

# Exploring Urban Perception on Climate Change in Developing Countries

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Studies in Global and Regional Strategies 23-06

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Published August 29, 2024 in Korea by KIEP  
ISBN 978-89-322-9060-7 94320  
978-89-322-9000-3 (set)  
Price USD 7

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This publication is printed on eco-friendly paper under  
KIEP's ESG policy.



## Executive Summary

This paper delves into the perceptions of urban residents in developing countries on climate change, underscoring the importance of these insights in formulating effective climate policies. As urban areas in these regions experience rapid growth and heightened vulnerability due to climate impacts, understanding local perspectives becomes crucial for both mitigating and adapting to climate change effectively.

The study contributes to the body of knowledge on public perceptions of climate change, focusing particularly on the urban populations of developing countries. Despite existing literature on the subject, there remains a scarcity of research concerning cross-national variations in climate change perception within this demographic, which this paper seeks to address. To gather detailed empirical evidence, we conducted an online survey with participants from eight major cities in countries across Africa, Latin America, Southeast Asia, and South Asia. The survey primarily assessed climate change awareness, the perceived personal impact of climate changes, and evaluations of governmental and international responses.

The findings reveal that awareness and concerns about climate change significantly differ among urban populations, influenced by educational level, economic status, and direct climate impact experiences. Furthermore, the study explores the heterogeneity in perceptions, which is shaped by a complex interplay of demographic and socio-economic factors. This diversity in perceptions impacts the public's willingness to engage in climate change adaptation measures and supports varied policy preferences at the domestic

and international levels.

Also, the findings emphasize the necessity for policymakers to consider the diverse perceptions of urban residents when implementing climate policies. Engaging these communities in developing countries is crucial for achieving widespread support and effective climate action. This approach aligns with the broader goals of sustainable development and international cooperation on climate challenges. By gaining a deeper understanding of varied urban perceptions, policymakers can more effectively prioritize actions and allocate resources in areas where the impact of climate change is most severe and the potential for meaningful change is significant.



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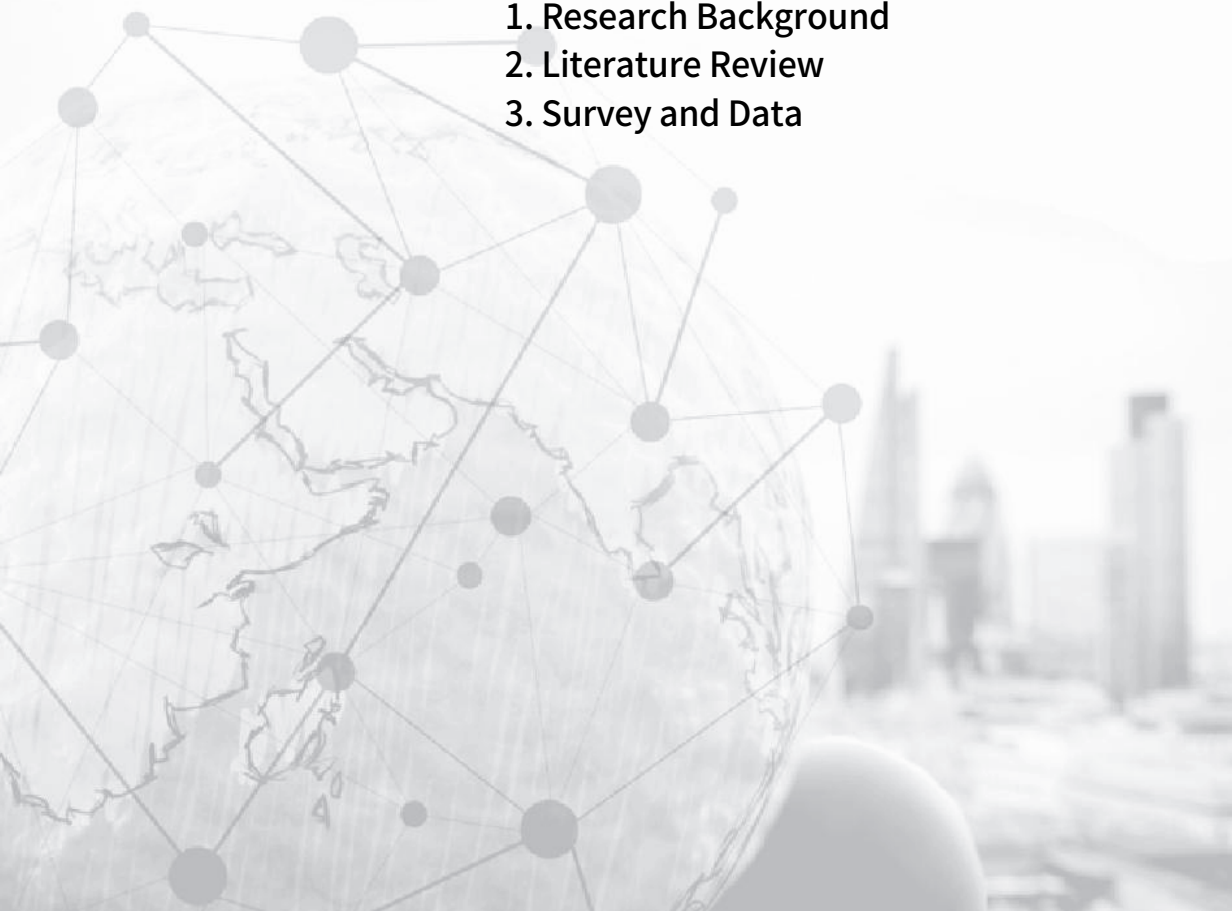
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## Chapter 1



# Introduction

1. Research Background
2. Literature Review
3. Survey and Data



# 1. Research Background

The concurrent trajectories of urbanization and climate change present unprecedented challenges for developing countries, often exacerbating existing vulnerabilities and complicating development efforts. Urban areas in these countries face both significant challenges and opportunities in addressing environmental sustainability, making them critical focal points for global climate action. The rapid expansion of cities<sup>1)</sup> in developing countries contributes to climate change through increased fossil fuel consumption and changes in land use. Bhattacharya *et al.* (2023) note that, even excluding China, developing economies are expected to make substantial contributions to global greenhouse gas emissions, highlighting the critical role of urban centers in developing countries in shaping climate outcomes.

Densely populated urban areas increase the vulnerability of residents to climate-induced events thus placing additional stress on accessible resources. These areas are often exposed to scarcity of essential resources such as water, lack resilient infrastructure, and face housing shortages, all of which adversely affect the well-being of urban populations. Furthermore, internal migration from rural areas affected by climate change accelerates urbanization and adds another layer of complexity to sustainable urbanization efforts. Climate change often disproportionately affects rural areas thereby driving internal migration toward cities. This demographic shift is particularly pronounced in developing countries where a significant proportion of the population is engaged in agriculture and has been experiencing reduced agricultural productivity.

These factors collectively position urban populations in a prominent role

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1) Projections from the United Nations Department of Economic and Social Affairs (2018) indicate a significant surge in the global urban population, expected to increase by approximately 2.5 billion individuals by 2050, with approximately 90% of this growth projected in developing countries.

in climate change mitigation and adaptation. Numerous authors (Hunt and Watkiss 2011; Okaka *et al.* 2018) acknowledge cities as pivotal in implementing mitigation measures even in developing countries. Johnson and Briel (2012) argue that urban areas not only concentrate adaptive capabilities but also have the potential to contribute significantly to greenhouse gas reduction. In a similar vein, the United Nations has delineated ‘sustainable cities’ as a critical facet within the Sustainable Development Goals framework.

Recognizing the critical role of urban residents in addressing climate-related challenges in the developing world, this study delves into various aspects of urban residents’ perceptions of climate change. We hope to contribute to the existing literature on public perceptions of climate change which play a significant role in shaping responses to this global crisis, including initiatives in resilience building, CO<sub>2</sub> emission reduction, and international cooperation. Previous literature examines to what extent the public is aware of and concerned about climate change (Whitmarsh 2008; Whitmarsh 2009; Li *et al.* 2011; Howe and Leiserowitz 2013; McCright *et al.* 2014; Lee *et al.* 2015; Frondel *et al.* 2017; Howe 2018; Whitmarsh and Capstick 2018), how the public evaluates it (Leiserowitz *et al.* 2023; Tobler *et al.* 2012; Frondel *et al.* 2017; Hargreaves *et al.* 2003), how the public links it to individual activities or governmental and cross-border actions (Franzen and Vogl 2013; Alam *et al.* 2017; Madureira *et al.* 2018; Okaka *et al.* 2018; Ngo *et al.* 2020; Dechezleprêtre *et al.* 2022), and the factors contributing to the heterogeneity of perceptions across individuals, countries, and regions (Lee *et al.* 2015; Frondel *et al.* 2017; Dechezleprêtre *et al.* 2022).

While these studies enhance an understanding of the different dimensions of climate change perceptions, their applicability across geographical, economic, and cultural contexts is limited. Particularly scarce are studies addressing cross-national variations in climate change perceptions within the developing world, with an even more notable gap in exploring perceptions of urban residents in these regions. This study provides an insight into the attitudes of urban residents in developing countries toward

anthropogenic climate change, their perceptions of climate-induced risks, their willingness to take individual action, and a comparative analysis of their domestic and international policy preferences. Additionally, we analyze the factors contributing to the heterogeneity of perceptions across individuals, countries, and regions.

Our findings hold important implications for policymakers in terms of what to consider when implementing climate policies at domestic and international levels to ensure widespread support. Effective climate action in cities requires engagement and support of local communities. Understanding how urban communities in developing countries perceive and engage with climate change challenges helps tailor climate policies (Leiserowitz 2006; Label *et al.* 2013). An awareness of their perspectives also aids in understanding motivations in international climate negotiations and agreements, fostering cross-border cooperation in addressing climate change, and increasing support for domestic and international climate initiatives.

Our findings could help policymakers in the developing world and international organizations to define the contexts in which they operate. Limited resources in developing countries require careful prioritization of climate change mitigation and adaptation efforts, and understanding urban residents' perceptions helps allocate resources effectively, addressing urgent needs and aligning interventions with local priorities. Additionally, our research shows how different localized contexts underlie public perceptions of climate change, leading to different implications for domestic and globally harmonized policy efforts. Lastly, we expect that our findings can be assessed against observed country-level data on climate change and policy efforts.

In the context of apprehensions surrounding globalization and increasing geopolitical tensions that pose potential threats to international cooperation to tackle climate change, Korea has at numerous times underscored its commitment to expanding development cooperation related to climate change. Given the evolving interconnections between urbanization and

climate change as a salient development agenda in developing countries, it seems warranted for Korean development agencies to intensify their focus on tackling issues related to climate change in urban settings. To develop comprehensive development cooperation strategies that are effectively tailored to regional and national needs for addressing climate change challenges in urban areas, it is crucial to understand the perspectives of residents in recipient countries. The findings from our survey are anticipated to aid in the formation of a more integrated policy framework that more accurately targets the urban populations of these countries.

## 2. Literature Review

Analyzing how the public views climate change provides essential insights into their distinct concerns and needs, allowing for targeted interventions and policies that address the complexities surrounding climate-related issues. Whitmarsh *et al.* (2011) define perception as encompassing various psychological elements, including knowledge, beliefs, attitudes, concerns, emotions, and perceived risks. Perceptions are also shaped not just by social interactions and cultural environments (Kahan *et al.* 2010). Public perceptions of climate change are thus developed through a multifaceted process that integrates different psychological aspects related to climate change and various social narratives (Whitmarsh and Capstick 2018).

The body of work related to climate change perception often tackles an important question: what influences the heterogeneity in public perception of climate change? As mentioned above, perception is influenced by individuals' socio-economic characteristics, experiences, received information, and the social, cultural, and geographic context in which they reside (van der Linden 2015; Whitmarsh and Capstick 2018). Notably, perception is, to some extent, a subjective phenomenon. Thus, individuals, depending on a number of factors, may construct different perceptions of

climate change responding differently to exogenous stressors. Discerning the factors influencing perceptions of climate change proves to be challenging. Despite the complexities involved there is a growing research interest in identifying the driving forces behind public perceptions of climate change.

First, public perceptions of climate change are known to vary based on various socio-demographic factors (Lee *et al.* 2015). For instance, factors such as age and gender can impact skepticism regarding climate change threats and willingness to take individual actions in response. Men and older individuals demonstrate a higher propensity for skepticism and lower levels of concern regarding climate change (Upham *et al.* 2009; Franzen and Vogl 2013; Andor *et al.* 2018). Franzen and Vogl (2013) find that American women tend to exhibit slightly greater environmental concern than men and that environmental concern initially rises and subsequently declines with increasing age. Other studies argue that age and gender exert a weak influence on climate change perception (Howe *et al.* 2015; Shi *et al.* 2016).

Education emerges as one of the most robust predictors of climate change perceptions on a global scale (Tobler *et al.* 2012; Lee *et al.* 2015; Drummond and Fischhoff 2017; Ruiz *et al.* 2020), although its impact varies between developed and developing nations and can be moderated by other variables such as political ideology. For instance, research indicates that individuals with higher levels of education are more aware of climate change, display greater willingness to participate in pro-environmental actions, and typically harbor stronger beliefs regarding climate change (Tobler *et al.* 2012; Lee *et al.* 2015).

Several studies also link climate change perceptions to economic factors. For example, wealthier people are expected to have a higher demand for a cleaner environment and for less environmental damage (Franzen and Vogl 2013). Those experiencing economic insecurity or uncertain employment status are more likely to prioritize economic growth over environmental concerns and display less support for climate change mitigation policies.

Research indicates that during economic recessions, belief in climate change wanes due to a reshuffling of priorities (Scruggs and Benegal 2012). Lee *et al.* (2015) identify financial well-being as a strong predictor of climate change opinions and Dechezleprêtre *et al.* (2022) highlight that support for climate policies is influenced by respondents' household gains and losses.

Numerous studies suggest that individuals who have personally experienced extreme weather events tend to exhibit heightened concerns about climate change (Li *et al.* 2011; Howe and Leiserowitz 2013; McCright *et al.* 2014; Frondel *et al.* 2017; Howe 2018; Whitmarsh and Capstick 2018). Those directly affected by extreme climatic events often perceive a relatively high probability of the recurrence of such events (Patt and Schröter 2008; De Matos Carlos *et al.* 2020). There are studies that find to the contrary an uncertain relationship between personal experiences and climate concerns. Whitmarsh (2008), for example, discovers no significant differences in climate change concern between individuals affected by floods and those unaffected in the UK, with the affected group attributing the floods to local road resurfacing rather than considering them as part of climate change.

Ruiz *et al.* (2020) assert that media coverage plays a crucial role in communicating climate knowledge. As the primary source delivering information about climate change to the public, media shapes public attitudes and responses to climate change (Hargreaves *et al.* 2003). While adults primarily rely on traditional outlets such as television and printed press to obtain news and interpret scientific results related to climate change research, governance, and decision-making (Shi *et al.* 2016), they are increasingly turning to online platforms as well (Leas *et al.* 2016). Moreover, O'Neill *et al.* (2015) argue that the media's influence extends beyond the mere delivery of climate change information, as it has the capacity to polarize, shape, enhance, or inhibit public engagement. Research finds that television viewing, newspaper readership, radio programs and online data sources influence awareness of climate change (Carmichael *et al.* 2017; Carmichael and Brulle 2018).



It is important to note that there exists significant heterogeneity in predictors of climate change perceptions between and within countries. A substantial body of research delves into public perceptions of climate change revealing heterogeneity in attitudes across individuals within a developed country (Frondel *et al.* 2017; MacInnis and Krosnic 2020; Leiserowitz *et al.* 2023; Pew Research Center 2023), within a developing country (Amos *et al.* 2015; Alam *et al.* 2017; Okaka *et al.* 2018; Bollettino *et al.* 2020; Ngo *et al.* 2020) or spanning multiple countries (Lee *et al.* 2015; Asai *et al.* 2022; Dechezleprêtre *et al.* 2022; Leiserowitz *et al.* 2022; Dabla-Norris *et al.* 2023).

Frondel *et al.* (2017) explore the factors influencing individuals' personal risk perception of adverse climate events using data from household surveys in Germany. MacInnis and Krosnic (2020) conducted a study in the U.S. examining national-level public perceptions of climate change. Their objective was to gauge the extent to which U.S. citizens agree on the existence, causes, and threats posed by climate change, as well as their views on the desirability of climate policies. On the other hand, Leiserowitz *et al.* (2023) utilize a nationally representative survey to describe the beliefs and attitudes of citizens in the United States regarding climate change. Specifically, their inquiry delves into whether they believe in climate change, perceived risks and impacts, levels of concern about global warming, and modes of engagement with the issue.

Amos *et al.* (2015) center their study on a coastal community in Nigeria characterized by elevated climate vulnerability and scrutinize households' perceptions of the vulnerability of livelihoods to climate change. Alam *et al.* (2017) delve into the household perceptions of adaptation strategies in reaction to the perceived impacts of climate change and climatic hazards in resource-deprived areas susceptible to riverbank erosion in Bangladesh. Bollettino *et al.* (2020) examine the public's awareness and perceptions regarding climate change in the Philippines, investigating its association with proactive measures taken to prepare for natural hazards. Ngo *et al.* (2020)

identify the factors that affect flood and climate change risk perceptions and willingness to take adaptive measures among residents of Vietnam's low-lying coastal and delta communities.

