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Gendered dimensions of migration in relation to climate change

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ABSTRACT

It is widely accepted that climate change may be contributing to population movement and has gendered effects. The relationship between climate change as a direct cause of migration continues to give rise to debates concerning vulnerabilities, while at the same time gendered dimensions of vulnerabilities remain limited to binary approaches. There is limited cross-fertilization between disciplines that go beyond comparison between males and females but interrogate gender in association with climate change and migration. Here, we seek to develop an analytical lens to the nexus between gender, migration and climate change in producing, reproducing and sustaining at risk conditions and vulnerabilities. When gender and mobility are conceptualized as a process, and climate change as a risk modifier, the nexus between them can be better interrogated. Starting by using gender as an organizing principle that structures and stratifies relations entails viewing gender not as a category that distinguishes males and females but as a discursive process of social construction that (re)produces subjectivities and inequalities. Gender is a dynamic process that shapes and (re)produces vulnerabilities and consequently shapes mediation of climate impacts and migration and is also shaped by symbolic processes that go beyond households and communities.

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Introduction

The consequences of climate change being shaped by gendered realities of human societies are widely acknowledged in both research (Chindarkar, 2012; Djoudi & Brockhaus, 2011; Hunter & David, 2009) and policy (Laczko & Aghazarm, 2009; UN, 2013). Among the variety of consequences to climate change impact human mobility and migration is one that has demanded attention from the scientific community (Conisbee & Simms, 2003; Raleigh et al., 2008; Renaud et al., 2011; Warner et al., 2010), from policy makers, as well as the general public and the media. Gender has long been argued to be core to mobility studies, where discussions have oscillated between understanding the impact of mobility on gender and the influence of gender on mobility (Borràs, 2019; Hanson, 2010; Mommensen, 2017). Understanding of gender beyond the binary connotation towards a more fluid conceptualization of a social construct, emphasizing the situatedness and relationality has benefitted mobility studies tremendously (Uteng, 2009). This has supported the intersectional lens to understand the interaction between caste, class, gender, ethnicity, age, race and other social differences in a context where power emerges to shape unequal vulnerabilities associated with migration. Recent gender and mobility literature have contributed much to this debate and laid the foundation to demonstrate that contextually defined male and female sex roles, stratify and structure labour that dictate access and availability to resources and opportunities to migrate, and shape how the process itself is differently experienced by men and women (Chindarkar, 2012; Djoudi & Brockhaus, 2011). Conceptually this work has contributed to understanding how gender norms, rights concerning access

and opportunity are linked, creating social inequities and influencing migration outcomes. What requires equal attention is how gender is scripted in climate change and migration policies and becomes salient in practice (MacGregor, 2010; Rothe, 2017). In other words, gender not only shapes and (re)produces vulnerabilities and consequently shapes and mediates climate impacts materially and in turn migration but is also discursive (MacGregor, 2010). Gender is shaped (what gender means) by political, economic, cultural material and symbolic processes that go beyond households and communities. This means gender is shaped and attains relevance by how it is defined and dealt with in climate change and mobility policy and practices. Discussion of such discursive dimension when relating the three in a nexus then matters because any change in climate and mobility in practice and policy will have gendered implications.

To understand how gender is shaped requires mobility, and for that matter migration (a form of mobility), to be conceptualized not just as a mere form of physical movement but also acquiring a social and existential dimension (Kronlid & Grandin, 2014; Lama, 2018). The physical movement itself can also fall on a spectrum of temporary to permanent, seasonal to singular, and from voluntary to forced. The physical meaning of mobility has received much more attention than the various social meanings that mobility itself represents and produces, for instance freedom, justice and opportunities (Sheller, 2018; Urry, 2012). More importantly this meaning that mobility acquires is in constant interaction with its changing environment and thus is a dynamic process (Cresswell, 2006; Sheller, 2018). This conceptualization of mobility that includes

not only reference to the physical but the symbolic adds value to the analytical lens to understand the changing nature of gender. This means understanding not just how gender is presumed (about who migrates, why and how, who is vulnerable and how) but also how its meaning gets negotiated in practice. Despite such rich and critical tools for analysis from gender and mobility, and gender and climate change literature, limited cross-fertilization exists to interrogate the nexus between gender, migration and climate change (Gioli & Milan, 2018).

