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The Territories of Political Ecology: Theories, Spaces, Conflict

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The place of a socio-cultural environment in climate change discourse

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ABSTRACT

The significance of climate change is reflected in global level efforts such as Conference of Parties and Intergovernmental Panel on Climate Change reporting. The global level platform develops consensus on evidences and pathways to climate change mitigation and adaptation. Unfortunately, these efforts often lack social-cultural dynamics to climate change. This study adopted a desktop survey to establish the place of socio-cultural dynamics in climate change discourse. In this study, it is argued that socio-economic security and attributes, cultural-orientation and inter-group dimensions are key determinants to implementation of climate change programmes. To successfully design and implement climate change mitigation and adaptation strategies, first address socio-economic securities of communities, bring on board sub-national considerations and package climate change impacts as a threat to nationalism.

Keywords: climate change; culture; inter-group dimension.

Parole chiave: cambiamento climatico; cultura; dimensione inter-gruppo.

1. INTRODUCTION

The scientific community has reached a near-unanimous consensus on the reality of human-caused climate change. Intergovernmental Panel on Climate Change (IPCC 2018) in a report on *Global Warming of 1.50 °C* estimated human activities to have caused approximately 1.00 °C of

global warming above the pre-industrial levels. The report went ahead and observed that warming from anthropogenic emissions will persist and continue to cause further long-term changes in the climate system. Besides global warming, changes in the climate system are reflected in shifts in the occurrence of El Niño Southern Oscillation (ENSO) and associated extreme events (Yuan *et al.* 2013; Rahman *et al.* 2017; Uhe *et al.* 2017), atmospheric carbon concentrations (Tieszen *et al.* 2004; Mugagga *et al.* 2015; Chen *et al.* 2017), onset and cessation of rainfall (Camberlin *et al.* 2009; Recha *et al.* 2012) among other variables. These changes have triggered climate change mitigation and adaptation measures. Conference of Parties (COPs) and climate treaties such as Kyoto Protocol of 1997 and Paris Agreement of 2015 epitomize global level efforts of mitigating the effects of climate change. The Paris Agreement was an outcome of the COP 21 – a recent and most successful conference (Kinley 2017). During COP 21, world leaders agreed to limit the temperature change to below 20 °C and national governments were to take a lead. According to Anderson and Peters (2016), to achieve the target of limiting global warming by 20 °C and shift towards low-carbon economies, large-scale climate engineering is required.

But efforts to mitigate and adapt to climate change has been characterized by a number of setbacks. One setback is the adoption of emission-oriented approach that privileges particular actors (Huntington *et al.* 2019). Another set-back with the current approach is that very often climate change discourse (especially climate science) is hijacked by ‘merchants of doubt’ who orchestrate influential disinformation campaign (Linden *et al.* 2017). These merchants of doubt contest the evidence of climate change science. The politicization of climate science undermines and shifts public perception of scientific consensus. This has led to polarization of opinions (Buckland *et al.* 2017) – created two sides of the debate and each side accuse the other of exaggeration. The vicious debates are a natural result of what is at stake. Segal (2017) observes that these vicious debates are a result of permission of political, national, economic and cultural narratives into the modern climate change debate. Third, evidence of climate change is often derived from models. The problem is that climate science models – like many other models are limited in what they can tell us. According to Hugo and Wall (2015), current generation of climate change models have limited spatial resolution so it is difficult to be precise about the areas that will be most impacted by climate change. This problem is compounded by lack of adequate data in some regions of the world – especially Africa

and Asia (Washington *et al.* 2006). The lack of data has meant use of assumptions in climate models; that data for some variables such as greenhouse gasses and climate elements are simulated. Pindyck (2017) has raised the issue of misuse of models and scientific honesty of these models. In sum, climate change modeling has often been associated with uncertainties.

These set-backs have led to calls for the ‘big picture’ which embraces the cultural and social contexts that influence experiences and understandings of climate change and its impacts (Branwell *et al.* 2015; Grundmann 2016; Tschakert *et al.* 2017). Failure to incorporate the cultural and social context of climate change has led to flawed or ineffective strategies for combating climate change. This is reflected in present day researches, policies and development programmes. According Grundmann (2016), policies derived purely from science very often lack elements such as costs, benefits, acceptability, political expediency among other. The net effect of flawed policies is maladaptation – defined as a process that exacerbates the negative impacts of climate change on the territory, sector, and/or group of people through the exacerbation of existing causes of vulnerability or the creation of new ones (Magnan *et al.* 2016). It is in this context that calls for re-framing climate change policy and research have been made (Huntington *et al.* 2019). There is need to create room for societal concerns to be highlighted by people themselves and not just climate science. This is particularly important when it is taken into account that communities have lived amid on-going environmental changes – inclusive of climate change, to which they have responded over time. It is time climate change is seen as a social problem (Grundmann 2016) and a global public good (Keohane and Victor 2016). In this regard, the article explores the centrality of socio-cultural dynamics in climate change mitigation and adaptation.