Several studies focus specifically on urban dwellers' perceptions such as those conducted by Madureira *et al.* (2018) and Okaka *et al.* (2018). Madureira *et al.* (2018) investigate the preferred characteristics of public green spaces among urban residents, seeking to discern similarities and differences across three different Portuguese cities. Okaka *et al.* (2018) study the awareness and concern about climate change among urban residents in a coastal city in Kenya, exploring their autonomous behaviors and the mitigation measures they undertake in response.

There are also a number of studies based on primary surveys that extend beyond individual countries to investigate global public perceptions of climate change, emphasizing the sharp heterogeneity in attitudes both within and between countries. Lee *et al.* (2015) draw on nationally representative samples from 119 countries to assess factors underlying the heterogeneity in climate change awareness and risk perception. They find that climate change awareness and risk perceptions are unevenly distributed around the world and predictors of climate change opinions also vary across countries. Leiserowitz *et al.* (2022) provide a global-level perspective on climate change beliefs, attitudes, policy preferences, and behaviors, revealing significant heterogeneity across countries and regions. Dechezleprêtre *et al.* (2022) contribute to the understanding of attitudes towards climate change through a global-level survey involving respondents from 20 countries.

The studies at a global level show that predictors of climate change opinions vary significantly across countries. For example, according to empirical evidence by Lee *et al.* (2015), in the United States, pivotal determinants of climate change awareness are found to be civic engagement, communication access, and educational attainment. Notably, individuals exhibiting high levels of civic engagement consistently demonstrate a heightened awareness of climate change, while those characterized by lower levels of civic engagement and

constrained communication access tend to exhibit a commensurate lack of awareness. In contrast, the factors influencing climate change awareness in China are found to be education, geographical location, and household income. Specifically, individuals with lower socioeconomic status, characterized by limited educational attainment, residing in rural areas or engaged in agricultural pursuits, tend to manifest a comparatively lower level of awareness concerning climate change.

### **3. Survey and Data**

Numerous investigations based on both primary and secondary surveys have explored public perceptions of climate change, often encompassing multiple countries. However, their relevance to diverse geographical, economic, and cultural contexts is often limited. Studies that examine cross-national differences in climate change perceptions specifically within developing countries are especially rare, with even fewer focusing on the perceptions of urban residents in these areas.

Focusing on developing countries is essential because of their vulnerability and the disproportionate impacts of climate change they endure. These populations have contributed least to the problem yet often suffer its greatest consequences. Moreover, the adverse effects of climate-induced events which lead to significant losses and damages severely threaten the developmental progress these nations have achieved. Furthermore, as highlighted by Bhattacharya *et al.* (2023), developing economies, even when China is excluded, are projected to be responsible for the majority of the world's annual greenhouse gas emissions. Despite the anticipation that cities in the developing world will play a pivotal role in achieving climate goals, the international community has largely overlooked the challenges they encounter in addressing the intricacies of the global emissions mitigation imperative. Acknowledging the imperative to scrutinize diverse facets of

citizens' perceptions regarding climate change in the urban milieu of developing nations, our study aims to explore the diverse perceptions of climate change among urban residents in developing countries and identify the factors driving these perceptions' variability.

Initially, we investigate the factors associated with the observed heterogeneity in urban residents' attitudes toward climate change. Among the myriad factors underlying this heterogeneity we specifically focus on individuals' socio-demographic characteristics, socioeconomic conditions, experience, knowledge and information access, political orientations, and broader economic, social, and institutional factors. Based on this set of determinants, our study looks at urban residents' attitudes toward the existence of anthropogenic climate change, their perceptions of climate-induced risks, their willingness to take individual-level actions in response to climate change, and their inclination to support public policies on climate change.

Given the lack of comprehensive data on this topic in developing regions, we conducted an original online survey to gather primary empirical evidence. Our survey included respondents from eight major cities across Africa, Latin America, Southeast Asia, and South Asia, representing eight different countries. Conducted from January to February 2024, the survey followed a pilot test to ensure clarity and validity of questions. It was administered online in English and the local languages to residents aged 18 and older, gathering data from 3,243 individuals, with at least 400 participants from each country. The results, which are internationally comparable, facilitate detailed regional and city-specific analyses, offering insights into the perceptions of urban residents in the developing world regarding climate change. As summarized in Table 1.1, the survey reveals uniform characteristics across countries in terms of age, gender, and urban residency with noticeable variations in college education levels—particularly lower in Latin American countries—and differences in income and employment levels. This uniformity in age, gender, and urban residency among the survey respondents was intentional to ensure a consistent demographic baseline across countries.

However, variations in other characteristics such as educational attainment, income, and employment levels reflect broader national differences and are not solely attributable to our survey sample. These distinctions may highlight inherent country-specific traits rather than trends among our participants.

**Table 1.1. Summary Statistics by Countries**

	Southeast Asia		South Asia		Latin America		Africa	
	Indonesia	Vietnam	India	Bangladesh	Colombia	Peru	Kenya	Morocco
Age	34.96 (10.28)	38.45 (11.50)	36.22 (11.77)	33.85 (10.45)	36.92 (12.63)	36.94 (12.22)	33.07 (10.65)	37.10 (12.12)
Female	0.50 (0.50)	0.41 (0.49)	0.47 (0.50)	0.42 (0.49)	0.53 (0.50)	0.50 (0.50)	0.49 (0.50)	0.42 (0.49)
College Education	0.66 (0.48)	0.80 (0.40)	0.83 (0.38)	0.75 (0.43)	0.49 (0.50)	0.59 (0.49)	0.73 (0.44)	0.64 (0.48)
Urban	0.86 (0.35)	0.83 (0.37)	0.94 (0.24)	0.74 (0.44)	0.93 (0.26)	0.92 (0.27)	0.81 (0.39)	0.92 (0.27)
Family in Agriculture	0.22 (0.41)	0.39 (0.49)	0.29 (0.46)	0.45 (0.50)	0.24 (0.43)	0.24 (0.43)	0.57 (0.50)	0.39 (0.49)
Income Above Median	0.84 (0.37)	0.72 (0.45)	0.89 (0.31)	0.63 (0.48)	0.57 (0.50)	0.60 (0.49)	0.73 (0.44)	0.54 (0.50)
Full-time Employment	0.67 (0.47)	0.76 (0.42)	0.79 (0.41)	0.50 (0.50)	0.55 (0.50)	0.60 (0.49)	0.49 (0.50)	0.48 (0.50)
Part-time Employment	0.17 (0.37)	0.14 (0.35)	0.11 (0.31)	0.21 (0.41)	0.20 (0.40)	0.21 (0.40)	0.33 (0.47)	0.21 (0.41)
Observation	422	391	392	388	391	390	403	399

Source: Data from an online survey conducted by the authors.

The survey’s core content encompasses awareness of climate change and related policies, the perceived impact of climate change on personal lives, and an assessment of the government or international community’s response to climate change. In parallel, we collect information on individuals’ socio-characteristics, experience, knowledge and information, political views, and broader economic, social, and institutional factors.

The survey data are analyzed using both descriptive statistical methods and regression analysis. Descriptive statistics provide insights into the demographic characteristics of participants and their perceptions of climate


change. We perform sub-group analyses to discern differences in perceptions across various countries and regions. Additionally, the analysis investigates relationships among different variable groups. The regression analysis is used to estimate the association between individuals' demographic characteristics, socioeconomic, political, and institutional contexts, and past experiences with climate shocks, and their perceptions and actions related to climate change.

The structure of the report is as follows: The second chapter presents an empirical analysis of how demographic factors and previous climate shock experiences impact perceptions of climate change. The third chapter gives an overview of the survey results emphasizing regional differences. The fourth chapter explores public perceptions of governmental policies and international cooperation. The final chapter summarizes the key findings and discusses policy implications, offering recommendations for the Korean government. Throughout the report, the term 'regional variation' refers to the classification of eight countries into specific regions for analytical purposes. It is important to emphasize that selecting two countries per region does not imply that these countries comprehensively represent the broader perspectives or experiences of their entire regions.

## Chapter 2

A stylized, bold, black letter 'K' is positioned above a grey, blocky graphic element that resembles a staircase or a series of horizontal bars of varying lengths.

# Understanding the Drivers of Climate Change Perceptions

- 
- A network diagram consisting of grey dots of varying sizes connected by thin grey lines, overlaid on a faint, light-colored map of the world. The background is a blurred cityscape with tall buildings under a bright sky.
1. Empirical Strategy
  2. Summary Statistics
  3. Climate Change Perceptions along Multiple Dimensions
  4. Climate Change Concerns in Specific Areas
  5. Willingness-to-pay (WTP) for Climate-Related Tax
  6. Discussion

Our study aims to explore the diverse perceptions of climate change among urban residents in developing countries and identify the factors driving the variability of these perceptions. In this chapter, we will examine the contributors to the varied perceptions of climate change across individuals using a regression methodology.

## 1. Empirical Strategy

We use the Ordinary Least Squares (OLS) method to examine how demographic factors and prior experiences with climate-related events influence perceptions across eight countries. The specifics of the regression model used are outlined below:

$$y_{ij} = \beta_0 X_{ij} + \beta_1 experience_{ij} + \beta_2 expose_{ij} + \sigma_j + \epsilon_{ij} \quad (1)$$

where  $y_{ij}$  is an outcome variable of respondent  $i$  in country  $j$  and includes concern about climate change, beliefs about impact of human activity on the climate, and the perception that climate change presents greater challenges in urban areas.  $X_{ij}$  includes demographic factors such as age, gender, education level, income level, and rural ties. Additionally, we consider past experiences of climate shocks and exposure to media and neighbors. Prior research in advanced economies such as US and in Europe indicates that experiences with extreme weather events significantly influence perceptions of climate change (Deryugina 2013; Reser *et al.* 2014; Zaval *et al.* 2014; Konisky *et al.* 2016; Kaufmann *et al.* 2017; Fownes *et al.* 2019; Whitmarsh and Capstick 2018; Moore *et al.* 2019; Baiardi and Morana 2021). Previous studies have also found that mass media exposure plays a significant role in shaping public opinions on climate change by acting as the primary conduit for disseminating climate related information (Crispino



and Loberto 2024; Carmichael and Brulle 2017; Feldman and Hart 2018). To acknowledge and incorporate alternative sources of information we include climate-change related discussions with family and friends as a potential influence on perceptions. To account for omitted variable bias, we incorporate country-specific fixed effects in our analysis.

## 2. Summary Statistics

Table 2.1 presents the summary statistics for the variables used in our analysis. According to the survey results, the most commonly experienced climate-related events among respondents are heatwaves, followed by droughts and floods. Experiences with sea-level rise, landslides, and wildfires are less common. Over half of respondents report hearing about climate change in the media at least once a month, while approximately 34% discuss climate change more than once a month with others.

The survey also reveals that 80% of respondents are worried about climate change. The primary concern cited is health, mentioned by 71% of respondents, followed by job loss at 50%. In contrast, only 24% of respondents are worried about forced migration due to climate change, and 30% express concerns related to family planning. Overall, while a significant majority of respondents across eight countries are concerned about climate change, their worries are predominantly centered on health and economic issues rather than migration or family planning.

**Table 2.1. Summary Statistics**

Variable	Mean	Sd.	Min	Max
<b><i>Demographics</i></b>				
Age	35.93	11.58	18	65
Female	0.47	0.50	0	1
Above college education	0.68	0.46	0	1
Family engaged in agriculture or fishery	0.35	0.48	0	1
Above mean income	0.69	0.46	0	1
<b><i>Past experiences</i></b>				
Experienced drought	0.60	0.49	0	1
Experienced flood	0.59	0.49	0	1
Experienced sea level rise	0.27	0.44	0	1
Experienced landslides	0.33	0.47	0	1
Experienced wildfire	0.33	0.47	0	1
Experienced heatwave	0.61	0.49	0	1
Experienced storms	0.28	0.45	0	1
<b><i>Exposure to climate change debates</i></b>				
Hear about climate change from media more than once a month	0.55	0.50	0	1
Talk about climate change more than once a month	0.34	0.48	0	1
<b><i>Concerns</i></b>				
Concern about health because of climate change	0.71	0.45	0	1
Concern about job loss because of climate change	0.50	0.50	0	1
Concern about losing income because of climate change	0.47	0.50	0	1
Concern about moving to other regions because of climate change	0.24	0.43	0	1
Concern about family plan because of climate change	0.30	0.46	0	1
Worried about climate change	0.80	0.40	0	1
<b><i>Perceptions on climate change</i></b>				
Urban area faces greater challenges because of climate change	0.57	0.49	0	1
Climate change is the greatest threat in next 5 years	0.36	0.48	0	1
N	3,172			

Note: Sd = Standard Deviation.

Source: Data from an online survey conducted by the authors.

### 3. Climate Change Perceptions along Multiple Dimensions

In this subsection, we aim to shed light on the factors shaping urban citizens' perceptions of climate change in developing countries. Specifically, we focus on three distinct dimensions of climate change perceptions: the level of concern regarding global climate change; the assessment of climate change's relative threat compared to other pressing issues within the country; and the perception of comparative vulnerability of urban versus rural communities. The findings from our analysis are detailed in Tables 2.2 to 2.4.

First, we explore the factors shaping urban citizens' level of concern regarding global climate change, utilizing a binary dependent variable derived from survey responses.<sup>2)</sup> Column (1) of Table 2.2 shows the OLS estimates of the relationship between respondents' level of concern about climate change and a suite of their socio-demographic characteristics. Column (2) augments the baseline model by incorporating variables capturing respondents' personal experiences with various climate events, while Column (3) supplements the baseline model with variables capturing individuals' exposure to climate change information via media and daily-based interpersonal channels. Finally, in Column (4), regression results from a comprehensive model is presented with all aforementioned variables included.

Findings from the baseline model in Column (1) indicate a positive

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2) The construction of this binary variable involves categorizing respondents based on their level of concern as prompted by the question: "How concerned are you about global climate change?" Responses are separated into five options: "not worried at all," "not very worried," "somewhat worried," "worried," and "extremely worried." Those indicating a response of "worried" or "extremely worried" are assigned a value of 1 for the dependent variable, while all other responses are coded as 0. This binary representation facilitates a focused analysis, allowing us to examine the determinants of heightened concern regarding global climate change among urban citizens.

correlation between college education and concern about climate change, corroborating prior research emphasizing educational attainment as a robust predictor of climate change perception (Tobler *et al.* 2012; Lee *et al.* 2015; Drummond and Fischhoff 2017; Ruiz *et al.* 2020). Additionally, individuals reporting incomes surpassing the national median exhibit heightened concern compared to their counterparts, aligning with literature positing economic status as a salient determinant of climate change attitudes (Scruggs and Benegal 2012; Franzen and Vogl 2013; Lee *et al.* 2015). Having a family member working in agriculture or fisheries is positively correlated with concern about climate change. This implies that individuals from such backgrounds may have distinct perspectives or heightened awareness about climate change likely due to the direct impact climate conditions can have on their livelihoods.

No apparent gender or age differences are evident in climate change concerns in contrast with earlier studies that suggest women and younger adults harbor greater apprehensions (Upham *et al.* 2009; Franzen and Vogl 2013; Andor *et al.* 2018), or propose a marginal impact of age and gender on climate change perception (Howe *et al.* 2015; Shi *et al.* 2016).

Regression results reported in Column (2) underscore the impact of respondents' experiences with diverse climate events in the last 5 years on their level of climate change concern, affirming prior research indicating heightened concerns among those who have encountered extreme weather events (Li *et al.* 2011; Howe and Leiserowitz 2013; McCright *et al.* 2014; Frondel *et al.* 2017; Howe 2018; Whitmarsh and Capstick 2018). Notably, the nature of these past experiences significantly influences respondents' interpretation of climate change, with exposure to heatwaves emerging as the most powerful predictor followed by drought, flood, wildfire, and storms while coefficients associated with sea level rise and landslide experiences lack statistical significance. The latter group of climate events may not necessarily be attributed to human-induced factors by respondents.

In Column (3), regression results indicate an association between individuals'

exposure to climate change information through both media and interpersonal channels and their levels of concern regarding global climate change. Specifically, respondents who encounter information regarding global warming in the media more frequently than once a month, as well as those who engage in discussions about global warming with family members, friends, or colleagues more than once a month, are more likely to harbor heightened concerns about climate change. These findings align with previous studies on the impact of media exposure on climate change perception (Hargreaves *et al.* 2003; Shi *et al.* 2016; Carmichael *et al.* 2017; Carmichael and Brulle 2018; Ruiz *et al.* 2020).

Finally, Column (4) presents regression results incorporating all variables. Across Columns (1) to (4), a consistent pattern emerges, underscoring the significance of past experiences with certain disasters, the impact of media exposure and daily discussions with acquaintances, and the influence of rural background on climate change concern.

Our investigation centers on discerning the determinants influencing respondents' perceptions regarding the relative threat of climate change compared to other pressing issues within their country.<sup>3)</sup> We employ an identical set of explanatory variables as in Table 2.2 in order to facilitate a comparative analysis of the factors shaping perceptions of relative threat posed by climate change.

In Column (1) of Table 2.3 presents regression findings that highlight significant effects of age, gender, and income on perceptions of climate change. Specifically, the analysis reveals that older individuals, female respondents, and those with higher income levels are more likely to perceive

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3) To operationalize this, we construct a binary dependent variable based on survey responses. We categorize respondents based on their responses to the question: "What is the greatest threat to your country in the next five years?" Responses are separated into six options, including climate change, humanitarian issues, unemployment, conflict, infectious diseases, and high inflation. Those identifying climate change as the greatest threat to their country are assigned a value of 1 for the dependent variable, while all other responses are coded as 0.