When it comes to climate and migration, the focus has been largely on women as the primary subject of inquiry providing examples from the Global South to make the case (Arora-Jonsen, 2011). Climate, gender and migration are often tied together to argue that women are more vulnerable when it comes to the negative impacts of migration due to their material differences in having the least capacity to migrate in the first place (Chindarkar, 2012; Djoudi & Brockhaus, 2011). Considering gender in terms of women and limiting causality of vulnerabilities and consequences to material resources runs the risk of simplistic causal explanations with the emphasis on counting environmental migrants, presenting impacts in the form of sex disaggregated statistics, and focusing on the physical connotation of mobility alone to establish the connection between climate, gender and migration (see Gender, Global, and Climate Alliance, 2016; IOM, 2014; Women environmental network, 2010, p. 14). Using examples where although the role of social structures in the form of norms and values inhibiting capacity is mentioned, women's experience gains centrality to show gendered nature of migration. Such analysis while providing a picture of magnitude and potential impact, says very little about the root causes of migration and the role of everyday practices that come to shape unequal vulnerabilities over time. Emphasis is more on gendered roles between men and women that inhibit access and opportunities giving relations of power and heterogeneity among social groups amiss. Rather than addressing the interaction of multivariate processes in shaping vulnerabilities, linear simplistic causal explanations become the norm. Instead of understanding how effects of climate change are socially mediated and alter mobility patterns, focus is on whether climate change causes human mobility (Boas and Rothe, 2016). Placing climate change as the cause of vulnerability or a principle accelerator that drives mobility or shapes gender inequality, ignores the dynamic interplay of multivariate processes climate change, gender and mobility in creating stressors to livelihood options, food security or valued assets. What makes this inquiry even more limiting is that clear cut connections between climate change and migration decisions continue to be debated and difficult to establish (ibid).

Moreover, the understanding of how gender issues become salient and re-shaped in migration policies and practice continues to be limited (Nightingale, 2017; Rothe, 2017). How gender is assumed in migration and climate change policy goes on to shape conceptualization of inequalities and consequently what and who is targeted/participates in the interventions. In light of the above arguments, gender, mobility and climate change are dynamic in nature and conceptually relational and situated, rather than static causes of vulnerabilities that have discursive and material affects. What perhaps presents a

challenge, is to understand the interplay between all three (climate, gender and mobility) in one frame that is disjointed from acquiring static definitions, drawing arguments from new feminist political ecology (see Nightingale, 2017, p. 10)

This paper contributes towards ways of conceptualizing the relationship between climate, gender and migration to understand how vulnerability is produced and re-shaped materially and discursively. In this paper, vulnerability is interpreted as a dynamic condition that has been historically produced over time putting some at a higher risk than others (Taylor, 2014). It is not an outcome of climate change or disaster events (Adger, 1999; O'Brien, 2007), but is contextually produced and reproduced over time among social groups in the course of their active engagement with their environment (Taylor, 2014). Climate change, gender and migration come to shape vulnerability in conjunction with other social, economic and political factors operating at different scales. The manifestation of consequences of these three processes is contingent upon the environmental context and what processes become more relevant than others. The operation of power becomes important in assigning salience to the processes. For instance, how gender, migration and climate change are defined and the relationship between them conceptualized in policies will influence how vulnerabilities are understood and related interventions designed.

We start by using gender as an organizing principle. This entails viewing gender as a process that produces subjectivities over time and space. However, gender cannot be analysed in isolation of understanding the production and reproduction of at-risk conditions and vulnerabilities, but rather as a process that produces inequalities in conjunction with other axes of differentiation (e.g. race, class, age, race, ethnicity, caste). By this definition, gender identities and relations are fluid and contextual. Equally important is to understand how gender itself is re-shaped and re-organized, how it attains relevance in climate change and mobility issues, and how such discourses produce material implications that sustain at risk conditions and vulnerabilities. Similar to gender, mobility has a physical component but is also what we perceive it to be; and while climate change's associated biophysical risks are socially mediated, as a risk modifier it is not the sole cause of vulnerabilities.

Following these arguments, the paper makes a case that when gender and mobility are explicitly conceptualized as a process, and climate change as a risk modifier can the nexus between them be better comprehended, and the focus redirected towards examining the root causes (material and discursive) and the persistence of vulnerabilities and at-risk conditions. This is in line with McLeman et al.'s (2016) call for a better examination of the relationship between environmental migration and socio-economic inequality; and Obokata et al. (2014) to take into account the role of context in shaping environmental migration and the complex interaction between environmental and non-environmental factors. The paper looks in closer detail at various factors that influence climate change impact and suggests that when it comes to climate-induced mobility in coupled natural and human systems (CNH systems), climate variability rather than climate change *per se*, gendered access to resources and equality are often mediating and determining factors in mobility rather than isolated or direct causality from climate change as such. The paper will

attempt to show how environmental change resulting from climate impact alters these factors in unpredictable and erratic ways and in highly contextual settings, which vary from one ecosystem to another. We argue that adopting a lens of gender and mobility as a process better illuminates their relationship with climate change in creating material and discursive consequences. More importantly it opens up the space to understand gender beyond households and community level, and unpack how climate change and migration discourse constructed at different levels re-inscribe what gender means along with its social justice implications.

