AIMS Geosciences

AIMS Geosciences, 9(3): 609–631.
DOI: 10.3934/geosci.2023033
Received: 02 February 2023
Revised: 12 July 2023
Accepted: 25 August 2023
Published: 13 September 2023

http://www.aimspress.com/journal/geosciences

Research article

Prioritizing climate adaptation at the local level in Ghana

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Abstract: The increasing intensity and frequency of climate impacts exacerbate pressures on front-line local communities. This calls for location-specific adaptation strategies. Alignment of strategies with respective National Climate Change Strategy is key for the overall sustainability of initiatives and local communities. The work presented in this paper examines the adoption and prioritization of climate adaptation policies at the local level based on a case study of the Adansi North District (AND) in Ghana. An assessment of the extent to which climate adaptation policies are captured and budgeted for was done via a review of the district's medium-term development and key political actors were interviewed to assess the level of priority they place on climate adaptation. Findings from the study reveal that 41% of the locally adopted policies directly align with stipulated national level policies. We attribute the adoption of climate policies in AND to local political actors having higher education which has afforded them good understanding of the climate change phenomenon, being experienced professionals and having to work within institutional rubrics that make climate policy formulation a requirement. However, little priority is given to these policies for implementation, mainly through the non-allocation of funds. We account for this with the weak environmental advocacy in the district and exchange between actors on adaptation. Furthermore, partisan actors who already wield veto powers and can promote policies that may not necessarily support adaptation measures, often do so, since their interest is to become popular among electorates who also prefer infrastructure over environmental policies. We conclude that although climate adaptation policies are fairly adopted and budgeted for in AND, they have not received commensurate priority for implementation. Recommendations are proposed for addressing this.

Keywords: climate change, planning, local governance, climate impacts, institutions, bottom-up, climate policy, political actors

Abbreviations: AND: Adansi North District; ANDA: Adansi North District Assembly; COPs: Conference of the Parties to the United Nations Framework Convention on Climate Change; DACF: District Assembly Common Fund; DCD: District Coordinating Director; DCE: District Chief Executive; DDF: District Development Facility; DMTDP: District Medium-Term Development Plan; DPCU: Development Planning Co-ordinating Unit; DPCU: Development Planning Coordinating Unit; MESTI: Ministry of Environment, Science, Technology and Innovation; NCCAS: National Climate Change Adaptation Strategy; NCCC: National Climate Change Committee; NDCs: Nationally Determined Contributions; NDPC: National Development Planning Commission of Ghana; NGOs: Non-governmental Organizations; SSA: sub-Saharan Africa

1. Introduction

The impacts of climate change, such as intensities and frequencies of extreme weather related events, are conspicuous over the last two decades and all communities are threatened [1]. Response to these climate impacts has often been galvanized at the international and national levels since the climate change phenomenon is a global crisis. Besides treaties often signed at the United Nations Conference of the Parties (COPs), many central governments have created formal sections within their administrations and produced documentation such as the National Adaptation Plans of Action, National Adaptation Plans (NAPs) and Nationally Determined Contributions (NDCs) for tackling climate change [2]. Despite these efforts, climate action led by such top-level actors over the years has not come with the needed urgency [3].

The role of local governments, as actors leading local level planning, in climate action is critical since the impacts of climate change, such as increased risk of droughts, floods, sea level rise and heatwaves, are more felt locally. It is plausible also to recognize the role of local governments because they tend to have grave flexibility that can help to hasten local adaptation [4]. Moreover, it has been proven that adaptation is most effective when advanced from the local level [5–7]. Therefore, recognition of the important role of local governments in the global climate regime has burgeoned over the last decade. For instance, the Global Climate Action Agenda was launched at COP21, with the aim of helping governments at all levels—including at the subnational level—to develop their own mitigation and adaptation goals and to implement them [8]. It was also at COP23 that the Bonn-Fiji Commitment of Local and Regional Leaders was adopted by local and regional administrations to deliver the Paris Agreement at all levels of governance [9].

Across sub-Saharan Africa (SSA), the region most vulnerable to climate change, adaptation remains low on political agendas at the local level [6]. The factors for this may be internal shortcomings or reasons externally instigated. These include poor knowledge and awareness of issues relating to climate change (ecological, technological, vernacular and administrative), lack of capacity to develop and implement policies [10], lack of legal and material resources [7], inadequate finance [11], poor

participation in governance, lack of innovative industries [12] and increasing responsibilities as a result of higher levels of government downloading more tasks to local administrations, among others [13]. While the factors that account for the lack of climate action by local governments in SSA are evidently enormous, politics is the heavy hand behind it all [14]. Politics essentially refers to "all the processes of conflict, co-operation and negotiation on taking decisions about how resources are to be owned, used, produced and distributed" [5]. In this sense, politics acts as the ligament between the many problems of societies and where available resources are committed to as political leaders sift through issues on their tables, prioritize and make decisions. Hence, without support from political leaders, climate adaptation may not receive needed resources and thus not carry forward.

On one hand, political actors, who are "individuals who have obtained at least some measure of political power and/or authority in a particular society who engage in activities that can have a significant influence on decisions, policies, media coverage, and outcomes associated with a given conflict" [15], often have their respective vested interests as well as ideas. They may also be required to play by the rules of diverse institutions [16]. On another hand, the term climate adaption itself is inherently political [17,18]. The Intergovernmental Panel on Climate Change's Fourth Assessment Report defined adaptation as, "Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" [19]. While this definition explains what climate adaptation generally is—reducing vulnerabilities—it does not explain how it should be advanced. This seems to enable different interpretations to be conjectured, thereby, creating the grounds for the politicization of adaptation. In this sense, the concept touches on sensitive nerves, such as issues of power, conflicting priorities, scarce resources and tensions within administrations and creates winners and losers, and the grounds for grave contestation [20]. Adaptation policies may, in fact, end up marginalizing some groups of people (exclusion), damaging the environment (encroachment), deepening inequalities (entrenchment) and/or lead to the privatization of public assets or provide private actors autonomy within public corridors (enclosure) therefore subverting the intended goals of such adaptation efforts [21].

Independent of how adaptation may be conceptualized and what policies may be adopted in local developmental plans, the political will required to move from documentation to implementation is often missing in local administrations. Policies that bother on promoting ecosystem conservation and climate risks like flooding and droughts are often stalled whiles those that are about land use planning and transportation infrastructure are given the green light [14]. Additionally, it is not surprising to find climate adaptation policies totally non-existent in local plans [22]. At best, when extreme events occur, adaptation may be hastened but this is often a reaction to the damage caused and erodes in no time [23].