**Table 2.2. Results for Respondents' Concern about Climate Change**

1 = "worried" or "extremely worried" about climate change; 0 = Otherwise				
	(1)	(2)	(3)	(4)
Age	0.000 (0.001)	-0.000 (0.001)	0.000 (0.001)	-0.001 (0.001)
Female	0.018 (0.014)	0.016 (0.014)	0.018 (0.014)	0.016 (0.014)
College education	0.041** (0.017)	0.025 (0.017)	0.034** (0.017)	0.020 (0.017)
Rural ties	0.036** (0.016)	0.034** (0.015)	0.027* (0.016)	0.027* (0.015)
Above median income	0.060*** (0.018)	0.047*** (0.018)	0.046** (0.018)	0.037** (0.018)
Experienced drought		0.072*** (0.017)		0.066*** (0.017)
Experienced flood		0.068*** (0.017)		0.064*** (0.017)
Experienced sea level rise		0.012 (0.016)		0.008 (0.016)
Experienced landslide		-0.008 (0.016)		-0.010 (0.016)
Experienced wildfire		0.056*** (0.016)		0.048*** (0.016)
Experienced heatwave		0.111*** (0.017)		0.106*** (0.017)
Experienced storm		0.032** (0.016)		0.032** (0.016)
Media exposure			0.087*** (0.017)	0.075*** (0.017)
Daily exposure			0.047*** (0.016)	0.027* (0.016)
Constant	0.673*** (0.038)	0.549*** (0.039)	0.637*** (0.038)	0.528*** (0.040)
Observations	3,172	3,172	3,172	3,172

Note: "Rural ties" refers to individuals whose families are engaged in agriculture or fisheries. "Above median income" indicates that an individual reports earning more than the median income of their respective country, with the specific median income value varying by country. "Media exposure" is defined as receiving information about climate change from various media sources at least once a week. "Daily exposure," on the other hand, refers to individuals who hear about climate change from people they know—such as family, friends, or colleagues—at least once a week. A country-specific fixed effect is included in the analysis. Robust standard errors in parentheses, with significance levels indicated as follows: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Source: Data from an online survey conducted by the authors.

climate change as the greatest threat to their country compared to other pressing issues. These results are consistent with prior research conducted by Upham *et al.* (2009), Scruggs and Benegal (2012), and Lee *et al.* (2015), which also identified similar demographic influences on climate change perceptions. Conversely, the regression analysis shows that having a college education and familial involvement in agriculture or fisheries do not have a significant impact on perceiving climate change as a primary threat. This indicates that while certain demographic factors significantly shape concerns about climate change, educational background and specific economic sectors like agriculture or fisheries may not influence this particular perception as strongly.

In Column (2), regression results highlight the meaningful impact of past experiences with certain climate events on individuals' perceptions of relative threat from climate change. Heatwaves, droughts, flood, and sea level rise exhibit statistically significant associations with respondents' assessments of climate change threat relative to other issues. However, variables representing encounters with landslide, wildfire, and storm do not show statistical significance, indicating a selective influence of specific climate events on perceptions of relative threat.

In Column (3), a statistically significant positive correlation emerges between respondents' exposure to climate change information via media and interpersonal channels and their perceptions of climate change threat relative to other issues. This underscores the influential role played by media and interpersonal discourse in shaping public perceptions of climate change relative to other societal concerns.

In Column (4)'s the comprehensive model, demographic factors (age, gender, income) remain statistically significant in shaping climate change risk perceptions. Past experiences with specific climate events and media exposure also retain significance. However, interpersonal communication about climate change loses statistical significance, suggesting media exposure may have a stronger influence on public perceptions than personal discussions.

**Table 2.3. Results for Respondents' Perception of the Relative Threat of Climate Change Compared to Other Pressing Issues**

	1 = "Climate change is the greatest threat to my country in the next 5 years."; 0 = "Otherwise"			
	(1)	(2)	(3)	(4)
Age	0.002*** (0.001)	0.002** (0.001)	0.002** (0.001)	0.001* (0.001)
Female	0.039** (0.017)	0.036** (0.017)	0.039** (0.017)	0.037** (0.017)
College education	0.021 (0.019)	0.009 (0.019)	0.012 (0.019)	0.002 (0.019)
Rural ties	0.012 (0.018)	0.013 (0.018)	0.001 (0.018)	0.003 (0.018)
Above median income	0.075*** (0.019)	0.066*** (0.019)	0.059*** (0.019)	0.053*** (0.019)
Experienced drought		0.047** (0.018)		0.040** (0.018)
Experienced flood		0.033* (0.019)		0.027 (0.019)
Experienced sea level rise		0.059*** (0.021)		0.054*** (0.020)
Experienced landslide		-0.018 (0.019)		-0.021 (0.019)
Experienced wildfire		0.027 (0.020)		0.017 (0.020)
Experienced heatwave		0.076*** (0.018)		0.069*** (0.018)
Experienced storm		0.010 (0.021)		0.010 (0.020)
Media exposure			0.111*** (0.019)	0.104*** (0.019)
Daily exposure			0.043** (0.020)	0.032 (0.020)
Constant	0.155*** (0.041)	0.075* (0.042)	0.112*** (0.040)	0.048 (0.042)
Observations	3,172	3,172	3,172	3,172

Note: "Rural ties" refers to individuals whose families are engaged in agriculture or fisheries. "Above median income" indicates that an individual reports earning more than the median income of their respective country, with the specific median income value varying by country. "Media exposure" is defined as receiving information about climate change from various media sources at least once a week. "Daily exposure," on the other hand, refers to individuals who hear about climate change from people they know—such as family, friends, or colleagues—at least once a week. A country-specific fixed effect is included in the analysis. Robust standards errors in parentheses, with significance levels indicated as follows: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Source: Data from an online survey conducted by the authors.



In Table 2.4, our analysis focuses on analyzing the factors shaping urban citizens' perceptions regarding the relative threat posed by climate change to urban versus rural communities. We again construct a binary dependent variable based on survey responses.<sup>4)</sup> We employ an almost identical set of explanatory variables as Tables 2.2 and 2.3, with the only deviation being in our measure of individuals' ties to rural communities, now captured by a dummy variable denoting prior residence in rural areas instead of family involvement in agriculture or fisheries.

Across Columns (1) to (4), a consistent pattern emerges wherein younger individuals and those with a college education manifest a heightened propensity to perceive urban communities as facing greater threats from climate change compared to their rural counterparts. Conversely, individuals with prior rural residency are more inclined to contest the notion that urban areas confront graver challenges due to climate change. Personal experiences with natural disasters and exposure to climate change information via media or interpersonal channels exhibit negligible influence on respondents' perceptions of relative threat to urban versus rural communities. However, an exception arises with the variable measuring individuals' past experiences with drought, where respondents with such experiences tend to perceive a greater climate-induced threat in urban areas compared to rural areas.

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4) We categorize respondents based on their responses to the question: "In your opinion, which type of community - urban or rural - faces greater challenges in terms of livability due to the effects of climate change?". Responses are separated into three options, "urban", "rural", and "uncertain/don't know". Those who choose "urban" are assigned a value of 1 for the dependent variable, while all other responses are coded as 0.

**Table 2.4. Results for Respondents' Perception of the Relative Threat Posed by Climate Change to Urban Versus Rural Communities**

1 = "Urban community faces greater challenges in terms of livability due to the effects of climate change."; 0 = Otherwise				
	(1)	(2)	(3)	(4)
Age	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)
Female	0.005 (0.017)	0.006 (0.017)	0.005 (0.017)	0.006 (0.017)
College education	0.059*** (0.020)	0.060*** (0.020)	0.058*** (0.020)	0.060*** (0.020)
Rural ties	-0.092*** (0.023)	-0.095*** (0.023)	-0.092*** (0.023)	-0.095*** (0.023)
Above median income	0.024 (0.020)	0.023 (0.020)	0.023 (0.020)	0.022 (0.020)
Experienced drought		0.037* (0.019)		0.037* (0.019)
Experienced flood		0.000 (0.019)		0.000 (0.019)
Experienced sea level rise		0.010 (0.020)		0.010 (0.020)
Experienced landslide		0.021 (0.020)		0.021 (0.020)
Experienced wildfire		0.001 (0.020)		0.000 (0.020)
Experienced heatwave		-0.029 (0.019)		-0.029 (0.019)
Experienced storm		-0.016 (0.020)		-0.016 (0.020)
Media exposure			0.009 (0.019)	0.007 (0.019)
Daily exposure			0.001 (0.019)	-0.002 (0.020)
Constant	0.614*** (0.043)	0.605*** (0.045)	0.610*** (0.043)	0.603*** (0.046)
Observations	3,172	3,172	3,172	3,172

Note: "Rural ties" denotes individuals who have previously resided in rural areas. "Above median income" indicates that an individual reports earning more than the median income of their respective country, with the specific median income value varying by country. "Media exposure" is defined as receiving information about climate change from various media sources at least once a week. "Daily exposure," on the other hand, refers to individuals who hear about climate change from people they know—such as family, friends, or colleagues—at least once a week. A country-specific fixed effect is included in the analysis. Robust standards errors in parentheses, with significance levels indicated as follows: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Source: Data from an online survey conducted by the authors.

## 4. Climate Change Concerns in Specific Areas

In this section, we delve into the analysis of factors affecting personal concerns related to climate change. We examine the influence on various aspects of personal life, including health, income, employment, relocation, and family planning. For this analysis, we converted responses from five key questions into binary variables.<sup>5)</sup> We utilize the same set of explanatory variables as in the previous section. The comprehensive results, which include all variables in the analysis, are presented in Table 2.5. This approach ensures consistency across our analyses, allowing for a clear comparison of how different factors affect individual perceptions and concerns regarding climate change across multiple dimensions of personal life.

First, there is a positive correlation between individuals' past experiences and their concerns about the potential impacts of climate change. The influence of extreme events on worries about future life varies depending on the nature of the event. Specifically, those who have experienced any type of extreme event tend to be concerned about a range of issues including economic stability, family planning, displacement, and health. Among all exposures, drought has a particularly significant effect on concerns across all these areas. For example, individuals who have experienced drought in the past five years are 8.3% and 9.6% more likely to be worried about job loss and income reduction, respectively. Additionally,

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5) Each question aims to assess the perceived impact of climate change on an individual's life: To what extent do you think climate change will negatively affect your health? To what extent do you think climate change will affect your job in the next five years? To what extent do you think climate change will negatively affect your income in the next five years? To what extent have you considered moving to another area due to concerns about climate change? To what extent have you considered changing your family plans due to concerns about climate change? Responses were originally rated on a 5-point scale: 1 for "Not at all," 2 for "Slightly," 3 for "Moderately," 4 for "Significantly," and 5 for "Extremely." For the purpose of this analysis, responses of "Significantly" and "Extremely" are coded as 1, indicating a substantial concern.

such individuals are more likely to express concerns about relocation, family planning, and health. Experiencing wildfires also exhibits a similar pattern to experiencing drought in terms of influencing public concerns about climate change.

The strong connection between exposure to drought and wildfires, and concerns across dimensions of personal life could be attributed to factors such as water shortages or reduced precipitation compared to previous years. This environmental change serves as a visible sign of climate variations, linking personal experiences with broader environmental concerns. Researchers like Carmichael and Brulle (2018) and Shao and Goidel (2016) emphasize that public concerns about climate change are heightened when decreased precipitation serves as a tangible sign of climate change. This is supported by findings across eight developing countries where drought is commonly seen as an indicator of climate change thus heightening public concern about the impacts on their lives. Similarly, experiences with floods and increase in sea-level also amplify worries about job security, displacement, and family planning. Direct exposure to climate events make these issues more tangible and impactful compared to abstract scientific or political explanations, influencing public opinion more strongly.

However, experiences related to heatwaves do not strongly correlate with heightened concerns about climate change effects. While individuals who have experienced heatwaves may worry about income loss and health, such exposure does not significantly increase concerns about job loss, displacement, or family planning. This contrasts with earlier research linking beliefs about global warming to higher temperature exposures. Studies by Deryugina (2013) and Zaval *et al.* (2014) have shown that public beliefs about global warming correlate with exposure to higher temperature. A potential explanation is that in developing countries, where temperature increases are more pronounced, global warming is perceived as a permanent, unavoidable condition. Therefore, unlike the immediate and evident impacts of extreme events, gradual temperature rises might be

viewed as inevitable (Broomell *et al.* 2017), leading to a less pronounced impact on public concerns related to heatwaves. This reasoning may also explain the lack of observed effects from storm experiences. Our study also differentiates between heatwaves and drought which could lead to new insights regarding the effects of heatwaves on public concerns. Overall, these observations suggest that personal experiences with extreme weather events profoundly shape public concerns about climate change, with varying impacts depending on the type of event experienced.

Secondly, our findings indicate that frequent exposure to climate change-related information through mass-media is associated with increased public concern about job loss and family planning. Individuals exposed to such information through mass-media more than once a month are 4.2% more likely to worry about job loss and 5.5% more concerned about family planning, consistent with prior studies like Trivedi *et al.* (2018) in India and Liao *et al.* (2016) in Singapore. However, our study diverges from earlier research by showing that mass-media exposure's impact on shaping public perceptions about climate change is limited. While it's often thought that climate-related information dissemination through mass-media increases climate change concerns and promotes pro-environmental behaviors (Huang 2016), Holbert *et al.* (2003) suggest that effects vary by media source and the type of concerns addressed, leading to mixed results regarding issues like income shocks, displacement, or health. This limited impact could also stem from the lesser accessibility and effectiveness of media coverage in the developing countries surveyed, as suggested by Howe *et al.* (2019).

Thirdly, individuals who regularly hear about climate change from their personal contacts—such as family, friends, or colleagues—at least once a week show a significant correlation with concerns about its impacts. Individuals engaging in such discussions more than once a week are 10% more likely to be concerned about job loss, with an even more pronounced effect on family planning concerns, showing an 11.3% increase. This suggests that daily, personal interactions about climate change, as opposed

**Table 2.5. Results for Respondent's Concern for Climate Change Impacts on Specific Area**

	1=Affected; 0=Otherwise				
		(2)	(3)	(4)	(5)
	Job Loss	Income	Moving	Family plan	Health
Age	0.000 (0.001)	0.000 (0.001)	-0.003*** (0.001)	-0.002*** (0.001)	-0.001* (0.001)
Female	0.026 (0.018)	0.022 (0.018)	0.005 (0.015)	0.027* (0.016)	0.064*** (0.016)
College	-0.050** (0.020)	-0.038* (0.020)	0.005 (0.017)	-0.031* (0.018)	0.025 (0.019)
Rural Ties	0.061*** (0.019)	0.040** (0.019)	0.037** (0.017)	0.090*** (0.018)	0.019 (0.017)
Above median income	-0.011 (0.021)	-0.031 (0.021)	-0.025 (0.018)	0.005 (0.019)	0.028 (0.020)
Experienced Drought	0.083*** (0.020)	0.096*** (0.020)	0.039** (0.017)	0.049*** (0.018)	0.060*** (0.019)
Experienced Flood	0.039* (0.020)	0.031 (0.020)	0.039** (0.017)	-0.013 (0.018)	0.054*** (0.019)
Experienced Sea level rise	0.073*** (0.022)	0.055** (0.022)	0.035* (0.019)	0.085*** (0.020)	0.001 (0.019)
Experienced Landslide	0.033 (0.021)	0.037* (0.021)	0.023 (0.018)	0.042** (0.019)	0.006 (0.019)
Experienced Wildfire	0.042** (0.021)	0.074*** (0.021)	0.059*** (0.019)	0.036* (0.019)	0.065*** (0.019)
Experienced Heatwave	0.021 (0.020)	0.046** (0.020)	-0.023 (0.017)	0.004 (0.018)	0.084*** (0.018)
Experienced Storms	-0.022 (0.021)	-0.007 (0.021)	0.010 (0.019)	0.001 (0.020)	0.022 (0.019)
Media exposure	0.042** (0.020)	0.010 (0.020)	0.020 (0.017)	0.055*** (0.018)	0.019 (0.019)
Daily exposure	0.100*** (0.021)	0.096*** (0.021)	0.087*** (0.018)	0.113*** (0.019)	0.070*** (0.018)
Constant	0.285*** (0.046)	0.266*** (0.046)	0.216*** (0.040)	0.191*** (0.041)	0.435*** (0.042)
Observations	3,172	3,172	3,172	3,172	3,172

Note: "Rural ties" refers to individuals whose families are engaged in agriculture or fisheries. "Above median income" indicates that an individual reports earning more than the median income of their respective country, with the specific median income value varying by country. "Media exposure" is defined as receiving information about climate change from various media sources at least once a week. "Daily exposure," on the other hand, refers to individuals who hear about climate change from people they know—such as family, friends, or colleagues—at least once a week. A country-specific fixed effect is included in the analysis. Robust standards errors in parentheses, with significance levels indicated as follows: \*\*\*p<0.01, \*\*p<0.05, \*p<0.1.

Source: Data from an online survey conducted by the authors.

to indirect media exposure, have a more substantial influence on shaping public opinion. The study did not explore the specific content or methods of these conversations, highlighting an area for future research to assess how different communication approaches may influence climate change concerns.