Gender, mobility and climate change

There is longstanding acceptance that climate change has gendered impacts (Dankelman, 2010; Denton, 2010; Djoudi & Brockhaus, 2011). International policies note mass migration as an inevitable outcome of climate change impacts on livelihoods, although the extent of influence is difficult to establish (Boas et al., 2019). Gender is considered a fundamental variable in the decision-making process of migration (IPCC, 2014; Mileto et al., 2017). Consequently, gender analysis and mainstreaming, particularly in climate change adaptation, has come to be recognized (Nelson & Stathers, 2009; Terry, 2009); so that gender inequalities are not exacerbated through institutions (Alston, 2014; Walby, 2005). However, as mentioned earlier, research linking climate change, gender and mobility is scarce (Chindarkar, 2012; Gioli & Milan, 2018). This is not to imply that factors such as race, ethnicity, wealth, home ownership, education, age along with gender are not recognized as determinants of vulnerability to climate risk, and can lead to an increase as well as a decrease in migration depending on the setting (Black et al., 2011; Carr & Thompson, 2014; IPCC, 2014; Thompson-Hall et al., 2016). However, when mentioned in policy circles, gender is often if not always, reduced to a statistical entity or discussed in terms of male/female migration patterns (Mahler & Pessar, 2006).

Vulnerability is often discussed and argued for in terms of material impacts that can be measured and reduced, while predominantly drawing examples from women in the global South. The impact of climate gender is demonstrated as differential impacts on men and women as categories and gender roles associated with these categories are emphasized to show gendered affects and differential mobility patterns (see Gender, Global, and Climate Alliance, 2016 report; IOM, 2014; Women and Environmental Network, 2010, p. 14). Separately, mobility literature discussing gender issues, and climate literature discussing gender issues have been seminal in adopting intersectional lens to understand both material and discursive consequences. Critical work from gender and climate change (see Arora-Jonsson, 2011; MacGregor, 2010) and gender migration (see Gioli & Milan, 2018; Rothe, 2017) does lay the contribution on how climate change and migration discourses construct categories of men, women and issues of gender that come to shape interventions that are limited in approach. When it comes to understanding the nexus between gender, migration and climate change together uncritical and problematic conceptualization (as discussed earlier) and limited

theorization has led to the overgeneralization of issues (see Gioli & Milan, 2018).

Below we start by discussing two predominant framings, migration as failed adaptation or as an adaptive strategy, to argue that such framings, conceptualize gender, migration and climate change in ways that limit the focus to measurable impacts and truncates the understanding of the nexus between them in shaping and sustaining conditions of vulnerabilities and risk.

Migration failed adaptation or an adaptive strategy?

Predominantly, the literature on mobility in relation to climate has two distinctive narratives: environmentally induced migration due to failure to adapt in response to climate risks and migration as a responsive adaptive strategy (Kronlid & Grandin, 2014). The physical form of movement is highlighted and categorized as migration, displacement and planned relocation in response to extreme weather events and longer-term climate change and variability (UNHCR, 2014; Wilkinson et al., 2016).

The failure to adapt line of inquiry considers mobility, particularly displacement and migration as a security issue at the destination, while the second conceptualization interprets migration as a form of risk reduction and adaptation strategy. The former inquiry is termed maximalist (see Morrissey, 2013) and alarmist (Gemenne et al., 2012) where climate becomes the prime factor forcing displacement and creating 'environmental refugees' (a contested term) due to failure to adapt to climate variability *in situ*. Such conceptualizations of the climate migration nexus give support to policies that curb migration or control the pattern (Boas et al., 2019; Kronlid, 2014). Predictions are made using migrant statistics to portray the magnanimity of the crisis-like situation. As a result of which single linear causation is assigned where failure to adapt and consequently migration becomes an outcome of a single biophysical stimulus, such as climate change or related extremities. As a result, questions of how exactly climate change impacts are socially mediated (gender relations, socio-economic contexts; discourse on gender and migration) go unaddressed in an attempt to prove climate change as a cause of migration (see Boas et al., 2019).

The second line of inquiry framing migration as an adaptive strategy draws inspiration from livelihood literature that highlight the role of traditional and modern migratory practices to reduce livelihood risks (Agrawal & Perrin, 2008; Thornton & Manasfi, 2010). Policy responses here include facilitating migration to convert it into a positive experience both at the place of origin and destination with the aim of building resilience of the local community in both locations (Kronlid, 2014; Webber & Barnett, 2010). In both lines of inquiry, climate risk and extreme weather are used as starting points, unintended consequences of migration are highlighted, analysis of causes are focused on push and pull factors of a place, and less on the underlying ones such as gender inequities, that serve to shape decisions and impact of the movement itself (Wilkinson et al., 2016). Although this line of thinking supports calls for protection of migrants, even considering them as vital for the development of receiving countries, it has given rise to

migration management policies that include migrants in the receiving country in highly problematic ways (see Suliman, 2016). It also leaves little room to discuss how climate change socially mediates (through interplay of gender and other social differences) other existing forms of mobility such as planned relocation, seasonal migration, displacement, etc. (Boas et al., 2019).

When it comes to discursive implications in terms of gender, the framings renew some of the debunked conceptualization in critical gender and development work (Bettini & Gioli, 2016). Below we present four ways in which this emphasis is renewed and how it is discursive. They renew emphasis on numbers with focus on static binaries, Second, they reinvent the North–South divide by homogenizing gender issues. Third, they reinforce gendered division of labour sustained by essentialist discourse. Lastly, they shift attention away from understanding the dynamic nature of mobility as a process.