The case is not different in Ghana where the National Climate Change Committee (NCCC) under the auspices of the Ministry of Environment, Science, Technology and Innovation (MESTI) developed the policy roadmap for tackling climate change entitled the *National Climate Change Adaptation Strategy (NCCAS) 2015–2020* and the Nationally Determined Contributions (NDCs) report for 2020 to 2030 that was submitted to the United Nations Framework Convention on Climate Change (UNFCCC). These two policies acknowledge the globality of climate change and the locality of its impacts and consequently, have charged local governments to mainstream adaptation policies, projects and programmes into their metropolitan, municipal or district assembly development plans. Furthermore, the National Development Planning Commission of Ghana (NDPC) demands that local

development plans be harmonized with national development plans and Ghana's current national development document, *Agenda for Jobs: Creating Prosperity and Equal Opportunity for All 2018–2024*, has a profound climate action intent. However, the extent to which local governments in the country have prioritized or adopted climate adaption policies in the face of increasing impacts of floods, droughts and fires, remains unclear. To close this knowledge and literature gap, we 1) assess the extent to which adaptation policies are captured and budgeted for in development plans and 2) evaluate the level of priority placed on climate adaptation by relevant actors at the local level.

2. Conceptual framework

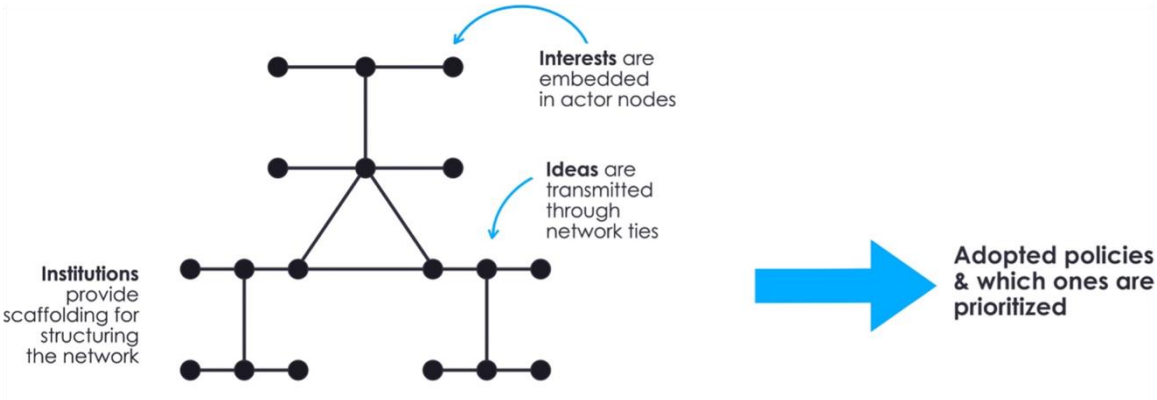

Figure 1. 3 I + N framework of policy change (adopted from [16]).

Although several authors have studied the multiplicity of challenges that constrain local climate adaptation efforts [11–13] and [7], political will demonstrated through policymaking and budget allocation is most key [6]. On this basis, politics can be a benefit or a barrier to climate adaptation at the local level since it mediates which of the problems of society are given priority, where resources are committed to and how problems are addressed [14]. Interestingly, most of the challenges that beset climate adaptation efforts do arise because of politics. In the end, whether adaptation receives attention or not depends on what local political actors deem a priority, which may be influenced by other internal or external factors. In this study, therefore, we adopt integrated theories of policy formulation and change based on the three most common factors in political science literature: interests, ideas and institutions (Figure 1). The role of policy networks, which are receiving much attention in recent times, are also considered.

Interests are defined as "agendas of societal groups, elected officials, civil servants, researchers, and policy entrepreneurs" [24]. Every policy process is driven or influenced by the real or perceived interests of various political actors and stakeholders, including non-state actors. To appreciate how interests shape public policy, one has to be aware that win-win scenarios are extremely rare [25]. The question to ask concerning every policy is that who wins and who loses and, to what magnitude? Thereby, helping to understand whether benefits and costs will be concentrated within a small group of people or spread across a larger group. The trend has often been that individuals and groups who are facing concentrated costs and benefits organize themselves together as a coalition to pursue their interests, in contrast with those who may face more diffused benefits and costs [26].

Ideas are defined as "knowledge or beliefs about what is (e.g., research knowledge), views about what ought to be (e.g., values), or combinations of the two" [24]. They influence how different political actors define a problem and how they perceive solutions to be effective, accessible or acceptable. This ultimately determines which representations of a problem are discussed, thus setting the agenda for the policy process and determining which potential solutions will be welcomed and understood. Ideas may be derived from knowledge or evidence which is based on empirical research, such as a systematic review; a primary study; an impact assessment; an economic, political, ethical or organizational analysis; expert opinions or the experiential knowledge of societal groups [16]. Value system is another source of ideas. Ultimately, the question to ask is, which sources are the political actors deriving their knowledge or evidence from and how strong, weak, uncertain or controversial are this evidence? Furthermore, are the proposed policy options consistent with a dominant societal value or culture; are they consistent with the style of the government or are they consistent with the values or ideologies of the most dominant professional groups?

Institutions are basically the "rules of the game" [27]. They also include regularities and practices, formal or informal, that guide decision-making in both authoritarian and non-authoritarian regimes. Institutions provide the structure for the policymaking process in ways that favour certain outcomes over others and they influence policies based on how learning and incentives are created and distributed [28]. Institutions range from government structures to policy legacies and to some extent policy networks, especially horizontally [24,29]. Government structure here refers to the system of government, such as unitary or federal, or presidential or parliamentary or mix of both as well as the mandate and accountability relations between government and agencies. A federal government, for instance, is more likely to face political battles over jurisdictional boundaries than a unitary government [30]. Some systems also give presidents, senators and other actors immense veto powers with which they can always overrule the decisions of the legislature, thereby impacting policies significantly. Furthermore, policy legacies are old policies that a country or region pursued in the past, including their constitution, and how these can significantly impact future policies. Independent of ideas, interests and network interactions, the phenomenon known as path dependence may be used to explain how policies tend to follow the trajectory of past ones in political science literature. The understanding is that, once a government has started down a track, the costs of reversal are very high because doing so would challenge stakeholders' vested interests [31].

Networks provide a visualization of how interests, which are usually embedded in nodes (actors), are structured in the policymaking process and how the policy network structure responds accordingly when actors form or dissolve relationships. Like institutions, policy networks significantly influence how power is distributed by determining who should be included in the networks and who should be excluded [32]. Actors also have the liberty to decide who they will interact with, choose between which strategic decisions they believe can advance their interests and thus, get involved in [33], and control the exchange of information [16]. Instrumental in the creation, dissemination and reinforcement of ideas in policymaking, are networks [34]. While ideas are shared over network ties, the rate at which exchange occurs is determined by the structure of the ties. Networks assert or shift paradigms and values and some networks may be more receptive to new ideas than others [35]. If different political actors share similar values, knowledge, experiences or preferences over a new idea, they may cluster over the idea, and this will reflect on the shape of the network.

