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Recognition in urban climate justice: marginality and exclusion of migrants in Indian cities

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ABSTRACT This paper explores the recognitional dimensions of urban climate change justice in a development context. Through the lens of migrants in the Indian cities of Bengaluru and Surat, we highlight how experiences of environmental marginality can be attributed to a lack of recognition of citizenship rights and informal livelihood strategies. Specifically, the drivers of non-recognition in this situation relate to broken social networks and a lack of political voice, as well as heightened exposure to emerging climate risks and economic precariousness. We find that migrants experience extreme forms of climate injustice as they are often invisible to the official state apparatus, or worse, are actively erased from cities through force or discriminatory development policies. Current theories must therefore engage more seriously with issues of recognition to enable more radical climate justice in cities.

KEYWORDS adaptation / climate justice / cities / India / informality / migration / recognition

I. INTRODUCTION

Recent scholarship on urban climate change justice – particularly in the context of climate adaptation and efforts towards resilience – has overwhelmingly focused on two dimensions. Some authors highlight the need for more representative and inclusive decision-making processes that consider differential interests, values and priorities.⁽¹⁾ Others note the importance of accounting for how the benefits and disadvantages of adaptation actions should be shared and distributed across the city, particularly in cases where communities experience varying levels of adaptive capacity, socioeconomic status, and political voice.⁽²⁾ These *procedural* and *distributive* framings of urban climate justice have stimulated more critical reflections of policy beneficiaries and potential impacts; despite this, issues pertaining to *recognitional* justice have received less attention in both theory and practice.⁽³⁾ In the context of climate change politics, the term recognition refers to the delineation of “valid” actors who are able to participate in policymaking, whose understanding of risk is deemed legitimate, and whose interests and priorities are accounted for when plans are actually implemented.⁽⁴⁾ However, issues of recognition are imbued with conflict as they pertain to contextually dependent formations of social identities, epistemic communities, and everyday experiences.⁽⁵⁾



This article unpacks the dynamics of recognitional urban climate justice in a development context. We draw upon Nancy Fraser's articulation of recognition,⁽⁶⁾ as well as Miranda Fricker's application of epistemic forms of recognitional justice,⁽⁷⁾ to evaluate how recent domestic migrants arriving in the Indian cities of Bengaluru (previously Bangalore) and Surat are exposed to intersecting forms of environmental marginality. From our field research with migrant communities, municipal planners/engineers, and elected community leaders in both Bengaluru and Surat, we find that climate injustice is driven by four factors:

- 1) Broken political patronage and social networks as a result of the transition from rural to urban settings;
- 2) An erasure of voice and local citizenship rights in a relatively foreign sociopolitical setting;
- 3) The prevalence of conflict in communities with stark gender, class, caste, religious and ethnic divisions; and
- 4) Heightened exposure to environmental risks due to the inability to secure employment opportunities, advocate for access to public and financial services, and, at times, mobilize against displacement.

Migrants thus face extreme forms of climate injustice as they are often invisible to the official state apparatus, or worse, are actively erased from cities through force or discriminatory development policies.

The paper is divided into eight sections. Sections II and III outline the theoretical basis for the paper, while Section IV recounts our methodological approach. Sections V and VI describe experiences from Bengaluru and Surat. Of note here is that we are not describing the reasons behind migratory behaviours, which may or may not be induced by climate or disaster impacts. Instead, we are highlighting the complex experiences of climate injustice once migrants arrive at their destinations. In Section VII, we build upon relevant theories and evaluate how migrants' experiences of local environmental precariousness are in fact mediated via larger political and economic forces and sociocultural divisions that exacerbate climate risks and vulnerabilities. Finally, in Section VIII, we offer insights into how the non-recognition of citizenship rights actually hinders the adequate consideration of procedural and distributive equity concerns. Although migrants are an extreme case of non-recognition in climate change politics, our results do highlight a need to more seriously interrogate recognitional climate justice in the context of worsening economic inequality and structural poverty, disadvantage and marginality.

II. RECOGNITIONAL JUSTICE AND CLIMATE CHANGE

Recent literature notes the close relationship between neoliberal visions of urban environmental sustainability and the perpetuation of socioeconomic inequalities and resource degradation.⁽⁸⁾ In this context, practices such as market-oriented governance, privatization of infrastructure and services, and urban entrepreneurialism reify the need for continued growth and wealth creation, albeit to the benefit of only a few.⁽⁹⁾ Given that climate adaptation and resilience priorities in cities are commonly addressed

strongly within the urban climate justice paradigm and has emphasized the need for bringing a climate justice lens to cities.

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1. Anguelovski et al. (2014); Chu et al. (2016).