Renewed emphasis on numbers

The two lines of inquiry discussed in the previous section have implications when it comes to introducing gender in this climate change and mobility nexus to understand who moves; in what way; and why. For instance, the alarmist framing calculates the impact by counting the number that are forced to leave. Consequently, reducing exposure of the receiving country to risk through securitization and stricter immigration rules to limit flows. It is not surprising that often, if not always, impact on gender is interpreted in the form of binaries, that is the number of men and women displaced. At best gender in terms of male and female roles are discussed as shaping migration decisions and abilities. The understanding of gender as a process in relation to climate change and migration remains limited (i.e. process wherein genders along with other social relations intersect to shape not just practices but ideas related to migration and climate change).

Numbers do not lie but they do omit. It is well established that climate is not the sole cause of migration but is socially mediated (Boas et al., 2019). This implies that the extent of influence of climate change on mass migration is difficult to establish, and thus predictions about climate-induced migrations causing crisis can be misleading (ibid). Persistence of such a discourse, establishes gender, vulnerability and migration as a linear result or outcome of climate change or variability on the exposed unit (a biophysical or a social unit), where adaptation has failed (O'Brien et al., 2004). Since climate as intensive or extensive risk is considered a starting point, the role and interaction of pre-existing/contextual social differences such as gender, class, caste, ethnicity, etc. as shaping vulnerabilities and migration patterns and outcomes get occluded. What becomes lost in this linear explanation is not only the role of other drivers, but also the meaning of gender itself adopted in migration-related climate change policies, as a structure shaping social vulnerability (Bettini & Gioli, 2016; Felli & Castree, 2012).

Mass migration as a security threat has fuelled climate migrant narratives and proposals for border securitization policies (Boas et al., 2019). Consequently, securitizing climate change consequences has been pointed out to provide solutions that are more technical and managerial, consistent with hyper

masculinity (MacGregor, 2010; Masika, 2002; Nagel, 2015). The discourse assumes men as the scientific managers of the global security threat and women as part of the problem, suggesting fertility control (Rothe, 2017). For example, the moral panic of increase expressed by the UK's Optimum Population Trust to promote global sustainability by emphasizing fertility controls and migration prohibition from poor to rich countries (see Guillebaud, 2007). Important to note here is that socially mediated consequences of climate change and the role of intersecting social differences including gender, in combination with political and economic structures shape not just practices but ideas that consequently influence the ability to respond receive limited attention (MacGregor, 2010).

Reinventing North–South divide

The growing alternative view of migration as a legitimate adaptive strategy picks up on this social vulnerability issue and the role of gender to a certain extent. It has been successful in pointing out that migration may not always be a successful and viable option for everyone (Hanson, 2010; IOM, 2014). Where migration is not a viable adaptation measure is when there are inequalities; structural inequalities including gender (Bettini & Gioli, 2016); where not everyone is able to anticipate the impact of deteriorating environmental conditions on livelihoods; or where people lack the resources and networks required for migration (Findlay, 2011; Milan et al., 2015). Several studies support this and outline that who migrates varies within a household and that it is more common for men to move away by comparison to women (Rosenbloom, 2004). In turn studies that looked into how gender shapes mobility has paid attention to measuring mobility differences between men and women, for example, distance and time travelled, mode of travel, linkages among trips (Hanson, 2010). Both these views have been seminal in drawing attention to the issue of gender in association with climate-induced migration (Chindarkar, 2012; Denton, 2010), however the emphasis has largely been on explaining measurable and material impacts often noted in terms of differences in the capacity to move between males and females (Gioli & Milan, 2018; MacGregor, 2010). The IPCC regards climate change as exposing persons who lack the capacity to be mobile, thus creating differences between the vulnerable and the non-vulnerable (Kronlid & Grandin, 2014). In this discussion around who is capable to migrate, who lacks resources and capability to migrate and who gets trapped in conditions of vulnerability (Findlay, 2011), gender enters the discussion targeting women of the global south, under the assumption that they are the poorest and lack the capacity to migrate (Rothe, 2017).

Climate and migration are constructed as an issue peculiar to the Global South, where gender is interpreted as women suffering due to lack of capacity to migrate. Critical literature on climate and gender have been seminal in explaining this discursive trend leading to problematic homogenization of issues where women in the Global South are considered vulnerable and the Global North as champions in dealing with climate change (Arora-Jonsson, 2011; Gioli & Milan, 2018; Rothe, 2017). What also needs to be discussed is the effect of such a discourse. Such a discourse (migration as adaptation strategy) emphasizes improving the capacity to move/build

