%. Only five other countries come short less than 90%: France (87%), Luxembourg (77%), Monaco (81%), Norway (75%) and the UK (87%). In case 3, only three countries come short less than 90%: Luxembourg (89%), Norway (87%) and Sweden (80%). Austria came 53%, 98% and 99% short in case 1, 2 and 3 respectively.

During the IRM, nine developing countries pledged for a combined amount of US$ 124.6 million, most of which came from Korea (US$ 100 million). The other developing countries were Chile, Colombia, Indonesia, Mexico, Mongolia, Panama, Peru, Vietnam. However, Peru and Vietnam did not confirm their pledge. During the first formal replenishment, only two developing countries (Indonesia and the Republic of Korea) pledged. Both doubled their pledge from the IRM. Since fair shares only refer to the 49 developed countries included here, a fair share for other countries would be zero. Thus the developing countries that pledged a certain amount automatically pledged more than their fair share. For developed countries that have not pledged anything, they automatically are 100% below their fair share.

5.2 Allocation of funds

Figure 4 shows changes over time of how much GCF funding goes to mitigation, adaptation and cross-cutting projects. Over time, the share of adaptation has decreased, meaning that the GCF has been going further away from achieving its balance between mitigation and adaptation. However, the numbers for the GCF are quite different compared to the global climate finance regime. The GCF is doing much better in achieving a balance compared to the global picture, notably for mitigation for which the share was less than half of the global numbers. Carty and Le Comte (2018) reported shares of 71% for mitigation, 20% for adaptation and 9% for cross-cutting in global climate finance in 2015–2016. Though the share of GCF funding for mitigation has significantly increased by about 10%, despite a slight decrease over the past two years. The share for cross-cutting decreased first, but has increased again over the past two years. It should be noted that these are percentages, so if one value goes up, another one automatically goes down as is shown for the year 2018 when the focus shifted from mitigation to cross-cutting. When looking at adaptation, 72.4% is going towards Particularly Vulnerable Countries (PVCs), which is exceeding the GCF's target of 50%.

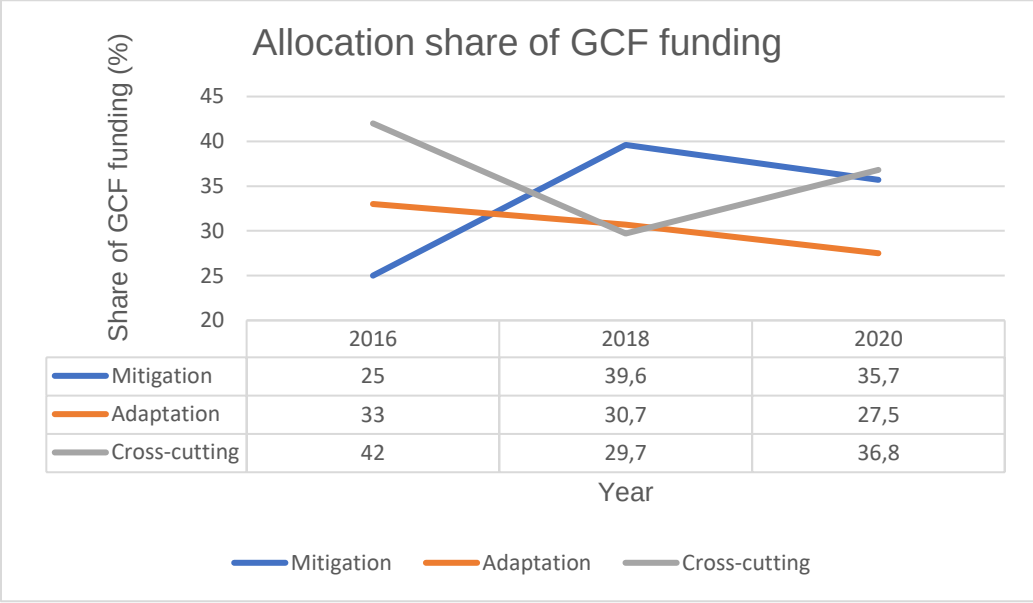


Figure 4. Changes in shares of GCF funding for mitigation, adaptation and cross-cutting (GCF, n.d. i, 2018j).

Figure 5 shows how much funding goes to countries based on income level. Two things jump out. First, only 12% of GCF funding goes to projects exclusively in low-income countries, 82% of which in Africa. And secondly, almost 60% goes exclusively to middle-income countries. The numbers between brackets refer to the number of projects.

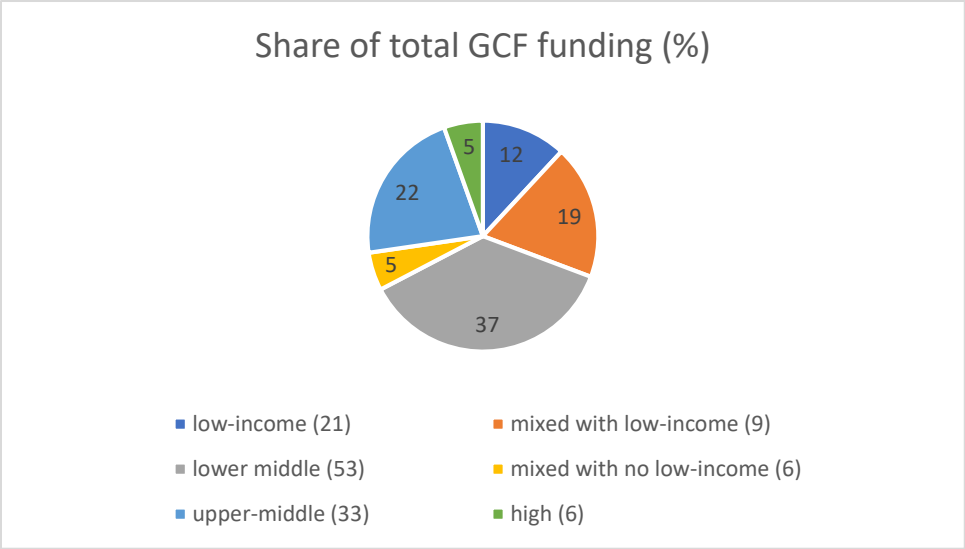


Figure 5. Share of GCF funding based on the income level of recipient countries.

Table 10 shows the allocation shares of GCF funds calculated by Cui et al. (2014) and the actual shares of GCF funding for each region. Data is as of March 12th 2020 (25th Board meeting of the GCF). Shares when excluding multiregional projects are written within brackets. Excluding them does not change the shares of China, India and the Rest of the World (ROW) significantly. For Africa, excluding them decreases its share by 6.61%. For Other Asian Economies (OAS), excluding them increases its share by 3.89%. For Middle Eastern States (MES), its share is cut by half when excluding multiregional projects. For CMS it increased by 3.17%.

Of all regions, China has the largest deficiency of 14.91/14.55%. India receives 2.34/1.69% less. Middle Eastern States received 7.93/8.58% less. CSM received 0.30/3.47% more, while the Rest Of the World received 4.38/4.04% less. Africa received 24.18/17.54% more while Other Asian Economies received 5.06/7.76% more. In section 1.3, it was mentioned that project FP086 had limits for allocating GCF funds to each country (max 25% per country). This limit is not exceeded by allocating GCF funds to regions based on population.

Table 10. Shares of GCF funds by region (Cui et al., 2014; GCF, n.d. g).

Region	Share GCF funds (%) by Cui et al. (2014)	Actual share % GCF funds
China (CHN)	16.78	1.87 (2.23)
India (IND)	5.66	3.32 (3.97)
Other Asia Economies (OAS)	18.25	23.31 (26.10)
Africa (AFR)	18.65	42.83 (36.19)
Middle East (MES)	9.23	1.30 (0.65)
Central and South America (CMS)	17.48	17.78 (20.95)
Rest Of the World (ROW)	13.96	9.58 (9.92)

Further analysis of different regions will treat multiregional projects separately. Figure 6 takes a closer look at those projects. Detailed numbers for the rest of the figures in this section can be found in Table 19 in the appendix.

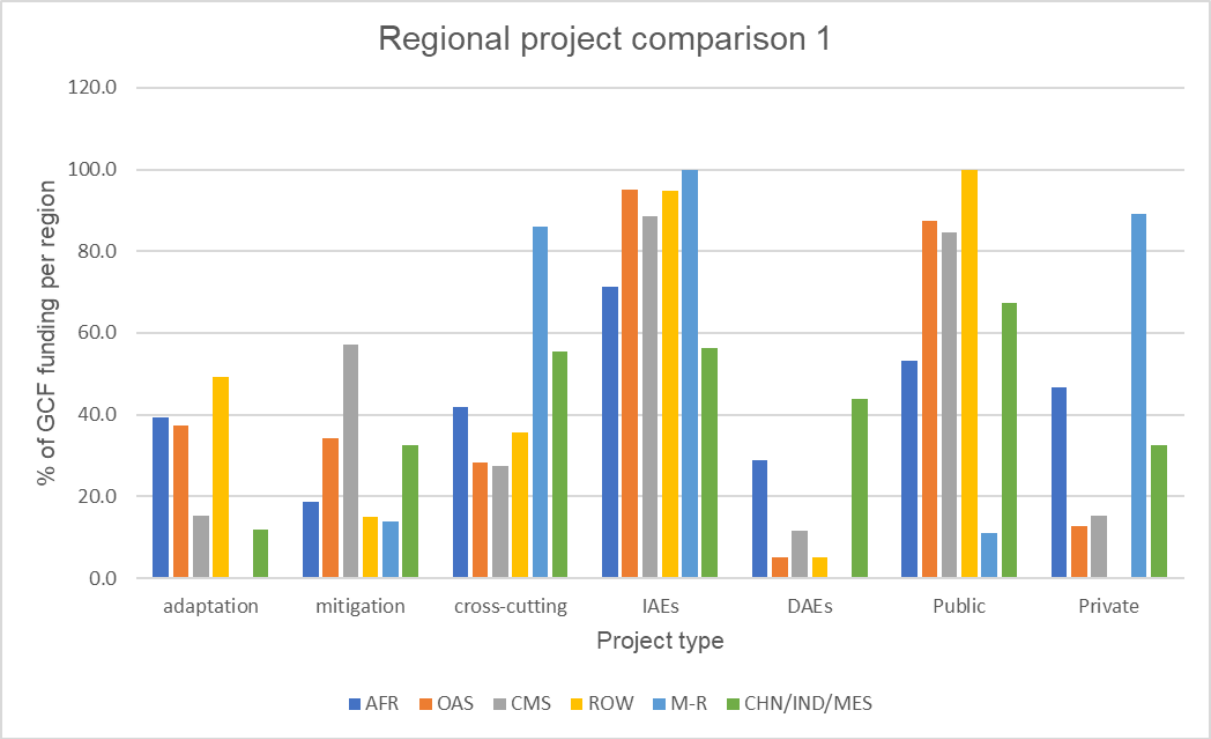


Figure 6. Comparing different regions (M-R = multiregional).

Most funding in multiregional projects goes to cross-cutting projects. In Africa, adaptation and cross-cutting projects receive similar amounts, while mitigation is limited. CMS sticks out with its high share of mitigation and a low share of adaptation. Adaptation is relatively the strongest in ROW. In OAS, there is more of a balance, with a slightly higher share for adaptation. In the other three regions (CHN, IND, MES), cross-cutting dominates, while only little goes to adaptation, despite there being two projects of each. Mitigation is solely for one project in China. Regarding AEs, it is clear that IAEs dominate in all regions and exclusively for multiregional projects. Africa is doing better with almost 30% of GCF funding towards projects of DAEs. For CHN/IND/MES, the high share of DAEs is due to the two projects in India, the other four are of IAEs. When looking at the sector, public sector projects dominate with shares over 60% and even 100% in ROW, except in Africa and multiregional projects. Though there are still more public sector projects (33) than private (12) in Africa. Of the five multiregional projects, only one is from the public sector.