Ultimately, all four variables—ideas, interests, institutions and networks—are interdependent. Ideas are associated with actors, who form the nodes with their respective interests and become embedded in institutions, which in turn provide scaffolding in a policy network structure for exchanging ideas among political actors (nodes). There is a temporal dimension to these interactions as well: institutions may form around ideas which are usually advanced by powerful actors, and they can become engrained in practice and slow to change [36]. Although political institutionalism is premised on the rarity of policy change [16], policies do change, and they change as a result of changes in any of these four variables. Because they are interdependent, a change in one may ripple unto the others and changes can be inspired by endogenous or exogenous factors.

3. Materials and methods

3.1. Study approach

A mixed methods approach with a case study design was selected for this research. Both primary and secondary data, involving interviews and document review respectively, were used and complemented to understand the level of priority given to climate adaptation policies in Adansi North District (AND). The selection of a mixed methods approach is rooted in the need to capture the rich and contextualized experiences, perceptions and actions of key stakeholders involved in climate adaptation efforts at the local level and review of policies. The study was designed to help provide a detailed understanding of the local context, its unique challenges and the specific strategies employed to address climate adaptation.

3.2. Case study site

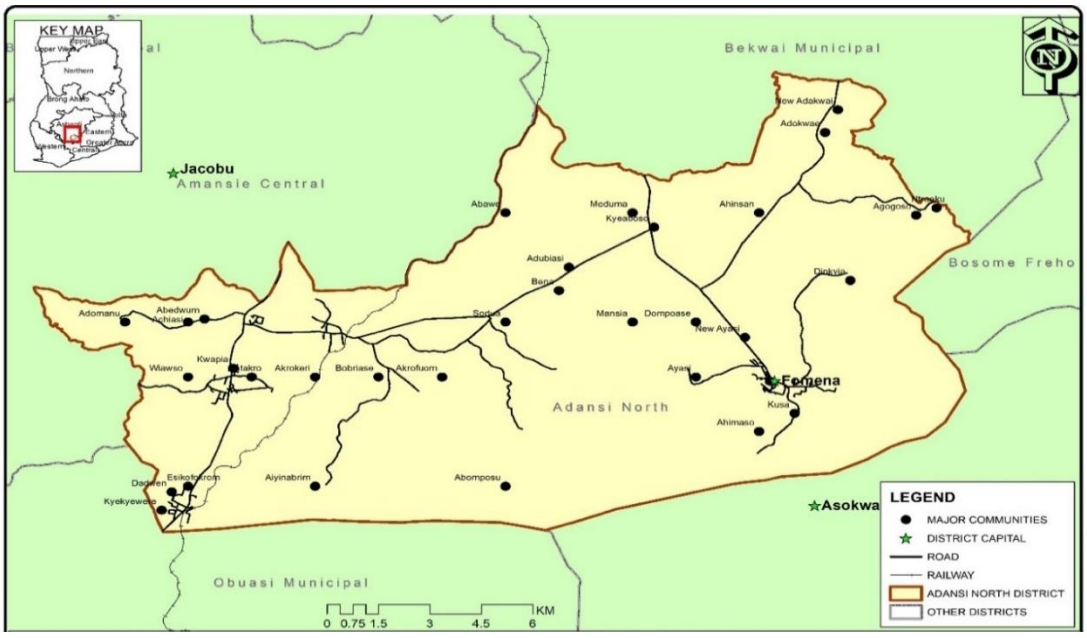

Figure 2. Map of Adansi North District, Ghana.

AND is one of the 43 districts in the Ashanti Region of Ghana covering an area of approximately 427 km^2 (Figure 2). The district is located between longitude 1.50º W and latitude 6.30º N which places it in a typical tropical region of SSA and within the semi-equatorial climatic region of Ghana. The district typically experiences high temperatures and high rainfall all-year round. The mean monthly temperatures range between 23–30 ºC and the mean annual temperature is 27 ºC with February and March, being the hottest months in the year. The district has a double maxima rainfall regime with an annual total rainfall that ranges between 1,250 mm and 1,750 mm. The major rains fall from the month of April through to July whilst the minor rains begin in September and end in November. Relative humidity is usually high, around 80% in the rainy season and 20% during the dry season. These climatic conditions enable the cultivation of both cash and food crops, such as cocoa, oil palm; citrus, vegetables, yams, cassava, cocoyam, cereals and more. The climate also supports forest vegetation, which is why wood lots like *odum*, *wawa* and *sapele* do well in the district. These wood lots are harvested for export to earn foreign exchange as well for various uses locally. The district has a population of 54,155 according to the 2021 Population and Housing Census and the main economic activity is agriculture, which employ 77% of the working force. Apart from three communities that exhibit peri-urban characteristics, the district is largely rural. These characteristics make AND an ideal of representation of typical districts in Ghana.

3.3. Climate adaptation and public policy formulation in Adansi North

Following the emergence of the NAPs in 2010 after COP16, the government of Ghana came out with NCCAS in 2012 to guide resilience planning for climate-related stresses. The approach adopted by the Government of Ghana was to utilize the policy to help deepen awareness on climate change, mobilize funds and mainstream adaptation and disaster risk reduction efforts into national and sub-national development plans. The policy was designed to run from 2015 through to 2020 after which the NDCs, in response to the Paris Accord, will come into force till 2030. The organogram (Figure 3) has the NCCC sitting as the supervisory agency of the policy implementation at the national level. In line with multi-level climate governance and the placed-based nature of climate change impacts, the policy also arranged for the strategy to be decentralized. Thus, the framework extends to the regional, district and community levels and makes provision for the role of other actors like civil society organizations.

While the NCCAS notes that climate adaptation requires a multi-level and -sectoral approach, it recognizes local governments to be the nucleus in the implementation of climate change policies and charges them to mainstream adaptation policies, programmes and projects into their respective development plans. It further highlights that the District Assembly Environmental Committees in particular be strengthened to implement adaptation policies together with all other key stakeholders. Furthermore, NDPC, which oversees development planning in Ghana, demands that local development plans be harmonized with national development plans and Ghana's current document, *Agenda for Jobs: Creating Prosperity and Equal Opportunity for All (2018–2021),* has profound climate action objectives.