resilience of certain groups, particularly women, in order to reduce vulnerability. Policy discourses that promote migration management for development of the receiving country rather than bans through international development cooperation have gained prominence (see Suliman, 2016). This inadvertently, shifts intervention from dealing with causes of differential and unequal capacities (gender inequities and other axes of power relation such as caste and ethnicity to name a few) to reducing exposures to climate by improving vulnerable groups' (as a homogenous category) adaptive capacities. Popular interventions include knowledge transfer, awareness-raising and creating self-help groups assume primacy (Rothe, 2017). However, these progressive policies do not deal with inequities that constitute migration (Suliman, 2016). Moreover, the gendered approach of viewing migration and climate change is limited to how gender shapes migration. What also requires inquiry is how certain discourses and practices surrounding climate and migration construct gender in problematic ways and promote interventions limited in approach. The emphasis on unequal capacities to migrate to explain gendered differences in migration does not sufficiently engage with this politics of climate change related migration discourse. For instance, in many climate change policies at the national level, including women in adaptation projects has been used as a way of empowerment through providing livelihood opportunities (Wester & Lama, 2019). Important to note is that adaptive strategies themselves are not apolitical, or for that matter result in changes that are positive for everyone. Empowerment programmes and policies – particularly those promoting alternative livelihoods – may in fact become a burden without actual benefits or ownership of resources, and may end up doing very little when it comes to reducing gender inequities (Chant, 2016; Leach & Mearns, 1996).

The policy responses, as mentioned above, for climate-induced migration supporting building resilience and empowerment, although may be well intentioned have neglected gendered subject positions, and related attributions and behavioural norms (Rothe, 2017). Gender is included as an addition, although not necessarily, as binary (Hanson, 2010). Although gender has grown in recognition with increasing attention to social dimensions of climate change, such the simplified tendency to project gender in terms of category – men and women as seen predominantly in explaining the nexus between gender, migration and climate change, fails to account for multiple basis of inequalities focusing more on roles rather than relations (Kaijser & Kronsell, 2014). Moreover, it closes the space to discuss how climate-related migration policies are framed by intersectional social relations and how these policies serve to define gender and migrants which then has implications on who is vulnerable and how.

Reinforced gendered division of labour

The framings of mobility and migration in relation to climate change are also discursive. According to MacGregor (2010), this created a paradox where women are alienated from the debate and yet at the same time increasingly included in the solutions. Understanding who migrates is a pertinent question. But equally important is to understand the underlying factors

that cause vulnerabilities. Identifying who has the ability to be mobile, certainly helps focus on vulnerable groups, but attention must also be paid to the structures that go beyond identifying who is vulnerable to understand why and how. The emphasis on delineating the vulnerable from the not vulnerable in terms of capacity and increasing community resilience may have merit, but there is a danger in an understanding of inequalities limited to 'differences' between groups and something which is 'wrong' (Bettini & Gioli, 2016). Such apolitical framings, reconfigure rights and responsibilities in a manner that focuses on individual self-help preparedness approaches rather than on institutional arrangements dealing with the root causes of vulnerabilities and securing human rights (ibid). The discussion of vulnerabilities more in terms of differences than inequalities could reinstate problematic discourses in the climate change and gender nexus that frame vulnerabilities based on differences between women in the global north as resilient and virtuous and in the global south as victims (Arora-Jonsson, 2011; Wester & Lama, 2019).

Inclusion anchored in essentialist discourses – seeing women as inherently inclined to protect the environment – prove problematic. For example, Holmgren and Arora-Jonsson (2015) show how the attempt of including women as 'employees and forest owners' rather than 'active citizens in decision-making', makes mainstreaming an exercise aimed towards increasing forest production rather than achieving gender equality. Studies on gender representation in the board rooms for companies with the greatest climate impact, reveal that the mere inclusion of women does not lead to a better climate policy (2017). Such homogenization of roles, based on gender-biased assumption could weaken mainstreaming efforts limiting them to focusing only on roles, rather than relationships that render some in positions of privilege and others in subordinated positions, and disguising power issues of access to decision-making (Arora-Jonsson, 2011).

It is important to reiterate here that climate change is not the only change that people respond to but to a complex combination of changes (Parsons & Nalau, 2016; Smithers & Smit, 1997; Thornton & Manasfi, 2010). While adaptation and mitigation efforts focusing only on climate might help reduce other associated vulnerabilities, such climate focus leads to an overemphasis on impact (rather than processes of how vulnerability is produced) which leads to technological solutions (Boyd, 2017). Such emphasis on problems and solutions becomes unreflective towards other perspectives and less sensitive to the uncertainties associated with social and economic processes that may in fact be the underlying drivers shaping vulnerabilities (Jayaraman, 2015).