Figure 7 shows how many projects have been approved in the regions. Africa dominates with about one-third of the projects, followed by OAS and CMS. China (1), India (3) and the Middle East (2) only account for a combined six projects. It also shows how much of GCF funding regions receive as grants. In ROW it is much higher compared to other regions. AFR and OAS only receive just over half as grants, while other regions receive even less than half. Finally, it shows their share of the emissions that are expected to be avoided by implementing GCF projects per region. Most of the reductions occur in OAS. Africa, CMS and multiregional

projects have similar amounts of emission reductions. Only little comes from projects in ROW, CHN, INDA or MES.

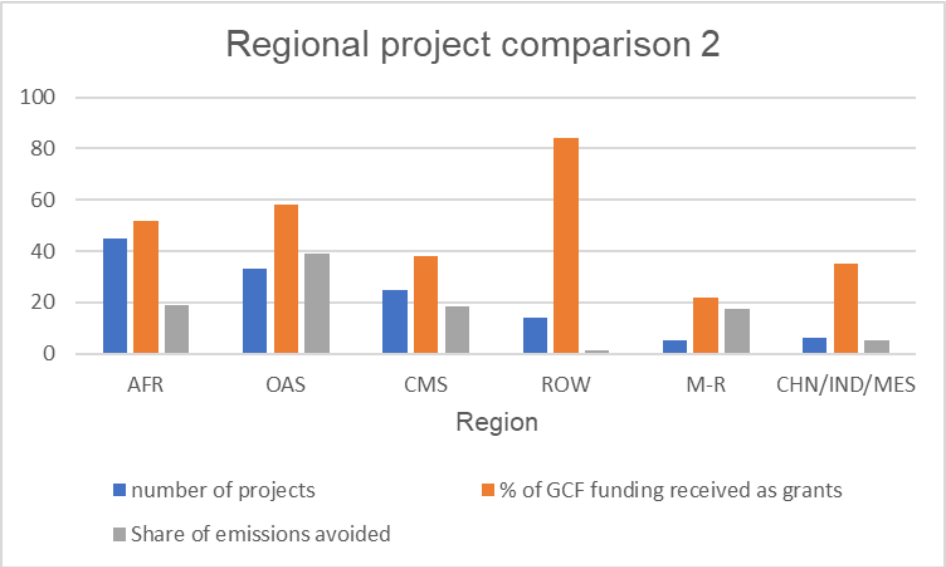


Figure 7. Comparing different regions continued (M-R = multiregional).

Table 11 shows co-financing ratios for the regions with enough projects to calculate statistics. Africa and ROW have the lowest ratios, while CMS has the highest. The average is almost two or three times higher than the median for the regions, showing the influence of outliers. For example, CMS is influenced by one project in Chile with a ratio of 17.2, which is why the average is more than double that of the median. In India, the projects have co-financing ratios of 1.5 (mitigation), 2.0 (cross-cutting) and 3.8 (adaptation). The Chinese project has a ratio of 13.1. For one Middle-Eastern project, it is 0.9, while the other one has no co-financing. For the multiregional projects, two have very high co-financing ratios of 7.2 and 7.0. The other three projects have ratios of 1.72, 1.97 and 2.66. The three European projects (ROW) have co-financing ratios of 1.60, 6.07 and 4.80.

Table 11. Co-financing ratios per region.

Region	Average	Median	Overall
Africa	1.5	0.5	2.1
Other Asian Economies	1.8	1.0	2.5
Central and South America	2.1	0.9	2.2
Rest Of the World (SIDS)	1.7	0.7	1.8

Table 12 shows the amount of official development assistance (ODA) in 2018 and investments in renewable energy (REI) in 2018 by region. How regions are defined can differ with the kind of information and a direct comparison is not always possible. China is not included in ODA because it is a net donor country, with a net ODA value of US$-737 million (OECD, 2020). Africa and Asia (excl. China and India) dominate with more than half going to those two regions. The Middle East follows which receives more than ROW (Oceania + Europe), CMS and India combined. Relatively very little goes to Oceania and India. When looking at investments in renewable energy, which also includes developed countries, China and Europe dominate with a combined share of over 60%. The rest of Asia follows with a share three times larger than MES+AFR, India and the Americas (excl. the US), who all have similar shares.

Table 12. Net ODA 2018 and investment in renewable energy (REI) 2018 (OECD, 2020; Wang, 2020).

Region	million USD	% total ODA	Region	billion USD	%total REI
Africa	55133	36.4	MES + AFR	16.1	6.7
Asia (excl. China and India)	47387	31.3	Asia (excl. China/India) + Oceania	45.4	18.8
Oceania	2257	1.5	China	93.2	38.5
Europe	6420	4.2	Europe	62.2	25.7
Latin America	10402	6.9	Americas (excl. US)	13.6	5.6
India	2454	1.6	India	11.4	4.7
Middle east	27300	18.0			

Chapter 6: Discussion

This chapter discusses the results of chapters three to five. Section 6.1 discusses the results of chapter three about resource mobilisation and governance. Section 6.2 evaluates the findings from chapter four related to current sources of funding and the national politics of contributors. The final section 6.3 is about chapter five regarding fair contributions and allocation and compares the results of this study with other papers and discusses them.

6.1 Raising funds

This section focuses on several main points that became clear from chapter three.

1) There is a lack of clarity regarding the numbers and targets relating to how much the GCF should raise and how much of the US$ 100 billion goal should go the GCF;
2) There is an ongoing discussion about how much funding should come from public or private sources and which financial instruments to use;
3) There is confusion about how much co-financing a project should have;
4) The influence of the COP is limited;
5) The GCF looked at other funds, but seemed only to copy from them;
6) There were attempts to change the process of resource mobilisation, but they failed. This exposed a certain dividedness within the GCF;
7) Dispute resolution and enforcement mechanisms are weak;
8) The US did not break its arrangement with the GCF by stopping payments.

6.1.1 A lack of clarity

One keyword that arises from section 3.3 is clarity, or more a lack thereof. There has been and still is a lot of uncertainty about the GCF. An important source of that uncertainty is the lack of numbers and targets of how much resources should have been mobilised by the GCF during the IRM and GCF-1, and how much of the US$ 100 billion goal should flow through the GCF (GCF, 2014d). That goal was proposed in 2009 by US State Hillary Clinton. The goal states that developed countries would have to provide US$ 100 billion annually to support developing nations in their efforts for mitigation and adaptation (Friedman and Samuelsohn, 2009). The language is vague with stating that a “significant amount” of adaptation funding should flow through the GCF (UNFCCC, 2009). There is also nothing in the governing instrument of the GCF (GCF, 2011). The COP asked to mobilise resources at a significant scale (UNFCCC, 2013). But it is not said what is significant. While the COP recognises the need for clarity, it never sets a target for the GCF (UNFCCC, 2013). Developing countries and civil society emphasised the need for a number for the size of the fund and how it relates to the US$ 100 billion goal, but developed countries refused, saying that they did not have the political mandate for it (GCF, 2015f; Raman, 2014a). The delegate of Norway said he “hoped” that pledges would lead to significant funds (Raman, 2014b). This is a reactionary approach, and this is detrimental for predictability. What is needed, is proactive behaviour. While the roadmap produced is an example of such behaviour, it remained relatively vague and refrained from setting any targets for the GCF. It only stated that the GCF is important for adaptation finance (“Roadmap to US$100 Billion,” 2016). In terms of predictability, setting targets would be a significant improvement. In terms of predictability, as for a trigger for replenishment, a fixed time for starting the replenishment would be better than having the replenishment only started when a certain percentage of funds have been committed, as said by the Secretariat (GCF, 2015f).

Some board members compared the amount of pledges to the US$ 100 billion goal (GCF, 2014f, 2015c). Thus they have expectations that all funding contributing to that goal, should flow through the GCF. These are likely developing countries as Lattanzio (2014) said it is mostly developing countries that have large expectations of the GCF of up to US$ 100 billion annually. The lack of clarity regarding by whom the pledge of US$ 100 billion per year by 2020 will be provided and how and for what was also addressed by Fridahl and Linnér (2016) and Sayegh (2017). Both also concluded that more clarity on how much should flow through the GCF would be an improvement and build trust. However, Fridahl and Linnér (2016) reported large differences between developing and developed countries' view on how much should go to the GCF, with developing countries preferring a much higher share. They explain this through the higher degree of influence of developing countries in the GCF (Fridahl and Linnér, 2016). Thus the lack of clarity is due to North-South differences which prevent an agreement on a number. The developed countries are reluctant to specify higher targets because it would mean giving up control over their contributions.

However, the current capacity of the Secretariat is limited to US$ 3–5 billion per year (GCF, 2019g). Increasing its capacity could be done by increasing its staff, equipment (e.g. computers, infrastructure) and its administrative budget. The capacity of the GCF would need a massive increase if the GCF is to be the main channel for the US$ 100 billion commitment. This was recognised by one Board member (GCF, 2019g). Even if contributors would provide for example US$ 70 billion/year, the GCF could not cope with it. Currently, its capacity is underused. It is clear that the US$ 100 billion goal is not enough that is has no empirical basis (Puig et al., 2016; Rogelj et al., 2018; Tirpak and Parry, 2009). However, demand for GCF funds is far below US$ 100 billion. This could because developing countries are aware of the limited funds of the GCF. It could also be due to a lack of institutional capacity linked to a lack of DAEs.

But the GCF accepted that supply will never meet demand, which essentially means giving up. This corresponds to the "firewall" identified by Bracking (2014) to prevent a connection between what is needed to prevent the worst of climate change and what capital is willing to do. She mentions, as part of this firewall, the threat of the private sector to withdraw capital if things did not go their way. Governments did this implicitly and much less strong by trying to convince others that if there was no earmarking and no linking of voting to contributions, pledges would be lower than they otherwise could be. By saying that demand will never meet supply, this created, as Bracking (2014, p. 14) said, a "firewall of apparent impossibility that serves to arrest the conversation". Thus by admitting the gap, there is no need to talk about it later again. At the time, demand for GCF funds was US$ 23 billion (GCF, 2019g). From the OECD numbers of climate finance given in section 3.1, it is clear that providing US$23 billion annually is already exceeded (OECD, 2019). From a harm avoidance justice point of view, this is not per se a problem. If it is deemed more effective to provide funds through other channels, than the choice of providing finance by other means than the GCF could be justified. But some key features of the GCF are its equal representation by developed and developing countries and its focus on both adaptation and mitigation, while the other Financial Mechanism to the Convention, the GEF, only focuses on mitigation (GCF, 2011; Thompson, 2016). Thus while it could be consistent with harm avoidance justice, it could compromise procedural and distributional justice.

Another source of uncertainty is the source of funding. Particularly private versus public finance (Schalatek, 2019b). As Lattanzio (2014) said, there is no clarity on how much should come from public and how much should come from private sources and that is still the case. Developed countries more and more started emphasising private finance (Climate Advisers, 2013). But what would be just? The definition of compensatory justice is repeated here: "the

provision of resources to a victim of injustice with the goal of minimizing or reversing the impact of harm done by the injustice" (Mullen and Okimoto, 2015). Thus from a compensatory justice point of view, it does not matter whether funding comes from public or private sources, as long as funding is provided to developing countries. This is a viewpoint that developed countries also seem to have. From the viewpoint of corrective justice, which focuses on who is responsible for the harm, a similar conclusion can be drawn. Private companies are responsible for significant amounts of emissions (Taylor and Watts, 2019; WRI, 2019). Thus both the private and the public sector have a responsibility to remedy the problems caused by climate change.