2. METHODOLOGY

The study utilized published reports and articles to identify issues on socio-economic attributes and culture in climate change. This was achieved through a desktop survey of literature. The search terms were ‘place of culture in climate change’, ‘socio-economic characteristics in climate change’ and ‘perception to climate change’. A total of thirty-five articles from across the world were reviewed to inform the research.

3. CULTURE AND SOCIO-ECONOMIC ATTRIBUTES IN CLIMATE CHANGE

3.1. *Socio-economic security and characteristics*

Climate change is globally recognized as a challenge to humanity. To address the challenge, two broad approaches have been developed – mitigation and adaptation. Technologies and innovation have been developed to reduce greenhouse gases emissions and enable human systems adjust to the actual and expected climate change (Locatelli 2011). Despite the efforts, the end users rarely factor the technologies in decision-making. This has led to the question: among other developmental and environmental concerns, is climate change a problem?

Research in the Old Peanut Basin of Senegal (Tschakert 2007) and Tharaka in Kenya (Recha 2017) showed that communities were more concerned with bad health, lack of money, quality food and scarcity of water than climate change. A study by Shisanya and Khayesi (2007) established that residents of Nairobi, Kenya were more concerned with corruption, unemployment, crime, street children and transport. A study on emigration from Sahel to Europe by Ribot *et al.* (2020) showed that young men risk their lives in the desert en-route Europe because the profits of their labour are skimmed off by a state-supported system. They do not attribute their plight to climate because they are used to managing high rainfall variability. Similar sentiments are expressed by Latai-Niusulu *et al.* (2020) who observed that Samoan communities have over the years developed multi-layered arrangements of extended families, villages, churches as well as government and external agencies in developing resilience to climate change and variability. In Kenya, attempts by the government to rehabilitate the Mau Complex through tree planting have often hit a snag (Kweyu *et al.* 2020). But what is in tree planting (afforestation) for crop farming communities that have settled in the Mau complex? The message in these studies is that climate change is not perceived as a significant problem. Individuals and communities have placed value to socio-economic security than climate change. Thus, to address climate change mitigation and adaptation, one has to first address these socio-economic concerns.

Besides the perception on whether climate change is a problem or not, socio-economic characteristics of the population inform the adoption of climate change mitigation and adaptation strategies. These include age, education, gender, and income among others. These attrib-

utes, do not only influence climate change adaptation and mitigation, but influence the perception of climate change itself. A few examples would suffice. Ayanlade *et al.* (2017) in a study in southwestern Nigeria established that that income, the level of education and years of farming experience had significant influences on the farmers' climate change adaptation choices. It was established that income and years of farming experience influenced adoption of new agricultural technologies, while education was found to influence mobility in search of pasture. Further, studies by Braun *et al.* (2018) in Germany and Mishra (2017) in Vietnam highlighted the central place of gender in climate change. In Vietnam, women were less likely to adapt to climate stress related to farming enterprise but more likely to adapt to household financial strategies; while men were more likely to undertake both farming enterprise and household farming strategies. In Germany, women were found to react more negatively to climate change mitigation measures (solar radiation management afforestation, and carbon capture) than men. In Australia, Tranter (2011) found that women are more likely than men to favour environmental protection over economic growth, pay extra tax to protect the environment and to believe in global warming.

These examples serve to illustrate that socio-economic security and orientation of a population can influence climate change mitigation and adaptation. The design of climate change projects should take cognizant of these variations or risk non-implementation and maladaptation. Maladaptation occurs when well-intended development programmes end up exacerbating the negative impacts of climate change to communities or territories. Magnan *et al.* (2016) illustrated instances of well-intended projects that did not succeed for lack of foresight – leading to maladaptation. For instance, in the Afar region of Ethiopia, construction of a dam and conversion of grazing land into agriculture has undermined the integrity of the whole pastoral livelihood system and exacerbated community conflicts (Magnan *et al.* 2016). In Nepal, excavation of ponds in the drier river bend during the 2010 drought led to deformed riverbeds and floods in large areas that had not experienced flooding before when the rains returned. These examples underscore the importance of the socio-economic environment in which individuals live in.