Disguising the dynamic role of mobility and its gendered implications

Apart from attention to how gender impacts the ability to move, what also demands attention is that migration itself as a process has gendered implications. 'The mobilities turn' as Cresswell (2010) puts it has been able to problematize the concept of mobility going beyond the physical connotation to include symbolic and representational meaning, having the potential to bring out the myriad experiences. Randi Hjorthol (2008) in her study in Norway concludes that the differences in daily patterns of commuting between men and women create

much space of action for women and thus may serve as an indicator of degree of equality between the two. In this way, immobility represents an indicator of gendered practices (Uteng & Cresswell, 2008). Thus, the meaning of migration as a process goes beyond just representation in the form of physical movement and experience in the place of origin and destination. For instance, mobility, and for that matter immobility, has effects that may go beyond the concrete experience itself and could lead to conditions of livelihood security/insecurity, availability and accessibility to resources, or lack of opportunities that could all shape or produce new experiences (Lama, 2018). The realization of mobility could thus represent freedom, progress and even empowerment (Uteng & Cresswell, 2008). At the same time, going beyond the binary connotation, gender is increasingly recognized as fluid meaning that identities and relationships that are socially constructed as male/female or masculine and feminine are not fixed (Pessar & Mahler, 2003). Gender thus does not indicate male or female but rather a process which acquires meaning through performance of activities, ways of behaving, roles, that (re)define the sexed categories of male and the female (Butler, 2004; Nightingale, 2006). In this way, mobility as a process and practice gives meaning to gender practices and could potentially reproduces power hierarchies (Uteng & Cresswell, 2008).

Going back to the earlier discussions on building capacity and empowerment, mobility is often equated with empowerment (Mandel, 2004), due to its potential to facilitate access to opportunities and livelihoods (Christensen & Gough, 2012; Hanson, 2010). This echoes the binary gendered notion of space where the public (going out, being mobile) as a male notion or domain while the private and domestic as female (Sheller & Urry, 2006). This is shown from the case of Uganda by Tanzarn (2008) of how space is not intrinsically gendered but becomes so due to the utilization of space by men and women hierarchically positioned in society. Empirical studies of gendered travel behaviour from the global north further contribute to confirming the gendered nature of mobility where women travel shorter distances (Law, 1999). Nightingale's work (2006) and Davidson and Bondi (2004) on gender and space further highlight that space and gender are not static, thus both what the space represents and what gender means are co-constructed and in constant interaction with each other. Some concrete examples include Nightingale's work (2006) on gender and the environment in Nepal, where lower caste is not allowed to enter the household of higher caste (considered pure spaces and if used by lower caste becomes impure), and menstruating women are forbidden from entering the cooking areas or certain spaces that they regularly occupy. In this way, gender and caste are defined in relation to space. Thus, an understanding of mobility as a dynamic process is equally important to understand the changing power relationship and meaning of gender due to mobility.

Discussion and conclusion

Gender as a dynamic organizing principle – why?

Examining gender in relation to mobility have yielded interesting discussions surrounding how mobility/immobility can

be empowering and disempowering, and at the same time how gender shapes mobility patterns. Despite enriching research from different geographical and social contexts acknowledging gender as an organizing rather than additive variable to be measured, policy focus has tended to lapse towards the latter (Cornwall et al., 2004; Mahler & Pessar, 2006). It is now important to look at climate vs. movement and whether what is needed is redefining gender as an organizing principle where climate change is a risk modifier as this paper argues.

In migration studies climate change is generally seen as an accelerant to other factors that cause people to migrate. In other words, it is not considered an additional factor, directly influencing migration, but one that compounds existing ones. Gender is rendered 'a special case' that requires a special lens to understand this variable changing due to impact of climate change. Such an approach entails the risk of gender being sidelined or at most included as an additive factor using problematic assumptions, long criticized by feminist studies (see Arora-Jonsson, 2011; MacGregor, 2010; Wester & Lama, 2019). Thus, the need to reinforce gender as an organizing principle becomes even more pertinent with the growing discourse on understanding gender dimensions when it comes to climate-induced migration (Näre & Akhtar, 2014). Gender as an organizing principle implies not just assuming it as a variable to be measured but viewing it as a structure of social relations that organize mobility patterns and are also shaped by it (ibid). This means an understanding of how gender is shaped and attains relevance due to how it is defined and dealt with in climate change and mobility policy and practices, and in a context where power operates to make it salient. Discursive dimension when discussing the nexus between the three then matters because any change in climate and mobility in practice and policy will have gendered implications. Nightingale (2006) using the Nepalese example of community forestry shows how gender intersects with caste to shape access to resources and participation, and at the same time the meaning of gender itself is reproduced through community forestry practices.

One of the main challenges in understanding the relationship between climate, gender and mobility is the difficulty to isolate climate variability and shocks from other drivers of vulnerability (Mearns & Norton, 2009). Using gender as an organizing principle to analyse vulnerabilities in relation to climate could be one starting point. Further, complementing this could be reconceptualizing climate change as a risk modifier rather than amplifier to understand the interplay between gendered vulnerabilities and mobility. Climate risks are translated societally, meaning that climate is not the only or principle driver that people respond to, and it has a modifier effect on population movement and environmentally induced migration. There is evidence that people tend to move from less to more environmentally vulnerable locations (McGranahan et al., 2007) as in the case of attempting to mitigate food security in rural areas by migrating to coastal cities or urban areas on flood plains.