This only says something about the source of finance, not the type of financial instrument that is used. That is where issues arise. Only instruments that do not hold claims of GCF assets are consistent with compensatory justice. Imagine that, if someone would commit a crime, and pay a fine, that person would get the money back. Nobody would consider that to be fair. The use of loans paints a false picture as stated by Oxfam as the net transfer is much smaller depending on the loan's characteristics (Carty et al., 2016). Lattanzio (2014) reported a continuous debate between donor and recipient countries about whether debt-based instruments are appropriate. The GCF decided to aim to maximise the grant element. This shows that it is aware of and that it, though rather implicitly, recognises that grants are the justest instruments and more appropriate, particularly in adaptation. However, it is not explained when it is considered maximised nor is a target given (GCF, 2014g). Most regions receive only around half of the funding as grants (Figure 7), showing that the GCF is not a full compensatory mechanism. When viewing it from the point of adequate funding, repayable instruments have the advantage of generating additional funds, which could be used by the GCF for that project or other projects. Whether that would be consistent with compensatory justice is not straightforward. That additional funding is not provided by developed countries and thus would not be part of any compensation by developed countries. However, one could argue that the additional funding was leveraged through funding provided by developed countries and it should be counted. Currently, the amount is very low due to the incompletion of most projects.

The GCF is more and more treated like a bank. One Board member even explicitly stated that the European Investment Bank is everything the GCF should be (GCF, 2017c). It acts as a bank by investing a portfolio, providing loans, equity and guarantees (GCF, 2016a, n.d. m). This is in agreement with what Bracking (2014) and Bruun (2019) called the financialization of the GCF. Financialization is defined as "the increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies" (Epstein, 2005, p. 3). Bruun (2019) also said that ecological modernisation became dominant in the GCF, meaning that the GCF was seen as a bank or development finance institution separate from the UNFCCC. The low amount of public funding means the GCF has to look for additional sources such as the private sector. Because the GCF is a relatively new institution and global financial structures and practices have been around for much longer, it is easier to adjust the GCF to the private sector than the other way around.

The lack of clarity also is evident when it comes to co-financing. There has been a lot of confusion about how much co-financing should be (E Co, 2017). The policy on co-financing did little to resolve this confusion (GCF, 2019k). That it did not adopt targets for co-financing is probably due to concerns that it could exclude some countries or projects, as said by some respondents in the survey by E Co (2017). Setting targets here might thus not be useful. The concern of exclusion is justified based on Table 8 as co-financing in emerging economies, non-PVC and middle-income countries are all higher than non-emerging economies, PVC countries

and lower-income countries. Cui et al. (2020) argued that the GCF should adopt strict co-financing targets for emerging economies and lower standards for poorer countries. However, such type of differentiation would likely be contentious and not acceptable for emerging economies. Regarding public and private financing, co-financing ratios show why developed countries increasingly look at private finance as part of the mobilisation of climate finance as private sector projects leverage more funds.

6.1.2 The GCF, the COP and other international funds

Vanderheiden (2015) states that, since the GCF is not directly under the authority of the COP, critics see the GCF moving away from UNFCCC principles such as the CBDR+RC principle. And going through COP decisions related to the GCF showed that it is not much of a surprise. The language of the COP is weak, repetitive and soft. It is limited to words such as “encourages”, “calls on”, “reiterates”, “welcomes”. The strongest wording that was found is “request”. But even that lacks any sense of authority (UNFCCC, n.d. e). Its language often remains vague and can be interpreted by the Board in different ways. The limit of the COP’s power is perhaps most clear when the COP “urges” the Board several times to take certain actions such as starting the formal replenishment process (UNFCC, 2015b). It feels like the COP really wants to take action but knows it is unable to do anything about it. The COP itself rarely uses explicit mentions of any climate justice principles. The typical principles mentioned are CBDR+RC, equity and the right to develop (UNFCCC, n.d. e). But it does not explain what that means in practice and the interpretation of the CBDR+RC principle is highly contested according to Vanderheiden (2015). The most common principle is the principle of basic needs. The focus is on the needs of developing countries” (GCF, n.d. a; UNFCCC, 2010). While this does put some responsibility on developed countries, it avoids any blame or reference that they are responsible.

A remarkable exception was the draft negotiation text at COP20 in Lima which explicitly mentions the principle of historical responsibility several times and also the principle of ability to pay. It included options for burden-sharing regarding climate finance provided by Annex II parties (UNFCCC, 2014a). Given the continuous opposition from developed countries to any specific mentioning of historical responsibility, this seems uncharacteristic (Bodansky et al., 2017). It was probably only included because it was only a draft negotiation text (Klein et al., 2017). In the final Paris Agreement, the principle of historical responsibility was not mentioned at all (UNFCCC, 2015a). The procedural injustice of asymmetric capabilities in climate change negotiations likely limited the ability of developing countries to push for inclusion of climate justice principles in the operational part of the Paris Agreement (Okereke and Charlesworth, 2014). Climate justice is only mentioned in the preamble (UNFCCC, 2015a). According to Rajamani (2016), that means it only provides context, but cannot create rights and obligations for Parties. The way it is phrased implies that it’s not important for others and diminishes its value (UNFCCC, 2015a). Climate justice is important for everyone and to achieve progress towards a climate just world, that needs to be recognised by all. The preamble admits that countries must take into account the well-being of future generations. But it remains vague on what it exactly means. (UNFCCC, 2015a). Searches through Board meeting reports (which can be found on the GCF website) showed that intergenerational justice is rarely mentioned in the GCF and not in discussions about resource mobilisation. While it recognises the responsibility of developed countries, it is not really framed as a question of one generation versus another, but rather as an intragenerational question. The GCF focuses on the now and immediate needs of developing nations and it thus recognises needs as a desert base. The focus in the GCF is more on needs rather than compensation.

The GCF looked at other international funds (e.g. GEF, CIF, IDA, etc.) for several aspects including resource mobilisation (GCF, 2013a). If it is to learn lessons, then it is a good idea to look at other funds. But that does not directly seem to be the case here. It just determined mechanisms used by them and picked one (GCF, 2013a, 2013e). And several Board members stressed that the GCF should be "unique and transformative" and that its replenishment process should be unique (GCF, 2015f, 2018b). Instead, it just seems more of the same. The difference of the GCF compared to other funds seems to be more in the recipient side, rather than the supply side. Bracking (2014) also noted this methodology of looking at what other, already existing funds do. She said that the term "international" in "international best practice" was unquestionably considered to mean excellence. She refers to Müller (2013) who said that "what if best practice is simply not good enough for achieving the GCF objectives". Bracking (2014) calls it an empty signifier. And indeed, as one Board member noted, the other, already existing funds are not doing well (GCF, 2018e). So it there is a need for something new, but instead, business as usual seems to continue. Bracking (2014) also reported the use of long technical documents. The GCF indeed produces many documents that contain technical and broad or vague language. Bird et al. (2011) said it was unlikely that the creation of the GCF would significantly change 'business as usual' regarding the complex international climate finance support structure, at least in the short term. And indeed, the funds that existed before the GCF still exist and are used. It did not adopt the role of a "fund of funds" as some had hoped (Bird et al., 2011). Bird et al. (2011) predicted it would be unlikely to replace existing funds, which indeed it did not do. That the methods of other existing funds were more or less copied, corresponds with what Baatz (2018) said about the "pledge and review" approach that is very close to current procedures within the UNFCCC, that the institutional setting needed to implement the instrument already exist, that the institutional feasibility and political will is high.

6.1.3 Changing the process of resource mobilization

There were several attempts to change the process of resource mobilisation and increase the amount of raised funding. While contributions are voluntary, the idea of burden-sharing was considered. The Secretariat asked the Board whether to use burden-sharing and if so, which criteria to use (GCF, 2013a). Though the idea was rejected, some Board members did want to include it (GCF, 2013c). From the Board meeting reports, it is not clear who those members represented, but it would likely be those representing developing countries. They also looked at other funds such as the GEF where shares are based on past contributions (GCF, 2014g). While this is not directly implemented in the GCF, there were demands by civil society, that developed countries would double their contributions during the formal replenishment process compared to the IRM, thus asking for countries to contribute shares based on past contributions (Kilani, 2019). However, the Secretariat made a good point when mentioning the issue of a structural funding gap (GCF, 2014g). This issue would have occurred as the US stopped contributing, thus the remaining contributor's shares do not sum up to 100%. The inclusion of formal burden-sharing criteria would make naming and shaming easier. While fair shares are being calculated by the civil and academic society, these can be relatively easy ignored by governments of developed countries. If there were formal criteria adopted by the GCF or UNFCCC this would be much harder to do as they would be more directly confronted with what they should do and the gap between what they actually do. Thus is it would facilitate the soft enforcement mechanism of naming and shaming. The same goes if concrete targets for overall resource mobilisation by the GCF and deadlines for confirming pledges would be adopted. Without a target, it is harder for the public to see whether countries are doing better or worse compared to what is required from them. As Baatz (2018) said, the lack of a hard enforcement mechanism is a drawback and facilitating naming and shaming can compensate for this. Another aspect that makes naming and shaming more difficult is not stating in the

Board documents which country the Board members represent. Only since the 13th Board meeting, meetings have been recorded. But those these are very hard to find on the website and it would take a significantly large amount of time.

Attempts from the contributors included contentious points of earmarking and linking contributions to voting. Earmarking allows contributors to have more control over what happens with their contributions. According to de Sépibus (2014), this was done to correct thematic or geographical imbalances regarding climate finance. Thus earmarking was feared to negatively affect distributive justice. However, as de Sépibus (2014) said and several board members representing contributing countries, no earmarking reduces incentives to make pledges as it reduces control over their provided funding (GCF, 2014d). It seems there has been a compromise in the sense that by trying to improve distributive justice, it came at the cost of compensatory justice. Assuming that earmarking would lead to contributions going more towards middle-income countries rather than low-income countries, it would be in breach of several principles of fairness by Suranovic (2010), namely distributional fairness, non-discrimination fairness and maximum benefit fairness. The first principle would be breached in the sense that it could increase differences in wealth distributions among developing countries. The second one would be breached as there would be preferential treatment of certain developing countries over others. Maximum benefit fairness requires the maximisation of benefits received by people. According to prioritarianism, benefits would be higher when the same amount of funding was given to low-income countries than middle-income countries. If earmarking would lead to more funding to middle-income countries, it would not be in line with this fairness principle. However, there are some principles from section two that nonetheless would allow earmarking. The fairness principle of positive reciprocity, which requires a quid pro quo, and the mutual advantage principle. According to the latter, benefits and burdens have to be distributed so that it benefits all parties.

The argument of one Board member that earmarking would politicize the fund by favouring certain countries and projects, might be correct, but that was already possible due to the consensus decision-making that was in place for most of the time since every Board member could veto a project (GCF, 2014f, 2018g). That earmarking is not allowed, did not stop some countries from trying. Both the UK and the US tried to allocate some part of their contribution to the PSF (GCF, 2017f, 2015e). Only Spain included a condition in its contribution agreement. The consequences of this are not clear. The Board still has the final say in whether to allow conditions. But what is there to prevent other countries to cite legislative requirements as a reason or to implement domestic legislation that would also require proof that the GCF is active (GCF, 2016e). So far no other contribution agreements/arrangements with conditions were adopted. It is understandable from the viewpoint of developing countries to not allow earmarking. However, if the alternative is a significant lack of funding, then they might have to think about allowing it. Perhaps a cap as suggested by the Secretariat of 20% of a contribution that could be targeted, could be implemented on a temporary basis to see if contributions would increase as a result (GCF, 2014e). Earmarking could become allowed for alternative sources and philanthropic organisations. SWFs are government-owned and there is a possibility of a loophole. Governments could decide to contribute more through SWFs rather than through direct pledges to have more control over their contributions. Since SWFs require a financial return, they are less likely to invest in adaptation projects than in mitigation projects. This could make achieving the 50:50 balance between mitigation and adaptation more difficult. However, such a government strategy would likely be criticised by developing countries and civil society. A policy on contributions has not yet been adopted and the proposed policy is only for grant contributions, which are more likely to come from philanthropic organisations rather than SWFs (GCF, 2018e, 2019f, 2018f). It thus remains to be seen if and how

contributions will change. Perhaps some countries will keep their pledges constant, but increase contributions through SWFs.