## **5. Willingness-to-pay (WTP) for Climate-Related Tax**

In transitioning our focus from factors influencing individual concerns about climate change to actions individuals are willing to take, we are particularly interested in attitudes towards fiscal contributions. Specifically, we examine how individuals respond to the idea of a climate-related tax. To assess this, we asked respondents to indicate on a scale of 0 to 10—representing a percentage of their income—how much they would be willing to contribute to a global fund for climate change. We analyze this data as a continuous variable to capture the nuanced range of responses.

The results in Table 2.6 shed light on the willingness of respondents to contribute to climate change mitigation through taxation. Our analysis reveals that individuals who have recently experienced floods or sea level rises are more inclined to support higher taxes for climate change efforts. Specifically, individuals with such experiences report a willingness to pay tax rates that are 0.38 percentage points (pp) and 0.42 pp higher, respectively, than those in the comparison group. However, we did not find a relationship between past experiences of drought, landslides, wildfires, and storms and an individual's willingness to pay higher taxes.

Another intriguing finding from our analysis is related to the experiences of heatwaves and their impact on the willingness to pay additional taxes for climate change. Our data shows that individuals who have experienced a

heatwave are less likely to support increased taxation for climate adaptation, with a reported willingness to pay that is 0.33 percentage points (pp) lower than the comparison group. This trend could be attributed to the perception of heatwaves as a recurring or permanent phenomenon, which may lead individuals to view them as less amenable to mitigation through increased taxation. In contrast to the immediate and visible damage caused by events like floods or sea level rises, the ongoing nature of heatwaves might lead people to believe that such problems cannot be effectively addressed through fiscal contributions alone. Therefore, unlike other extreme events, there appears to be a negative relationship between experiencing heatwaves and the willingness to pay more tax for climate adaptation.

Second, exposure to frequent discussions about climate change is positively correlated with the willingness to pay higher taxes. Respondents who answered that they hear about climate change talking from family, friends, and colleagues more than once a week are likely to pay an additional 0.59 percentage points in taxes compared to those who have less frequent communication. This finding suggests that daily exposure to discussions about climate change enhances subjective risk perceptions through indirect experiences, increasing awareness of its severity and the vulnerability of lacking a coping strategy. Fownes and Allred (2019) suggest that personal experiences with climate change can solidify the belief that climate change is indeed occurring. The findings of this paper extend this understanding by showing that individuals with indirect and subjective experiences and not just direct encounters also hold the belief that climate change is occurring.

Third, there is a strong link between support for government-led tax increases for climate change and personal willingness to pay more in taxes. Individuals advocating for higher government taxes on climate issues are willing to contribute 1.47 percentage points more in taxes than those who do not hold this view. This suggests that the belief in government taxation as a tool for climate action can significantly motivate personal fiscal contributions, offering a strategy to cope with climate change impacts.



**Table 2.6. Results for Willingness to Pay Climate Change-Related Tax**

	(1)	(2)	(3)	(4)
Age	-0.034*** (0.005)	-0.035*** (0.005)	-0.036*** (0.005)	-0.036*** (0.005)
Female	0.250** (0.100)	0.254** (0.100)	0.243** (0.100)	0.248** (0.099)
College education	0.097 (0.115)	0.074 (0.116)	0.087 (0.115)	0.073 (0.115)
Rural ties	0.357*** (0.110)	0.310*** (0.109)	0.314*** (0.109)	0.276** (0.109)
Above median income	0.340*** (0.120)	0.303** (0.119)	0.295** (0.119)	0.268** (0.119)
Agree on increasing tax	1.475*** (0.104)	1.426*** (0.104)	1.388*** (0.104)	1.356*** (0.104)
Experienced drought		0.089 (0.113)		0.055 (0.112)
Experienced flood		0.385*** (0.110)		0.355*** (0.110)
Experienced sea level rise		0.420*** (0.123)		0.405*** (0.122)
Experienced landslide		0.074 (0.117)		0.057 (0.117)
Experienced wildfire		0.082 (0.120)		0.038 (0.120)
Experienced heatwave		-0.331*** (0.113)		-0.358*** (0.112)
Experienced storms		0.120 (0.120)		0.103 (0.119)
Media exposure			0.083 (0.111)	0.065 (0.111)
Daily exposure			0.596*** (0.117)	0.550*** (0.117)
Constant	4.022*** (0.258)	3.850*** (0.269)	3.937*** (0.258)	3.826*** (0.270)
Observations	3,172	3,172	3,172	3,172

Note: “Agree on increasing tax” refers to individuals who affirm the statement, “People should be prepared to pay higher taxes to tackle global climate change.”, “Rural ties” refers to individuals whose families are engaged in agriculture or fisheries. “Above median income” indicates that an individual reports earning more than the median income of their respective country, with the specific median income value varying by country. “Media exposure” is defined as receiving information about climate change from various media sources at least once a week. “Daily exposure,” on the other hand, refers to individuals who hear about climate change from people they know—such as family, friends, or colleagues—at least once a week. A country-specific fixed effect is included in the analysis. Robust standards errors in parentheses, with significance levels indicated as follows: \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

Source: Data from an online survey conducted by the authors.

Fourth, our analysis indicates that income level significantly influences willingness to pay more taxes for climate change mitigation, consistent with O'Garra and Mourato's (2016) findings in the UK. Individuals with higher incomes are notably more inclined to contribute additional taxes toward climate efforts. Conversely, older generations display a lesser propensity to pay more for climate adaptation. Additionally, females tend to be willing to contribute more in taxes compared to their male counterparts. Intriguingly, families with members working in agriculture or fisheries also show a higher willingness to pay more tax, possibly due to their direct exposure to climate impacts on their livelihoods. This highlights the varied influence of professional and demographic factors on attitudes towards fiscal contributions for climate change.

## **6. Discussion**

Our analysis yields two main findings regarding public perceptions of climate change. We find that demographic factors such as income and gender are strongly associated with public perceptions on climate change as a greatest threat for next five years. We also find that media exposure is the strongest indicator of formulation of public awareness on climate change. However, public perceptions on impact of climate change in urban areas is more related to rural ties or education level. We also find that public perceptions on climate change concerns are shaped by past experiences. In particular, survey respondents are aware of economic issues such as income or job loss and health-related concerns against climate change problems. In previous studies, demographic factors and media exposure are shown to be correlated to formation of public perceptions on climate change. However, we find that these factors are highly related to the expectations regarding the future but not to current concerns related to climate change.

Our results indicate that general perceptions of climate change are more closely linked to demographic backgrounds. For example, questions on whether climate change will threaten the future or whether climate change affects urban areas more are closely related to how climate change will affect livelihoods in general. However, specific areas of concern are more related to subjective perceptions shaped by past experiences and daily communications. For example, economic or health-related concerns because of climate change are formed by past experiences but not because of demographic factors. This nuance should be noted when making policy decision related to climate action. For example, extreme events in specific country or region should be considered when policy makers make decisions on the budget allocation.

## Chapter 3



# Perceptions on the Severity and Impact of Climate Change

1. Climate Change Beliefs and Attitudes
2. Evaluation of Impact of Climate Change on Daily Life
3. Perspectives on Policy Preferences and International Collaboration



Climate change stands as one of the most pressing global challenges of our time, with profound implications for ecosystems, economies, and human well-being. Understanding public perceptions, beliefs, and policy preferences regarding climate change is essential for shaping effective strategies to mitigate its impacts and foster adaptation. This chapter presents the findings of a comprehensive survey investigating public attitudes towards climate change across eight countries in four distinct regions. Unlike the previous section, which utilized a regression methodology, this section focuses on presenting the survey results categorized by region.

The survey delves into public beliefs about and attitudes towards climate change across diverse demographics and geographies. Key questions explored the level of concern regarding global climate change and the attribution of its causes to human activity. Furthermore, the survey investigated individuals' perceptions regarding the potential impacts of climate change on various aspects of daily life, including health, employment, income, and migration decisions. Additionally, respondents were asked on their attitudes towards government policies addressing climate change and the necessity of international cooperation in tackling this global issue. The survey, which gathered responses from 3,176 individuals, provides valuable insights into public climate change beliefs, attitudes, policy preferences, and behavior.<sup>6)</sup> This chapter offers an in-depth examination of survey findings, with a primary focus on regional variations. It is structured into three core sections: Climate Change Beliefs and Attitudes, Evaluation of Climate Change Impacts on Daily Life, and Perspectives on Policy Preferences and International Collaboration.

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6) The total sample size was 3,243; however, individuals who did not pass the attention check were excluded from the analysis.

# 1. Climate Change Beliefs and Attitudes

This section examines regional variation in perceptions of climate change, drawing from responses to five pivotal questions that illuminate the levels of concern and beliefs about the causes and consequences of climate change across four different regions (South East Asia, South Asia, Africa, and Latin America). The questions explored are as follows:

- 1) How concerned are you about global climate change?
- 2) Do you believe that human activity is a significant cause of climate change?
- 3) Which type of community - urban or rural - faces greater challenges in terms of livability due to the effects of climate change?
- 4) To what extent do you agree with the statement: “Impact of climate change is understated”
- 5) To what extent do you agree with the statement: “The actions of a single individual will not make any difference in global warming”

Figure 3.1 display the answers for each question by different regions. The analysis of respondents’ attitudes towards global climate change and its attribution to human activity indicates a high level of consensus across the surveyed regions. In all regions, approximately 80% of respondents express concern about global climate change, demonstrating a widespread acknowledgment of the issue’s significance. Furthermore, an overwhelming majority of respondents in each region believe that human activity is a significant cause of climate change, with rates ranging from 92% to 98%. This high level of agreement underscores the recognition of the role of human actions in driving climate change across diverse geographical and socio-economic contexts. The consistent attitudes across regions indicate a universal recognition of climate change as a pressing global challenge that requires urgent action.

However, notable differences emerge across surveyed region regarding the perceptions of impact and individual action. Regarding the perception of which type of community - urban or rural - faces greater challenges due to the effects of climate change, South East Asia stands out with the highest percentage (75%) of respondents indicating urban communities as facing greater challenges. South Asia follows closely with 69% of respondents expressing similar views. On the other hand, Africa and Latin America have lower percentages of respondents (46% and 39%, respectively) indicating urban communities as facing greater challenges. Interestingly, this result is not associated with the respondents' rural affiliation. There is no correlation between a family's rural ties and their belief that climate change impacts are more pronounced in rural areas.

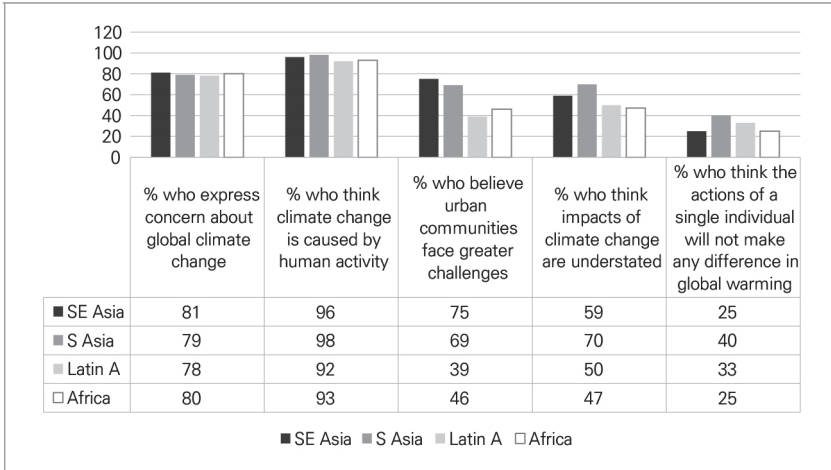
Furthermore, perceptions regarding the understatement of impact of climate change vary across regions, with South Asia exhibiting the highest level of agreement (70%), followed by Southeast Asia (59%), Africa (47%), and Latin America (50%). Both the South East Asia and South Asia regions show levels above the average (56%). This finding echoes previous results, suggesting that regions perceiving greater challenges in urban areas also tend to believe that climate change effects are underestimated.

Lastly, South Asia has the highest share of respondents (40%) that hold the belief that individual actions will not make any difference in global warming. This is followed by Latin America (33%), South East Asia (25%), and Africa (25%). This suggests a higher degree of skepticism about the efficacy of individual actions in mitigating global warming in South Asia and Latin America compared to other regions.

These findings underscore a universal concern regarding global climate change and the role of human activity. However, diverse perspectives on the impact of climate change are evident across regions. Such variations may be influenced by factors including geography, socio-economic conditions, and past experiences, which will be further explored in the next section.

**Figure 3.1. Climate Change Beliefs and Attitudes**

(Unit: %)



Note: The original 5-point scale responses have been converted to a binary format to calculate percentages. For the question “How concerned are you about global climate change?” responses 4 “Worried” and 5 “Extremely Worried” are considered as a percentage of those expressing concern. Similarly, for the questions “To what extent do you agree with the statement: ‘Impact of climate change is understated?’” and “To what extent do you agree with the statement: ‘The actions of a single individual will not make any difference in global warming?’”, responses 4 “Agree” and 5 “Strongly Agree” are considered as a percentage of those agreeing with the statement.

Source: Data from an online survey conducted by the authors.

## 2. Evaluation of Impact of Climate Change on Daily Life

Next, we explore respondents’ perceptions regarding the potential impact of climate change on various aspects of their daily lives with five specific questions aimed at assessing the potential effects on daily life. This knowledge is vital for informing targeted interventions and policy measures aimed at enhancing resilience and adaptation to the challenges posed by climate change. The questions explored are as follows:



- 1) To what extent do you think climate change will negatively affect your health?
- 2) To what extent do you think climate change will affect your job in the next 5 years?
- 3) To what extent do you think climate change will negatively affect your income in the next 5 years?
- 4) To what extent have you considered moving to another area due to concerns about climate change?
- 5) To what extent have you considered changing your family plans due to concerns about climate change?

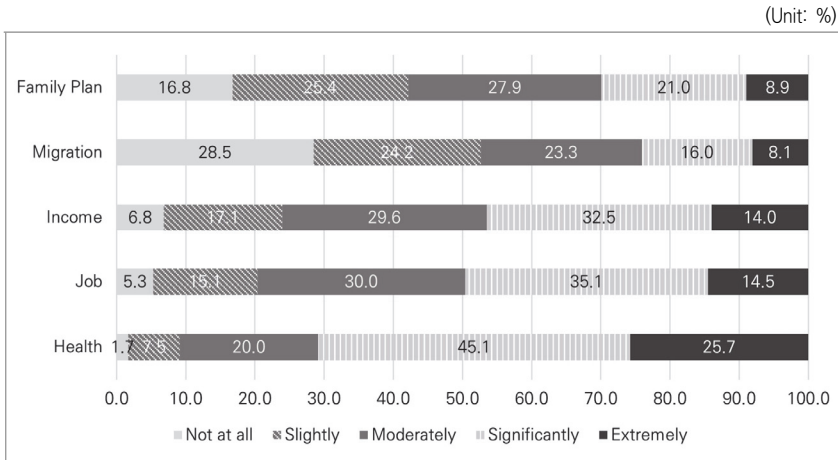
Figure 3.2 presents the overall perception of respondents on the daily impact of climate change. A considerable number of respondents anticipate a negative impact on their health with 45.1% expecting significant effects and 25.7% expressing extreme concern. Only 1.7% see no impact highlighting widespread health concerns. Similarly, job security worries are evident with 35.1% anticipating significant changes and 14.5% expecting extreme changes to their jobs. Income expectations follow a similar pattern with 32.5% bracing for significant changes and 14% for extreme changes in the next five years.

The inclination to consider migration due to climate change concerns is less pronounced. The largest group (28.5%) does not see climate change as a reason to move at all. However, there is still a considerable acknowledgment of migration as a significant concern for 16% of respondents while a smaller segment (8.1%) view it as an extreme concern. Lastly, family planning is influenced by climate change concerns to varying degrees, with 27.93% moderately rethinking their plans and 21% considering significant changes, and 9% with extreme concerns.

In summary, the survey reveals deep-seated anxieties about the impact of climate change on health, jobs, and income, with lesser but still substantial concerns about migration and family planning. These variations in specific

concerns should be considered in tandem with regional variations in order to address local challenges with tailored policy responses.

**Figure 3.2. Climate Change Impacts on Daily Life**



Note: The original dataset includes responses to five distinct questions, each rated using a five-point scale: 1. To what extent do you believe climate change will negatively impact your health? 2. How much do you think climate change will affect your job over the next five years? 3. To what extent do you expect climate change to negatively influence your income within the next five years? 4. Have you considered relocating due to concerns about climate change? 5. Have you thought about altering your family plans because of climate change concerns?

The responses to these questions have been compiled and aggregated across four regions. Source: Data from an online survey conducted by the authors.

Turning our attention to regional specifics, the data presented in Figure 3.3 demonstrate a uniform response across regions for certain questions, while revealing notable disparities for others.

**Health:** Across all regions - South East Asia, South Asia, Latin America, and Africa - a majority of respondents express significant concern about the negative impact of climate change on health, with percentages ranging from 68% to 74%. This suggests a widespread recognition of the potential health risks posed by climate change.

**Job and Income:** Concerns about the impact of climate change on employment and income are also prevalent among respondents in all

regions, although to varying degrees. Approximately half of respondents in each region indicate concern about the potential negative effects of climate change on their job (ranging from 47% to 52%) and income (ranging from 43% to 50%) over the next five years. These findings reflect apprehensions about the economic consequences of climate change, including disruptions to livelihoods, agricultural productivity, and business operations.