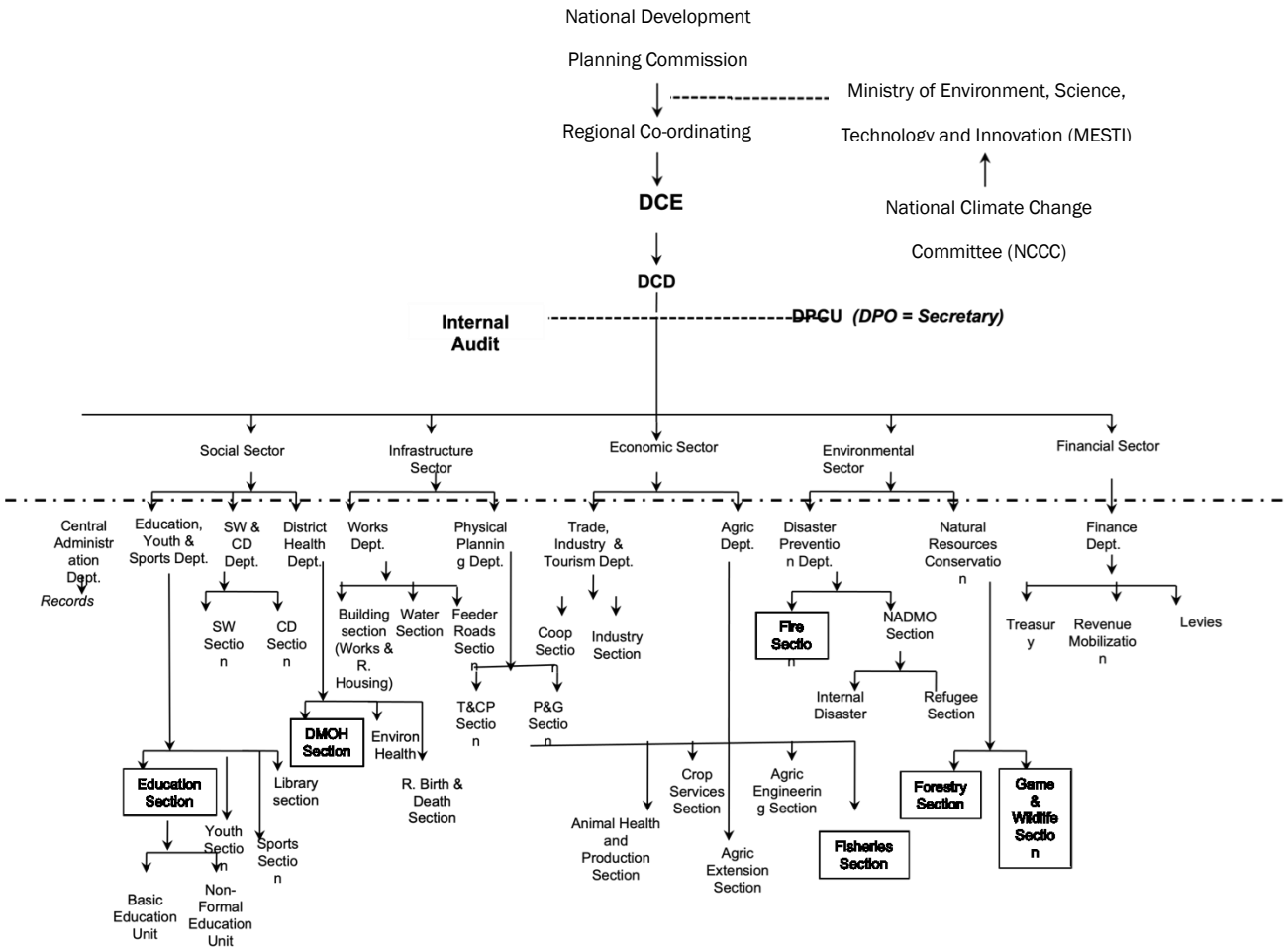

Figure 3. District assembly organogram with decentralized departments for planning, including adaptation. (DCD: District Coordinating Director; DCE: District Chief Executive; DMOH: District Medical Office of Health; DPCU: Development Planning Coordinating Unit; DPO: District Planning Officer; NADMO: National Disaster Management Organization; P&G: Parks and Gardens; SW & CD: Social and Welfare and Community Development; T&CP: Town and Country Planning). Adapted from [37].

In local-level policymaking, the district medium-term development plan (DMTDP), which is essentially a compendium of the district's developmental needs and how and when they are to be addressed, guides all development agenda [38]. Stakeholders participation is paramount, hence, the DMTDP was developed through a rigorous process engaging all relevant actors including political actors. The process is coordinated by the Development Planning Co-ordinating Unit (DPCU) in each local government assembly and involves engaging each of the decentralized departments, such as the Environmental Health, Works and Physical Planning departments; decentralized agencies, including the National Disaster Management Organization, Fire Service Department, Education Service, Agricultural Directorate, Health Directorate, National Commission on Civic Education among others (Figure 3); assembly members who represent local communities; nonprofit organizations (NGOs); traditional authorities; faith-based organizations and other stakeholders, to document their needs.

These views are collected first by the DPCU through writing to all stakeholders and followed up with a series of surveys and public forums with local communities and stakeholders. After collating the different submissions, the DPCU conducts analyses with the help of planning tools like prioritization matrixes and considering critical areas and spreads reported needs over a medium-term period, usually four years, within the guidelines provided by NDPC for implementation year by year.

Local policymaking, including climate policy formulation, is democratic and inclusive to the extent that it is developed from the bottom-up and every stakeholder gets the chance to share their views and needs, which are all well documented at every stage of the needs assessments. However, there may be some limitations since the DMTDP ought to be developed within the framework of the national development plan and local governments may also have to absorb policies from the national level from time to time.

Regarding the operationalization of the DMTDP, local governments get funding from the District Assembly Common Fund (DACF) (Act 455, 1993), which is a minimum of 5% of the national revenue set aside and shared among all the 260 local government assemblies in Ghana following an approved formular by the legislature [39]. Local governments may also obtain funding from donor sources like the District Development Facility (DDF) provided jointly by the governments of Canada, France, Germany and Denmark. Locally, local governments have the power to raise internally generated funds (IGF) under the Local Government Act 46 (1993) through various avenues like park fees, property rates and other fees that are charged to individuals and businesses. However, given that AND is largely rural and agrarian, the district is unable to raise much IGF.

3.4. Study subjects and sampling technique

All bothered on actors and stakeholders involved in the development of the DMTDP and its implementation were included as subjects in this study. However, due to time constraints and to prevent duplicative responses, the subjects of this study were limited to departmental heads, a selected number of assembly members as well as heads of selected organizations or groups. Purposive sampling method was used to select these respondents since only actors involved in the development and implementation of the DMTDP and are heads of their departments, agencies or organizations generally have access to up-to-date information pertaining to their sector in the district. It was, therefore, imperative that these actors and stakeholders be handpicked for this study.

3.5. Data collection

Primary data were collected using a semi-structured questionnaire. This was conducted following informed consent of participants. The semi-structured questionnaire was designed to draw out information such as the educational background of respondents, including their highest qualification in a science-related subject, the extent to which they participate in the preparation of the DMTDP, how satisfied they are about how their inputs are captured in the plan and the level of priority they place on climate adaptation. Close-ended questions, besides demographic characteristics, had Likert scales. By being partly open-ended, respondents were able to express their candid views on the questions that were posed to them without restrictions. A total of 23 semi-structured questionnaires were issued to

each of the heads of 11 departments within the district assembly, three decentralized agencies, four assembly members, two NGOs, two faith-based organizations and one traditional council representative. Being the focal person in planning, preparation and implementation of the DMTDP, the head of the DPCU gave a general overview of climate adaptation policies and their prioritization in ANDA. Secondary data was assessed through a review of documents, including the DMTDP and Composite Budget of ANDA 2018–2021.