Conventional approaches to migration analyse push and pull factors. However, the impact of climate change on migration can be understood better by examining the drivers

and mechanisms underlying them. Evidence shows that climate by itself does not simply add to the existing and agreed factors influencing migration. Research and examples from McLeman (2017) illustrate such complexity of interactions and the diversity of outcomes. Climate does not affect migration patterns in simple push-pull fashion; rather, migration outcomes are mediated by intervening economic, social, and political forces that affect the ability of exposed populations to adapt to climate-related threats to homes and livelihoods. Consequential environmental change can alter these factors in unpredictable and erratic ways and varies from one ecosystem to another (low lying deltas vs. arid or semi-arid lands). To understand this and to further elaborate the argument above that responses are usually to climate variability than to climate change, we need to look at three challenges in climate effect namely: uncertainty, attribution and surprise.

First, uncertainty manifests in the fact that the length and robustness of records on climate impact since records began are insufficient and not necessarily correlated to human mobility. Synchronicity and feedback loops between one impact of climate change and another, on both physical and socio-economic scales are also hard to come by.

The second major challenge in the interplay between climate and human systems is the fundamental difference between climate change and climate variability. Human systems may be responding to climate variability rather than climate change. The decision-making process and risk trade-off that people generally undertake and the consequent move are not necessarily attributed to climate change as such but to climatic variability in most cases. Climate 'change' as opposed to climate 'variability' happens on a spatial and temporal scale that cannot be perceived or experienced by the individual or a community. Variability is more tangible and felt as a factor in resource degradation or loss of livelihoods over time (diminishing water resources, loss of crop yield, erratic seasons or rainfall, etc.). Several studies document the impact of climate variability on internal migration (Marchiori et al., 2011; McLeman et al., 2016). The anticipatory or adaptive response highlighted in these studies is what creates a shift from voluntary to forced migration, as initial adaptation to episodic or periodic stresses becomes unsustainable. But the need to attribute processes to either variability or change complicates the study of human mobility. An overlap between human activity and natural processes complicates even further attempts to discern cause. Evidence of this can be seen in the 2011 Foresight Project which adopted a deterministic approach that assumed that all, or a proportion of people living in risk zones will migrate (Gómez, 2013). This neglects the role of human agency and the complex factors that influence the decision-making process underlying migration, including those that are unrelated to any climatic or environmental changes.

Third, surprise is a challenge also linked to the complex, non-linear nature of climate change and human systems. Human or social systems are also subject to non-linear changes (Morinière, 2009) and a linear relationship between climate-induced disasters and human systems is beyond proof or evidence. A doubling of extreme events does not necessarily mean a doubling of the number of disasters or of the number of people affected. How those affected would respond and

whether mobility and migration would be one of such responses is complex, uncertain and largely contextual.

Additionally, economic viability is another factor that determines the pattern of migration as a response to extensive risk and interacts with other climatic and environmental drivers. There is limited empirical evidence that environmental conditions impact long-distance or international migration. In a study of the Horn of Africa and francophone sub-Saharan Africa migrants to Canada, Veronis and McLeman (2014) found that the environment was a second- or third-order contributor to migrants' decision-making process and primarily among skilled and urbanites who possessed the means and wherewithal for long-distance movement. In that sense, economic development in the source country can contribute to, as well as limit, migration. Who benefits from such development is subject to gender equality, power relations in society, and distribution of resources. Migration can be a coping mechanism activated in order to diversify income when poverty is a major driver. However, extreme poverty means resources to migrate are limited (Smith et al., 2006). There is evidence that extreme drought leads to a decrease in international long-distance migration because food scarcity during crises drives prices up forcing people to spend more on basic needs rather than on migration (Findley, 1994; Henry et al., 2004). Access to food and staples is also gendered in various contexts.

These challenges put together make it hard to establish climate change as having a direct additive, multiplier or synergistic effect on population movement. We argue here that climate is a risk modifier subject to specific contexts and circumstances.

Gender as a dynamic organizing principle – how?

Using gender as an organizing principle requires moving away from binary explanations to understanding gender as fluid and situated, and operating with other axes of differentiation to create and exacerbate vulnerabilities and at-risk conditions over time. Establishing a causal relationship between gender, vulnerabilities and mobility, assuming roles adorned by men and women as static, or based on sexed categories, will only lead to identifying groups and suggesting solutions to empower/build resilience of such groups (as discussed earlier). This will however lead to homogenization of the issues and falls short of relating other forms of power relations (class, ethnicity, race, imperialism, etc.) to gender as a structure of oppression. This makes a pertinent case to focus on analysis that starts by accounting for social vulnerabilities and understanding its implication on mobility and *vice versa*. An example of this is suggested by Kaijser and Kronsell (2014), who call for an intersectional analysis based on critical feminist approach that specifically tries to understand different experiences of climate change (not limited to women) and involves probing power relations and not just gender roles. This would involve 'understanding discursive construction of gender and analysis of power relations that shape perceptions of vulnerability and responses to [...] impacts of climate change' (Djoudi et al., 2016, 259). Rothe (2017) uses an anti-essentialist feminist approach (differences in sexes as naturally given) to show masculinized discourses of security as control and reproduction of gender myths in relation to climate-induced migration research

and policies. MacGregor (2010) makes a similar argument to understanding the discursive framing of climate policies and actions, including migration that have gendered implications, apart from the material impacts of climate change.

