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CLIMATE FINANCE: GLOBAL AND NATIONAL PERSPECTIVES IN THE CONTEXT OF COVID-19 PANDEMIC IMPACT

Abstract

In this paper we investigated global and national public climate finance. We provide a novel methodology for estimating public climate finance in the government budgets with its application to the case of the City of Skopje. Climate finance globally reached USD 632 bn in 2020 with an annual increase of only 10%, compared to previous years, which grew by about 25%. The achieved level is far from the required USD 4.35 trillion per year to meet climate objectives by 2030. We found that global pandemic of COVID-19 negatively affected the growth of the global climate finance in 2020 and lowered the level of public climate finance in many developing countries. North Macedonia is a small developing country with clear commitment to combating climate change. The Enhanced Nationally Determined Contributions (ENDC) include 63 mitigation policies and measures to reduce GHGs emissions by 51% by 2030, which require EUR 25.03 billion climate investments. Using the methodology for Climate Budget Tagging (CBT), we estimated that the amount of public climate finances of the City of Skopje in 2020 reached USD 6.09 million, which represents as much as 9.07% of the overall budget expenditures for the year, and an increase of 75% from the previous year.

Keywords: climate finance, climate budget tagging (CBT), UNFCC, Enhanced Nationally Determined Contributions (ENDC), North Macedonia

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Introduction

The earth's surface global mean temperature is currently 1.0° C higher (0.8° C - 1.2° C range) than in the pre-industrial period (1850-1900). It has increased faster in these 170 years than at any other time in the past 800,000 years. This trend is unequivocally linked to human activities responsible for the release of greenhouse gases (GHGs) (IPCC, 2018). To avoid catastrophic climate change, 197 countries adopted the Paris Climate Agreement in 2015. It aims to limit the increase of global average temperatures since pre-industrial levels to well below 2° C, while pursuing efforts to stay within 1.5°C. Climate change is one of the greatest threats to humanity triggering the risk of extreme drought, wildfires, floods, and food shortages for hundreds of millions of people.

Climate change is considered as the "greatest investment opportunity in history" valued at about 10 percent of global GDP, providing an unprecedented opportunity to unlock massive economic and social benefits that can help achieve the Sustainable Development Goals (SDGs). Bold climate action could trigger USD 26 trillion in economic benefits by 2030 and create around over 65 million new jobs (AICC, 2019). It is estimated that annually USD 1.6 - USD 3.8 trillion (with an average of about USD 3.5 trillion) energy system investments are needed between 2016 and 2050 to achieve a low-carbon transition (De Coninck, et al., 2018). The United Nations Environment Program (UNEP) estimates that the annual cost of adaptation could range from USD 40 to 300 billion annually by 2030 (Olhoff et al., 2016), while others estimate between USD 280 and USD 500 billion annually by 2050 (UNEP, 2016). Global climate finance flows reached USD 632 billion in 2019/2020, and to meet our climate objectives, by 2030 annual climate finance must increase by 588% to USD 4.35 trillion (CPI, 2021). Therefore, there is a preexisting shortfall between the approximated costs of green recovery and available financial resources, meaning that green development still has relatively lower investments compared to traditional investments (Shipalana and Chigwenya, 2021).

Underdeveloped and developing countries face several economic, political, and existential problems. Undertaking climate activities in these countries facing a shortage of climate finance is supported by developed industrialized countries. In line with the "common but differentiated responsibilities and respective capabilities" principle (Article 4, UNFCCC), developing countries have articulated their financial and capacity-building needs in their NDCs and made their contributions conditional on receipt of international support. At the 15th Conference of Parties (COP15) of the UNFCCC in Copenhagen in 2009, developed countries committed to a collective goal of mobilizing USD 100 billion per year by 2020 to assist and address the needs for climate action in developing countries, in context of meaningful mitigation actions and transparency in implementation. The goal was formalized at COP16 in Cancun (UN-FCCC, 2010) and was reiterated for 2020 and extended to 2025 at COP21 in Paris (UNFCCC, 2015). At the request of developed countries, the OECD has, since 2015, produced analyses of progress towards this goal. The most recent historical OECD figures indicate that climate finance provided and mobilized by developed countries reached USD 79.6 billion in 2019, up by only 2% from 2018 (OECD, 2021). OECD has developed two forward-looking scenarios for climate finance provided and mobilized by developed countries to developing countries in 2021-2025 where significant growth is forecasted between USD 83 billion - USD 117 billion annually (OECD, 2021a).