3.6. Data analysis and presentation

Socio-demographic variables together with the despondences of respondents were summarized. The data was grouped into qualitative themes and analyzed with the help of NVivo 10 software. For a better measurement of the extent to which AND's DMTDP has adaptation policies and programmes captured and budgeted for in it, Ghana's NDCs adaptation goals were used as the guiding framework. This document has been in existence since 2015 which is about 2–3 years before the DMTDP 2018–2021 of ANDA was prepared. Since NDPC charges local administrations to align their DMTDPs to national development policies, it was expected that AND's DMTDP will have synergies with the NDCs which the *Agenda for Jobs 2018–2024* national development plan also drew from (Table 1).

Table 1. Priorities of Ghana's Nationally Determined Contributions.

Strategic Area	Sector	NDC Policy Action
Sustainable land use	Agriculture and food security	Agriculture resilience building in climate vulnerable landscapes
	Sustainable forest resource management	Value addition-based utilization of forest resources
Climate resilient strategic infrastructure	Resilient infrastructure in built environment	City-wide resilient infrastructure planning
		Early warning and disaster prevention
Equitable social development	Climate change and health	Managing climate-induced health risk
	Water resources	Integrated water resources management
	Gender and the vulnerable	Resilience for Gender and the Vulnerable

4. Results

4.1. Demographic characteristics

Of the 23 respondents, 14 were males (61%) and 9 females (39%), and the mean age was 40 years while the standard deviation was 11 years. The majority of the respondents were between the ages of 28 years and 38 years while the outlier was aged 65 years. Most respondents had studied up to the tertiary level (77%), five (22%) had also studied to the postgraduate level and one (4%) respondent had studied to the senior high school level. Consequently, 12 (52%) of the respondents' highest qualification in a science-related subject was at senior high school while that of the remaining 11 (48%) was at the tertiary level. Furthermore, 10 (44%) of respondents had occupied their current position for

five years or less, five (22%) for 6–10 years, three (13%) for 11–15 years and four (17%) for 16 years and over. Table 2 summarizes the demographic information of respondents.

Table 2. Demographic characteristics.

Variable	Frequency (%)
Gender	
Male	14 (60.9)
Female	9 (39.1)
Age (Mean±SD) in years	40.2 (10.8)
Religion	
Christian	20 (87.0)
Muslim	3 (13.0)
Traditionalist	0
Other	0
Education level	
JHS	0
SHS	1 (4.3)
Tertiary	17 (73.9)
Postgraduate	5 (21.7)
Highest qualification in a science-related subject	
JHS	0
SHS	12 (52.2)
Tertiary	11 (47.8)
Institution/ Organization	
Assembly/Decentralized agency	14 (60.7)
NGO	3 (13.0)
Faith-based organization	2 (8.3)
Assembly member	3 (13.0)
Mandate type	
Elected	4 (17)
Appointed	1 (4)
Non-profit	1 (4)
Civil servant	17 (74)
Years in service	
5 years or less	10 (43.5)
6–10 years	5 (21.7)
11–15 years	3 (13.0)
16 years or more	4 (17.4)

4.2. Adaptation policies planned and budgeted for

Table 3. Climate adaptation policies that align with the NDCs.

NDC Policy Action	Policy objective	Identified corresponding strategy(ies) in DMTDP
Agriculture resilience building in climate vulnerable landscapes	Improve production efficiency and yield	Establish modalities and regulatory frameworks for production of seed/planting materials, and other agro inputs
	Improve production efficiency and yield	Reinvigorate extension services
	Combat deforestation, desertification and soil erosion	Improve incentives and other measures to encourage users of environmental resources to adopt less exploitative and non-degrading practices in agriculture
Value addition-based utilization of forest resources	Enhance production and supply of quality raw materials	Introduce a programme of support for agro-processing for the cultivation of selected agricultural products as raw material (including tomato, cassava, cocoa, soya beans, maize, oil palm, cashew, cotton, shea nut), selected fruits, groundnuts and rice
	Promote agriculture as a viable business among the youth	Provide financial support for youth by linking them to financial institutions for the provision of start-up capital
City-wide resilient infrastructure planning	Promote proper maintenance culture	Establish timely and effective preventive maintenance plan for all public infrastructure
	Promote a sustainable, spatially integrated, balanced and orderly development of human settlements	Strengthen the human and institutional capacities for effective land use planning and management nationwide
	Improve decentralised planning	Strengthen local capacity for spatial planning
	Improve participation of Civil society (media, traditional authorities, religious bodies) in national development	Strengthen the engagement with traditional authorities in development and governance processes
Early warning and disaster prevention	Promote proactive planning for disaster prevention and mitigation	Educate public and private institutions on natural and man-made hazards and disaster risk reduction
	Promote proactive planning for disaster prevention and mitigation	Strengthen the capacity of the National Disaster Management Organisation to perform its functions effectively

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NDC Policy Action	Policy objective	Identified corresponding strategy(ies) in DMTDP
Managing climate-induced health risk	-	-
Integrated water resources management	Promote sustainable water resource development and management	Undertake tree planting along the banks of all major water bodies and their tributaries to reduce silting and pollution from human activities
Resilience for Gender and the Vulnerable	Eradicate poverty in all its forms and dimensions	Empower the vulnerable to access basic necessities of life
	Promote economic empowerment of women	Encourage women artisans and other tradesmen, including farmers to form associations for easy access to information and other forms of support.
	Strengthen social protection, especially for children, women, persons with disability and the elderly	Strengthen and effectively implement existing social protection intervention programmes and expand their coverage to include all vulnerable groups

Note: Source: Adansi North District DMTDP 2018–2021.

After a review of the broad policies, programmes and strategies adopted in the AND DMTDP 2018–2021, it was found that the local development plan only fairly aligns with Ghana's NDCs adopted at the national level. From a total of 51 broad strategies touching on the thematic areas in the *Agenda for Jobs 2018–2021* national development plan—economic development; social development; environment, infrastructure and human settlements; and governance, corruption and public accountability—it was discovered that only 41% of the adopted policies directly aligned with particular adaptation strategies stipulated in the NDCs (Table 3).

Notwithstanding, for each of the thematic areas in the NDCs namely, sustainable land use, climate resilient strategic infrastructure and equitable social development, there was at least, one corresponding strategic policy in the DMTDP (Table 2). NDC policy actions for "city-wide resilient infrastructure planning" had the most strategic policies in the DMTDP (n = 4), including strengthening local capacity for spatial planning and strengthening the human and institutional capacities for effective land use planning and management. Policy actions under the NDC theme "agriculture resilience building in climate vulnerable landscapes" also had three corresponding polices in the DMTDP. These included various measures aimed at reducing risk of soil erosion, desertification and those meant to help secure agricultural output in light of a changing climate. Furthermore, NDC actions under the thematic "resilience for gender and the vulnerable" also was part of those with the most corresponding policy actions in the DMTDP (n = 3).