The second contentious point that contributors proposed to increase the mobilisation of resources, which according to the contributors provided “a clear incentive to make contributions”, was a potential link between voting and contributions (GCF, 2014f). As is the case with earmarking, this would have allowed greater control by the contributors over their contributions. There were concerns that this would give too much influence in decision-making to contributor countries and developing countries feared that pledges would depend on whether there would be such a link (Raman, 2014b). Thus, similar to earmarking, it seems to be about a compromise between compensatory justice and procedural justice. Giving more power to contributors could compromise procedural justice as contributors could more easily get projects in favoured countries approved. This would break the procedural justice rule of “ability to suppress bias” by Leventhal (1980). Looking at the principles of procedural justice by Tomlinson (2011), linking voting to contributions would not against them, except the principle of proportionality. This states that the more is at stake for people, the more power they should have (Tomlinson, 2011). There is more at stake for developing countries as they are much more vulnerable due to lower financial capabilities and more intense climate change impacts. Climate change threatens their basic needs such as food and water (Wade and Jennings, 2015). Developed countries are more equipped to deal with such impacts. As said in 3.1.2 (2014), one board member suggested the right to vote to be linked to the size of the country, population or stage of development and vulnerability (GCF, 2014f). Of those four suggestions, only the latter two seem to have some ground in fairness. Size of the country and population will disadvantage smaller developing countries and would disproportionally benefit the Board members representing the Asia-Pacific states. Voting based on the stage of development or vulnerability would a transfer of decision-making power (instead of money) from developed to developing countries. Though how to exactly determine and link the stage of development or vulnerability to voting would be contentious.

The Secretariat itself proposed to link representation to actual contributions, but noted that that would be difficult practically because Board members typically represent more than one country, especially those from developing countries (GCF, 2014g, n.d. c). Again here the fairness principle of positive reciprocity is applicable (Leventhal, 1980). According to de Sépibus (2014), this lack of fulfilling the preferences of donor countries would result in the continuous underfunding of the GCF. Based on the amount pledges during the IRM and the formal replenishment process, his prediction seems correct. The importance of voting rights for contributors is in line with Cui and Huang (2018) who found that existing donations are driven by aspects such as voting rights.

In the end, none of the three above attempts succeeded. Instead, the main strategy that the GCF is going for, is the same as the one used in the overall landscape of climate finance: diversification, meaning using multiple sources of finance. But so far, diversification is limited to co-financing and all funds of the GCF itself come from developed countries. Given the history of slow decision-making in the GCF, it might take some time before contributions from alternative sources such as philanthropic organisations can be received. The GCF can also accept direct contributions from the private sector in the form of grants, but no such contributions have yet been made (GCF, 2014g, n.d. g). This is not surprising given the profit-oriented focus of the private sector. Following the distinction of ecological debts by Sebastien (n.d.), grant contributions by the private sector would reduce the private debt, while those by developed countries would reduce their foreign debt. Thus while some prefer only contributions from governments, contributions from the private sector would reduce the ecological debt and thus improve climate justice. Following the distinction of ecological debts by Luchsinger and

Adams (2009), the public sector could take up the adaptation debt, while the private sector could take up the emissions debt. The latter would be about US$ 4.500 billion, using the calculated emissions debt by Khor (2009) and the carbon price suggested by the High-level Advisory Group on Climate Change Financing (UN, 2010). This would cover mitigation costs in developing countries for a few years depending on the estimates.

The paragraphs show that there is a dividedness within the GCF. The GCF is a divided institution resulting from the self-interests of the Board members and the long-term animosity between developed and developing countries. The latter was identified as a key theme in the UNFCCC climate finance framework by Sheridan and Jafry (2018) and that theme continued in the GCF. Abbott and Gardner (2011) also reported significant North-South divisions regarding the Fund's structure and governance and that it remained an obstacle to structure the GCF. Civil society also disagreed with developed countries on several topics such as earmarking, voting, the scale of the fund and political constraints (GCF, 2013e, 2015c, 2016e, 2018g). As a result, it is not always possible for the GCF to reach objective solutions. This breaks one of the procedural justice rules of Leventhal (1980): "accuracy". It is intuitively clear that to be effective and also to enhance climate justice, a divided institution is much less likely to succeed. The GCF would be much more successful if it acted as one unit moving towards a common goal. Instead, internal disagreements have continuously slowed down progress. The two-year delay in the replenishment process is a good example of that (GCF, 2015g, 2019j). It confirms what de Sépibus (2014) said that as a result of diverging interest, decision-making would be slow. Whether the new way of decision-making will be used and whether it will accelerate decision-making remains to be seen. As it was stressed several times that consensus will remain the preferred option, it does not seem likely that it will immediately lead to faster decision-making (GCF, 2019g). The slow bureaucracy is in stark contrast with the urgency that emanates from the COP, several GCF Board members and civil society (e.g. UNFCCC (2019), GCF (2019e) and Parthasarathy (2019)).

6.1.4 Dispute resolution

There are no concrete mechanisms to increase the amount of funding raised by the GCF. The initial focus of Board discussions on this gradually shifted towards discussions on how to ensure that pledges are fulfilled and how to reduce the loss of resources due to foreign exchange rate fluctuations. While it was agreed to have mechanisms to ensure pledges are fulfilled, there are only soft mechanisms in place, namely monitoring and reaching out to contributors (GCF, 2017d). Section 3.3.3 (2014) showed that the enforcement mechanism for when contribution agreements were signed, depends on the country. The only common part applicable to all stated that all parties will, "to the extent possible, strive to resolve and settle promptly and amicably" disputes or claims (GCF, 2019d, p. 7). The words "promptly" and "amicably" weaken the options for the GCF as they pressure it to act fast and to keep the contributor country happy. In the case there would a refusal of payment, this would play in favour of the contributor country since it is the GCF that needs the funding. If the contributor country refused to pay, then it has no reason to resolve the dispute promptly. Naming and shaming would be the best option, which requires transparency and it is not clear if such an attempt to resolve disputes would be made public or kept private. However, several countries added a provision in their contribution agreement to resolve disputes. Though the US did not and according to Bowman and Minas (2019) said, this means that the GCF could do little about Trump's decision to stop payments to the GCF (GCF, 2017f). The authors said that the word "arrangement" reduces the legally binding effect of a document. And indeed, none of the contribution arrangements (eight countries) include an additional provision of dispute resolution. Though those of the Netherlands and Canada are a bit stronger and involve negotiation or another mutually agreed method (GCF, n.d. j). The paragraph the authors refer

to where the US replaced wordings such as “shall” by “will”, does also occur in the other seven arrangements (Bowman and Minas, 2019; GCF, n.d. j). These include some of the bigger contributors such as the UK, Japan, Australia and Canada (GCF, n.d. j).

However, Bowman and Minas (2019) state that the “US agreed to pay US$3 billion into the GCF’s Trust Fund subject to the availability of funds” and that it is a “repudiation of its prior commitment”. Repudiation refers to the refusal of a party to honour the terms of a contract to which it had agreed (Kenton, 2019). But the arrangement only states that the US intends to provide US$ 3 billion to the GCF, subject to the availability of funds. While it pledged US$ 3 billion, it never agreed to pay it. Saying that it intends to pay US$ 3 billion does not impose any obligation on the US. The arrangement stated that the US signed to provide US$ 500 million to the GCF and that additional contributions would require amendments to the contribution arrangement. Another US$ 500 million was added to the agreement via an amendment later. The US only signed to pay a total of US$ 1 billion (GCF, 2017f). However, there was confusion within the GCF as it was reported that US$ 10.2 billion was signed (for example at the 20th Board meeting) (GCF, 2018d). This was corrected and the US was included within the list of countries not having confirmed (fully or partially) their pledges (GCF, 2020a).

To conclude, even though Bowman and Minas (2019) attribute the lack of recourse by the GCF to soft language and a lack of additional dispute resolution mechanisms, this does not seem to be the reason. If there was an additional dispute resolution mechanism and/or stronger language, they would only apply to the US$ 1 billion, which the US paid. By not contributing US$ 2 billion, the US did not break any contracts, agreements or arrangements. Thus there can be no case of repudiation. And the GCF could only do the same as other cases where pledges are not yet confirmed and that is monitoring and reaching out.

Other countries include a stronger dispute mechanism. Given the focus on the impartiality of the arbitrators, it is likely to be more objective and be consistent with the procedural justice rule of accuracy (Leventhal, 1980; PCA, 2012). Though such a process is likely to take quite some time and costs, the latter for which it is not clear by whom they’ll be borne. This can cause the GCF to be hesitant of initiating such a process. Contributors would be hesitant given that a refusal to or delay in payment would put them in a bad light and it could add additional costs in case of a loss. Naming and shaming could be enhanced if hearings would be made public. It is not clear who would represent the GCF, though it likely would be someone from their legal division rather than someone of the Board. By incorporating such a provision in their contribution agreement, contributors open themselves up to legal liabilities. This shows commitment and confidence by the contributors that they will pay what they signed.

6.2 Countries’ pledges to and their view on the GCF

This section starts by discussing the current amounts of GCF funding and comparing it to the goal of US$ 100 billion per year. Secondly, the influence of national politics on pledges is discussed. This is explored more deeply for the US in section 6.2.3.

6.2.1 Funding sources

Current climate finance committed by the developed countries to the GCF remains low. Countries failed to fill up the gap left by the United States. Though there was something positive in that countries did increase their combined pledges by US$ 1.8 billion (real value) (Table 4). Though the way pledges are reported, does not adequately communicate how far short it is from the US$ 100 billion annual goal by 2020. In order to compare it in a better way, pledges and contributions should be communicated as annual amounts. This would be US$ 2.3 billion (real value, including the USA) on average per year from 2015–2023. This is merely a

proverbial drop in the ocean. While there is no target of how much should flow through the GCF, with only a share of 2.3% of the US$ 100 billion goal, the GCF is so far unable to play a significant role in helping developing countries to deal with climate change (Schalatek, 2019b). The aim of channelling a significant part of adaptation funding through the GCF clearly failed (UNFCCC, 2009). Comparing it to the number of 2017, which was US$ 12.9 billion according to OECD (2019) and a 30% share of GCF funding for adaptation, the GCF would constitute only 5.3% of public adaptation funding (GCF, n.d. a; OECD, 2019). While there is no exact threshold for when it would be significant, 5.3% surely would not be it.

The current strategy of several countries and also the call from NGO's is to double contributions. But just as the US$ 100 billion goal, this is not a need-based approach, but again is based on what is politically possible. If the US$ 2.3 billion would be doubled every replenishment cycle, it would take five cycles or 20 years counting from 2024 before more than US$50 billion would flow through the GCF. Obviously, developing countries had higher expectations of the GCF and they do not have time to wait for adequate finance, particularly for adaptation. This doubling is done in terms of the domestic currency and does not always translate into a doubling in US dollars such as in the case of the UK and Norway. Canada for example maintained its contribution in Canadian dollars, but its pledge decreased by almost 20% in US dollars (GCF, 2020a). Announcing a doubling of their contribution might sound good to the public and be good for a country's image regarding their effort to tackle climate change, it can be misleading. While it is understandable that countries make pledges in their own currency, and that exchange rates vary, countries should consider announcing pledges in a common currency. This would make comparing pledges by the public easier. Baatz (2018) was very "sceptical" that this voluntary pledging approach would generate significant funding and said that it is unlikely that wealthy countries will make meaningful long-term financial commitments. Based on the current status of the GCF's resources, he was right.

Regarding overall financing, co-financing is a much bigger source of financing than the GCF proceeds from donor countries with a share of around 72%. Grüning et al. (2020) stated that most of it came from international sources. This could endanger the GCF's ambition to finance climate action beyond business as usual as argued in a survey done by E Co (2017). There is still room for improvement. Co-financing ratios are still much less than most other climate funds. The overall co-financing ratio is increasing, but quite slow as shown in Table 5. It is slightly higher than the first replenishment phase of the GEF (Cui et al., 2020). If the GCF can follow a similar trend as the GEF, it would be a boost to the fund, and it could also increase confidence and attract more contributions.