**Migration:** Regarding relocation due to concerns about climate change, highest percentage of respondents in South Asia (31%)<sup>7)</sup> consider moving to another area, followed by South East Asia (24%), Africa (20%), and Latin America (21%). These findings highlight the perceived risks of climate-induced displacement and the potential for population movements driven by environmental factors such as sea-level rise and extreme weather events.

**Family Plans:** In terms of considering changes to family plans due to concerns about climate change, respondents in South Asia have the highest percentage (39%), followed by South East Asia (31%), Africa (27%), and Latin America (22%). These findings suggest that concerns about climate change are influencing decisions related to family size, location, and lifestyle choices, reflecting broader anxieties about future environmental conditions and socio-economic stability.

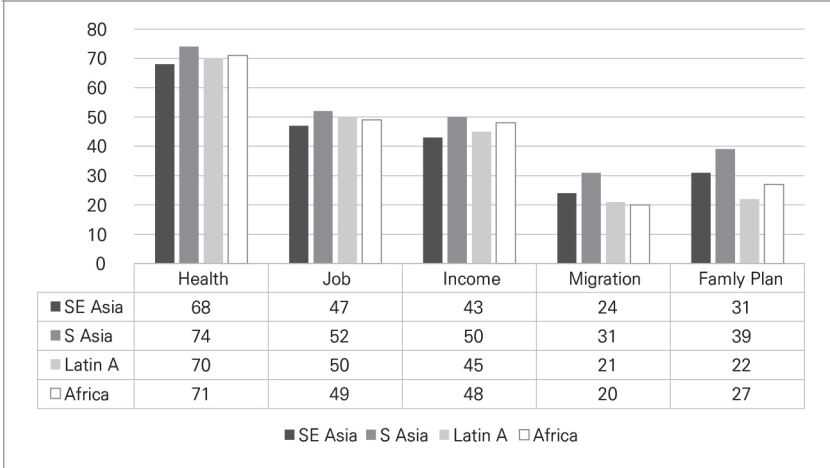
Overall, South Asia demonstrates the highest level of concern across various aspects of daily life, with the three other regions exhibiting a similar pattern. However, these findings underscore the multifaceted nature of the impact of climate change on individuals' lives and livelihoods across regions. Understanding these diverse perceptions is essential for developing targeted adaptation and mitigation strategies to enhance resilience and reduce vulnerability to climate change-induced risks.

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7) It's important to note that this result is largely driven by India, which had the highest rate among all surveyed countries at 38%, compared to Bangladesh at 24%.

**Figure 3.3. Assessment of Climate Change Impacts on Daily Life**

(Unit: %)



Note: Each numerical value in the table represents the percentage of respondents indicating their expectations or considerations regarding climate change impacts, specifically: 1. the percentage of respondents who anticipate negative health impacts due to climate change, 2. the percentage who expect climate change to impact their job within the next 5 years, 3. the percentage who anticipate negative income effects from climate change within the next 5 years, 4. the percentage who have considered relocation due to climate change concerns, and 5. the percentage who have contemplated altering family plans due to climate change concerns.

Source: Data from an online survey conducted by the authors.

### 3. Perspectives on Policy Preferences and International Collaboration

We explored public attitude towards policy preferences and international cooperation in the realm of climate action. The survey explored opinions on three principal assertions related to the distribution of responsibility for climate change, the prioritization of environmental conservation over economic progression, and the public’s preparedness to shoulder increased taxation to combat global climate change. The specific questions asked were:

- 1) To what extent do you agree with the statement “Developed countries should take most of the blame for climate change?”
- 2) To what extent do you agree with the statement “Protecting the environment should be given priority, even if it leads to slower economic growth and job losses?”
- 3) To what extent do you agree with the statement “People should be prepared to pay higher taxes to tackle global climate change?”

The variation in responses presented in Table 3.1 highlights differing perspective across region. The share of respondents who believe that developed countries should bear the primary responsibility for climate change is highest in South Asia followed by Africa. A slightly lower share believe the same in Latin America and South East Asia, perhaps indicating a more nuanced view or possibly a recognition of shared responsibility among nations. These differences may stem from factors such as historical context, economic development, and geopolitical dynamics.

The widespread agreement across all regions regarding the priority of environmental protection signifies a global recognition of the urgent need to address climate change. South Asia and Africa lead in agreement, reflecting a strong commitment to environmental stewardship even in the face of potential economic trade-offs. Latin America and South East Asia, while slightly lower in agreement, still demonstrate a significant consensus on the importance of prioritizing environmental concerns. This alignment suggests a shared understanding of the necessity for sustainable development practices to mitigate climate change impacts.

However, when it comes to a personal financial sacrifice through higher taxes for climate change mitigation there is a stark contrast in regional attitudes. South Asia has the highest share of respondents prepared to pay taxes to address climate change concerns indicating a greater readiness to invest in climate action despite potential economic burdens. In contrast, Africa and Latin America have a smaller share suggesting a more cautious

approach to financial commitments for climate change mitigation. South East Asia falls in between, reflecting a moderate willingness to support higher taxes for climate change initiatives. These differences may reflect varying economic conditions, perceived government effectiveness, and trust in climate change policies and institutions.

**Table 3.1. Attitudes towards Policy Preferences and International Cooperation**

(Unit: %)

	South East Asia	South Asia	Latin America	Africa
1	49	65	46	61
2	61	66	60	67
3	46	54	26	33

Note: Each numerical value in the table represents the percentage of respondents indicating their agreement with the statement. Specifically: 1. the percentage of respondents who agree with Developed countries taking most of the blame for climate change, 2. the percentage of respondents who prioritize protecting the environment over economic growth, and 3. the percentage of respondents who agree to higher taxes for addressing climate change. Source: Data from an online survey conducted by the authors.

The analysis further delves into the actions individuals are willing to take in the fight against climate change, based on responses to pertinent questions. Respondents were presented with five options: adopting an eco-friendly lifestyle, consenting to higher taxes to fund climate change mitigation, voting for political candidates who prioritize climate action, engaging with or supporting organizations dedicated to climate solutions, and opting not to take any action. The outcomes of these responses are depicted in Figure 3.4.

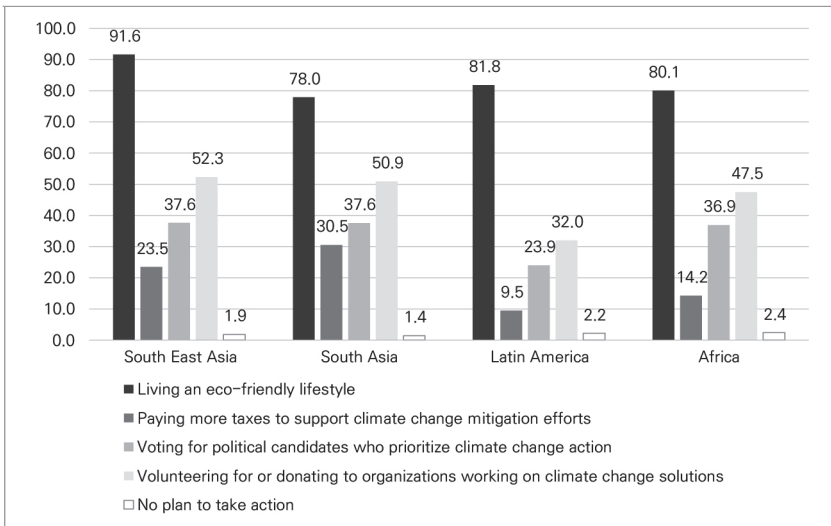
The aggregate data reveal a pronounced preference for living an eco-friendly lifestyle as the most prevalent measure individuals across all surveyed regions are willing to embrace to address climate change. In stark contrast, financial actions such as agreeing to increased taxes for climate initiatives are distinctly less favored which echoes the previous finding.

However, looking at the regional difference, South Asia exhibits the highest consent at 30.5%, with smaller percentages in agreement in South-East Asia at 23.5%, in Africa at 14.2%, and in Latin America at 9.5% and hence the least inclination towards such financial contribution.

The readiness to engage in political and organizational activities presents a more moderate picture and is not uniformly distributed across regions. Support for political candidates with a climate focus is relatively balanced between South East Asia at 37.6% and South Asia at 37.6%, with Africa closely trailing at 36.9%. Latin America demonstrates a considerably lower propensity to support such candidates at 23.94%. As for the commitment to volunteer or financially support climate-focused organizations, a majority in

**Figure 3.4. Action for Fighting Climate Change**

(Unit: %)



Note: Participants responded to the question: “Which of the following actions are you willing to undertake to contribute to combating climate change?” with the ability to select multiple options. They were provided with five choices: adopting an eco-friendly lifestyle, consenting to higher taxes to fund climate change mitigation, voting for political candidates who prioritize climate action, engaging with or supporting organizations dedicated to climate solutions, and opting not to take any action.

Source: Data from an online survey conducted by the authors.

South East Asia (52.3%) and South Asia (50.9%) show readiness, whereas Africa, slightly less at 47.51%, and Latin America, at a notably lower 32%, display varied levels of engagement.

It is noteworthy that only a minimal fraction of the respondent population indicates a complete absence of intent to participate in any form of climate action. This minimal figure suggests a near universal readiness to undertake efforts to mitigate climate change.

The uniform agreement on the urgency of environmental preservation contrasts sharply with the divergent views on the assignment of blame for climate change and the preparedness to bear higher taxes for its mitigation. These discrepancies emphasize the complexities inherent in the governance and implementation of climate change policies. To incorporate these differences in public opinions, we need tailored plans that consider each area's specific needs and economic situation. It is essential for countries to work together to create thorough and successful plans for climate change mitigation and adaptation that fit the varied needs and abilities of people all around the world.



## Chapter 4



# Perceptions on Government Policies and International Cooperation

1. Perceptions on Government Policies
2. Factors Affecting the Formation of Perceptions on Government Policies
3. Perceptions on International Cooperation



In the face of escalating climate change it is the imperative to formulate effective policy responses and foster international cooperation. At the heart of these endeavors lies the intricate interplay between public perceptions, governmental actions, and the dynamics of global collaboration. Public perceptions hold significant influence in shaping domestic policy agendas as well as the landscape of international cooperation in addressing the climate crisis. The resonance of government policies with the needs and concerns of the public profoundly impacts their efficacy and legitimacy. Policies that align with public sentiments are more likely to be embraced thereby effectively guiding the trajectory of climate action within nations. The degree of public trust in international partners, alongside the specific needs and priorities of different regions, plays a decisive role in shaping the landscape of international cooperation. By examining public perceptions on government policies and international cooperation this chapter seeks to offer insights that can inform policymakers, stakeholders, and the broader public in navigating the complex terrain of climate governance on both national and international fronts. Through a deeper understanding of these dynamics we aim to derive implications for more effective and inclusive strategies in addressing climate change. As highlighted in the introduction, the term ‘regional variation’ in this chapter’s analysis refers to the categorization of the eight countries into their respective regions for analytical purposes. It is important to emphasize that the selection of two countries per region does not imply that these countries comprehensively represent the broader voices or experiences of their entire regions

## **1. Perceptions on Government Policies**

First, we examine regional variations in perceptions of government policies regarding climate change and explore the influence of government trust on these perceptions. The specific questions investigated are outlined below:

- 1) Do you agree with the statement that “Policy-makers and politicians do their best to serve citizens”?<sup>8)</sup>
- 2) How well or badly would you say the government is handling the following matter?
  - i. Managing the economy
  - ii. Reducing crime and preventing violent conflict
  - iii. Improving basic health services
  - iv. Addressing educational needs
  - v. Fighting corruption in government
  - vi. Providing and maintaining infrastructure (e.g. roads, electricity)
  - vii. Addressing climate change
  - viii. Narrowing the gap between rich and poor

Figure 4.1 illustrates the levels of ‘trust in government’ as derived from the first question, while Figure 4.2 presents respondents’ satisfaction with government performance in specific areas categorized by region. The rates for trust in government vary across regions, with Southeast Asia exhibiting the highest level (66%) followed by South Asia (43%), Latin America (32%) and Africa (25%). Southeast Asia and South Asia, both of which are above the average (42%), show a high proportion of positive evaluations of all government policies, and satisfaction with climate change policies at 66% and 68% respectively. This underscores that trust in government positively influences the evaluation of the government’s performance in climate change policy. On the contrary, in Latin America, where the level of trust in government is below the average, proportion of favorable evaluation of all government policies turned out to be low, ranging from 18% to 42%, and that of climate change policies being 33%.<sup>9)</sup> The comparison between

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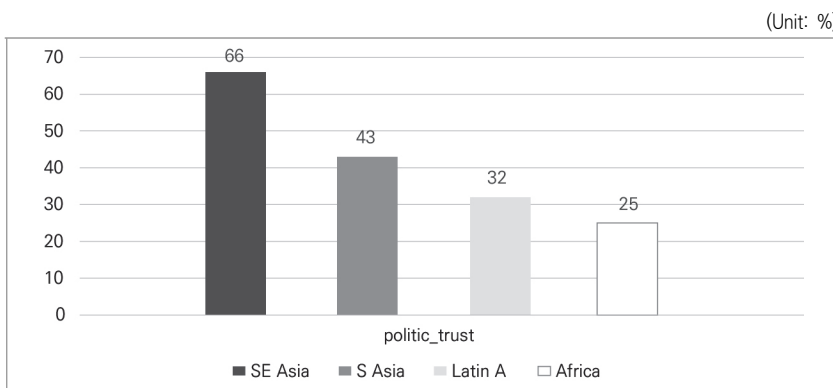
8) The original question required respondents to choose one between “Policy-makers and politicians do their best to serve citizens” and “Policy-makers and politicians prioritize their own interests over those of citizens.”

9) This figure is derived from averaging responses from two countries: Colombia (50%) and Peru (16%). While these ratings are the lowest in our sample, it is important to note the

Southeast Asia/South Asia and Latin America highlights how the level of trust in government influences public perceptions on climate change policy. This trend echoes previous studies that underline the significance of a high level of institutional trust in facilitating public endorsement of climate change policy.<sup>10)</sup>

However, the correlation between trust in government and the evaluation of government policies appears less pronounced in Africa. While Africa recorded the lowest level of trust in government at 25%, it showed high rates of satisfaction with climate change policies at 66%, similar to those observed in Southeast Asia and South Asia. The contrast between Africa and the other three regions underscores the need for further studies to explore why surveyed countries in Africa highly evaluate the government’s climate change policy, despite the low level of trust in the government.

**Figure 4.1. Trust in Government by Region**



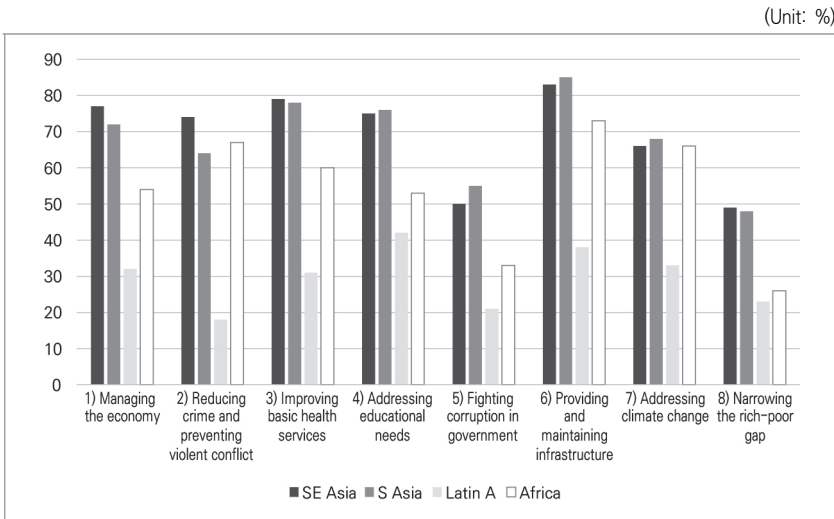
Note: The percentages reflect the proportion of respondents who chose the statement “Policy-makers and politicians do their best to serve citizens” over “Policy-makers and politicians prioritize their own interests over those of citizens.”

Source: Data from an online survey conducted by the authors.

significant disparity between the two countries.

10) For studies on the correlation between the level of institutional trust and perception on climate change policy, refer to Smith and Mayer (2018) and Harring (2014).

**Figure 4.2. Government Performance in Specific Areas by Region**



Note: The responses represent the proportion of individuals who answered positively to the question “How well or badly would you say the government is handling the following matter?” The original answers were on a 5-point scale, with “very good” and “fairly good” counted as positive responses.

Source: Data from an online survey conducted by the authors.

## 2. Factors Affecting the Formation of Perceptions on Government Policies

Next we delved into public perceptions regarding the vulnerability of their country to climate change and their policy preferences related to it. Additionally, we examined how previous survey results may have influenced these perceptions. The survey outcomes are expected to provide valuable insights for policymakers, helping them prioritize areas that require more attention to garner increased public support. The following questions were explored:

- 1) Which factor makes your country more vulnerable to climate change?