2. Anguelovski et al. (2016); Shi et al. (2016); Satterthwaite (2013).

3. Walker (2012).

4. Walker and Day (2012).

5. Young (1990).

6. Fraser and Honneth (2003); Young (1990).

7. Fricker (2007).

8. Brand (2007); Whitehead (2013); Ciptet and Roberts (2017).

9. Perkins (2009); Brand (2007); Whitehead (2013); Ciptet and Roberts (2017).

10. Pelling (2010); Parks and Roberts (2010); Beckman and Page (2008).

11. Ziervogel et al. (2017).

12. Meerow and Newell (2016); Sovacool et al. (2015).

13. Harris et al. (2018); Kaika (2017); Anguelovski et al. (2016); Shi et al. (2016); Satterthwaite (2013).

14. Schlosberg (2004).

15. Patterson et al. (2018); Bartlett and Satterthwaite (2016); Rosenzweig and Solecki (2018); Anguelovski et al. (2016); Shi et al. (2016); Satterthwaite (2013).

16. Young (1990).

17. Michael and Vakulabharanam (2016); Ayers and Dodman (2010); Revi (2008).

18. Brand (2007); Whitehead (2013); Ciple and Roberts (2017); Harris et al. (2018); Kaika (2017); Anguelovski et al. (2016); Shi et al. (2016); Satterthwaite (2013).

19. Berkes et al. (2000); Huntington (2000).

20. Ayers and Forsyth (2009); Chu et al. (2018).

21. Anguelovski et al. (2016); Shi et al. (2016); Satterthwaite (2013); Paavola and Adger (2006); Reckien et al. (2017).

22. Young (1990).

23. Fraser (2000).

24. Fraser (1997).

25. Fraser (1997).

through these neoliberal practices, they are inherently tied to questions of equity, inclusion and justice.⁽¹⁰⁾ However, climate justice requires considerations beyond the fair distribution of rights and responsibilities or the procedural requirements for participation and access to decision-making.⁽¹¹⁾ It also entails recognizing existing forms of inequality and how climate change actions exacerbate or entrench underlying structural disadvantages.

Emerging critical studies of climate adaptation all point to the general lack of a “people-oriented” vision – that is, addressing questions of *for whom, through what mechanism, and to what end*.⁽¹²⁾ Many interventions billed as building resilience instead focus on pursuing infrastructures with high investment potential or strategies that protect elite interests rather than collective wellbeing.⁽¹³⁾ Schlosberg, for example, argues that such discourses fail to capture the lived realities of how people are affected and actually adapt to the effects of climate change.⁽¹⁴⁾ Shi et al., Patterson et al., Rosenzweig and Solecki, and others further note that a focus on justice and equity can offer alternative or more radical pathways for social transformation.⁽¹⁵⁾ However, much existing research documents the trend towards redistribution or procedural inclusiveness, while the third structural driver of inequality – non-recognition – is not well represented.

Recognition calls for an understanding of the processes that determine distributive injustices and those that lead to institutionalized domination and oppression.⁽¹⁶⁾ Early work on recognition in climate justice focused on the fact that climate change exerts disproportionate impacts on the poor,⁽¹⁷⁾ and so their needs and interests must be represented and included within decision-making.⁽¹⁸⁾ Others have pointed out that climate science is overwhelmingly dictated by positivist “Western” traditions, while indigenous knowledge systems are often excluded from policy conversations.⁽¹⁹⁾ Decision-makers have thus responded by designing more participatory, community-based and collaborative processes⁽²⁰⁾ – especially those that incorporate alternative knowledge or epistemic traditions – as well as delineating criteria for distributing negative social, political and spatial implications in a fair and equitable manner.⁽²¹⁾ Although procedural and distributive equity place the recognition of different interests, values and priorities at the centre, these ideas fail to account for the fact that recognition itself is contentious, socially constructed and context dependent. It is therefore imperative to enable more critical interrogations into how different sociocultural identities, values and behaviours are recognized and embedded into policy discourses.

Political theorists have long noted that if social differences exist, and are attached to both privilege and oppression, one must examine those differences in order to rectify distributive injustices.⁽²²⁾ A lack of recognition – demonstrated through various forms of insults, degradation and devaluation at both the individual and cultural levels – inflicts damage on both oppressed communities and the image of those communities in larger cultural and political spheres.⁽²³⁾ In her book *Justice Interruptus*, Nancy Fraser argues that justice requires attention to both distribution and recognition, where only the combination of economic and cultural justice can guarantee a form of “participatory equality”.⁽²⁴⁾ Accordingly, a lack of recognition is experienced in three ways: cultural domination, being rendered invisible, and routine stereotyping or maligning in public representations.⁽²⁵⁾ Those groups that are subjected to misrepresentation

find themselves less credible as knowledge claimants. They are also less likely to be “believed” because their claims differ sharply from the dominant interpretations in society. Finally, their ability to make knowledge claims is stifled by the lack of available rhetorical space or interpretive domain.⁽²⁶⁾

Recognition therefore implies equal treatment of all social identities when delineating the distribution of environmental risk, acknowledgement of diverse participants, sensitivity to differential experiences in affected communities, and participation of relevant epistemic communities in policy creation.⁽²⁷⁾ However, this understanding of recognitional justice is still quite broad for analytical purposes, so we draw upon Miranda Fricker’s more concrete articulation of epistemic forms of recognitional justice, which refer to explicit forms of unfair treatment of experiences, understandings, and participation in communicative or decision-making practices.⁽²⁸⁾ The possession of information is central to climate action, but can also be used to exclude groups from formal decision-making, as it defines the ways in which political actors relate to one another and is a means of legitimizing authority.⁽²⁹⁾ Vulnerable communities can be more susceptible to exclusion due to an inability to access relevant information or, more fundamentally, a tendency to translate their awareness of environmental changes as embodied knowledge rather than more quantifiable scientific knowledge. Interrogating non-recognition through the prism of epistemic justice allows us to unpack a wider range of topics concerning wrongful treatment and unjust structures in meaning-making practices.