3.2. Culture

According to Buckland *et al.* (2017), climate is culture, and therefore a shift in ambition, behaviour, and values can build a sustainable environment. Culture is central in envisioning and implementing climate action. Munshi *et al.* (2020) and Tschakert *et al.* (2017) identified values, place, power and experience as important attributes that should inform communication and assessment of impacts associated with climate change. A people's values, tradition, safety, harmony and freedom are largely informed by the cultural environment they operate in. The inclination to adopt climate resilient practices will in part be explained by culture.

Bradley and Grainger (2004) in a study on social resilience in Senegal, observed that the Fulbe (also known as Puel), a pastoralists community, has a higher social resilience, with more flexible decision-making process, greater mobility, a more extensive action space, a reference mode attuned to high anticipation and recognition of stress. They also exhibit more continuous performance-survival switching. On the other hand, the Wolof, mainly croppers, make a radical change from cropping to labour migration (male members of the community move to cities to work as taxi drivers, unskilled manual labourers or traders) and reliance on external support, making them more vulnerable to climatic shocks. Nielsen and Reenberg (2010) explored adaptation strategies by focusing on livelihood diversification in the face of recurrent droughts in the Sahel among two communities – Fulbe and Rimaiibe of Burkina Faso. The Rimaiibe often take advantage of the arrival of development projects, the labour power of women, gardening and increased their labour migration (young Rimaiibe men mostly migrate to Abidjan in Cote d'Ivoire) in order to better cope with the biophysical uncertainty caused by the most recent Sahelian droughts. The Fulbe on the other hand, are reluctant to embrace these livelihoods on account of personal integrity and worthiness (Nielsen and Reenberg 2010). In the case of the Fulbe, livelihood support system promoted by development agencies are seen as degrading and therefore discarded. It is observed from these studies that cultural orientation can influence the livelihood support system a community adopts and hence determines resilience to climatic shock.

Culture determines choice of farming activities of a community and therefore creates variations in the state of adaptive capacity. According to Adger *et al.* (2012), cultural perspectives help to explain differences in responses across populations to the same environmental risk. This observation is given credence by the findings of Amwata *et al.* (2016)

who established that livestock and crops are the main sources of livelihoods for communities in Kajiado and Makueni counties respectively. Yet Kajiado and Makueni are found in the same geographic location, the two counties are predominantly inhabited by Maasai (Nilotic speaking) and Akamba (Bantu speaking) communities respectively. Similarly, cultural orientation influence the uptake of innovation aimed at strengthening resilience to climate change. For instance, Kosgey *et al.* (2008) established variations in the adoption of breeding programmes of small ruminants among mixed crop-livestock farmers and extensive pastoralists in Kenya. What emerges from these studies is that culture affects adaptive pathways; it is embedded in the dominant modes of production, consumption, lifestyles and social organization of a community.

Munshi *et al.* (2020) proposed a culture-centered approach to public engagement on climate change. The approach has the potential to reframe communication on climate change by highlighting the specific contexts of people's lived experiences. The instances cited above demonstrate that climate change adaptation and mitigation strategies will face challenges at community level because they are not informed by specific context of their application. This is particularly so when it's taken into account that implementation of the Paris Agreement of 2015 is dependent on national-level actions. It is plausible that governments have developed national level policies to address climate change. A case in point is the effort by the Kenyan government that has the National Climate Change Response Strategy (NCCRS) of 2010, National Climate Change Action Plan of 2013-2017 and the Climate Change Act of 2016. It is notable that these policy documents reflect a cascade of stakeholder involvement (mainly institutions) from national to county governments but lack a cultural component (International Law Organization 2012). According to Spear *et al.* (2015) such an approach is unlikely to help communities adapt to climate change into the future. Action on climate change at the local scale needs to engage with culture. For these policies to be meaningful and receive acceptance, it behooves the designers to consider sub-national levels; conscious of the tribal or ethnic homogeneity that exist at these levels. An example would suffice. There would be a variation in approaches that mitigate greenhouse gases emission in pastoral and crop farming landscapes. Thus, the protocol for estimating Nationally Determined Contributions (NDCs) of greenhouse gases espoused in COP 21 cannot assume a national approach given the varied cultural orientation of communities – a precursor to livelihoods diversity. It is prudent that respective communities are engaged in arriving at

management practices that not only improve livelihoods but lead to low carbon emissions.

3.3. *Inter-group dimensions*

Uptake of climate change science is influenced by inter-group dimensions. These dimensions may be political orientation or professional. These social identities have an influence on attitudes, beliefs and subsequently action taken on climate change. The social identities are reflected in political, religious or professional beliefs and attitudes. A report of the Pew Centre (2016) established that liberal Democrats and conservative Republicans see climate related matters through vastly different lens. The divide is reflected in potential effects of climate change to the earth's ecosystems, and interpretation of scientific evidence. In Australia, environmental concerns are generally much stronger among Labour and Green supporters than Liberal supporters (Tranter 2011).