In response to the climate change challenge, governments in both developed and developing countries have been increasingly planning and implementing adaptation and mitigation actions. International climate finance has also been available and is expected to significantly increase in the coming years now that the Green Climate Fund (GCF) is operationalized and committed to providing up to USD 100 billion per year. However, given that climate change is a cross-cutting issue affecting all sectors of the economy, effective responses to climate change require a whole-of-government approach, involving participation from both the public and private sectors. Central to this approach is the significant engagement of the planning and finance ministries, together with other line ministries, in fully integrating climate change within an overall national development strategy. Tracking of climate public expenditure as the first step to implementing such an approach needs to integrate climate change into the national budgetary and planning process (UNDP, 2019).

North Macedonia submitted an Enhanced Nationally Determined Contributions (ENDC) providing a roadmap to reduce greenhouse gas emissions by 51% by 2030, which is predicted to be implemented by means of 63 mitigation policies and measures (MASA, 2020). This requires EUR 25.03 billion climate investments, where the funding structure is planned to be by Government only (4%), other source of financing only (no government) (43%), and mixed financing (government + other - private sector, donors, consumer) (54%) (McClellan, 2021). Moreover, North Macedonia has been preparing to initiate the process of integration of climate change issues into its national plans and budget. For that purpose a national methodology for Climate Budget Tagging (CBT) has been developed. CBT is a government-led process of identification, measurement, and monitoring of climate-relevant public expenditures, helping mainstreaming climate change in the public financial management system to mitigate and adapt to the economic, social, and environmental impacts of climate change in a systematic manner.

1. METHODOLOGY FOR TRACKING PUBLIC CLIMATE FINANCE

The assessment of the public climate finance was conducted using the newly developed methodology for Climate Budget Tagging (CBT) in 2021 by the Ministry of Environment and Physical Planning (Upadhya and Naumoski, 2021). Budgeting for climate change is a fairly new concept worldwide aiming at integrating, tracking, and monitoring public climate expenditures into government budgets. It is also known as climate budgeting, green budgeting, climate budget tagging, climate change budgeting, climate budget tagging. The development of this concept experienced expansion in 2021 (OECD, 2021b; UNDP, 2021; Pizarro et al., 2021), when also it was developed Macedonian national methodology that is fully consistent with world-renowned methodologies.

The definition of the key variables according to this methodology is as follows. *Climate expenditure is* any expenditure incurred in addressing climate change related activity. *Climate change mitigation* activities contributes to the objective of the stabilization of greenhouse gas (GHGs) concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system by reducing or limiting GHGs emissions or to enhance GHGs sequestration (OECD, 2011). *Climate change adaptation activities* intends to reduce the vulnerability of human or natural systems to the current and expected impacts of climate change, including climate variability, by maintaining or increasing resilience, through increased ability to adapt to or absorb climate change stresses, shocks, and variability and/or by helping reduce exposure to them (OECD, 2011).

Climate Budget Tagging (CBT) is a tool for identifying, classifying, weighting, and marking climate-relevant expenditures in a government's budget system, enabling the estimation, monitoring, and tracking of those expen-

ditures. It includes the process of attaching a climate budget marker, such as a tag or account code, to budget lines or groups of budget lines (Bain et al., 2019).

Not all CC activities identified as such have the same budgetary components that are relevant to CC actions. For some CC activities, most of the budget is related to CC, while for others it may only be a portion of its budget that is related to CC. Since the aim of CBT is to capture the CC related budget, it is important to identify the actual CC related budget as far as possible. This will be sorted out by providing *weight factor* to the activities and grouping them based on the level of climate relevance.

Each budget activity should be investigated and if it is identified to be climate related, it should receive two marks:

- First mark is for the *type of climate activity*. Climate-related programs / activities will first be marked with 1, 2 and / or 3 to indicate the species to which it belongs: mark 1 means "mitigation", mark 2 means "adaptation", mark 3 means "both".
- Second mark denotes the *climate relevance* of the activity. Climate-related activities will then be marked with 1, 2 or 3, indicating different levels of climate change relevance. Mark 1 indicates "high relevance"; mark 2 indicates "moderate relevance"; mark 3 indicates "low or marginal relevance". **High relevant** activities are those with a clear focus on climate change; **medium relevant** activities are those that have links to climate change objectives; **low relevant** activities are those that are related to the medium relevant expenditures but not directly linked to climate change.