III. MIGRATION AND CLIMATE INJUSTICE IN INDIA

In this paper, we explore epistemic forms of recognitional injustice as experienced by “footloose” migrants,⁽³⁰⁾ who are among the most marginalized and invisible groups in India. Neoliberal reforms implemented since 1991 have transformed the Indian state from being a land regulator to an active agent for private interests.⁽³¹⁾ People from rural areas began moving into cities in search of employment opportunities after experiencing land expropriation, chronic joblessness and declining welfare.⁽³²⁾ Many migrants are termed “footloose” because of their temporary nature, as they circulate between villages and cities throughout the year, often unable to find viable livelihood options in the agricultural sector while their temporary status prevents them from attaining a foothold in the city.⁽³³⁾ Some migrants have no fallback options in their villages, and so lead a transient, disconnected and isolated life in the city.⁽³⁴⁾

Climate impacts dictate migration decisions only after being filtered through social, political and economic conditions on the ground.⁽³⁵⁾ In India, increasing drought frequency and changing temperature and rainfall patterns are significant drivers of “footloose” migration, although they exert less influence on permanent migration.⁽³⁶⁾ Large landholders with strong social capital and large asset bases are able to resist climate stresses, while small landowners, marginal farmers and landless labourers are forced to migrate.⁽³⁷⁾ Such groups often have poor access to social networks and political agency, and so travel to cities, take on precarious or insecure jobs, and congregate in informal settlements.⁽³⁸⁾ Migrants are

26. McConkey (2004).

27. Harris et al. (2018); Kaika (2017); Anguelovski et al. (2016); Shi et al. (2016); Satterthwaite (2013).

28. Fricker (2007).

29. Michael et al. (2018).

30. According to Jan Breman (2013), “footloose” migrants constitute the workforce at the lower echelons of the society, often in circulation between rural and urban areas due to their inability to find stable livelihood options in either rural or urban areas.

31. Shrivastava and Kothari (2012); Chibber (2003).

32. Viswanathan and Kavi Kumar (2015); Rao and Vakulabharanam (2018).

33. Breman (2010).

34. Vakulabharanam and Motiram (2012).

35. Michael et al. (2018).

36. Kavi Kumar and Viswanathan (2013).

37. Viswanathan and Kavi Kumar (2015).

38. Santha et al. (2017).

39. Revi (2008); Tacoli (2009); Michael et al. (2017).

40. Bartlett and Satterthwaite (2016); Viswanathan and Kavi Kumar (2015).

41. Rao and Vakulabharanam (2018).

42. Bhagat (2017); Sanyal (2007); Vakulabharanam and Motiram (2012).

43. Desai and Sanyal (2012).

44. Fernandes (2004); Mahadevia (2001).

45. Desai and Sanyal (2012).

therefore exposed to large-scale political and economic changes – such as increasingly exploitative labour practices and dwindling welfare and job security – as well as everyday risks by working outdoors in extreme temperatures, living in precarious housing conditions, and having inadequate access to public schemes.⁽³⁹⁾ All of these trends, along with the high concentrations of informality that so often characterize urban poverty and inequality, are exacerbated by climate change.⁽⁴⁰⁾

Research suggests that current urban governance mechanisms in India are unprepared to address this influx of migrants, often resulting in inadequate provision of infrastructure and public services.⁽⁴¹⁾ The wellbeing of migrants is further undermined by the fact that social safety nets and welfare programmes are sometimes tied to jurisdictionally bounded citizenship rights. For example, migrants from one state can lose access to different state health schemes and public distribution systems. Others encounter difficulty in accessing basic services, education and employment opportunities due to unfamiliar local contexts, unrecognized documentation, language barriers, and diminished local ties that inhibit collective bargaining and advocacy abilities. Migrant labourers participate in the informal sector under extremely exploitative conditions, with limited access to employment security, social protection schemes, and housing and tenure rights.⁽⁴²⁾ While the maintenance of this pliable migrant labour force enables easy extraction of surplus capital, these workers often embody vulnerabilities related to environmental risks in their daily interactions with the multiple hazards of economic production.⁽⁴³⁾