While there were many programmes for promoting health, including for addressing HIV/AIDs and tuberculosis and bridging the infrastructure deficit in the sector in the DMTDP, there were no direct policies on climate change and health. Interestingly, there is also a mitigation policy in the DMTDP which is aimed at improving the management of existing waste disposal sites to reduce greenhouse gas emissions. Moreover, there are several programmes in the DMTDP that are meant to build the capacities of various stakeholders, including traditional authorities, to

improve planning and implementation of policies (Table 2) in order to improve planning and implementation of the policies.

4.3. Level of priority placed on climate adaptation

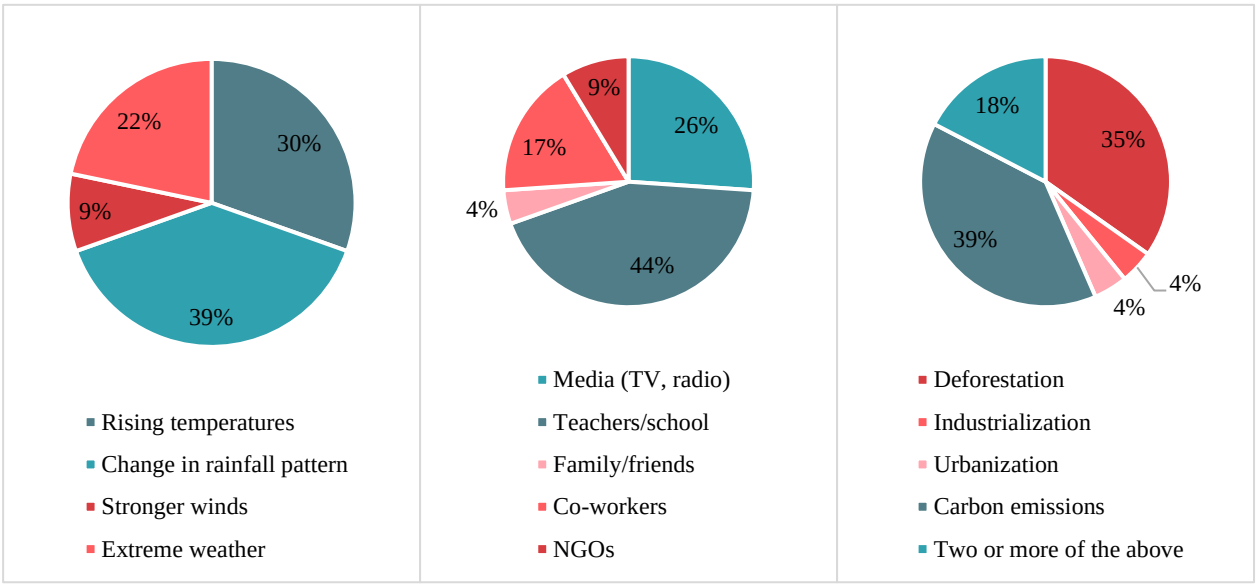

Figure 4. Perceptions on climate change. (a) Observed changes in climate. (b) Source of knowledge on climate change. (c) Factors attributed to changing climate.

From the study findings, all 23 respondents expressed good knowledge of the climate change phenomenon. Although there were varying explanations, all respondents somewhat explained climate change as long-term changes in the weather pattern, including increasing temperature, reduced rainfall and late onset of rains (Figure 4a). Majority of the respondents (44%) indicated that they learned about climate change through their education (Figure 4b) while 26% also got to know about the phenomenon through the media (television and radio). Other avenues through which others learned about the phenomenon was from their co-workers (17%), NGOs (8%) and family members or friends (4%). Regarding what must have caused climate change, majority of respondents (35%) indicated that climate change is caused predominantly by widespread deforestation and carbon emissions (39%) (Figure 4c).

When respondents were asked whether climate change should be prioritized, 44% indicated that they "strongly agree" and 30% indicated that they "agree" (Figure 5). Twenty-two percent were "indifferent" and none alluded that climate change should not be prioritized. Consequently, majority of respondents (39%) thought it is the responsibility of the district chief executive to initiate climate action at the local level while 35% thought climate action should be initiated at the local level through the collaborative effort of various agencies (Figure 6).

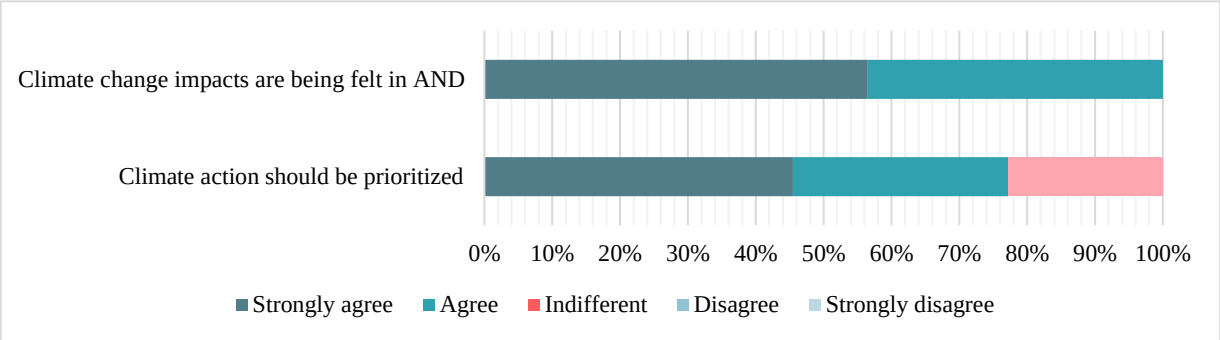

Figure 5. Level of prioritization of climate change.

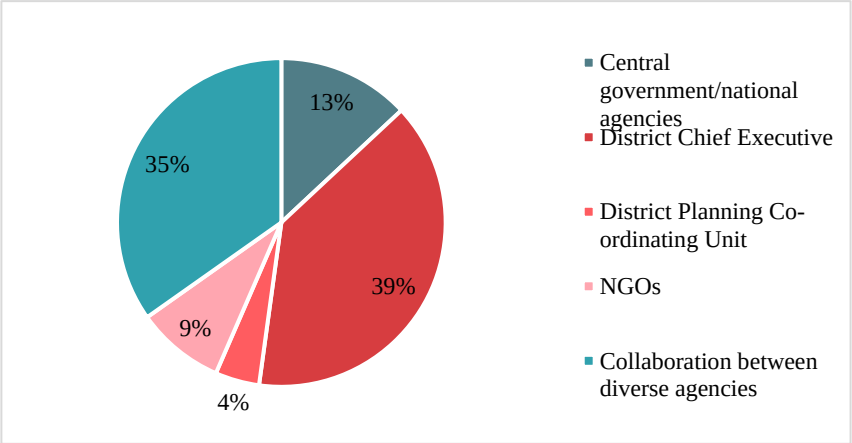

Figure 6. Which actor should initiate climate action at the local level.