6.2.2 Leaders and laggards

The countries with a more positive and receptive view of and to the GCF also have some things in common namely a focus on 1) leadership, 2) the future and future generations and 3) responsibility to help the most vulnerable. Firstly, the focus on leadership fits in what Ivanova (2017) referred to as "a shift in strategy from 'name and shame' to 'name and acclaim'". This would indicate that naming and shaming was perceived as ineffective since it would make little sense for one to stop using an effective strategy. She argued that a positive reputation could become a self- enforcing norm creator and magnifier. This indeed seems to be the case for example shown by statements of France, Sweden, Norway, Japan and the Obama administration. Countries pride themselves in increasing their ambition and contributions to the GCF. This not only helps their reputation on the international stage, but also domestically. Europeans are more and more concerned about climate change, so being able to show that they take action can help them in national elections (EC, 2017). Ivanova (2017) also stated that countries realised that transforming the economy was a good thing and inevitable. This is

particularly the case for the UK stating that it is in their best interest, that they were “thriving” due to climate action, that it is an “opportunity” to make the UK economy stronger (Carrington, 2015; Gosden and Samuel, 2015). The latter was also noted by Canada (Reuters, 2015). Germany realised it as well as Merkle’s statement about the costs of inaction showed (Gehrke, 2020). Though despite their leadership ambition, they are still sensitive to domestic politics as shown by the failed promise by Merkel at COP15 allegedly due to pressure from the minister of finance (The Local, 2010). Italy also did not approve contributions to the GCF yet as they had pledged (Gazzetta Ufficiale, 2019; GCF, 2020b). It is not clear if that is due to different views of political parties on the GCF. The poor economic situation in Italy could certainly be a realistic explanation. EU fiscal responsibility rules forced Italy to reduce its budget for 2019 and it is still one of the worst economies in the EU (Edwards, 2020; Jones, 2020; Trading Economics, 2020a). It can be expected then that budgetary contributions that do not directly benefit Italy, would be reduced or postponed.

Secondly, the focus on future generations shows a different view compared to the academic society. While there is no consensus on whether we have obligations towards future generations, some leaders appear to recognise we some sort of responsibility. It is notably strong in the UK. Other countries such as Italy, France, Germany and Sweden were less strong. Thirdly, developed countries traditionally rejected the principle of historical responsibility and focused rather on the principle of respective capabilities (Bodansky et al., 2017). Several leaders indeed state that developed countries have a responsibility to help developing countries, but because they are vulnerable and in need rather than due to any historical reasons. Merkel’s statement that “rich countries have the obligation to do more” is an example of the emphasis on capabilities (Gehrke, 2020). May called it a “moral imperative” to help vulnerable countries (Field, 2018). Italy and Norway also stressed the importance of helping the poor and vulnerable, while Sweden called it a “special responsibility” of developed countries to help those in need (Hjukse, 2019; Lövin, 2015; Sampathkumar, 2017). Chai et al. (2017) said that leading the global climate governance requires political momentum and responsibility regarding emission reductions and financing obligations. And several European countries fulfil both those requirements.

Negative views mainly come from the US and Australia. The latter called it nonsense while the former focused on two aspects: 1) the costs and obligations that it imposes on rich countries and 2) that it gives a competitive advantage to developing countries like China and India (Farand, 2019; Schipani, 2017; Stefanini, 2018). This view solely focuses on the current economic situation and completely ignores how that situation came to be. It starts from a purely economic point of view and disregards any aspects of compensatory justice. The focus is really on the mutual advantage principle. But statements about the loss of jobs, large costs and other countries doing nothing are simply not true. For example, according to an OECD study, economic growth could be boosted by 5% by 2050 when following a path towards a low-carbon economy (Climate Analytics, 2017). And several other countries do contribute, including even some developing countries such as Indonesia. With its US$ 1 billion, the US was only the fifth largest contributor during the IRM and sixth overall (GCF, 2017f, n.d. g).

A third key aspect for the US to withdraw from the Paris Agreement and to stop funding the GCF is control. They view the UNFCCC funds as invading US policy and taking away sovereignty (Gosar, 2019). This fits with their nationalist agenda of “America first”. Australia said it would not contribute at first, but then contributed US$ 187 million for the IRM (GCF, 2020a). Their prime minister said the “situation has changed”, but does not explain exactly how. It is possible that the criticism on his initial decision paid off and that naming and shaming in this case worked. But the money was just diverted from development aid (Griffiths and Sturmer, 2014). It seems that the decision was to please both proponents of the GCF, by

contributing, and the opponents, by diverting funds rather than providing new and additional funds. The same could be the case for Australia's decision for the replenishment of the GCF. While they stopped contributing just like the US, they did not withdraw from the Paris Agreement, despite some domestic pressure (Stefanini, 2018). While having a leader that is willing to take action to tackle climate change is important, the case of Turnbull in Australia shows that it is not enough. He wanted to advance climate action in Australia, but was blocked by opposing forces within his party (Mathiesen, 2018). A leader needs to have the political space to make true on his intentions. Thus the vision of the leader and his party, at least in terms of climate change, should be aligned. In the US, Trump's view corresponds to that of most of the Republicans as is exemplified by the voting results on Gosar's proposed amendment (Gosar, 2019). It fits with what Chai et al. (2017) called the "national interests" priority principle", which they said becomes more and more important in global climate governance.

While negative views are dominated by the principle of mutual advantage, positive views are dominated by the principle of basic needs. These negative views all came from conservative parties. Thus if conservative parties become stronger in a contributing country, it could serve as a warning sign for the GCF. Though it does not automatically mean that a country would not contribute at all as shown by Norway and the UK which have been governed by a conservative government since 2013 and 2010 respectively (Historic UK, 2020; Sandvik et al., 2020). Their long-term involvement in EU climate policy and European values in general could be a reason that these conservative parties differ from their American and Australian counterparts. It is clear that political leadership and continuity are important for predictable funding. Having two main parties with strongly different views on climate change and climate action, such as Canada, Australia and the US can therefore be problematic. Traub (2017) called the two-party system of the US "the great anomaly of Western politics". Given the widely diverging view between both parties, the US could theoretically go from one extreme to another every four years, which is what happened in 2016 and let to the US withdrawal from the Paris Agreement.

When the US announced its withdrawal from the Paris Agreement and the end of providing funding to the GCF, some naming and shaming occurred but the language depended on whether it came from foreign governments or Democrats and NGO's. Reactions from foreign governments were relatively weak and limited to an expression of regret and a reaffirmation of their commitment to the Paris Agreement (Choi, 2017; Watts and Connolly, 2017). While Baatz (2018) says that naming and shaming might allow for a soft enforcement mechanism, it cannot work if the shaming part is so weak. EU-US relations significantly worsened under Trump's administration (Whineray, 2020). EU leaders perhaps refrained from stronger language to avoid putting more strain on EU-US relations. Language from Democrats and NGO's was stronger with words as "betraying" and "appalling" (Associated Press, 2019; Mccaskill, 2017). But Trump is not the person to mind such reactions and to change his decisions. The language of shaming depends on where they are situated politically. It is much easier for the opposition than for allied governments. Whether it is effective will depend on how the shamed country receives and responds to the criticism.

Kontorovich (2019) argued that the Paris Agreement should be treated as a treaty while Obama signed it as a sole executive agreement (SEA) to avoid a blockage in the Senate. He argues that this means the Paris Agreement was not binding to the US to begin with. In case of a Democratic win, Biden should seek approval in the Senate to strengthen the involvement of the US and to make it less easy for future Republican presidents to withdraw. While there a no clear parameters nor guidance in the constitution on how to terminate treaties, Obama's approach to sign the Paris Agreement as a SEA, set a precedent for Trump to unilaterally

decide to withdraw from the Paris Agreement without debate on whether the Senate should be involved (Ackerman, 2002; Anderson and Vaddi, 2020). When it comes to the Green Climate Fund, it is different. Contributions have to be approved by both houses of Congress making it harder for a Democratic president to follow through on any pledges to the GCF (United States Senate, n.d.). Obama circumvented congressional approval. Instead, he redirected funds, which were already appropriated by Congress for something else, using his executive authority for both payments of US$ 500 million (Baptiste, 2017; Slezak, 2017). It would be easier and possibly allow larger contributions if both houses of Congress were controlled by Democrats. But if this is not the case, it does not necessarily prevent contributions to the GCF.

The bipartisan aspect of climate finance in the US is shown by the two bills and one amendment that were introduced in 2019. That 9% of the republicans voted against the amendment, which would have prevented certain agencies to provide funding to the IPCCC, UNFCCC or GCF, is a positive sign ("FINAL VOTE RESULTS FOR ROLL CALL 329," 2019; Gosar, 2019). Gosar's arguments are weak. Yes, 30% of the pledged funds have not materialized, but two-thirds of that is because the US stopped contributing, so it is hypocritical to say this (Chai et al., 2017; GCF, 2020a). That it has no track record is correct, but unfair given that the GCF had its first full year of operations only in 2016 (GCF, n.d. a). His argument that it has little effect on emissions depends on what would be considered to be a significant effect. Currently approved projects are expected to result in 862 Mt CO_2-eq avoided emissions (GCF, n.d. i). The GEF resulted in 2.7 Gt of GHG emission reductions in 25 years (GEF, 2016). With more money, the GCF could exceed this number, so again it is hypocritical from Gosar to say this. It is not the main goal of the GCF to lead in making a significant contribution to emission reductions. It aims to help vulnerable countries to adapt and develop on a low-carbon path. Mitigation is only a part of it. And while corruption has been reported as a problem, the GCF includes many best practices against corruption (Lynch and Mackinnon, 2019; Transparency International, 2017; UN News, 2019).

Perhaps the same thing can be said about the Republican party that Turnbull said about the Liberal party in Australia, namely that there were "bitterly entrenched views that are more ideological views than views based, as I say, on engineering and economics" (Mathiesen, 2018). For the Republican party, it is more about control than anything else. On the opposite side of the political spectrum, there is the Green Authorization Act introduced by Democrats. The bill is remarkable in that it explicitly mentions climate justice and environmental justice, indicative of the link between the two and their American origin. It also specifically mentions that it "upholds the principles of environmental justice and climate justice". However, it does not elaborate exactly which principles it refers to. It could refer to those from 1991 and 2002 respectively, though it does mention several principles of climate justice: historical responsibility, ability to pay, basic needs and beneficiary pays. It does not say only developed countries should take action, but more than developing ones, in line with the Paris Agreement. Another remarkable aspect is how it sees the US$ 100 billion goal. All of it should come from public funding, indicating that in their view, climate just financing means public financing. Its recognition that this goal is not enough and that the act would authorize funding to exceed that goal is uncharacteristic for developed countries. This bill seems to be strongly influenced by the climate justice movement. The difference between the Democrats and Republicans could hardly be bigger. Nowhere else than in the US is the impact of domestic politics on climate finance clearer and more significant.

6.3 Distributional justice

This section is split up in two parts. Section 6.3.1 first assesses the difference in fair contributions between production- and consumption-based emissions. Secondly, it discusses

fair contributions in relation to actual pledges made. Finally, it compares results to other studies. Section 6.3.2 evaluates the allocation of GCF funds, including in comparison with Cui et al. (2014).