The outcomes of historic development pathways have thus yielded highly unequal patterns of resource allocation and access to spaces within Indian cities.⁽⁴⁴⁾ Social divisions and hierarchies based on caste, religion or gender make exploitation even starker.⁽⁴⁵⁾ In this context, we apply epistemic dimensions of recognitional justice to explore the heightened climate vulnerability of “footloose” migrants in Bengaluru and Surat. The Bengaluru case is written from the perspective of interregional migrants, while the Surat case is presented from the perspective of local planners and policymakers working closely with migrants. The goal is to illustrate inductively the reasons behind and the larger implications of non-recognition in urban climate adaptation action. The following sections present insights from field research conducted in informal settlements across the two cities. Both reveal the fraught experiences of migrants who are unable to access citizenship rights and remain invisible or marginalized from the unfolding benefits of neoliberal urbanization. In these spaces, injustices are embodied as intersecting forms of political marginalization, social precariousness, and environmental marginality, all of which can be attributed to disenfranchisement caused by non-recognition.

IV. METHODOLOGY

This research is largely qualitative in nature, focusing on Bengaluru and Surat as emblematic cases of local climate injustice through the lens of migrants or local planners and community leaders who work closely with migrants. Case studies offer in-depth accounts of local experiences, while our comparative approach allows for the cross-examination of

various dimensions of recognitional climate injustice across the two cities.

We explore Bengaluru and Surat because both are experiencing high levels of population growth that is supported, in part, by an influx of interstate migrants, particularly from more rural north-eastern and eastern states in India. Both cities are also home to strong industrial and commercial sectors – information and communications technologies (ICTs) in the case of Bengaluru and diamonds, textiles and petrochemicals in the case of Surat – that rely on informal labour. Finally, both cities have experience in climate adaptation and resilience action. Bengaluru has been the urban research site for the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAS) project funded by the International Development Research Centre (IDRC) and the governments of Canada and the UK. Surat was part of the Rockefeller Foundation's Asian Cities Climate Change Resilience Network (ACCCRN) until 2014, and has since institutionalized local climate action through the establishment of the Surat Climate Change Trust. Both cities therefore serve as exemplars of cities in India with a history of climate risk assessment, scenario building, policy development, and implementation of adaptation and resilience-building projects.

Within Bengaluru and Surat, our field research involved collecting qualitative data by means of semi-structured interviews and focus groups with migrant communities. Field research in Bengaluru was conducted between 2013 and 2016, and included 16 gender-differentiated focus group discussions, 30 semi-structured interviews, and five key informant interviews across eight settlements. These settlements were selected to ensure the diversity of livelihood strategies and sociocultural backgrounds. In Surat, the field methodology focused on obtaining the perspectives through semi-structured interviews of 25 municipal planners, engineers, and local elected political leaders who work closely with migrant communities. Conducted between 2011 and 2015, these interviews focused on issues related to the adaptation/resilience planning process, associated institutional interests, policy mechanisms, and long-term impacts for the city's more vulnerable and marginalized communities, including migrants. In both Bengaluru and Surat, interviews and focus group discussions were recorded or, at times, transcribed in real time by a team of community researchers.

Our analytic approach draws on a robust interrogation of theories pertaining to environmental justice, urban political economy, governance, and climate change politics in a development context. Interviews and focus group transcripts were analysed according to the themes of migrant experiences of climate risks, local strategies for addressing poverty and environmental vulnerabilities, and the social, political and economic implications for migrants of a lack of recognition in ongoing policymaking in Bengaluru and Surat. These thematic codes were then employed to structure both the brief case descriptions below as well as the subsequent analysis in Section VII. The Bengaluru case is written from the perspective of interregional migrants while the Surat case is presented from the perspective of local planners and policymakers working closely with migrants. The goal is to inductively illustrate the reasons behind and the larger implications of non-recognition in urban climate adaptation action.

V. MIGRATION AND PERPETUATION OF VULNERABILITIES IN BENGALURU

Bengaluru is situated in the southeastern dry zone of Karnataka, in the south of India, and is characterized by a semi-arid climate. The city has made significant contributions to the development of the state, claiming around 34 per cent of Karnataka's total economic output. However, this growth has also put tremendous pressure on Bengaluru's natural environment. In addition to increasing temperatures, a significant decline in annual precipitation, and erratic rainfall patterns, Bengaluru has experienced a greater number and intensity of floods due to poor spatial planning and the blockage of natural drainage channels.

Historically, Bengaluru was known for a local economy that catered to poor and middle-income groups. However, following economic liberalization in 1991, the city was transformed for the entry of transnational corporations—primarily those in the information technology sector—through land and tax incentives and the construction of new privatized infrastructure.⁽⁴⁶⁾ To advance Bengaluru's development as an emerging "world city", throughout the 1990s the city pursued a number of mega-projects including the Bengaluru–Mysore Infrastructure Corridor (BMIC), the IT corridor, and the Bengaluru International Airport (BIAL) and its surrounding development area. This led to a boom in Bengaluru's real estate market targeting high-income groups, such as investors from abroad and the local elite. It also created numerous opportunities in the informal construction sector, which attracted migrants from across the country. Despite growing employment opportunities, this period also saw sharply rising socioeconomic inequality, mass displacement, proliferating informal settlements, increasing social tensions, and unequal access to water, health and sanitation services.⁽⁴⁷⁾ As a result, Bengaluru now serves as an example of the transformation of the physical and social landscape of a city for the benefit of private interests through neoliberal forms of urban growth.