- 2) How much do you support a policy that:
  - i. Provides financial support to rural farmers
  - ii. Provides subsidies to rural people to relocate to your local area
  - iii. Improves vulnerable urban infrastructure
  - iv. Improves urban public services such as health and education
  - v. Builds new coal-fired power plants

Table 4.1 presents a comparative ranking of factors contributing to vulnerability to climate change in each region. Respondents in most regions, with the exception of South Asia, identified natural disasters induced by climate change and dependence on climate-sensitive industries as the two most vulnerable factors faced by their countries. This highlights the urgent need for robust disaster preparedness and risk reduction measures to mitigate the impact of extreme weather events. The high vulnerability ranking of dependence on climate-sensitive industries also highlights the widespread concern across these regions about the economic impact of climate change, echoing previous survey results that indicate prevalent worries about jobs (ranging 47-52%) and income (ranging 43-50%) (see Figure 3.2).

What stands out is that population density was the foremost concern in South Asia, while ranking third in Southeast Asia and Africa, and fourth in Latin America. The more urgent concern shared by South Asia about population density aligns with previous survey results which showed that South Asia exhibited the highest percentage (31%) considering migration due to climate change (refer to Figure 3.2). Meanwhile, the lower ranking of 'lack of government capacity' and 'inadequate infrastructure and technology' across all regions possibly implies that respondents are more concerned about the direct impact of climate change on their lives than about the institutional, infrastructure and technological capabilities to address them.

**Table 4.1. Regional Assessment of Vulnerability Factors to Climate Change**

Region Rank	Southeast Asia	South Asia	Latin America	Africa
1 <sup>st</sup>	Exposure to multiple climate change-related natural disasters	Increasing population density	Exposure to multiple climate change-related natural disasters	Dependence on climate-sensitive industries (agriculture, fishing or tourism)
2 <sup>nd</sup>	Dependence on climate-sensitive industries (agriculture, fishing or tourism)	Exposure to multiple climate change-related natural disasters	Dependence on climate-sensitive industries (agriculture, fishing or tourism)	Exposure to multiple climate change-related natural disasters
3 <sup>rd</sup>	Increasing population density	Dependence on climate-sensitive industries (agriculture, fishing or tourism)	Lack of government capacity	Increasing population density
4 <sup>th</sup>	Inadequate infrastructure and technology	Inadequate infrastructure and technology	Increasing population density	Lack of government capacity
5 <sup>th</sup>	Lack of government capacity	Lack of government capacity	Inadequate infrastructure and technology	Inadequate infrastructure and technology

Note: Respondents were asked to choose from five options in response to the question “Which factor makes your country more vulnerable to climate change?”

Source: Data from an online survey conducted by the authors.

Shifting our focus to policy preferences, Table 4.2 displays the favored policy choices related to climate change across different regions. The analysis of respondents’ policy preferences suggests a notable level of consensus across the regions. In all surveyed regions, a substantial majority of respondents (ranging from 73% to 78%) expressed strong support for improving urban public services such as health and education. This trend is consistent with earlier survey results which showed that respondents across all regions share a significant concern about the adverse impacts of climate change on their health, ranging from 68% to 74% (refer to Figure 3.3).

Providing financial support to rural farmers also garners significant support across all regions. Africa and South Asia demonstrate the highest

levels of preference for this policy at 75% and 74%, respectively, followed by Latin America (67%) and Southeast Asia (65%). Additionally, more than 50% of respondents in each region showed high support for improving vulnerable urban infrastructure with Africa demonstrating the highest percentage at 69%, followed by Latin America (65%), South Asia (60%), Southeast Asia (56%). These results indicate that while there is a strong preference for enhancing urban services it does not overshadow the recognition of challenges faced by rural areas. However, the acknowledgement of rural challenges does not necessarily translate into strong support for providing subsidies to rural people for relocation, as indicated by lower levels of support for the policy. Except for South Asia, which shows the highest percentage at 52%, other regions exhibit modest rates of support of the policy, ranging from 30% to 34%. The robust endorsement of the policy in South Asia corresponds to the region's highest percentage (31%) considering migration due to climate change (refer to Figure 3.3). The higher inclination to relocate due to climate change concerns may lead to more supportive attitudes towards providing subsidies for rural relocation in South Asia.

There's a moderate preference for constructing new coal-fired power plants across all regions with figures hovering near 30%, except for South Asia which stands at 41%. This shows the consistency with previous survey findings where approximately 80% of respondents in all regions expressed concern about global climate change (refer to Figure 2.1). Widespread concerns of climate change and a growing awareness of the negative impact of fossil fuel consumption on climate change may lead to lower policy preferences towards coal-fired power plants in surveyed regions. The results are in line with a strong inclination toward prioritizing environmental protection over economic benefits with agreement levels ranging from 60% to 67% in the previous survey results (refer to Table 2.3). This underscores the need for policymakers to prioritize renewable energy investments and enact climate policies to address these concerns effectively.



**Table 4.2. Regional Preferences for Climate Change Policies**

(Unit: %)

Policies \ Region	Southeast Asia	South Asia	Latin America	Africa
Providing financial support to rural farmers	65	74	67	75
Providing subsidies to rural people to relocate to your local area	34	52	36	30
Improving vulnerable urban infrastructure	56	60	65	69
Improving urban public services such as health and education	76	73	75	78
Building new coal-fired power plants	31	41	33	31

Note: Respondents rated their level of support on a 5-point scale from ‘do not support at all’ to ‘fully support.’ The percentages in each cell represent the combined percentage of respondents who selected either ‘support’ or ‘fully support,’ indicating a high degree of endorsement. To help interpretation, cells are color-coded by support level: orange (over 70%), blue (60-69%), green (50-59%), and grey (30-49%).

Source: Data from an online survey conducted by the authors.

### 3. Perceptions on International Cooperation

Finally we explored perceptions regarding international cooperation, focusing on identifying the areas where respondents believe international support is most needed in their countries and their preferred partner among the G-20 countries for tackling climate change together. The specific questions asked were:

- 1) Which areas should international support prioritize to deal with climate change related issues in your country?
- 2) Which countries (among G-20) are the best partners for your country in the fight against climate change?

Table 4.3 illustrates the areas most frequently selected by respondents as among the top three priority areas. There is a broad consensus across all regions that support for agriculture, fisheries and forestry is the foremost

area requiring international assistance. Africa leads the list at 66% followed by South Asia at 59% and Southeast Asia at 57% while Latin America recorded the lowest at 53%. This is consistent with the survey results above where Africa identified dependence on climate-sensitive industries as the most vulnerable factor for their country. Similarly, other regions ranked dependence on climate-exposed industries as a significant contributor to vulnerability, placing it as the second (Southeast Asia and Latin America) and third (South Asia) most important factor (refer to Table 4.1).

In most regions assistance for public health and sanitation is also prioritized, ranking second with percentages of 54% in Southeast Asia, 49% in South Asia, and 43% in Latin America. Support for public health and sanitation was also highly ranked (3rd) in Africa at 38% following clean energy (52%). This result is consistent with earlier survey findings, which indicated a high percentage of respondents across regions expressing concern about the impact of climate change on their health (68-74%, see Figure 2.3), as well as strong support for policies aimed at improving public services, including health (73-78%, see Figure 4.3). Support for vulnerable groups is the least preferred option, ranging from 16% to 22% in all surveyed regions. This finding aligns with the earlier survey results indicating a lower level of support for providing subsidies to rural people for relocation (around the 30% range) except for South Asia where the support rate exceeds 50% (refer to Figure 4.3).

Regarding other options, it is noticeable that the majority of respondents in Southeast Asia and Africa included clean energy among the top three priority areas - at 53% and 52% respectively- with smaller share of respondents supporting clean energy in South Asia (30%) and Latin America (36%). These results suggest that clean energy initiatives may receive greater acceptance in Southeast Asia and Africa compared to other regions when promoting international cooperation efforts. While green city initiatives garnered moderate support at around approximately 30%, South Asia stands out with the highest interest at 42%. In case of clean water,

Southeast Asia had higher share of respondents in support (41%) as compared to the other three regions which recorded modest support (34%). The slight variation by region suggests that different prioritizations should be considered to reflect local needs and contexts accordingly.

**Table 4.3. Prioritized Areas for International Support in Addressing Climate Change**

Region Rank	Southeast Asia	South Asia	Latin America	Africa
1 <sup>st</sup>	Support for agriculture, fisheries and forestry (20.3%)	Support for agriculture, fisheries and forestry (22.1%)	Support for agriculture, fisheries and forestry (20.7%)	Support for agriculture, fisheries and forestry (24.4%)
2 <sup>nd</sup>	Public health and sanitation (19.2%)	Public health and sanitation (18.2%)	Public health and sanitation (16.8%)	Clean energy (19.3%)
3 <sup>rd</sup>	Clean energy (18.8%)	Green city (15.5%)	Education (14.3%)	Public health and sanitation (14.1%)
4 <sup>th</sup>	Clean water (14.7%)	Education (13.6%)	Clean energy (13.9%)	Education (12.8%)
5 <sup>th</sup>	Green city (12.6%)	Clean water (12.7%)	Clean water (13.1%)	Clean water (12.8%)
6 <sup>th</sup>	Education (8.7%)	Clean energy (11.2%)	Green city (12.6%)	Green city (10.1%)
7 <sup>th</sup>	Support for vulnerable groups (5.7%)	Support for vulnerable groups (6.6%)	Support for vulnerable groups (8.5%)	Support for vulnerable groups (6.5%)

Note: Respondents were allowed to select up to three areas in response to the question “Which areas should international support prioritize to deal with climate change-related issues in your country?” The numerical value in parentheses shows the proportion of total votes that each option received.

Source: Data from an online survey conducted by the authors.

Directing our attention to perceptions regarding which G-20 countries are seen as the best partners in responding to climate change, Table 4.4

illustrate the most favored partners chosen by respondents among the top three options. As shown in Table 4.4, developed countries are prominently favored, with factors such as geographical proximity, economic ties and size of aid, and historical ties influencing respondents' perceptions across surveyed regions.

To delve into the regional specifics of the results, in **Southeast Asia**, Japan was overwhelmingly preferred compared to other regions, highlighting Japan's longstanding position as the largest donor in the region. Notably, Southeast Asia is the only region where Japan surpasses all other developed countries, receiving a total of 515 votes, significantly higher than the second-ranked partner, the U.S., which received 320 votes. This result suggests that, along with geographical proximity, economic ties and aid matter in shaping perceptions of desirable international partners in tackling climate change. As the most influential players in shaping the international order the U.S. and China are also highly ranked, with the U.S. in 2nd place (320 votes) and China in 4th place (217 votes). Both nations have established robust economic ties with Southeast Asia: the U.S. is the largest foreign direct investor while China is the largest trade partner and a major investor in infrastructure in the region. Australia, a major developed country in the Asia-Pacific region, secured the third spot, likely leveraging its geographical proximity and considerable aid contributions to the region. Interestingly, South Korea secured a place in the top five list in Southeast Asia receiving 175 votes, although its presence is low in the other three regions—receiving 25, 61, and 29 votes in South Asia, Latin America and Africa, respectively. The high rank achieved by South Korea in Southeast Asia reinforces the idea that close economic ties and substantial aid contributions play a significant role in shaping positive perceptions of the partnership: As of 2022 South Korea holds the position of ASEAN's fourth-largest external single partner (excluding EU-27 and Hong Kong) in trade and investment and ranks as ASEAN's fourth-largest DAC donor.<sup>11)</sup> Indonesia, a regional power in Southeast Asia, was ranked 11th, receiving substantial support

from Indonesian respondents (92 votes), similar to that of Canada. This indicates that Indonesians believe their country can play a constructive role in global climate change partnerships.

In **South Asia**, the role of regional leadership likely holds the greatest sway over perceptions. While no other region considers India among the top 10 best partners to address climate change, it tops the list in South Asia. Interestingly, the majority of respondents in India (206 out of 392) selected their own country as the best partner among the three options to combat climate change (Appendix A1). This suggests that respondents in India highly value the role of their country in global climate change cooperation. This positive perception is likely related to India's highest percentage of respondents willing to pay higher taxes for addressing climate change (63%) among the eight countries surveyed (related to Table 3.1).<sup>12</sup> Respondents from Bangladesh also ranked India among the top three partners for tackling climate change with India receiving 155 votes, following the U.S. with 183 votes and China with 172 votes (Appendix A1). The high expectations regarding India's role suggest that international partners would find it more effective to prioritize South-South and Triangular partnerships with India in implementing climate change projects in the region. As in other regions, the U.S. ranked high receiving 361 votes in the region followed by Japan with 237 votes, the largest donor for both India and Bangladesh. Given its growing footprint in South Asia through Belt and Road Initiative China is also viewed as a preferred partner for cooperation in the region.<sup>13</sup> The substantial votes received by the U.K. (163 votes) and Australia (141 votes) in South Asia can likely be attributed to their historical

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11) ASEAN Secretariat (2023), "ASEAN Statistical Yearbook," p. 107, p. 183, OECD OECD Stats.

12) The percentage of respondents who agree to higher taxes for addressing climate change in the surveyed eight countries are as follows: India (63%), Vietnam (52%), Bangladesh (45%), Indonesia (41%), Kenya (37%), Colombo (27%), Peru (25%), and Morocco (3%), in order of highest rates.

13) Committee on Foreign Affairs (2022), "China Regional Snapshot: South Asia."

connections with the Commonwealth system.

In **Latin America**, proximity plays a crucial role in partnership preferences. The U.S., recognized as both a global and regional leader, was chosen as the primary collaborator in combating climate change, receiving the highest number of votes at 443. Given its status as the largest trading partner and aid donor in the region, this emphasizes the significant role that close economic ties and aid relationships play in shaping perceptions of international collaboration on climate change.<sup>14)</sup> Brazil, Argentina and Canada followed the U.S. receiving 333, 227, 203 votes respectively, suggesting that geographical proximity factors into their preference for collaboration. In a similar vein with the case of South Asia, the substantial percentage attributed to Brazil suggests that Latin America prioritizes the regional leadership embodied by their regional leader. Brazil has been a leading advocate for the interests of developing countries in climate change discussions calling for financial and technical assistance from developed nations to combat climate change not only within Brazil but across the Global South. Like in other regions, China also secured a higher rank with 167 votes, indicating that its growing economic influence, coupled with its increasing role in global governance, leads to favorable perceptions of China as a partner.

Lastly, in **Africa**, it is apparent that historical ties significantly influenced their perception of global partnerships. While the U.S. ranked highest with 483 votes, the U.K. and France, —former colonial powers of the region— secured higher support as international partners in Africa compared to other regions, securing 356 and 308 votes respectively. To specify further, in Kenya, a former colony of England, the U.K. was the second most preferred partner with 206 votes, following the U.S. which is the largest donor to Kenya. Similarly in Morocco, France, a former colonial power and the largest donor for the country, emerged as the most preferred partner in

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14) Raza and Grohs (2022), “Trade aspects of China’s presence in Latin America and the Caribbean.”

tackling climate change securing 212 votes, surpassing the second-best partner, the U.S., which garnered 187 votes (Appendix A1). China, the newly emerging powerful player in Africa,<sup>15)</sup> also demonstrated a high preference with 251 votes, making it the fourth-best partner in the region. It is interesting to note that Saudi Arabia, whose presence was not prominent in other regions, made it into the top 10 best partners in Africa. Saudi Arabia's higher position in Africa is attributed to the preference made by Morocco (109 votes) (Appendix A1). Saudi Arabia's geographical proximity and aid contributions,<sup>16)</sup> along with religious affinity, are assumed to play a role in influencing favorability toward international partners. It is also noticeable that, while Japan is a major donor in the two surveyed countries in Africa,<sup>17)</sup> its presence is relatively low compared to Southeast Asia and South Asia, both of which are the main recipient region of Japan's aid. This suggests that the size of aid does not necessarily translate into the level of preference when other factors, such as historical ties, are taken into account. High preference for South Africa with 63 votes—surpassing its votes in other regions (ranging from 7 to 19 votes)—indicates that geographical proximity and regional leadership play a significant role in shaping perceptions of international cooperation, as also observed in other regions.

To summarize, while developed countries are generally favored as partners for climate change cooperation, the U.S. and China stand out as the most important partners across all regions. Despite fluctuations in U.S. leadership on climate change, including its withdrawal from the Paris Agreement in 2019 and subsequent rejoining in 2021, it remains the top choice for combating climate change. China, as the world's largest emitter of greenhouse gases, consistently ranks among the top five best partners in

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15) Stein and Uddhammar (2021).

16) According to OECD-DAC statistics, Saudi Arabia is the 5th OECD-DAC donor (excluding EU institutions and the Arab Fund, 2020-2021 average).