Following classification of the activities on mitigation and adaptation, to quantify climate relevant expenditures, the next step in the CBT would be to see the extent to which the program is relevant to climate change. This means to identify and apply the weighting of relevance to climate change of these activities. The relevance to climate change of policies and program depends on the responsiveness to the estimated current and potential impacts of climate change on different population groups, different geographic areas and different institutional capabilities to deliver services. When the entire budget of the program is climate related, it is then rather easy to provide the weight since the entire budget can be considered climate relevant. Whereas there are many programs which by nature are climate related but only a fraction of the budget of those programs addresses climate issues. Capturing those portions of the budget is crucial while tracking climate expenditure. Therefore, identifying the level of relevance by climate expenditure is important:

- If an activity is marked as "highly relevant" for mitigation or adaptation, 100% of the expenditure is considered and reported as climate finance.
- If an activity is marked as "**medium relevant**" for mitigation or adaptation, **50%** of the expenditure is considered and reported as climate finance.
- If an activity is marked as "low relevant" for mitigation or adaptation, 20% of the expenditure is considered and reported as climate finance.

When an activity is marked for both mitigation and adaptation, then the amount of the expenditure should be split in half between adaptation and mitigation.

Figure 2. The process of CBO and estimation of public climate finance in the government budget



Source: authors' own presentation

2. ESTIMATING CLIMATE FINANCE OF THE CITY OF SKOPJE

2.1 Public Climate Finance of the City of Skopje over the 2018 – 2020 period

The capital of the Republic of North Macedonia, the City of Skopje, has in recent years placed more emphasis on investing in environmental protection, with special emphasis on investments in tackling and adapting to the adverse effects of climate change. The City of Skopje has developed a "Resilient Skopje - Climate Change Strategy" (UNDP, 2017). In each subsequent year the City allocates an increasing amount of funds in its own budget for the implementation of climate activities. The implementation of the measures foreseen in the Strategy is phased, by years.

The assessment of climate finance was performed using the methodology shown above on activity-based approach. Using the publicly available financial statements of the City where the implemented budget expenditures are presented by activities, first we made identification and selection of activities that meet the criteria for mitigation activities and adaptation activities. Consequently, each activity was marked by its type (mitigation, adaptation, or both) and by its climate relevance (highly, low, or medium relevant). The actual expenditure of each activity was weighted according to the climate relevance of the activity, and thus translated into the amount of climate finance related to that activity.

The commitment of the City of Skopje in the fight against climate change is evident through the volume of conducted climate activities and the amount of public climate expenditures. In the analyzed three-year period of 2018 - 2020, 55 climate activities were undertaken within various budget programs for which USD 16.7 million was spent. By applying the methodology described above, and the weights of the climate relevance of each identified activity, it is estimated that for the three-year analyzed period the public climate finances of the City of Skopje amount to USD 12.1 million, which is 6.7% of the total expenditures of the basic budget of USD 180.7 million. Table 1 provides a more detailed overview of the amounts of individual items by year. It is evident that the climate finance of the City of Skopje has a large absolute growth, as well as growth of its relative share in the total expenditures, especially in 2020.

	2018	2019	2020	Total
Number of climate related projects / activities	17	20	18	55
Total realized expenditures of the Own Budget of the City of Skopje	49.541.187	63.958.697	67.174.380	180.674.264
<i>Total expenditures on climate activities</i>	3.775.443	5.152.666	7.785.644	16.713.753
Total climate finance	2.526.754	3.487.774	6.094.855	12.109.384
<i>Climate finance as % of total public expenditures</i>	5,10%	5,45%	9,07%	6,70%

Table 1. Climate finance and total public expenditures of the City of Skopje (*in USA*\$)

Source: author's own calculations

Although the economic activity in 2020 was reduced due to the impact of the global pandemic of Covid-19 virus, the public climate finances of the City of Skopje experienced the largest growth of as much as 75% compared to pre-pandemic 2019, while the total basic budget expenditures in 2020 grew only by 5% compared to 2019. The growth of climate finance is because of the pandemic. Namely, although with the initial budget of the City for 2020 the allocation of expenditures was planned differently, precisely because of the insufficient implementation of some of the planned activities, before the end of 2020 the budget was revised, and so a large part of the budget was relocated to climate activities. This relocation was mostly aimed at providing subsidies to citizens to replace heating stoves used by households based on fossil fuel, coal, wood, and other fuels that emit carbon dioxide and other GHGs emissions, with alternative modern forms of heating that are not GHGs emitters. Therefore, the amount of public climate finances of the City of Skopje in 2020 reached USD 6.09 million, which represents as much as 9.07% of the total budget expenditures for the year.