In the context of climate change, migrants experience multiple dimensions of exclusion and vulnerability. Our field research showed that migrants residing in informal settlements are typically unskilled workers from rural areas. These communities are mostly found along railway lines, tank beds, quarry pits, storm water drains, and solid waste dumpsites.⁽⁴⁸⁾ Their vulnerability is driven by both climatic and non-climatic factors. For example, most migrants residing in Bengaluru's informal settlements belong to Other Backwards Class (OBC) or Scheduled Caste communities, which include Dalits, landless agricultural labourers, and Muslims who are subjected to discrimination, misrepresentation in popular media, residential segregation, and social stigmatization. While some migrants are from more drought-prone districts within Karnataka, a significant proportion are interstate migrants from Uttar Pradesh, Bihar and West Bengal. Both inter- and intrastate migrants referred to the agrarian crisis in rural villages and a lack of viable employment options as primary factors leading to their departure.⁽⁴⁹⁾ Many note how reduced state support for small farmers, fragmentation of land holdings, and failed land reform policies have undermined rural livelihoods.⁽⁵⁰⁾ Climate change acted as a crisis catalyst by further decreasing the number of viable rural employment options. For example, migrants from West Bengal recall a major flood in 2002 that triggered waves of migration to Bengaluru.⁽⁵¹⁾

46. Goldman (2011).

47. Goldman (2011); Benjamin (2000).

48. Krishna et al. (2014).

49. Interview (2016).

50. Interview (2016).

51. Interview (2016).

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Intrastate migrants from within Karnataka attributed their decision to migrate to increasing droughts and inadequate governmental support to deal with disaster impacts.

Interstate migrants are additionally vulnerable due to linguistic disconnects – that is, the inability to communicate in Kannada, the local official language. This results in their exclusion from political and social life, including their ability to access various public distribution or rationing programmes as well as different state-based health schemes.⁽⁵²⁾ Social differences such as class, caste and religion constitute barriers to communication and cohesion among residents. This then exacerbates their vulnerability to environmental risks and hazards by inhibiting their ability to secure basic services. Further, Muslim migrants often take on waste picker jobs, which are perceived as lower status and add to the community's social stigma and alienation. For these migrants, their religious background, identity, and status as informal settlers all contribute to their gradual spatial segregation and exclusion from basic services, political voice, and access to local citizenship rights.

Many of their settlements are relatively new and not publicly recognized, and migrants also constantly fear eviction. Such forms of political and economic marginalization intersect with changing climatic conditions in the city. For Bengaluru, climate stressors include increasing temperature and the rising number and intensity of urban floods. Karnataka's first Disaster Management Plan (2010) identified urban flooding as a key risk for Bengaluru, the result of both extreme precipitation events and the increase in built-up areas, impervious surfaces, obstruction of natural channels causing increased runoff rates, silted drains, occupation of floodplains, and inadequate waste management.⁽⁵³⁾ Migrant settlements are vulnerable to flooding as they are often located in low-lying and flood-prone areas. Dwellings are often constructed using metal or tarpaulin sheets and unbaked bricks, and offer inadequate protection against inundation or leakage.

Migrant respondents noted that floodwaters enter their homes during extreme precipitation events, and ineffective drainage systems can mean that over a foot of water stagnates for hours afterwards, resulting in severe property damage.⁽⁵⁴⁾ In some cases, inundation causes mudbrick houses to collapse.⁽⁵⁵⁾ For most informal settlers, the only response is to wait for the water to recede and then manually shovel it out of their homes along with the accumulated mud and debris. As these settlements tend to lack paved roads, the surrounding areas remain swampy and sodden, providing ideal breeding grounds for disease-carrying mosquitos. Several outbreaks of dengue fever and the chikungunya virus have been recorded during recent rainy seasons across Bengaluru.⁽⁵⁶⁾ With a general lack of access to adequate sanitation facilities, this can lead to near epidemic-level health problems for women, young children, and the extremely poor.

Aside from flooding, Bengaluru has also witnessed warming trends over the past several decades. In 2016, Bengaluru experienced its highest daytime temperature (39.2 degrees Celsius) since records began in 1931. Manual wage labourers and waste pickers are directly exposed to extreme episodes of heat, and some of our research participants reported heatstroke, dehydration, headache, fatigue, and heat rashes.⁽⁵⁷⁾ Increasing temperatures in Bengaluru have also led to second-order effects like water scarcity and a lack of potable drinking water. Most migrant settlements depend on expensive private water tankers, exacerbating their economic

52. Interview (2016).

53. Basu and Bazaz (2016).

54. Focus group discussions (2016).

55. Interview (2016).

56. Interviews and focus group discussions (2016).

57. Interviews and focus group discussions (2016).

58. Interview (2016).

precariousness.⁽⁵⁸⁾ Water scarcity translates into the intensification of work for women, who are often responsible for collecting water for cooking, cleaning, and other basic household needs. The cost of water also necessitates women pursuing additional income by obtaining domestic work in nearby high-rises.