6.3.1 Fair contributions

Dawkins and Croft (2017) said that that consumption-based emissions accounting can offer useful lessons regarding questions of responsibility for emissions and fairness in burden-sharing. But based on the comparison of fair contributions based on either production-based or consumption-based emissions, there is little difference in relative terms. A reason for this could be that the fair share was not only calculated based on historical emissions, but also GDP. In this case, historical emissions and GDP accounted for 43% and 57% respectively towards the fair share of each country. This might have led to a dilution of differences between production- and consumption-based emissions. Also, for most big contributors, their consumption-based emissions increased which might partly explain the small differences found in the PSC approach. Thus practically, it makes little difference for this group of countries whether to use CBA or PBA. This might change when expanding the group of countries to include for example China or India since Dawkins and Croft (2017) concluded that much of the increased emissions from middle-income countries are related to products and services exported to consumers in high-income countries. However, Cui and Huang (2018) found that when including emerging economies, developed parties would still contribute 94.44% of the fund. Though that is in contradiction of Sayegh (2017), where China alone would contribute 8% already. While Dawkins and Croft (2017, p. 3) said that "discussions of burden-sharing and responsibility for emissions reduction can also be enriched by consumption-based emissions accounts", this is not much the case for the US$ 100 billion target. It could become more relevant in climate finance when a new goal will be established for the post-2025 period as Egli and Stünzi (2019) said this would be conditional on including more countries.

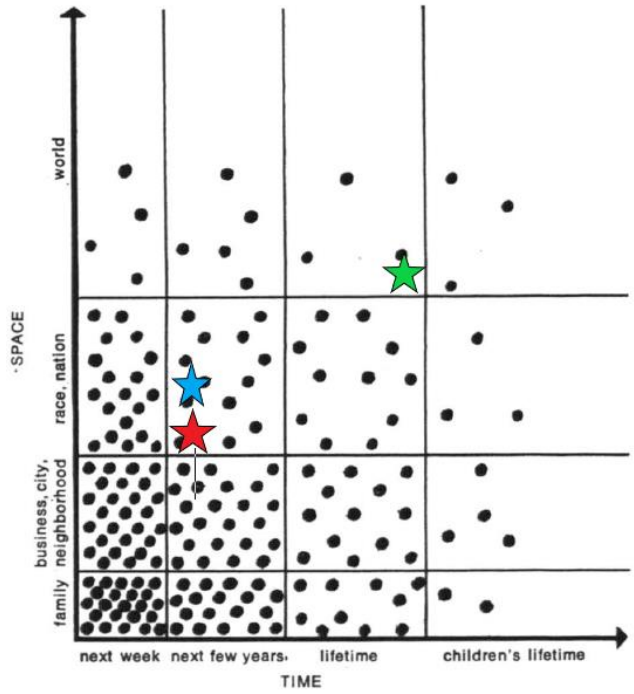
Most developed countries provide fewer funds to the GCF than their fair shares, no matter the amount that should come from public sources (Figure 3). But Egli and Stünzi (2019) argued that some countries pledged more than their fair share. But only a small share of these pledges is destined to go to the GCF and they did not use the assumption that all public funding should flow through the GCF (Egli and Stünzi, 2019; GCF, 2020a). European countries are leading in line with EU's leadership ambitions in tackling climate change (EC, 2019). But even they are far from channelling their fair shares through the GCF. This might indicate a lack of confidence, a reluctance to give up control or other reasons. There are some remarkable exceptions, notably Sweden, but also Norway and Luxembourg. Sweden's statement that its contribution was the most ambitious per capita was correct at the time, but was later surpassed by Monaco and Luxembourg (GCF, n.d. j, 2015a). The case of Sweden could be explained by the strong involvement of the Green Party in the Swedish government for the past six years, and thus during both pledging conferences. Being part of the government and receiving relevant minister roles, allows them to push for strong financial contributions to the GCF. Sweden's large contributions follow its high overall climate ambition as shown by its commitment to become the first fossil fuel free country and the Climate Change Performance Index, in which it is the highest-ranked country in the world (Bolton, 2015; Germanwatch, 2020).

When comparing the fair shares to those calculated by Cui et al. (2014), the first thing that catches the eye is the much lower share for the EU27 (the 27 EU countries in Table 1) with 29% in this study compared to 41% by Cui et al. (2014). The share for the US is also lower by about 6%. The lower shares are likely due to the different period of historical emissions and the double amount of included countries. Including more countries naturally lowers the share of already included countries. Secondly, here the period 1990–2016 was used vs 1850–2010.

Between 1990–2016, 22 of the EU27 reduced their emissions (the other five being Spain, Portugal, Cyprus, Ireland and Austria) and overall the EU27 reduced their emissions as well. The US increased its emissions, so its lower share is more likely due to the inclusion of more countries. Given that the industrial revolution started in the US and Europe, they will have a larger share when including earlier data (History.com Editors, 2019). This is confirmed by Friedrich and Damassa (2014). A third difference is the inclusion of more GHG compared to Cui et al. (2014), which only included carbon dioxide. For example, the inclusion of methane would particularly affect Russia (Le Fevre, 2017).

The results closely match those of Egli and Stünzi (2019), which can be expected given this study included the same countries and they used nearly the same period for emissions. The differences, in this case, are due to the difference in aggregating HR and RC. The biggest difference is for Japan, which under Egli and Stünzi (2019) contributes 10% instead of 11.3%. Results are also similar to those of Markandya et al. (2015), for which the share for the EU is much closer to results here than Cui et al. (2014) and those calculated by the World Resource Institute (WRI) (Waslander and Vallejos, 2018a). Japan and Russia pay 1.95% and 1.5% more and less respectively in this study compared to the WRI. Liechtenstein is a remarkable case that would pay a stunning 13677 times more in this study than in the case of the WRI. Thus for some countries, a different methodology can make a significant difference. The numbers in this thesis for the US, Japan and EU closely match those of the most effective scheme calculated by Cui and Huang (2018), based on the schemes for the UN, the GEF and historical responsibility. By most effective, they mean the one that most closely resembled the IRM. They also state that those schemes are strongly related to economic scales and that it thus is a combination of historical responsibilities and economic capacity. This can explain why the results closely match. As Sayegh (2017, p. 359) said: “assigning very specific numeric values to moral principles is delicate, but it has sometimes to be tried”.

Figure 8 was adapted from the well-known report “The Limits to Growth” from Meadows et al. (1972). It aims to show that it is possible to raise large amounts of funds, but that the different perspective from developed compared to developing countries is problematic. The stars are indicative. Perspectives vary depending on which country and which person you would ask. It shows the mismatch in perspectives on climate change by developing and developed countries, which has resulted in the long-term animosity between them as identified by Sheridan and Jafry (2018). On the contrary, corona has been a much more immediate concern directly affecting developed countries and their economies. The more to the middle-left an issue is situated, the more resources can be expected to be mobilised. Over time, the green star will move closer to the blue one and more developed countries will face and realise the immediacy of climate change as climate change gets worse (EEA, n.d.; Podesta, 2019). The question will be whether this would lead to a better understanding between developed and developing countries and more finance from the former to the latter or whether developed countries will use more funds for themselves and whether it will be too late for some developing countries. Clearly, there is a long way to go before climate justice could be achieved through the GCF. Covid-19 has shown that developed countries can raise large amounts of finance in a short time if they need to (Nagarajan, 2020; Roberts, 2020). It is easier for governments to explain to their constituency as it directly affects them.



Although the perspectives of the world's people vary in space and in time, every human concern falls somewhere on the space-time graph. The majority of the world's people are concerned with matters that affect only family or friends over a short period of time. Others look farther ahead in time or over a larger area—a city or a nation. Only a very few people have a global perspective that extends far into the future.

Figure 8. Graphical representation of human concerns (red = corona developed countries, green = climate change developed countries, blue = climate change developing countries) (Meadows et al., 1972).

6.3.2 Allocation of funds

The benefits of mitigation are mostly accrued by future generations since the planet will continue warming for a long time even if we would stop emissions today (Nuccitelli, 2016). Though there are some benefits for current generations such as reduced air pollution (UNECE, 2016). The benefits of adaptation are more immediate. Choosing between mitigation and adaptation is thus, to some extent, a choice between helping current and future generations. Mitigation continuous to be favoured over adaptation. This is in line with the general trends of climate finance namely the underfunding of adaptation compared to mitigation and cross-cutting projects (Yeo, 2019). There has been a noticeable increase in funding towards cross-cutting projects since 2018. This is in line with what E Co (2016) found in a survey of GCF stakeholders. Most of them said that the cross-cutting nature of their project increased its chances of being approved. What exactly is cross-cutting is not clear (E Co, 2016). When looking at the total project value instead of only GCF funding, the picture becomes even worse with only a 17.7% share for adaptation (GCF, n.d. i). The GCF is far from achieving a balance between mitigation and adaptation.

There does not only seem to be a bias in the type of projects but also in where they occur. Most of the funding goes to middle-income countries. Matter et al. (2019) found that by May 2019, only 18% of the funds, for the approved GCF projects, went to the poorest countries, while 65% went to middle-income countries as those can generate more income and attract more private investors. These numbers have not changed much.

The actual allocation of GCF funding differs, except for CMS, from the optimal one calculated by Cui et al. (2014), particularly for China, MES and Africa. The former two receive a much lower share. The reasons for this could be political as shown by the blocking of a Chinese project by the US (Saur News Bureau, 2019). Remarkably, Africa gets more than twice as much and accounts for more than a third of the projects. This is likely due to the inclusion of Africa and LDCs in the bracket of "particularly vulnerable countries" (PVC) and the minimum allocation of 50% of adaptation to those countries (GCF, n.d. i). Most LDCs are African countries, with OAS having the second most LDCs (UNCTAD, n.d.). Another reason can be inferred from the numbers of ODA. It is noticeable that Africa's share is nearly the same as for GCF funding when excluding multiregional projects. Public projects from IAEs dominate the GCF (Figure 6). These have a lot of experience in development assistance (GCF, n.d. i). The two regions with the most ODA (Africa and OAS) also receive the most GCF funds. The third region receiving the most GCF funds is CMS which dominantly focused on mitigation. Though its contribution to emission avoidance is modest. Notably, almost a fifth of the expected emission reductions comes from the only five multiregional projects. They all have a co-financing ratio higher than one, with three of them above the GCF average. For the purpose of emission savings, such multiregional projects seem promising, though likely require more capacity from developing countries.

The funding allocation within CMS is in contradiction with Cui et al. (2014) who allocated approximately half of the CMS resources to adaptation and half to mitigation. However, it is in line with the general trend of climate finance in Latin America. Between 2003–2018, only 13% went to adaptation, quite similar to the 15% from the GCF. 83% went to mitigation (energy, REDD+) and 4% to projects with multiple foci which probably means cross-cutting, though that is not certain (Watson and Schalatek, 2019). CMS only includes one LDC (Haiti) and thus all but one CMS countries are not classified as a PVC (GCF, n.d. i; UNCTAD, n.d.). This has facilitated a continuation of business as usual in CMS. Classifying them as PVCs could increase adaptation funding to CMS. That the GCF has exceeded its allocation target of at least 50% of adaptation funding to PVCs by 22.4% strengthens this assumption. The problem then is that other PVCs would receive less funding given the limited amount of funding available. Based on the needs principles and the distributive justice theory of prioritarianism, Africa and OAS deserve more funding than CMS, but that does of course not help the people there. Competition of resources between developing countries would not be a problem if developed countries would provide their fair share and adequate amounts of funding. The co-financing ratio is also higher in CMS than in Africa, with the median being almost double. This a further argument for giving more funds to Africa than CMS. Though Africa has a higher median and overall co-financing ratio than ROW, even though the latter's projects mostly occur in upper-middle-income countries.

Sayegh (2017) said there can be a trade-off between allocating resources to mitigation efficient countries and allocating them fairly. China and India have high co-financing ratios, but only four projects were approved. Their status as a developing country has been contentious in the eyes of developed countries, notably the US (Gao and Weihuan, 2019; Verma, 2019). This could make them reluctant to approve projects in those countries. The same arguments as to why Africa should get more funds than CMS can be used also to justify the low amount for China and India. While mitigation has global benefits, China already is the largest investor in renewable energy so it would be hard to justify more funds to China when there are many other countries with more urgent needs. From Cui et al. (2014) point of view, this fails to exploit the large potential in those countries, particularly China. Their estimate of 2.477 $GtCO_2$ of reduced emissions from US$ 100 billion, is unlikely to be reached with current allocation decisions since the expected avoided emissions are only 862 MtCO2-eq with already US$ 5.61 billion and US$

19.72 billion in GCF funds and total funding respectively. Though the latter also includes other GHG-gases. A comparison with Markandya et al. (2015) is more difficult given their different division of regions and sole focus on mitigation. But they also gave much larger shares to China and India than is currently the case in the GCF.