17) If international institutions are excluded, Japan is Kenya's second-largest donor country (following the U.S.) and Morocco's the third-largest donor (following France and Germany) based on the 2020-2021 average (OECD-DAC statistics).

all regions. This could be attributed in part to China's expected leadership role in fostering South-South collaboration to address climate change. The high level of support achieved by Indonesia, India, Brazil, and South Africa in their respective regions also reinforces the notion that people in developing countries consider Global South cooperation to be as important as cooperation with developed countries. However, it is important to

**Table 4.4. Regional Perceptions of Preferred Partners in Addressing Climate Change**

	Southeast Asia		South Asia		Latin America		Africa	
1 <sup>st</sup>	Japan	(515)	India	(361)	US	(443)	US	(483)
2 <sup>nd</sup>	US	(320)	US	(342)	Brazil	(333)	UK	(356)
3 <sup>rd</sup>	Australia	(232)	Japan	(237)	Argentina	(227)	France	(308)
4 <sup>th</sup>	China	(217)	China	(225)	Canada	(203)	China	(251)
5 <sup>th</sup>	South Korea	(175)	Russia	(179)	China	(167)	Germany	(219)
6 <sup>th</sup>	Russia	(160)	UK	(163)	France	(145)	Canada	(161)
7 <sup>th</sup>	Germany	(152)	Australia	(141)	Japan	(143)	Saudi Arabia	(130)
8 <sup>th</sup>	France	(137)	France	(129)	Germany	(131)	Japan	(124)
9 <sup>th</sup>	UK	(105)	Canada	(124)	Mexico	(125)	South Africa	(63)
10 <sup>th</sup>	Canada	(95)	Germany	(113)	Australia	(97)	Australia	(54)
11 <sup>th</sup>	Indonesia	(92)	Saudi Arabia	(103)	UK	(91)	Brazil	(43)
12 <sup>th</sup>	Saudi Arabia	(80)	Brazil	(61)	Russia	(72)	Italy	(43)
13 <sup>th</sup>	Turkiye	(41)	Italy	(37)	South Korea	(61)	Russia	(39)
14 <sup>th</sup>	Brazil	(33)	Argentina	(35)	Italy	(33)	India	(35)
15 <sup>th</sup>	India	(32)	South Korea	(25)	Saudi Arabia	(18)	Argentina	(32)
16 <sup>th</sup>	Argentina	(24)	Indonesia	(23)	India	(16)	South Korea	(29)
17 <sup>th</sup>	Italy	(20)	South Africa	(19)	Turkiye	(15)	Turkiye	(19)
18 <sup>th</sup>	South Africa	(7)	Turkiye	(18)	South Africa	(13)	Mexico	(11)
19 <sup>th</sup>	Mexico	(2)	Mexico	(5)	Indonesia	(10)	Indonesia	(6)

Note: These results are from the question 'Which countries are the best partners for your human country in the fight against climate change.' Respondents were allowed to select up to three countries. The number in parentheses next to each region represents the total votes received.

Source: Data from an online survey conducted by the authors.



recognize that the high rankings of these countries—both developed and regional powers—do not necessarily reflect their true competitiveness in climate change cooperation. Instead their global and regional influence along with their economic size and overseas development assistance (ODA) may be more significant factors in shaping perceptions of their leadership in climate initiative.

## Chapter 5



# Policy Implications

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- A background graphic featuring a globe with a network of nodes and lines overlaid on it. The nodes are represented by circles of varying sizes, and the lines connect them, suggesting a global network or data flow. In the bottom right corner, there is a blurred image of a city skyline with several tall buildings.
1. Implications for Public Awareness
  2. Implications for Loss and Damage Funds
  3. The Rising Expectations for the Global South's Role in Climate Change Mitigation
  4. Policy Recommendations for South Korea in Climate Change Cooperation with the Global South

Effectively addressing climate change requires public awareness and support both pivotal in shaping government policies. In developing countries where the effects of climate change are felt most severely public perceptions are particularly crucial. The awareness of climate change among these populations not only influences domestic policy-making but also has significant implications for global cooperation efforts. In light of this, our study sought to derive policy implications based on survey findings on how urban residents in developing countries perceive climate change policy and international cooperation. This section proposes recommendations for international cooperation along with policy suggestions tailored for the Korean government based on our research.

## **1. Implications for Public Awareness**

The study found that respondents across the eight countries surveyed do have some general awareness of the anthropogenic causes and impact of climate change. This finding highlights several key points that require the attention of policymakers. First, according to our survey results public awareness of climate change is strongly linked to their personal and daily experiences. As shown in Chapter 3, respondents who have previously encountered climate-related events tend to have heightened concerns about climate change (Table 3.2). Regarding climate change impact on daily life, addressed in Chapter 2, respondents are particularly worried about its direct and immediate effects on aspects of their personal lives such as health, job security, and income stability (Figure 2.2). The findings of the study indicate that previous direct experience of climate change related events significantly shapes individuals' perceptions and concerns, suggesting that climate awareness is not solely a matter of knowledge distribution but also of personal relevance. This direct link between personal experience and climate concern underscores the importance of framing climate change in

ways that resonate with people's daily lives and local environments. Policies that fail to connect the global issue of climate change with individual experiences may not fully mobilize public support. In response to these insights policymakers should consider tailored awareness campaigns and education programs that connect climate change impacts with local and personal experiences. Such strategies could include community-specific risk assessments and localized adaptation plans that address the most direct threats to livelihoods and health. Additionally, involving communities in the development of these strategies could enhance their relevance and increase community engagement and resilience.

Second, our finding suggests that climate change awareness based on personal experiences has not translated into meaningful behavioral changes. As outlined in Chapter 2, respondents in all surveyed regions seemed to adopt more passive and lifestyle-oriented responses such as making eco-friendly choices rather than taking more active steps like supporting climate-focused political leaders or advocating for higher taxes (Figure 2.4). The lack of interests in political activism may be influenced by the political landscape in developing countries where climate change is not a primary political issue, and public engagement and activism are less facilitated compared to developed countries. Advocating for higher taxes for funding environmental initiatives also presents challenges as it often requires individuals to prioritize intangible environmental benefits over immediate economic or social gains. In response to these challenges it is imperative to devise and implement strategies that can foster more active participation in climate change mitigation and adaptation efforts. Among key strategies is supporting community-based initiatives. International organizations and national governments can empower local groups by funding local climate projects, providing resources for community-led sustainability programs, and facilitating networks that share successful strategies and innovations. Such grassroots initiatives can make climate action more tangible and directly relevant to individuals' lives. Furthermore, by integrating climate

change initiatives with other crucial policy areas like economic development, health, and urban planning, climate action can be portrayed as beneficial across various sectors of society, elevating its importance in political discussions. Additionally, leveraging civil society organizations (CSOs) can be an effective way for promoting climate policy dialogue and action. Our survey results indicate that 50% of respondents in Southeast Asia, South Asia, and Africa chose ‘volunteering for or donating to organizations working on climate change solutions’ as their preferred action (Figure 2.4). This suggests that CSOs can serve as familiar and accessible platforms for engaging the public on climate issues. Finally, clear communication regarding how taxes directly support environmental initiatives can shift perceptions prompting individuals to see these contributions not only as financial burdens but as vital investments in a sustainable future.

Third, corroborated by previous research (Hargreaves *et al.* 2003; Shi *et al.* 2016; Ruiz *et al.* 2020), our study confirms that mass media plays a significant role in shaping public perceptions of climate change. As detailed in Chapter 3, individuals exposed to media coverage about global warming at least once a month are more likely to develop heightened concerns about climate change than those who discuss the topic with family or friends with the same frequency. This finding underscores the importance of leveraging media platforms to raise awareness and promote informed discourse on climate change. Policymakers and climate advocacy groups should prioritize partnerships with local media outlets to ensure the effective delivery of climate change messages tailored to the specific needs and contexts of these communities. Furthermore, this approach could involve leveraging social media platforms to engage younger audiences, who are typically less exposed to traditional media but can be highly influential in public discourse. In addition, capacity-building initiatives targeted at empowering journalists and media professionals in developing countries to report on climate change issues accurately and comprehensively are essential. Providing training and resources to enhance their understanding of climate science and its local

impacts can contribute to more informed and impactful reporting.

Fourth, as discussed in Chapter 4, while the majority of respondents express significant concerns about their countries' vulnerability to climate change-related natural disasters and dependence on climate-sensitive industries (Table 4.1), they demonstrate reduced support for providing subsidies to rural people to relocate to urban areas (Table 4.2). Although rural communities are more exposed to such vulnerabilities, there appears to be little support for their relocation to urban areas. Instead, respondents seem to prioritize providing financial assistance to rural farmers (Table 4.2), suggesting a preference for aiding rural communities rather than encouraging urban migration as a climate adaptation strategy. One notable difference is observed in South Asia, where the support for providing subsidies to rural people's relocation is 52% and significantly higher compared to other regions where support ranges from 30% to 36% (Table 4.2). This discrepancy suggests that people in South Asia share widespread concerns about climate change migration. Indeed, respondents in South Asia showed the highest rate (31%) of willingness to relocate (Figure 3.3) among the four regions, indicating that even urban dwellers consider relocation due to climate change. This reflects the distinct regional dynamics shaping adaptation strategies. These findings highlight the importance of adopting tailored approaches to climate-induced migration, taking into account regional variations in preferences. In regions where there is little support for rural-to-urban migration, such as Southeast Asia, Latin America and Africa, policymakers should focus on enhancing the resilience of rural communities and agricultural systems. This may involve investing in agricultural infrastructure, promoting sustainable land management practices, and providing financial assistance to smallholder farmers. In contrast, in regions like South Asia where urban relocation is more accepted as a climate adaptation strategy, policymakers may need to prioritize addressing urban density. This is especially relevant given that respondents in South Asia identified 'increasing population density' as the top vulnerability factor to climate change in their region

(Table 4.1). Accordingly, policy-makers in this region should prioritize sustainable urban planning, green infrastructure investment, and affordable housing initiatives to mitigate urbanization's adverse effects and ensure equitable access to resources.

## 2. Implications for Loss and Damage Funds

Securing funds for vulnerable developing nations is imperative to bolster their resilience against natural disasters. Recent developments in climate change adaptation have placed greater emphasis on providing financial assistance for addressing loss and damage in developing countries. Notably, one of the major outcomes of COP27 has been the establishment of funds dedicated to addressing loss and damages. Negotiations for establishing the loss and damage fund have been ongoing since then, aimed at compensating vulnerable countries. While the concept of the loss and damage fund was initially introduced in the Bali Action Plan of 2007 within the UN climate change framework, the G77 formally proposed the establishment of the fund as an agenda at the COP26 (Åberg and Jeffs 2022). With participating countries at COP21 already having agreed to the importance of minimizing loss and damage under the Paris Agreement, developed countries have finally pledged financial support for vulnerable nations (UNDP 2023).

However, securing commitments to the fund remains a challenge, resulting in insufficient funding to aid vulnerable countries in recovering from loss and damage. Additionally, developing countries highlight financial gaps in addressing non-economic losses and damages caused by slow-onset events, emphasizing the need to address macro-level impact of climate change.

Accordingly, we recommend focusing on supporting climate-sensitive industries like agriculture, fisheries, and forestry at the international level in the short-term. Our study found that there is a preference among respondents

for supporting these sectors, as well as health, sanitation, and energy, through international cooperation. Additionally, the most preferred policy for governments is to support farmers and improve urban public services. This indicates that there is a clear need to build resilience in the agricultural sector and provide essential public services in the face of climate change risks.

Another implication of our findings is the potential implementation of a domestic fund through the introduction of a climate change tax in developing countries. Our results suggest that individuals in these countries are willing to pay taxes, particularly if they have experienced extreme events or formed subjective perceptions through interactions with their neighbors. This indicates there are possibility of public willingness to contribute financially to climate change adaptation, paving the way for establishing a matching fund via a climate change tax. Additionally, our findings suggest that the public in developing countries are keen on restoring the livelihoods of those who have experienced extreme weather events. This perception may differ from the government's perspective, as each individual may be more interested in understanding how the government can support vulnerable individuals or households.

Urban residents in developing countries have expressed significant concerns about the impact of natural disasters and extreme weather events, as well as the losses incurred by climate-sensitive industries. This public perception of climate vulnerability is heavily influenced by factors like exposure to natural disasters and the dependence of key economic sectors on climate conditions, such as agriculture, fisheries, and tourism. Furthermore, our study suggests that climate change mitigation policies may be relatively less relevant in developing country contexts compared to adaptation measures. This contrasts with discussions around climate taxation, which have tended to focus more on mitigation efforts, primarily in industrialized nations (Dalba-Norris *et al.* 2023).

These findings underscore the crucial need to establish dedicated climate adaptation funds to provide support and assistance to the most vulnerable



groups in developing countries. Investing in climate adaptation is essential to build resilience and help communities cope with the increasingly severe impacts of global warming that they are already experiencing. By directing resources towards adaptation strategies tailored to local contexts, policymakers can better address the unique climate risks and vulnerabilities faced by urban populations and climate-sensitive industries in the developing world. This represents a key priority area for international cooperation and policy action.

### **3. The Rising Expectations for the Global South's Role in Climate Change Mitigation**

Developing countries have consistently advocated for climate justice, highlighting the uneven global distribution of climate impacts and responsibilities. While no nation is immune to global warming, countries in the Global South bear the brunt of its most severe effects, including natural disasters, extreme heat, flooding, and crop failures. In contrast, wealthy nations in the Global North while responsible for a substantial portion of historical carbon emissions from their industrial activities,<sup>18)</sup> face less immediate consequences. This recognition of the disparities has led to the conventional wisdom that people in developing countries are more likely to believe that developed nations should bear the majority of the blame for climate change.

However, our survey findings reveal a more nuanced perspective on this issue. As detailed in Chapter 3 (Table 3.1), the majority of respondents in Southeast Asia and Latin America believe that climate change responsibility should not be attributed solely to developed countries.<sup>19)</sup> Although a majority

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18) According to the report published by the Cambridge Sustainability Commission, the combined emissions of the richest 1% of the global population exceed those of the poorest 50% (Newell, Daley and Twena 2021).

in South Asia (65%) and Africa (61%) agree with the widely held belief that rich countries are primarily responsible for climate change, the proportion of respondents endorsing this view is not overwhelmingly high. The results indicate that a sizeable number of people in developing countries think that their own nations should also take responsibility for climate change. Furthermore, in South Asia (54%) and Southeast Asia (46%), over 40% of respondents support higher taxes to address climate change, underscoring a strong sense of individual responsibility towards the issue.

The growing public awareness of climate change in developing countries creates a favorable environment for governments in the Global South to make efforts to meet the targets of Nationally Determined Contributions (NDCs). Indeed, a substantial majority of respondents—over 60% across all surveyed regions—agree with the statement that the environment should be prioritized, even at the expense of slower economic growth and job losses (Table 3.1). Similarly, except for Latin America, where only 33% expressed satisfaction, all other survey regions reported high satisfaction rates above 60% with their government’s climate change policy (Figure 4.2). These results suggest that developing countries are more willing to assume greater responsibility for mitigating climate change than conventional wisdom might suggest.

The perceptions of preferred partners in tackling climate change, as explored in our survey and detailed in Chapter 4 (Table 4.4), also demonstrate the growing expectation for developing countries to play a more significant role. While the majority of respondents still expect developed countries to play a substantial role, regional powers in the Global South are also highly regarded as preferred partners within their respective regions; India ranks 1st in South Asia, Brazil is 2nd in Latin America, while South Africa and Indonesia are ranked 9th and 11th respectively in Africa and Southeast Asia.

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19) In Southeast Asia and Latin America, the proportion of respondents who agreed that developed countries should take most of the blame for climate change was under half, at 49% and 46% respectively.

These results suggest that people in the surveyed regions expect regional powers to play a pivotal role in representing their voices in global climate change governance. Indeed, these regional powers have rallied the voices of the Global South in addressing the financing gap, calling for developed countries to provide financial and technological support under the UNFCCC framework. This advocacy has led to an agreement on the establishment of a specific fund for loss and damage at COP27.

Aside from UN diplomacy, these regional powers have embarked on their own global and regional initiatives to contribute to the global efforts to mitigate climate change. Most notably, India led the creation of the International Solar Alliance (ISA), which has garnered participation from over 120 countries committed to promoting solar energy in regions abundant with sunlight. The alliance aims to mobilize investments, facilitate technology transfer, and develop frameworks that encourage the use of solar energy. Since its inception, the ISA has been instrumental in sharing best practices, supporting research and development, and fostering partnerships among member countries, international organizations, and corporate entities. The launch of the alliance sends a clear message to the global community about the commitment of developing countries to transition to a low-carbon growth path.<sup>20)</sup>

Brazil has also demonstrated climate change leadership in the Global South. It boasts one of the largest shares of clean power, with significant increases in solar and wind generation.<sup>21)</sup> The Amazon Fund, managed by the Brazilian government since 2008, is the world's largest initiative to combat deforestation and forest degradation (Reducing Emissions from Deforestation and Forest Degradation, REDD+). The Fund requires industrialized countries to contribute financially to assist Brazil in conserving the Amazon and combating climate change.<sup>22)</sup> Additionally, Brazil has

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20) National Portal of India, "Website of International Solar Alliance (ISA)."