Migration, as this paper has shown, is a complex multi-faceted phenomenon influenced by a large number of interacting factors, ranging from economic causes, socio-cultural conditions and geopolitical considerations. All feature as actual, as well as expected or perceived, factors in an individual's or a household's decision to migrate or stay.

More importantly, migration is dynamic with implications. There can be positive outcomes when the decision to migrate is planned well in advance of the need to move or before it becomes critical or inevitable, and when human and labour rights of those who move and those at the destination are respected (Wilkinson et al., 2016). Migration is also not always a successful or viable adaptation. The impact of climate change is not uniform across the globe, just as the conditions within which changes take place are not homogenous.

Exploring the gendered dimensions of migration in the context of climate change, or suggesting gender as an organizing principle is aligned with several well established notions and findings in the literature. First, migration is rooted in societal processes that could predate recent environmental changes and degradation as this paper demonstrated so far. However, some current and future claims of migration crises continue to be presented in ahistorical or apolitical terms (Zetter, 2010 cited in Bergman Rosamond et al., 2020). Second, and also in line with the discussion of power noted in the paper, Zetter and Morrissey's (2014a, 2014b) extensive study on patterns of migration and climate change link the patterns and regimes of migration of population and individuals impacted by environmental stressors not directly to climatic or environmental changes but to the exercise and articulation of rights both 'material' and 'structural' within the systems of power in society, and both '[...] historically (land ownership, use of communal resources, etc.) and in current politics (distribution of material rights, protection, etc.)' (Bergman Rosamond et al., 2020). In that sense, migration is hardly influenced or facilitated by a single factor but manifests as an outcome of complex and intertwined socio-economic and political complex that includes inequality, discrimination, poverty, etc. all of which are gendered.

Reducing climate change to a simplistic direct driver of migration plays into and facilitates apocalyptic and securitization narratives that not only stigmatizes migrants (Bettini, 2013), it also detracts from understanding the root causes to vulnerabilities and the underlying factors that climate change leverages (Buckingham and Masson, 2017), including gender dimensions.

Conclusion

In this contribution, we have attempted to show that climate, gender and migration are related in complex and non-linear ways. If climate-induced migration can be seen as a climate adaptation strategy – or failure to adapt – this has gendered ramifications. Even if the alarmist way of viewing migration – as groups of people leaving their destroyed homes for a safer place to live – could happen, it will not be the same for men,

women or non-binary individuals. The linear way of describing or understanding this process fails to consider that the pre-existing social structures governing a society before a disaster will prevail through the disaster. If men are more likely to migrate as an adaptation strategy in search of alternative livelihoods, men are also more likely to migrate as an adaptation strategy in a climate context. This also means that for a large group – most often women – migration is not an option regardless of the external conditions. Women and men have different patterns of mobility that are deeply embedded in the context of any society, making migration an option for some but not all. Merely counting or estimating the number of migrants fail to address underlying conditions that result in migration patterns. Gendered roles must be seen to reflect underlying social constructions, not as a variable that becomes apparent first when migration occurs.

In addition, women are often seen as instrumental in climate change adaptation and numerous programmes have addressed women as key actors in bringing about change in livelihoods and making societies better equipped to mitigate against and adapt to climate change. However, these strategies fail to address underlying inequalities and vulnerabilities. Gendered roles often place the responsibility for caring for the family in the home on women, and the responsibility of providing for their families by working outside the home on the men – this will imply gendered adaptation strategies to climate change adaptation. Even if programmes can aim to empower women – by giving them vocational training so that they can provide for their families in the absence of men – this will not change the underlying vulnerabilities. Physical places are gendered by social norms and the spaces men and women can occupy will affect what options are available to them. Also, any discussion on restricting population growth fails to explicitly address the underlying perception that fertility control is the responsibility of women, failing to understand the power dynamics surrounding women's reproductive rights and health.

Pre-existing social structures and stereotypical views on what is male and female in any community will have a direct impact on the choices individuals or groups have when adapting to a changing environment. This means that climate change is not yet another risk that communities have to face, as changing external conditions are reflected in what internal structures, choices or strategies are already available to members of the community. These social structures also mean that women and men – should they migrate – are exposed to gendered norms in the receiving community. The impact of this can be difficult to predict and needs to be assessed on a case-by-case basis, but given the universal gendered roles, chances are that women will be affected in the least favourable way.

Viewing climate change as a risk modifier that interacts with already existing gendered roles, choices and resources, rather than climate change presenting an additional risk for men and women to handle might lead to a lessened focus on the effects of climate change and an increased focus on existing gender inequalities that are present regardless of which risk source face a community. This way, risk reduction strategies can address underlying causes rather than addressing the symptoms.

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