59. Goldman (2011).

60. Upadhyaya (2018).

The structural nature of the vulnerabilities experienced by these migrants due to their caste, religion, economic status or gender is compounded by insecure livelihood options, which are exacerbated by environmental hazards. The needs of migrants and informal settlers go unrecognized in municipal policies. For example, although often hampered by governance constraints⁽⁵⁹⁾ and the prioritization of economic growth,⁽⁶⁰⁾ Bengaluru has pursued some limited climate action, such as compulsory rainwater harvesting in residential and commercial buildings in certain areas as well as initiatives for the maintenance of urban lakes.⁽⁶¹⁾ These programmes, however, are highly technocratic in nature and mainly focus on emissions reduction and resilience-building priorities for the urban middle class. There are currently no plans to reduce the vulnerability of low-lying informal settlements or to extend the supply of clean drinking water to migrant communities. Some NGOs have initiated small-scale efforts – such as the Selco Foundation’s solar lanterns project – but citywide development, disaster management, or climate change initiatives have failed to recognize or include the specific needs and experiences of migrant communities.

61. Revi et al. (2016).

The case study of Bengaluru therefore depicts how historic structures of marginalization intersect with climatic change to reinforce migrants’ exclusion from public life and heighten the risks they face. Migrant communities are not only exploited for the gain of middle-class consumers or transnational corporations; their experiences of environmental risk also go unrecognized in public policies. Women who bear the “double burden” of labour casualization and insecure household incomes – together with religious minorities or lower-caste individuals who face social stigmatization – endure heightened forms of recognitional injustice. The city has effectively invisibilized migrants and unskilled labourers from the unfolding benefits of development by entrenching experiences of economic exploitation, social exclusion and environmental stress.

VI. POLITICS OF EXCLUSION IN SURAT

62. ACCCRN (2011).

63. Interview (2013).

Surat, located in the western state of Gujarat, has experienced major urban growth since the early 1990s. With a current population of more than 4.5 million, the city is a major hub for diamonds, textiles and petrochemical industries.⁽⁶²⁾ Recognizing the city’s economic strengths, the Surat Municipal Corporation (SMC) has facilitated investment-friendly policies to attract small- and medium-sized enterprises as well as larger textile, petrochemical and information technology firms.⁽⁶³⁾ As seen in Bengaluru and across India, the growth of Surat’s economic base over the past three decades has led to high levels of in-migration. The numerous opportunities in Surat’s diamond and textile factories have attracted migrants from rural Odisha, Bihar and Jharkhand. To cater to the growing housing needs of these migrants, the Surat Municipal Corporation has partnered with the urban development authority – which is responsible for local and regional planning matters – to develop additional housing units in the northern

and western zones of the city.⁽⁶⁴⁾ However, the newly built units were unaffordable to the recent migrants. This has led to the concentration of migrants in informal settlements across the city, including around the Tapi River flood zones and on marginal land in the city's periphery, all of which are environmentally precarious and lack adequate access to public services and infrastructure.

Over the past decade, a unique aspect of Surat's development has been a focus on environmental management. Surat has developed one of the most comprehensive sanitation and public health programmes in India in response to a number of disasters, including a plague epidemic in 1994 and a major flood in 2006. The 2006 floods led to a severe public health crisis, with vector-borne diseases – including leptospirosis and dengue fever – promoted by stagnant water, and gastrointestinal maladies such as cholera.⁽⁶⁵⁾ There was also significant infrastructural damage in the city centre, leading to high rebuilding costs for the city's burgeoning small enterprise sector.⁽⁶⁶⁾ Our research with municipal officials highlighted the subsequent development of a vector-borne disease surveillance unit within the local government as well as a renewed focus on public health standards and policies.⁽⁶⁷⁾ The twin disasters also galvanized momentum around the need for a more comprehensive disaster risk management and resilience-building approach in the city.

In 2009, Surat was selected by the Rockefeller Foundation to be a pilot city for the Asian Cities Climate Change Resilience Network (ACCCRN). ACCCRN's interventions in Surat between 2010 and 2014 helped develop local government capacities to assess climate risks and vulnerabilities, build institutional partnerships, and formulate projects to improve the adaptive capacity of critical infrastructure sites. Notable interventions include setting up water gauges along the Tapi River to create a unified flood warning system and bolstering flood protection systems.⁽⁶⁸⁾ Gradually, the city also started to prioritize inclusive decision-making approaches that included the representation and participation of different sectoral interests in resilience-building projects. Research respondents noted that many resulting interventions focused on integrating climate change priorities into existing public health, economic competitiveness, and infrastructure-upgrading agendas. For example, the city constructed a number of climate-sensitive housing units with natural sources of cooling, established a vulnerable people's database to inform emergency services in the event of disasters, and embarked on different "shared-learning dialogue" workshops to gather citizen ideas, priorities and interests.⁽⁶⁹⁾