Chapter 7: Conclusion

This section concludes this thesis and is split up into two parts. The first part repeats the research questions and provides the answers to them. It lists the main findings of this study. It ends with some suggestions for future research. The second part provides recommendations to improve the GCF and its ability to raise funding. Currently, the amount of raised funds is too low to play a significant role in the global climate finance regime. The chapter ends with a general conclusion about the GCF.

7.1 Key findings

This thesis tried to answer several questions related to climate finance and climate justice. The first part focused on the working of the GCF to answer the following questions:

- What procedures have been/are foreseen to ensure that the desired amount is raised?
    - Are they implemented?
    - Are they adequate?
    - If they are inadequate to raise the money, why are they so weak?
- Are there efforts to change the process of raising money?

There are no procedures in place to ensure that the desired amount is raised. It is not even clear what the desired amount is. As Westphal and Canfin (2015) said, the US$ 100 billion commitment “was seen as an important political goal that will help signal to the private sector developed countries’ commitment to scaling up climate finance”. The actual needs are much higher. Instead, the GCF tries to maximise the amount through diversification. But so far, no direct contributions other than those from governments have been made. The only other source for GCF projects is co-financing. There are intentions to widen the resource base, but so far that has not happened yet.

There have been some efforts to enhance the mobilisation of resources, but the long-term division between developing and developed countries prevented an agreement. Efforts from developed countries focused on linking voting to contributions and earmarking. According to them, that would incentivise contributions (GCF, 2014d). But developing countries feared it would impose conditions on them (GCF, 2014f). By rejecting both, compensatory justice seems to have been compromised in favour of distributional and procedural justice. Burden-sharing was considered by the GCF, but again no agreement was reached. When it comes to resource mobilisation, the GCF has been characterised by a lack of clarity and dividedness. Not much help came from the COP and its language was often soft and vague. The GCF looked at how other funds raised resources and adopted their processes, rather than trying to come up with a new process. This has led to business as usual.

For ensuring contribution agreements are fulfilled, there are procedures in place for some countries. Several included a provision where the GCF could potentially go to court in case of a breach of the agreement. But the first option is always to solve it amicably among the involved parties. And the provision is included voluntarily.

The second part focused on current sources of funding to see what could explain changes in pledges and if the predictions of Baatz (2018) about pledge and review instruments for adaptation finance were also applicable to the GCF by answering the following questions:

- Has funding been significantly affected by changing political situations and thus fluctuated considerably?

- Is there naming and shaming of those pledging very low amounts (soft enforcement mechanism)? Is the lack of a hard enforcement mechanism problematic?
- Have wealthy countries made meaningful long-term finance commitments resulting in a predictable flow of funding?

When excluding the US, countries have increased their combined pledges. Factors that influence pledges are: 1) a focus on costs and obligations vs focus on opportunities and responsibilities; 2) leadership; 3) domestic politics; 4) the economic situation and 5) the extent of diverging views between alternating governing parties. The answer to the first question is positive. Nowhere else is that clearer than in the US resulting in fluctuations from US$ 3 billion pledged in 2014 to zero in 2019. In the European countries, political situations have remained more stable and they have been able to increase their contributions. Secondly, the lack of a hard enforcement mechanism indeed turned out to be problematic, as shown by the case of the US. The language of naming and shaming varied among actors (NGO's, Democrats, etc.). From other national governments, it was very weak. It showed how ineffective such a mechanism is. Many countries instead changed to naming and acclaiming and prided themselves on their contributions. The answer to the third question is negative. Only a very small fraction of annual climate finance flows through the GCF and as long as this voluntary replenishment process is in place, there will never be a predictable flow of funding from the GCF. On average, only US$ 2.3 billion per year has been pledged from 2015–2023 (including the US). Even though we cannot put an exact number on what would be a significant share of US$ 100 billion, US$2.3 billion surely is not it.

The third part focused on fairness and distributional justice with the following research questions:

- Does the way of accounting (consumption-based or production-based) make a significant difference in determining the contributions?
- How do the calculated fair contributions compare to the pledges made during the Initial Resource Mobilisation and during the first formal replenishment process of October 2019?
- How are GCF funds distributed? How do they compare to the numbers determined by Cui et al. (2014)?

When comparing contributions based on consumption-based and production-based emissions for the 49 included countries, differences are relatively small. This could be due to the methodology as emissions only counted towards 43% towards calculating fair shares and the fact that consumption-based emissions are higher for most contributors meaning their shares would change little. Given the current practice is to use PBA, there is no reason to change it for burden-sharing. This might change when including developing countries. And CBA certainly has its use, particularly for reducing the carbon footprint from the local (cities) to the national level (countries). When comparing fair to actual contributions to the GCF, the results are not positive. All countries are far short of providing fair amounts to the GCF, most are even more than 90% short of their fair contribution. Some countries such as France, Germany and the UK have however contributed relatively more than what would be fair compared to what other contributors pledged. For some countries, fair shares can differ significantly depending on the methodology. Sweden was providing the largest share of its fair contribution and that is in line with its climate action ambition. For the GCF to be more effective, countries need to channel more of their climate finance through the GCF.

Finally, this thesis looked at where the resources were allocated to and how they compared to the numbers from Cui et al. (2014). Africa received about twice as much. China and the Middle

East received much less so far, while Latin America and Asia (excl. India and China) received similar amounts. Factors that play a role are the focus on the most vulnerable and international political relations between some countries such as the US and China. The disproportionate financing of mitigation compared to adaptation in the global climate finance regime also continued in the GCF. When looking at the total value of projects, this is even more so. While the GCF has so far not reached a balance between mitigation and adaptation, it has significantly exceeded its 50% allocation target of adaptation finance to PVCs by 22.4%. However, most of the funding goes to middle-income countries with only 12% going to projects exclusively in low-income countries.

This thesis was able to answer several research questions and thereby closing some of the research gaps. There is however still research that could be done to improve on this study. Future studies could focus more on the role of the private sector. Researches could add to the results of chapter three by looking at the videos of Board meetings as there was no time for that in this study. Regarding chapter five, a more complex model with consumption-based emissions could be used as this study used a relatively simple model. More information on co-financing is needed and researchers with expertise in statistics could examine influencing factors in detail. More data on climate damage would also help better estimating the needs for developing countries. Looking at subnational entities is also worthwhile as only a very limited number of them have contributed. A survey on public knowledge about climate finance, and the GCF in particular, would also be interesting. More public knowledge can lead to more pressure on governments to contribute.

7.2 Recommendations

Things will need to change to truly help developing countries with addressing climate change. First of all, more unity within the GCF will make it more effective and more attractive for contributor countries. One Board member mentioned one of the most important things to achieve this: a mind shift. All parties should get on the same page. Climate justice requires cooperation and a joint vision. So much could have been achieved by now. Instead, internal division slowed everything down. The best way is through more open dialogue where parties are willing to listen and understand each other views. This requires leadership and whether this happens will depend on those who are in government. As long as this is not the case, creating a new fund will not solve anything. The GCF is hindered by national interests. In the European Commission (EC), members give up their national representation and solely work in the interests of the EC (EC, n.d.). This would mean giving up more control for countries, and developing countries might be worried as the current governance structure of the GCF was one of their reasons for supporting a new fund (Doshi, 2015). But this does not have to be a problem as long as the mandate of the GCF is clear and oriented towards supporting developing countries in a way that is just. However, given that control is important for all countries, such a change might be difficult.

Secondly, improved clarity is important. Particularly a clear decision needs to be taken on how much of the US$ 100 billion goal has to flow through the GCF. From a climate justice point of view, the higher the share, the better. The share of public finance must also be clarified. Again, the higher the share, the more in line with climate justice. Clear targets would avoid the discussions that are currently taking place, and would also benefit the speed by which the GCF makes decisions as it allows it to focus on other matters instead. Both targets are decisions that would be made by the COP rather than the GCF. The World Bank and the COP could also decide to terminate some of the other climate funds to redirect funding that would go to them to the GCF instead. Having a single global climate fund will make things simpler and clearer. What also needs to become clearer is what counts as climate finance.

Thirdly, some compromises should perhaps be made. To make it more effective, more money is needed. This could be done by increasing incentives for contributors, which the GCF currently lacks, even though implementing such incentives could compromise some aspects of climate justice. As time goes on, one needs to think whether such a compromise is not worth it. This incongruence between ideal climate justice and reality seems unlikely to go away any time soon. Power relations remain in favour of developed countries given their wealth and lower vulnerability. Allowing partial earmarking for one replenishment cycle allows for testing whether it raises more money, still fulfils the needs of developing countries or results in a disproportionate bias in approved projects while minimizing its potential risks. Linking contributions to voting is more contentious as it would give more power to donor countries than partial earmarking. Safeguards that could be taken include clear binding allocation targets for project type and region and caps for how much money should go to countries. But it certainly is not ideal, and it would be preferable not to do this.

Something that could also incentivize donor countries is increased support from their voters' bases. Political changes affect the GCF. If their voters would support more contributions to the GCF, it would give political leaders the momentum to make higher pledges, even if other parties reject giving money to the GCF. This is where the climate justice movement can play an important role. It can improve awareness of the need for support for developing countries, educate people about climate change and climate justice. The trend of naming and acclaim can also help raise more funding in the future. The US elections in November 2020 will play a key role. A democratic win can give huge momentum to the GCF as it would likely result in more pledges. It could galvanise developed countries to further increase their pledges sooner.

However, one cannot avoid mentioning the current situation. Developed economies are being impacted by the pandemic, particularly the US (Jones et al., 2020). They are likely to focus on their recovery for the near future as shown by some EU countries wanting to cancel the Green Deal (Elkerbout et al., 2020). This could lower the amount of funds for the GCF. The pandemic is also likely to affect the GCF in other ways. One project got cancelled as of the 13th of June. It is not clear whether this is related to the coronavirus epidemic. An email was sent by the author of this study to the contact person of the project and the following reply was received: "due to various reasons a decision was taken not to apply for GCF funds for GEEREF Next project" (M. Levena 2020, personal communication, 6 July). This had a big impact on the expected amount of avoided emissions as this project alone accounted for almost as much as all the other projects together: 769 MtCO2-eq vs 862 MtCO2-eq. The effect of the pandemic on GCF projects will likely be the subject of future analyses.

Fourthly, other aspects can improve such as communication, outreach to regional entities, more DAEs and more funding for adaptation. Based on limited contributions from subnational entities, outreach to regional entities such as cities and states seems to be insufficient and/or ineffective. More communication will also help to increase the number of DAEs as it will lead to increased knowledge and awareness by developing countries. To create transformational change, business as usual needs to be avoided and the dominance of IAEs hinders progress. This imbalance was to be expected given the differences in experience and with increased readiness support from the GCF, DAEs will able to design and implement more projects (Shine, 2017).

In general, it feels like the GCF got rushed into existence and its operation feels like the proverb: "flying a plane while building it" (GCF, 2018e, p. 57). It results from the mismatch between the needs of developing countries to receive funding fast and the time it takes to fully develop such a fund. It also remains important for developed countries to reduce emissions as well. Else the required funding for adaptation will only increase further. The picture of the GCF from this thesis is not very positive. This fits within the overall picture of the international climate

regime. Both the COPs and GCF have been slow in their progress. Both suffer from the developed vs developing countries dichotomy. Both can suffer large breakdowns, e.g. COP15 in 2009 and the GCF in 2018. It seems the GCF is more of the same and a continuation of business as usual. But it is always easier to look back and it's not that the GCF did not achieve anything yet, just not what was hoped by or needed for developing countries. The GCF represented renewed hope for developing countries that their needs would finally be adequately addressed. Time will tell if the GCF represents a failed new hope instead, and the prospects are not good.