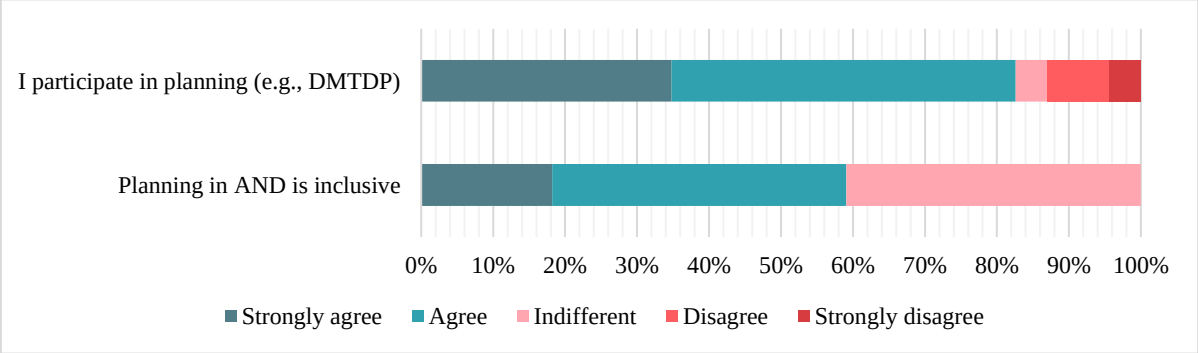

Figure 7. Respondents level of participation of actors in planning.

Regarding the level of participation in planning (Figure 7), 35% of respondents "strongly agreed" to participating in planning, including in the preparation of the DMTDP. Forty-eight percent also agreed to same. Also, none of the respondents "strongly disagreed" or "disagreed" that planning processes in AND is inclusive, including how their contributions are received or considered. Thirty-nine percent were indifferent, however, while 17% "strongly agreed" and a further 39% "agreed". Although the DMTDP was still under implementation at the time of data collection, it was expressed

that climate policies are being relegated to the background through the non-allocation of funds and little consideration at some sub-committee meetings (e.g., Development Planning sub-Committee). One respondent laid it out blatantly that, *"The interest [in adaptation policies] is simply not there!" (Civil Servant, 56).*

From the study results, it emerged that a few NGOs, like Solidaridad Network with the Cocoa Life project, had come in with adaptation programmes and projects from time to time, which have been very helpful in advancing climate, environmental and adaptation programmes especially in the agricultural sector. However, this had been largely sporadic, leaving more to be done than done.

Furthermore, it was observed that if the various departments and agencies within the district collaborated well enough, they could push for more climate adaptation policies to be implemented but this was not the case. Several respondents bemoaned of how departmental collaboration could be greatly improved. One respondent said that "*This place is not like my former station. Here, we are not a team, and it makes it difficult to promote good things" (Civil Servant, 34).* Another added that, *"In my former district, every Monday morning before work begun, we took turns to share motivational messages and it really brought us together. We don't have that level of togetherness here and it doesn't help collaborative work" (Civil Servant, 41).*

5. Discussion

Our argument in this study has been that interests, ideas and institutions and networks (Figure 1), as they relate to integrated theories of policy formulation and change in political science literature, greatly influence the adoption and level of priority given to climate adaptation at the local level. From the study findings, there is considerable appreciation for climate adaptation policies evidenced by the adoption and budgeting of same in the AND DMTDP 2018–2021. From a total of 51 major policies and strategies adopted in the ANDA DMTDP, 21 (41%) were found to directly align with particular adaptation strategies stipulated in Ghana's NDCs. There were corresponding policies for each of the seven policy actions stated in the NDCs (Table 1) in the ANDA DMTDP except for policies for "managing climate-induced health risk". Although there is room for more to be done, this was commendable on the part of ANDA because from the literature, it is evident that adaptation policies are mostly an after-thought at the local level in developing countries and in some instances, totally non-existent [22]. This was even demonstrated in how a mitigation policy—improving the management of existing waste disposal sites to reduce greenhouse gas emissions—was captured in the DMTDP. Given that the district is largely poor and agrarian, it was laudable that majority of the policy actions that align with those in the NDCs focused on helping the vulnerable and promoting gender parity followed by policy actions for promoting agriculture and sustainable forest resource management. These notwithstanding, there is still a long mile to go, and the main blip was with the lack of policies for addressing climate change and health issues, barring the disaster prevention and management efforts, which is unsurprinsing given the limited literature in the area in SSA. However, despite political actors in AND perceiving climate adaptation to be a priority, they are not being given the needed political will by way of funding allocation for implementation to occur. In this section, we discuss the findings regarding actors' interests and ideas, the institutional rubrics they work within and the networks around them.

In political science literature, interests bother on the agendas of actors, whether they are elected, appointed, civil servants, researchers or other, and what is of note is who wins and who loses and to what magnitude in the policymaking discourse. In ANDA, partisan actors tend to have grave powers and influence, which they often exert over the other actors. The DCE, despite being appointed by the president, and the member of parliament, even if their work is predominantly law-making at the national level, have the greatest powers. Even though the DCD is the administrative arrowhead of the local government and holds grave powers also, DCDs tend to succumb to the wills of the DCE to avoid conflicts, which sometimes can lead to their transfer to other juristdictions in the worst cases [40]. The assembly members also tend to yield considerable powers, especially if their political party is the incumbent. Given the partisan tendencies of DCEs, which stem from being appointed by the president, they often seek to please the electorate to gain popularity, hence, their interests may dominate policymaking. During the policymaking forums, it is not uncommon for other actors like civil servants and NGOs to have strong influence in the forums but ultimately, the allocation of funding for implementation is subject to the approval of the DCE who as a result of having partisan interests, is generally inclined to greenlight what will please the electorate which are mostly infrastructure projects [41]. In the parts of the world where climate action has been effective from the local level, often times there were environmental champions who used their influence to advocate for climate policies [42]. Civil servants similarly can instigate climate policies and other actors can mobilize support for advocacy for climate policies which can force high power-yielding actors to honour their wishes [42]. However, this was not the case in AND.