Following the completion of ACCCRN's engagement in 2014, the city established the Surat Climate Change Trust (SCCT) to formalize earlier pilot interventions, particularly in the domains of public health and disaster early warning systems, and to raise awareness of climate risks and vulnerabilities among local government actors. Many have noted the relative success of Surat's approach to introducing procedural equity and inclusiveness in the initial planning and piloting phases.⁽⁷⁰⁾ Notably, the Surat City Resilience Strategy (2011) focused on building social cohesion in water pipeline, infrastructure, and public health resilience interventions and associated planning processes.⁽⁷¹⁾ Such a focus on collective action – especially that around kinship, caste, ethnic and religious identities – drew upon the experiences of rebuilding after previous disaster events.⁽⁷²⁾ The mercantile and industrial classes were able to utilize existing social and political networks to rehabilitate property, share resources, and

64. Interview (2013).

65. Interview (2013).

66. Bhat et al. (2013).

67. Interview (2014).

68. Bhat et al. (2013); Sharma et al. (2014).

69. Interview (2014); Karanth and Archer (2014); Chu (2016).

70. Interview (2013).

71. ACCCRN (2011).

72. Chu (2016).

73. Interview (2013).

74. Chu et al. (2016); Harris et al. (2018).

75. Anguelovski et al. (2016).

76. ACCCRN (2011).

77. Interview (2013).

78. Interview (2014).

79. Interview (2014).

collectively advocate for better risk management approaches. However, our field research shows that Surat's experience has also been criticized by migrant communities and civil society organizations because it was largely limited to expert decision-makers and notable city leaders, such as those representing the interests of the local commercial and industrial sectors.⁽⁷³⁾ The interests of those not belonging to dominant classes or the political elite were not represented.⁽⁷⁴⁾ As a result, subsequent climate change interventions – including various infrastructure-upgrading projects such as fortifying river embankments and upgrading pipelines – were built in ways that displaced communities living in the floodplains, which housed much of the city's migrant labour population.⁽⁷⁵⁾ This highlights uneven responses to climate-related vulnerability when marginalized communities are not recognized or involved in the decision-making process from the outset.

Though many ACCCRN-supported interventions paid some attention to the unequal distribution of climate change risks across the city, eventual infrastructural outcomes actually shifted climate risks from sites of commercial and industrial value to economically and environmentally precarious informal settlements along the floodplains. In anticipation of increasingly severe flood events,⁽⁷⁶⁾ many of these informal settlements along the floodplains were razed to make way for new embankments and riverside reinforcements, which were much-needed upgrades that improved the city's flood defence infrastructure. The city also established more robust early warning systems to monitor water levels and disease trends in the event of a disaster.⁽⁷⁷⁾ The improvements focused on protecting factories and small enterprises located in the city centre.

Even though these infrastructure improvements enabled more general economic development and disaster resilience, the communities that had to be moved in the process were never formally recognized within the city's planning framework. Local planners and engineers responsible for developing these sites noted that many of those displaced were the same migrants who arrived in the city in search of job opportunities, but were confined to these precarious sites due to their inability to secure tenure rights in permanent sites.⁽⁷⁸⁾ These communities were eventually rehoused in public housing developments with formal connections to public services, but this also meant increased distances and travelling times to job opportunities in the city centre.⁽⁷⁹⁾ Previously developed social and political networks were also severed as a result.

Planning strategies supported by the Rockefeller Foundation between 2009 and 2014 to address climate change risks were carried out under the leadership of notable and economically powerful actors. This led to the emergence of a policy discourse where climate change was seen as an opportunity to strengthen the city's economic base and render it more competitive through upgrading infrastructure, improving environmental quality, and enabling wider industrial and manufacturing growth. However, many have noted that the primary focus of these interventions was not on the justice or equity dimensions of climate change. In fact, the benefits of climate change action were concentrated among the economic and political elite, while migrants and informal settlements were displaced for the sake of environmental resilience. As in Bengaluru, Surat's migrants and informal settlers face heightened vulnerabilities because of insecure livelihoods and environmental precariousness. These stressors are compounded as their experiences go unrecognized in current

municipal disaster management, climate resilience building, or economic development plans.

VII. COMPARATIVE PERSPECTIVES OF RECOGNITIONAL CLIMATE JUSTICE

The Bengaluru and Surat case studies illustrate how a lack of access to citizenship rights, housing tenure, secure employment, and political representation exacerbates migrants' experiences of climate impacts. These forms of non-recognition point to a need to renew our approach to identifying, delineating and evaluating climate injustices in cities beyond the duality of procedural inclusiveness and (re)distributive equity. We argue that forms of recognitional injustice are equally powerful determinants of marginality in India (and possibly beyond), and indeed underpin procedural and distributional forms of injustice. In this section, we reflect on four implications of non-recognition in the context of urban climate justice.