21) Reuters (2023), "Brazil set to widen lead as cleanest major power sector." (October 11)

22) ESW News (2024), "Amazon Fund Amazon Fund for Rainforest Achieves Record \$640

formed alliances with Indonesia and the Democratic Republic of Congo—both home to two of the world’s largest rainforests—to collaborate on the sustainable management, conservation, and restoration of tropical forests and critical ecosystems. The alliance aims to negotiate a new sustainable funding mechanism under the Convention on Biological Diversity Framework and secure new multilateral funding resources for a fair carbon ecosystem.<sup>23)</sup>

Although less pronounced on the global stage, Indonesia and South Africa, as regional leaders in the Association of Southeast Asian Nations (ASEAN) and the African Union (AU) respectively, have significant potential to forge collaborative efforts on climate change with neighboring countries in their respective regions. Recently, Indonesia expanded its leadership role beyond Southeast Asia by hosting a worldwide high-level meeting of the Archipelagic and Island States (Archipelagic and Island Forum) to address the urgent needs of countries facing serious threats from climate change, such as rising sea levels.<sup>24)</sup>

The high expectations for the role to be played by governments in the Global South, combined with their willingness to engage indicate a need for a more inclusive approach in international cooperation on climate change. Rather than simply providing financial and technological support to address vulnerabilities in the Global South, it is essential to position developing countries in the driver’s seat to enhance their role in climate change governance. The collaborative efforts of France in jointly launching the India-led International Solar Alliance (ISA) and the contributions from developed nations to the Amazon Fund are exemplary models of effective international cooperation in this context. More recently, the support from

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Million in New Pledges in 2023.” (February 5)

23) The government of Brazil (2022), “Brazil, Indonesia and Congo formed an alliance to protect rainforests.” (December 1)

24) 51 island and archipelagic countries across the world participated in the forum (The Ministry of Foreign Affairs of the Republic of Indonesia (2023), “Indonesia Officially Kicks Off First-Ever AIS Forum Summit.”)

the USA and Japan for Indonesia's energy transition initiative, the Just Energy Transition Partnership (JETP), also serves as a good example. Additionally, the promotion of South-South and Triangular Cooperation (SSTC), where developing countries set agendas and launch their own initiatives with support from developed nations, is highly recommended. Taking this into account, the following section outlines policy implications for South Korea in promoting climate change cooperation with developing countries.

## **4. Policy Recommendations for South Korea in Climate Change Cooperation with the Global South**

As analyzed in Chapter 4, expectations for South Korea's role in global climate change cooperation have been relatively modest, except in Southeast Asia, where its significant economic presence has contributed to higher rankings. For instance, Korea was Vietnam's third-largest trade partner in 2022 and among the top five DAC donors from 2017 to 2021.<sup>25)</sup> During this five-year period, Vietnam was the largest recipient of Korea's ODA, receiving \$644 million, of which 12.6% was specifically allocated to climate change initiatives. Vietnam's strong recognition of Korea as a preferred partner is likely closely related to Korea's active economic and development cooperation with this country. Korea's role as a development partner in Indonesia is not as prominent, accounting for 1.9% (ranking 8<sup>th</sup>) of the ODA received by Indonesia from 2017 to 2021. However, the high portion of climate change-related ODA (30.5%) and strong economic ties may have

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25) When excluding when excluding contributions from International Development Association (IDA) and the Asian Development Bank (ADB), Korea ranked Vietnam's fifth largest donor country taking 4.9% of total ODA (2017-2021), following by Japan (24.2%), Germany (7.8%), France (6.3%) and U.S. (5.4%) (OECD DAC).

bolstered expectations for Korea to be a preferred partner in Indonesia as well (Appendix A1).<sup>26)</sup>

Meanwhile, Korea was not recognized as a preferred partner to address climate change in six other surveyed countries (Appendix A1), failing to make the list of the top 10 preferred countries. Interestingly, while Bangladesh was the second-largest recipient of Korea's ODA between 2017 and 2021, receiving 530 million USD, the country's preference for Korea as a climate change partner was very low, ranking 16th out of G-20 countries. This discrepancy may stem from the minimal climate change-related ODA (less than 2% of Korea's total ODA to Bangladesh) and Korea's relatively low presence in Bangladesh's overall ODA donor landscape, accounting for only 1.9%.<sup>27)</sup> It is also worth noting that, although climate change-related ODA constituted a considerable portion in Korea's ODA towards Colombia and Kenya, at 15.9% and 21.7% respectively, Korea's visibility in these countries remains low (Appendix A1). This low visibility could be attributed to the small percentage that Korea contributes to these countries' total ODA receipts - 2.5% in Colombia and 0.6% in Kenya. The results indicate that a more strategic approach is required for Korea to enhance its presence in these countries, such as developing flagship projects to overcome the limitations of the total ODA budget.

Given the limited size of Korea's ODA compared to other major developed countries, it is imperative to develop a strategic approach to climate change cooperation in developing countries. Although the survey result does not fully capture region-specific needs (since the two countries in each region do not represent the entire region's voice), we have identified

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26) In 2022, Korea was the 8th largest trading partner for Indonesia, and its FDI to Indonesia increased from 991 million USD in 2019 to 2,092 million USD in 2023 (The Korean Exim Bank dataset).

27) As a DAC donor country (excluding contributions from the IDA, ADB, and EU), Korea ranks as the fifth-largest donor in Bangladesh. However, its share of 1.9% is far below that of Japan (25%) and the U.S. (7.3%), and lower than those of the U.K. (4.6%), and Germany (2.4%) (OECD DAC).

**Table 5.1. Korea' ODA to Surveyed Countries (2017-2021 Accumulated)**

(Unit: million USD, %)

Recipients Rank	Name of Country	Total ODA Amount	Climate Change-related ODA Amount*	Climate Change-related ODA %
1 <sup>st</sup>	Viet Nam	644.3	81.3	12.6
2 <sup>nd</sup>	Bangladesh	530.3	11.8	1.8
9 <sup>th</sup>	Indonesia	252.2	196.8	30.5
11 <sup>th</sup>	Colombia	216.9	102.6	15.9
23 <sup>rd</sup>	Kenya	109.7	140.1	21.7
37 <sup>th</sup>	Peru	62.8	4.8	0.7
54 <sup>th</sup>	Morocco	25.9	12.1	1.9
62 <sup>nd</sup>	India	14.6	0.9	0.1

Note: \* Total ODA and Climate Change-related ODA data retrieved from OECD DAC. Climate Change-related ODA amount is obtained by deducting the overlap amount from the total amount of adaptation and mitigation combined.

Source: Data from an online survey conducted by the authors.

common concerns shared across all eight countries, as well as distinct country-specific needs. Our survey findings indicate that, despite slight variations in magnitude people in surveyed countries share widespread concerns about the negative impact on their health (refer to Table 2.2). This concern aligns with their preference for policy interventions to improve urban public services, including health (Table 4.2). Health is one of the areas where Korea demonstrates strength in its ODA programs. Therefore, it could develop a comprehensive health program to prevent and address climate-change-related health diseases. Such initiatives could include enhancing the capacities of health centers to handle health crises exacerbated by climate events, improving access to clean water and air quality, and increasing medical support for climate-induced illnesses. Collaborating with international organizations (e.g., WHO and UNEP), local governments, and NGOs to tailor these programs is also highly recommended in enhancing their impact and sustainability.

People in the surveyed regions also identified 'exposure to climate

change-related natural disasters,’ ‘dependence on climate-sensitive industries,’ and ‘increasing population density’ as key concerns (Table 4.1). These results underscore the need for policy interventions to enhance prevention of climate change-induced natural disasters and to support agriculture, fisheries, forestry, as well as urban services like health and sanitation. In this regard, Korea should prioritize these areas when formulating climate change adaptation programs. While reinforcing or scaling up existing programs, Korea should also develop an integrated program that addresses these concerns comprehensively. This integrated approach could include multi-sectoral strategies that not only bolster resilience against natural disasters but also improve livelihoods and infrastructure in vulnerable industries. For example, a program could be designed to introduce resilient agricultural practices in regions prone to extreme weather conditions, coupled with investments in flood defenses and emergency response systems in flood-prone areas.

Regionally, in South Asia, where increasing population density has been identified as a major vulnerability to climate change (Table 4.1), more support is required to improve urban infrastructure to manage the growing population density effectively. Given that support for green smart city projects is highly valued in this region, compared to others, targeting green smart city initiatives is also advisable for South Asia. In particular, since India is a leading country in promoting smart cities with green agendas,<sup>28)</sup> supporting green smart city projects in India is highly recommended. It is also worth noting that the demand for clean energy is high both in Southeast Asia and Africa, where a majority of respondents prioritize clean energy as one of the top three areas for international cooperation (Table 4.3). These findings suggest that Korea should enhance its support for clean energy projects in climate change mitigation efforts in Indonesia, Vietnam, Kenya, and Morocco. Enhancing bilateral partnerships based on such local needs

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28) World Economic Forum (2023), “Sustainable financing of cities: 4 success factors from India’s Smart City Mission experience.”



can improve the effectiveness of aid programs and strengthen the ownership of recipient countries in climate change responses.

Most importantly, to boost Korea's presence in climate change cooperation with developing countries, Korea needs to actively support global and regional efforts initiated by developing countries. As pointed out earlier, developing countries are likely to increase their constructive role in global climate change efforts. Compared to other developed nations, Korea's support for initiatives launched by the Global South has been less visible. A clear example of this is Korea's absence from the India-led International Solar Alliance (ISA), which has been signed and ratified by 97 countries, including the U.S., France, the U.K., Germany, Japan, and Australia. With growing expectations for regional leadership in climate change governance, it is important to actively participate in South-South and Triangular Cooperation (SSTC) activities by providing financial resources to support initiatives launched by developing countries. Given the symbolic significance of the ISA in the Global South's leadership in climate change and the potential of solar energy in mitigation efforts in developing countries,<sup>29)</sup> joining the ISA is a crucial step forward for Korea. This move would enhance Korea's role in developing capacity for solar energy in the Global South.

Supporting regional initiatives in the Global South is also key to enhancing Korea's presence in climate change cooperation, as evidenced by its efforts in Southeast Asia. To support Southeast Asia's integrated efforts to address climate change, Korea has held the annual ASEAN-ROK Dialogue on Environment and Climate Change since 2021. In 2023, it launched the new initiative "Partnership for ASEAN-ROK Methane Action (PARMA)," aimed at supporting ASEAN member states' efforts for climate change mitigation, methane reduction, and carbon credit generation. Furthermore, Korea has shown a strong commitment to collaborating on the establishment and

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29) Shahsavari and Akbari (2018).

operation of the ASEAN Centre for Climate Change (ACCC), an ASEAN-initiated center requiring financial and technological support from developed countries. As demonstrated by Korea's high rankings, recognized by Indonesia and Vietnam in the survey above (see Appendix A1), support for regional initiatives not only enhances the visibility of Korea's commitment to climate change cooperation across the region but also bolsters its contributions to South-South and Triangular Cooperation (SSTC) in climate change.

The next step is to extend these achievements to other regions where Korea's efforts in climate change cooperation are less recognized. In Africa, where the effects of climate change are profoundly felt and resources are limited, it is imperative to increase Korea's contribution to climate finance specifically targeted at this region. In this context, Korea's financial contribution to the Central African Forest Initiative (CAFI) since 2017 and its decision to join the Congo Basin Forest Partnership in 2022 - both regional efforts to conserve forest ecosystem and combat climate change in Central Africa - have laid a strong foundation for its outreach to Africa. Since climate finance is a key component of the strategic intervention axes of the African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032), Korea should enhance its role in contributing to climate finance and resource mobilization towards programs implemented by the AU. As evidenced by the case with ASEAN, holding regular dialogues on climate change cooperation is the most effective way to identify regional needs and facilitate cooperation with the region. The upcoming inaugural Korea-Africa Summit in early June 2024 presents an excellent opportunity to discuss the establishment of regular dialogue platform on climate change cooperation. It is also recommended to launch a flagship initiative for ROK-Africa climate change cooperation, focusing on financing and technology transfer for carbon emission reduction and clean energy transitions in Africa.

For South America, it is important to fulfill the commitments made at the

Korea-Pacific Alliance Green Economy Forum in November 2021. At this forum, Korea pledged to assist the Pacific Alliance—Colombia, Chile, Mexico, and Peru—in transitioning to a low-carbon and eco-friendly economy. Beyond aid projects in individual member countries, Korea should also provide technical assistance to support the Pacific Alliance’s own Action Plan of the GTMACV (The Environment and Green Growth Technical Group, by its acronym in Spanish).<sup>30)</sup> Supporting these regional initiatives can significantly bolster Korea’s presence in this region. Additionally, a financial contribution to the Amazon Fund, the largest regional initiative for the REDD+ mechanism, would enhance Korea’s visibility in climate change efforts across Latin America. Since Korea needs to actively pursue REDD+ projects overseas to achieve its NDC goals, participating in the Amazon Fund could also be a strategic move to secure carbon credits from Brazil. Furthermore, Korea could consider supporting the “Climate Adaptation and Comprehensive Response to Natural Disasters Fund (FACRID, known by its Spanish acronym)” launched by the Community of Latin American and Caribbean States (CELAC) in 2021. This fund is designed to support projects that focus on disaster prevention, reduction, response, and recovery in the region. Other regional initiatives, such as Acción Andina—an initiative to protect and restore one million hectares of high Andean forests—and the Innovative Finance for the Amazon, Cerrado, and Chaco (IFACCC) initiative—an effort to catalyze innovative finance mechanisms for expanding soy and cattle production under deforestation and conversion-free principles—also require funding contributions to enhance Korea’s presence in Latin America.

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30) The Pacific Alliance launched the GTMACV in 2016, aimed at facilitating dialogue between governments and the private sector for the development and implementation of green growth in member countries (Pacific Alliance “Technical Group of Environment and Green Growth”).

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## Appendix



## Appendix A1. Perceptions of Preferred Partners in Addressing Climate Change by Country

	Indonesia		Vietnam		Bangladesh		India	
1	Japan	274	Japan	241	US	183	India	206
2	Australia	120	US	225	China	172	US	159
3	China	120	Australia	112	India	155	Japan	115
4	Germany	97	China	97	Japan	122	Russia	103
5	US	95	Russia	87	UK	81	Australia	90
6	Korea	89	Korea	86	Russia	76	France	89
7	Indonesia	81	France	69	Canada	71	UK	82
8	Saudi Arabia	76	Canada	57	Saudi Arabia	53	Germany	66
9	Russia	73	Germany	55	Australia	51	Canada	53
10	France	68	UK	55	Germany	47	China	53
11	UK	50	India	26	France	40	Saudi Arabia	50
12	Canada	38	Argentina	13	Argentina	23	Brazil	38
13	Turkiye	30	Italy	13	Brazil	23	Italy	26
14	Brazil	25	Indonesia	11	Turkiye	16	Argentina	12
15	Argentina	11	Turkiye	11	Indonesia	15	Korea	11
16	Italy	7	Brazil	8	Korea	14	South Africa	10
17	India	6	Saudi Arabia	4	Italy	11	Indonesia	8
18	South Africa	5	South Africa	2	South Africa	9	Mexico	3
19	Mexico	1	Mexico	1	Mexico	2	Turkiye	2

	Colombia		Peru		Kenya		Morocco	
1	US	251	US	192	US	296	France	212
2	Brazil	170	Brazil	163	UK	206	US	187
3	Canada	105	Argentina	137	China	175	UK	150
4	France	96	Canada	98	France	96	Germany	131
5	Argentina	90	Japan	98	Germany	88	Saudi Arabia	109
6	China	76	China	91	Canada	70	Canada	91
7	Mexico	70	Germany	67	Japan	59	China	76
8	Germany	64	Mexico	55	South Africa	41	Japan	65
9	UK	52	France	49	Australia	33	Brazil	29
10	Australia	50	Australia	47	India	26	Italy	27
11	Japan	45	Russia	47	Saudi Arabia	21	South Africa	22
12	Korea	28	UK	39	Russia	20	Australia	21
13	Russia	25	Korea	33	Korea	18	Russia	19
14	Italy	14	Italy	19	Argentina	16	Argentina	16
15	Saudi Arabia	11	Turkiye	10	Italy	16	Turkiye	15
16	South Africa	9	India	8	Brazil	14	Korea	11
17	India	8	Saudi Arabia	7	Mexico	6	India	9
18	Turkiye	5	Indonesia	6	Indonesia	4	Indonesia	7
19	Indonesia	4	South Africa	4	Turkiye	4	Mexico	0

## Exploring Urban Perception on Climate Change in Developing Countries

노윤재, 최인아, 강문수, 김소은, 이승호, 허인희

본 보고서에서는 개발도상국 시민들의 기후변화에 대한 인식을 설문을 통해 조사하고 분석하였다. 아프리카, 중남미, 동남아시아, 남아시아에 위치한 8개 주요 도시에서 온라인 설문조사를 진행하였으며, 개발도상국 시민들의 기후변화에 대한 인식, 기후변화의 개인적 영향, 정부 및 국제 사회의 대응에 대한 평가와 정책 선호도에 대한 자료를 수집하였다. 분석 결과 기후변화에 대한 인식은 개인의 교육 수준, 경제적 상태, 기후변화 관련 경험에 의해 영향을 받는 것으로 나타났다. 더 나아가, 국가 및 지역별로 기후변화에 대한 인식이 다르고, 기후변화 적응전략과 정책 선호가 다르다는 것을 확인하였다. 본 연구는 개발도상국 도시 거주자들의 기후변화에 대한 다양한 인식을 이해함으로써 기후정책의 효과성을 높일 수 있다는 점을 제시하였다. 특히 본 연구는 도시민의 기후변화 인식을 조사함으로써, 기후변화에 많은 영향을 받는 도시 환경의 정책 우선순위 설정을 위한 함의를 제공하였다.





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특기사항





## Exploring Urban Perception on Climate Change in Developing Countries

Yoon Jae Ro, Ina Choi, Munsu Kang, Soeun Kim,  
Seungho Lee, and Inhoi Heo

This paper explores the perceptions of urban residents in developing countries regarding climate change, highlighting the importance of these insights for effective climate policy-making. An online survey conducted in eight major cities across Africa, Latin America, Southeast Asia, and South Asia investigates awareness, personal impacts, and evaluations of responses to climate change. The findings reveal diverse perceptions influenced by education, economic status, and direct experiences, affecting willingness to engage in climate measures and policy preferences. The research underscores the importance of incorporating these diverse viewpoints to ensure inclusive and effective climate action.