Religion is important in understanding the cultural dimension of climate change. In northern Kenya, Watson and Kochore (2012) established the contribution of indigenous religions in adaptation to climate change; and contrasted with Abrahamic religions which were not explicitly engaged with climate change. In a related study, Morrison *et al.* (2015) found a link between religious grouping (Buddhists, Christians, literalists and non-literalists) and climate change. Golo and Yaro (2013) called for reclamation of religious values and principles that promote a sustainable future. Despite the potential contribution of religion to climate change, there is a dearth in empirical evidences on what faiths and their adherents are saying or doing about climate change.

Climate change adaptation and mitigation can also be influenced by intergroup conflicts. There are instances when practitioners (in implementing policies) and multi-nationals (in promoting products) conflict with communities. In Kenya for instance, the scientific community has succeeded in developing and assessing the efficacy of a variety of innovations in the agriculture sector. These range from plant and animal genotypes for different agro-ecological zones (Wambugu and Muthamia 2009), use of climate forecasts in agricultural decision-making (Ochieng *et al.* 2017), to irrigation and water harvesting technologies (Muriu-Ng'ang'a *et al.* 2017; Caretta *et al.* 2018). To ensure these technologies are adopted, development agencies support farmer-extension service engagement as illustrated in Recha *et al.* (2015) and Kosgey *et*

al. (2008). Despite the efforts, households are often reluctant to adopt the new technologies wholesale. Instead, they opt for indigenous knowledge and technologies (Smale *et al.* 2009; Latai-Niusulu *et al.* 2020) or co-production of knowledge (a blend agricultural science acquired from extension workers and agro-ecological knowledge acquired from their environment) (Newsham and Thomas 2011). On the evidence of Tiffen *et al.* (1994), Smale *et al.* (2009) (non-adoption of improved seed varieties) and Recha *et al.* (2017) (non-adoption of seasonal climate forecast in agricultural decision-making), farmers are not satisfied or disagree with some of the innovations proposed by scientists.

Differences in perspectives of climate change mitigation and adaptation within inter-groups as discussed above has led to politicization of climate change science and undermined the scientific consensus on global platforms such as IPCC and COPs. According to Fielding and Hornsey (2016), negative inter-group relations can act as a barrier to developing solutions to environmental issues, lead to distrust and reduce the likelihood of developing a consensual solution. Because of the strong ideology and vested interest, climate change skeptics have spearheaded campaigns that have often succeeded in swaying the public perception and beliefs. To effectively communicate climate change science, it is vital to inoculate the public from misinformation (Linden *et al.* 2017). According to Fielding and Hornsey (2016), this can be achieved through linking identity and pro-environment outcomes and creating super-ordinate identity that reduce inter-group environmental conflicts. For instance, pastoralists can be encouraged to engage in improved management practices that reduce carbon emissions and improve livestock productivity. On the other hand, peace-builders can create forums for both pastoralists and crop farmers; and enlighten them on their inter-dependence on one another. Such forums can help the two groups see each other as one unit in an ecosystem rather than competing entities. Similarly, nationalism can act as a super-ordinate identity that can mitigate mis-information of climate change science arising from inter-group divisions. The threat of climate change to the earth's ecosystem can be framed as a threat to nationhood. This way, people can potentially come together and work towards securing the future of their nation. The study is cognizant of the rise of nationalism in the West – especially as reflected in the resurgence of right-wing politics in Europe (Gardiner 2019) and the United States of America (Pew Centre 2016) and their rejection of climate science. Thus, use of nationalism in combating climate change may not be an effective strategy for these regions of the world.

4. CONCLUSION

This paper has discussed the place of socio-cultural dynamics in a climate change discourse. Perception to climate change and socio-economic characteristics, culture and inter-group dimensions are identified and discussed as pillars in the adoption of climate change adaptation and mitigation measures. It is argued that in pitching for implementation of climate change programmes, it is important to first address socio securities and concerns of communities. The existing climate change mitigation and adaptation measures very often assume a national level approach. In countries with heterogeneous nationalism – and therefore cultural diversity, such an approach is unlikely to succeed. The study has established inter-group dimensions such as political affiliations, religion and profession as factors that divide opinion on climate change science. The study proposes sub-national level (where the degree of cultural homogeneity is high) considerations in the design of climate change mitigation and adaptation strategies. Impacts of climate change should be framed as a threat to nationalism as it supersedes inter-group divisions.

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