Education and values, their quality and their sources thereof define the ideas of political actors. In ANDA, it was found that most political actors are highly educated with 99% having studied up to the graduate or postgraduate level. Additionally, 52% had worked for 6 years or more in their current roles, which shows how experienced they are. The next thing then was to find out if these learned actors got adequate opportunity to participate in planning, to which 83% agreed or strongly agreed they do and added that planning in ANDA is very inclusive. This could explain the presence of several climate adaptation policies in the DMTDP and confirms that, the listening ear is provided for all actors during planning. However, several respondents thought that this was only on the face value and that the assembly did not demonstrate enough commitment to climate action. In fairness, ANDA, like other local governments in Ghana, often experience delays with receipt of the quarterly DACF and does not succeed in raising significant IGF, which can constrain the implementation of programmes in the DMTDP. But when funds have become available, infrastructure development projects received allocation over environmental policies. This is true to the assertion that African electorates prefer policies that bring employment or create infrastructure, such as schools and hospitals, than climate policies [41]. In literature, media freedom and education are central to climate change awareness among the general public and should be the foundation for addressing present and future challenges as explained in the 5th Wave Theory [43,44]. Thus, the low appreciation for climate policies among the inhabitants of AND could be due to little awareness of the phenomenon. Although a third of the population are literates, educational institutions in the district provide only basic education, with the two tertiary institutions being a nursing training school and a teacher training institute that do not provide learnings in climate change [45]. Second, there is lack of media outlets like a radio station in AND and the mainstream media makes little case for climate change issues and risk reduction [41,46].

Hence, even though political actors in AND with their high education and experience adopt climate adaptation policies in the DMTDP, they do not receive financial allocation for implementation because the electorate, who have less appreciation for climate change, demand infrastructure projects from partisan actors.

Regarding institutions, which are the rules that define how policymaking should be done, the role of the NDPC and NCCAS, both of which charge local governments to follow the national development plan, currently the *Agenda for Jobs 2018–2021*, which has climate adaptation within its framework, to make their own local DMTDP. Since the DMTDP is reviewed by the Regional Coordinating Councils and District Performance Assessment Tool programme, local governments tend to follow the requirements, like adopt climate policies for addressing challenges that are relevant for their locales, to avoid sanctions [47]. This could explain why policies were found that align to all the thematic areas in Ghana's NDCs, except for climate change and health. But again, these policies are not implemented as planned mostly because actors with veto powers may not greenlight them even if consensus might have been built by the other political actors due to the diverging demands of the electorates. Besides, in literature, the concept of path dependence is used to explain how new policies mostly follow the trajectory of past ones because governments seek to avoid challenging stakeholders' already vested interests [31]. Furthermore, the fact that some respondents (22%) thought that initiating climate action at the local level was the responsibility of central government or national agencies and NGOs, instead of local governments [48], could also affect how strong advocacy for adaptation may be. Thus, the institutional rubrics provides the adequate framework for the formulation of climate policies but it may have gaps for ensuring that such policies are also implemented profoundly.

Networks underscore how actors interact and the exchange of ideas and actors with shared interests and ideas tend to connect more than those with divergent views. Generally, the denser a policy network is, the better it is because that often implied collaboration between political actors who are the nodes in the network whiles ideas also flow faster. In AND, it was observed that collaboration between the various actors, departments and agencies was not closely knitted which could explain why very little has been done by way of climate adaptation. This is affirmed in study respondents indicating that their knowledge of climate change came from other sources rather than their colleagues and workplace. Yet, effective collaboration is key, more so when climate change action requires a multi-sectoral and multi-disciplinary approach [49]. Notwithstanding, the data showed that the political climate in the district is receptive to new ideas, which is why NGOs that had come in with climate adaptation programmes, like the Solidaridad Network's Cocoa Life programme, was welcomed. In the end, networks are having minimal impact on climate adaptation policy adoption in ANDA.

6. Conclusions

This study contributes to the literature on climate adaptation and local governance in a developing country context. In particular, it examines how adaptation policies are being adopted and prioritized at the local level based on insights from AND, Ghana. The power dynamics that influence climate adaptation at the local level, were also investigated to help provide theoretical reflections for the study.

Based on factors like political actors in ANDA having higher education which has afforded them good understanding of the climate change phenomenon, being experienced professionals and having

to work within institutional rubrics that make climate policy formulation a requirement, adaptation policies are adopted and budgeted for in the *ANDA DMTDP 2018–2021*. Forty-one percent of the broad development objectives in the DMTDP directly aligned with various adaptation strategies stipulated in Ghana's NDCs, which is fair. In terms of the level of priority given to these climate policies, low attention through the non-allocation of funds for implementation and little attention given during development forums was reported. Even though planning in ANDA is inclusive, the present path dependency shows a trail for infrastructure projects and employment generation programmes and little attention for environmental policies. Additionally, environmental advocacy and exchange between actors, including possibly on adaptation, is weak. These factors already mean little attention is given to climate adaptation policies. Ultimately, room is created for partisan actors who already wield veto powers and can influence policy decisions that may not necessarily support adaptation, to do so, since their interest is to please the electorate who also prefer infrastructure over environmental policies. We conclude that although climate adaptation policies are adopted and budgeted for in ANDA, they have not received commensurate priority for implementation, unless advanced by donors. Based on these findings, we make the following recommendations:

- Various stakeholders can help raise the public's awareness on climate change, using non-technical language, so they can better appreciate its impacts and demand response from decision-makers.
- Political actors in ANDA should recognize collaboration between all actors and agencies as key to the promotion and success of climate adaptation policies and advance same.
- Political actors in ANDA should appreciate the link between climate change and development, for instance on agricultural yield, and hence advance planning with a new paradigm (climate-resilient development) that combines the two.
- The Local Government Ministry, NCCC and NDPC can introduce regulations that make committing funding to climate adaptation implementation mandatory for local governments.
- The legislature can review the DACF law to increase the allocation amount so local governments have more funds at their disposal to respond to climate change since it is a non-traditional budgetary item for local governments, while the Ministry of Finance can also release the DACF on time so local governments can implement their programmes on schedule.

By providing empirical insights into the prioritization and adoption of adaptation policies at the local level in ANDA, Ghana, this study provides new knowledge and improvements in understanding climate adaptation and local governance. It provides new information on the power dynamics that influence climate adaptation initiatives at local levels. The findings underscore the quintessential need for greater political will, increased resources and environmental advocacy to help support ongoing concerted work to address climate change challenges and build sustainable, resilient communities from the bottom-up.

There is potential limitation in the study with depending only on policies that had been captured and budgeted for in the *ANDA DMTDP 2018–2021* with no consideration for how they are being implemented on-the-ground even though this could have validated the study findings. Thus, future research can investigate the extent to which climate policies adopted in development plans in local governments are implemented.

Use of AI tools declaration

The authors declare they have not used Artificial Intelligence (AI) tools in the creation of this article.

Acknowledgments

We would like to thank Dr. Y. A. Boafo and Dr. Bob. Manteaw for their insightful comments during the conceptualization of this study. We also thank officers of the Adansi North District Assembly for making time to participate in this study.

Conflict of interest

The authors declare no conflict of interest.

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