The climate finances of the City of Skopje in 2020 reached the highest level. Table 2 and Figure 3 show their distribution between climate finance related to climate mitigation activities and climate change adaptation activities. All years are marked by the relative share of finances related to mitigation activities, while in 2020 there is an absolute decrease in finances related to adaptation activities. This ratio correlates with global trends in climate finance (CPI, 2021).

Table 2. Climate finance for mitigation and adaptation of the City of Sko-
pje over the period 2018 – 2020 (in USA \$)

	2018		2019		2020		Total	
	amount	%	amount	%	amount	%	amount	%
Mitigation	1,415,328	56.0%	2,289,614	65.6%	5,151,231	84.5%	8,856,173	73.1%
Adaptation	1,111,427	44.0%	1,198,160	34.4%	943,624	15.5%	3,253,211	26.9%
Total	2,526,754		3,487,774		6,094,855		12,109,384	

Source: authors' own calculations





Source: authors' own calculations

Climate change is a crosscutting issue and public sector activities relevant to climate change adaptation and mitigation are often scattered across several city's departments and budgetary programs. Most of the climate finances of the City of Skopje are implemented through the budget program for environmental protection of 56%, and then through Parks and greenery of 40%.

Name of the second	Climate finar	Total in 2018	
Name of the program	mitigation	adaptation	- 2020
Local economic development	1.208	0	1.208
Drainage and wastewater treatment	0	19.421	19.421
Public lighting	99.103	0	99.103
Parks and greenery	2.853.274	2.004.956	4.858.230
Education	331.502	0	331.502
Environmental protection	5.571.086	1.228.834	6.799.919
Total	8.856.173	3.253.211	12.109.384

Table 3. Structure of the climate finance of the City of Skopje between2018 – 2020 by budget programs (in USA\$)

Source: authors' own calculations

Figure 3. Structure of the Climate finance of the City of Skopje 2018 – 2020 by budget program (in %)



Source: authors' own calculations

Conclusion

Public climate finance today accounts for 51% of total climate finance globally, while the public sector is expected to play an even more dominant role in taking decisive climate mitigation and adaptation actions on the path to creating carbon-neutral sustainable development. Climate action is only one of the goals of sustainable development, although it seems to be the highest priority. Climate finance reached USD 632 billion at a global level in 2020 where public sector provides 51% of finances for climate actions with dominant role of the development finance institutions providing 68% of the public finance and the government budgets provide 6% from the total climate finance. The amount of climate finance is not even close to the required level of USD 4.35 billion per year to achieve carbon neutrality and reduce global warming to 1.5 C by 2030. High-emissions investment in the meantime continues to flow in key sectors, which are curbing the impact of new finance in climate mitigation and adaptation. Climate investment should count in the trillions, whereas fossil fuel investments should virtually stop in this decade (CPI, 2021). Moreover, no sector is on track to meet the required investment levels (annual renewable energy investments need to at least triple, while adaptation finance needs to increase at least fourfold).

Developed countries should play a leading role in combating climate change, but also in providing climate finance for the needs of developing countries.

The global pandemic of the Covid-19 virus has had an adverse effect on climate activity, leading to a slowdown in climate finance growth. Countries faced lockdowns, but on the other hand, to cope with rising unemployment, social and economic effects, budget reallocations were implemented, which were to the detriment of declining climate activity. This has had a particularly adverse effect on the funds that developed countries have allocated to developing countries.

The Republic of North Macedonia is strictly focused on combating climate change. In 2021, it submitted the revised Nationally Determined Contributions, which outlined 63 highly ambitious carbon reduction programs. Their implementation requires the mobilization of as much as EUR 25.03 billion, which will be financed together by the public and private sector, but also through the available financial mechanism of the UNFCCC and other sources of international finance. With the support of UNDP and the use of GEF funds through a project approach in 2021, a national Climate Budget Tagging methodology was created to monitor and direct public climate finance. By applying this methodology, the public climate finances of the capital City of Skopje were evaluated, which has the second largest budget after the one of the central government. The City of Skopje is strictly committed to combating climate change, having the appropriate strategy for this. The global pandemic of Covid-19 has led to a significant reduction in international financial support for climate activities in North Macedonia. But for the City of Skopje in 2020, it has led to a large increase in public spending on climate activities because of the relocation of budget expenditures.

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