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Appendix

Table 13. Pledges for the GCF.

Contributor	IRM (US$ million)	GCF-1 (US$ million)	Difference (US$ million)
Australia	187.3	0	-187.3
Austria	34.8	33.79	-1.01
Belgium	102.4	45.048	-57.352
Bulgaria	0.13	0	-0.13
Canada	277	225.53	-51.47
Chile	0.3	0	-0.3
Colombia	6	0	-6
Cyprus	0.47	0	-0.47
Czechia	5.32	0	-5.32
Denmark	71.8	120.7	48.9
Estonia	1.34	0	-1.34
Finland	107	112.62	5.62
France	1036.8	1743.4	706.6
Germany	1003.3	1689.32	686.02
Hungary	4.28	0.7	-3.58
Iceland	1	2	1
Indonesia	0.25	0.5	0.25
Ireland	10.7	18	7.3
Italy	334.43	337.9	3.47
Japan	1500	1500	0
Latvia	0.47	0	-0.47
Liechtenstein	0.06	0.05	-0.01
Lithuania	0.13	0	-0.13
Luxembourg	46.8	45.05	-1.75
Malta	0.59	0	-0.59
Mexico	10	0	-10
Monaco	2.34	4.2	1.86
Mongolia	0.05	0	-0.05
Netherlands	133.8	135.15	1.35
New Zealand	2.56	10.05	7.49
Norway	272.2	417.48	145.28
Panama	1	0	-1
Peru	6	0	-6
Poland	0.11	3	2.89
Portugal	2.68	1.1	-1.58
Republic of Korea	100	200	100
Romania	0.05	0	-0.05
Russian Federation	3	10	7
Slovakia	2	2.25	0.25
Slovenia	0	1.13	1.13
Spain	160.5	168.93	8.43
Sweden	581.2	852.55	271.35

Table 13 continued.

Switzerland	100	150	50
United Kingdom	1211	1851.88	640.88
USA	3000	0	-3000
Viet Nam	1	0	-1
TOTAL (US$ million)	10322.16	9682.328	-639.832

Table 14. Converting pledges into 2019 values.

Date	Pledged (US$ million)	Year	Pledged (US$ million)	2019 value
by 12/2014	10193.37	2014	10193.37	11008.09 (7768.31 excl. USA)
by 10/2015	10202	2015	8.63	9.31
by 12/2016	10274.3	2016	72.3	77.01
by 01/2018	10302.2	2017	27.9	29.1
by 01/2019	10317.3	2018	15.1	15.37
by 02/2020	10322.16	2019	4.86	4.86
TOTAL	10322.16	TOTAL	10322.16	11143.74 (7903.96 excl. USA)

Values were converted to 2019 values using https://www.officialdata.org/. The pledged amounts were found in GCF Board documents GCF/BM-2015/Inf.01/Rev.01 (GCF, 2015a), GCF/B.11/Inf.05 (GCF, 2015b), GCF/B.15/Inf.11 (GCF, 2016d), GCF/B.19/18 (GCF, 2018k), GCF/B.22/Inf.05 (GCF, 2019n) and GCF/B.25/Inf.04 (GCF, 2020a) for 2014, 2015, 2016, 2017, 2018 and 2019 respectively.

Table 15. Fair shares calculated using the PSC approach and consumption-based emissions.

Country	HR	RC	Votes HR	Votes RC	Fair share	difference with PB
Albania	0.05	0.02	0	2877797	0.03	0.00
Australia	2.31	2.20	0	25499884	2.25	0.16
Austria	0.62	0.89	9006398	0	0.77	-0.06
Belarus	0.00	0.10	9449323	0	0.06	0.23
Belgium	0.70	1.07	11589623	0	0.91	0.04
Bosnia and Herzegovina	0.11	0.03	0	3280819	0.07	0.01
Bulgaria	0.26	0.09	0	6948445	0.16	0.05
Canada	3.62	3.23	0	37742154	3.40	0.08
Croatia	0.17	0.12	0	4105267	0.14	-0.01
Cyprus	0.07	0.05	0	1207359	0.06	-0.01
Czech Republic	0.59	0.37	0	10708981	0.46	0.10
Denmark	0.41	0.72	5792202	0	0.58	-0.01
Estonia	0.10	0.04	0	1326535	0.07	0.01
Finland	0.41	0.56	5540720	0	0.49	0.00
France	3.60	6.00	65273511	0	4.95	-0.25
Germany	5.91	8.28	83783942	0	7.24	-0.04
Greece	0.88	0.59	0	10423054	0.72	-0.10
Hungary	0.35	0.26	0	9660351	0.30	0.02
Iceland	0.03	0.04	341243	0	0.03	0.00
Ireland	0.34	0.49	4937786	0	0.42	0.00
Israel	0.44	0.49	8655535	0	0.47	-0.02
Italy	3.35	4.91	60461826	0	4.23	-0.18
Japan	8.61	14.13	126476461	0	11.71	-0.46

Table 15 continued.

Latvia	0.09	0.05	0	1886198	0.06	0.00
Liechtenstein	0.00	0.01	38128	0	0.01	0.00
Lithuania	0.16	0.07	0	2772289	0.11	-0.01
Luxembourg	0.10	0.11	625978	0	0.10	-0.01
Macedonia	0.06	0.02	0	2083374	0.04	0.00
Malta	0.02	0.02	0	441543	0.02	0.00
Moldova	0.01	0.01	4033963	0	0.01	0.04
Monaco	0.00	0.01	39242	0	0.01	0.00
Montenegro	0.03	0.01	0	628066	0.02	0.00
Netherlands	1.25	1.83	17134872	0	1.58	-0.02
New Zealand	0.36	0.31	0	4822233	0.33	0.02
Norway	0.41	0.84	5421241	0	0.65	-0.04
Poland	1.92	0.87	0	37846611	1.33	0.15
Portugal	0.50	0.50	10196709	0	0.50	-0.04
Romania	0.75	0.29	0	19237691	0.49	0.03
Russia	10.93	2.74	0	145934462	6.33	1.24
San Marino	0.00	0.00	33931	0	0.00	0.00
Serbia	0.36	0.09	0	8737371	0.21	0.00
Slovakia	0.34	0.17	0	5459642	0.24	-0.03
Slovenia	0.11	0.10	0	2078938	0.10	0.00
Spain	2.47	2.91	46754778	0	2.72	-0.20
Sweden	0.55	1.13	10099265	0	0.87	-0.07
Switzerland	0.74	1.29	8654622	0	1.05	-0.19
Ukraine	2.10	0.27	0	43733762	1.07	0.25
UK	4.72	6.20	67886011	0	5.55	-0.39
USA	39.09	35.49	0	331002651	37.07	-0.28

Table 16. Fair shares calculated using the PSC approach and production-based emissions.

Country	HR	RC	Votes HR	Votes RC	Fair share
Albania	0.04	0.02	0	2877797	0.03
Australia	2.69	2.20	0	25499884	2.41
Austria	0.46	0.89	9006398	0	0.70
Belarus	0.53	0.10	0	9449323	0.29
Belgium	0.79	1.07	11589623	0	0.95
Bosnia and Herzegovina	0.12	0.03	0	3280819	0.07
Bulgaria	0.37	0.09	0	6948445	0.21
Canada	3.82	3.23	0	37742154	3.48
Croatia	0.15	0.12	0	4105267	0.13
Cyprus	0.05	0.05	1207359	0	0.05
Czech Republic	0.83	0.37	0	10708981	0.56
Denmark	0.39	0.72	5792202	0	0.58
Estonia	0.12	0.04	0	1326535	0.08
Finland	0.40	0.56	5540720	0	0.49
France	2.96	6.00	65273511	0	4.69
Germany	5.78	8.28	83783942	0	7.21
Greece	0.64	0.59	0	10423054	0.62
Hungary	0.40	0.26	0	9660351	0.32
Iceland	0.02	0.04	341243	0	0.03
Ireland	0.34	0.49	4937786	0	0.42
Israel	0.40	0.49	8655535	0	0.45
Italy	2.91	4.91	60461826	0	4.05

Table 16 continued.

Japan	7.42	14.13	126476461	0	11.25
Latvia	0.08	0.05	0	1886198	0.06
Liechtenstein	0.00	0.01	38128	0	0.01
Lithuania	0.13	0.07	0	2772289	0.10
Luxembourg	0.06	0.11	625978	0	0.09
Macedonia (Republic of)	0.07	0.02	0	2083374	0.04
Malta	0.02	0.02	441543	0	0.02
Moldova	0.10	0.01	0	4033963	0.05
Monaco	0.00	0.01	39242	0	0.01
Montenegro	0.03	0.01	0	628066	0.02
Netherlands	1.19	1.83	17134872	0	1.56
New Zealand	0.40	0.31	0	4822233	0.35
Norway	0.30	0.84	5421241	0	0.61
Poland	2.30	0.87	0	37846611	1.49
Portugal	0.41	0.50	10196709	0	0.46
Romania	0.83	0.29	0	19237691	0.53
Russian Federation	14.00	2.74	0	145934462	7.57
San Marino	0.00	0.00	33931	0	0.00
Serbia	0.36	0.09	0	8737371	0.21
Slovakia	0.28	0.17	0	5459642	0.22
Slovenia	0.11	0.10	0	2078938	0.10
Spain	2.00	2.91	46754778	0	2.52
Sweden	0.38	1.13	10099265	0	0.81
Switzerland	0.29	1.29	8654622	0	0.86
Ukraine	2.72	0.27	0	43733762	1.32
United Kingdom	3.79	6.20	67886011	0	5.16
United States of America	38.52	35.49	0	331002651	36.79
TOTAL	100.00	100.00	550392926.00	732279861.00	100.00

Table 17. Example of Australia in case 1 of the calculation for the values in Figure 4. Australia pledged on average US$ 20.8 million per year.

Fair share	Total amount	Fair amount	Share of the pledge of the fair amount	Final value visualised in figure 4
2.41%	US$ 2.3 billion	= 2.41/100 x 2.3 billion = US$ 55.7 million	=20.8/55.7 = 37.3%	= 100% - 37.3% = 62.7%

Table 18. Shares of mitigation, adaptation and cross-cutting in climate finance.

Source	Time	Mitigation	Adaptation	Cross-cutting
GCF (n.d. i)	2015–2020	35.7%	27.5%	36.8%
GCF (2018j)	2015–2018	39.6%	30.7%	29.7%
GCF (n.d. i)	2015–2016	25%	33%	42%
Carty and Le Comte (2018)	2015–2016	71%	20%	9%

Table 19. Exact numbers for section 5.2. Number of projects (share of GCF funding for that region), except for avoided emissions.

	AFR	OAS	CMS	IND	ROW	Multiregional
Adaptation	26 (39%)	18 (37%)	6 (15%)	1 (20%)	7 (49%)	0
Mitigation	11 (19%)	8 (34%)	10 (57%)	1 (56%)	3 (15%)	2 (14%)
Cross-cutting	8 (42%)	7 (28%)	9 (27%)	1 (24%)	4 (36%)	3 (86%)
DAEs	14 (29%)	5 (5%)	5 (12%)	2 (76%)	1 (5%)	0
IAEs	31 (71%)	28 (95%)	20 (88%)	1 (24%)	13 (95%)	5
Public sector	33 (53%)	29 (87%)	20 (85%)	2 (44%)	14	1 (11%)
Private sector	12 (47%)	4 (13%)	5 (15%)	1 (56%)	0	4 (89%)
Avoided emissions (Mt CO_2-eq)	163 (19%)	335 (39%)	159 (18%)	8.9 (1%)	10 (1%)	149 (17%)