First, non-recognition manifests through broken social networks, severed communal ties, and disconnected patronage systems. Our brief investigations into Bengaluru and Surat – both cities with extraordinarily high population growth rates – highlight the need to examine climate justice through the pathways and flows of human and capital movement across space. The movement of people, however, severs the collective capacities, social networks and kinship ties that are important contributors to adaptive capacity,⁽⁸⁰⁾ and hence critical to ensuring welfare in development contexts. As the two case studies highlight, cities are nodes of transformation amidst a wider network of economic, social and political change. Social change, in the form of increasing diversity, often lacks the corresponding mechanisms to rebuild social networks and kinship ties among formerly rural communities, exacerbating social and political exclusion. Because migrants are often not considered “native” to the places, they are thus prevented from effectively accessing public services and political advocacy opportunities. As the Bengaluru case shows, migrants belonging to lower castes or religious minorities are often negatively stereotyped, so they are susceptible to discriminatory policies, misrepresentation in the media, and predatory labour practices, and go unrecognized in any claims for housing, job security or environmental rights.

Second, non-recognition implies the erasure of identity, political voice and, more crucially, access to citizenship rights. The case studies illustrate that migration outcomes are largely determined by complex social processes, power dynamics, and the reorganization of labour. Addressing climate vulnerabilities on a city scale thus calls for due recognition and participation of the expanding unskilled migrant groups that remain spatially disengaged from broader urban systems and excluded from mainstream urban opportunities. From both Bengaluru and Surat, we see that climate change action tends to be spearheaded by the local political and economic elite. This proves critical from agenda setting, leadership and policy entrepreneurship points of view because climate priorities are new and unfamiliar, and require sustained political mobilization for their implementation.⁽⁸¹⁾ From Surat's experience, we see the need for specialized decision-making bodies to advocate for climate change

80. Agrawal (2010).

81. Anguelovski and Carmin (2011); Carmin et al. (2013).

82. Chu et al. (2017).

83. Archer et al. (2014).

84. Denton (2002); Terry (2009);
Arora-Jonsson (2011).

85. Gayer and Jaffrelot (2012).

86. Leichenko and O'Brien
(2008); Parks and Roberts
(2006).

needs amidst complex sets of urban development challenges.⁽⁸²⁾ Where such bodies exist, though, they are often critiqued for their lack of wide participation and inclusion of vulnerable and marginalized residents, who will likely experience the brunt of extreme impacts.⁽⁸³⁾ Such lack of broad participation is even more problematic for migrant communities, as they are often not even considered for basic “tick-box” participatory planning exercises when participation is called for. Migrant communities’ inability to claim citizenship rights – combined with the public authority’s active erasure and marginalization of their interests – serves as a double burden on their capability to advocate for resources to further adaptation and resilience building.

Third, non-recognition exacerbates social tensions, particularly in situations of stark gender, class, caste, religious and ethnic divisions. The case studies show that migrant communities are not uniform or homogenous. In fact, many come with pre-existing social categories that are discriminatory towards women and religious minorities. As a result, particular sections of migrant communities are even less able to respond to emerging climate risks and livelihood stressors. Women, for example, often experience the double burden of informal employment and unpaid household duties, which further inhibits their ability to pursue climate adaptation measures.⁽⁸⁴⁾ Additionally, as shown in the case of Muslim migrants in Bengaluru, religious minority communities continue to face actively discriminatory policies of Hindu-majority local authorities. Similarly, migrants who are not able to communicate in local official languages – Kannada in the case of Bengaluru and Gujarati in the case of Surat – are discouraged from accessing public services or contributing to social and political life in the city. In view of the increasing incidence of religious tension in India,⁽⁸⁵⁾ we find that the structural marginalization experienced by migrants in the form of class, caste and gender discrimination exacerbates climate injustices. Migrants form an invisible category of people who are either completely forgotten or are actively erased from the urban fabric.

Finally, non-recognition leads to heightened exposure to environmental risks due to the inability to secure employment opportunities, advocate for access to public services, and, at times, mobilize against displacement. Migrant labourers are particularly vulnerable to economic transformation and climate impacts, as the poor often experience heightened precariousness due to entrenched economic insecurity and informality. Migrant communities are particularly vulnerable to flooding, heat island effects and periods of water scarcity. This not only causes detrimental health effects but also prevents migrants from earning an adequate daily wage. We also see that migrants have little or no negotiating power in the city and are ignored by many government programmes. For example, in Surat, a lack of political representation in decision-making meant that migrants were unable to resist displacement. As adaptation and resilience priorities are increasingly integrated with the priorities of economic growth, competitiveness and speculative property development in both Bengaluru and Surat, migrants are likely to be continue being ignored in the future. Advocates of climate justice therefore must recognize how marginalized residents are “doubly exposed” to the compounding effects of urban environmental changes and socioeconomic transformations.⁽⁸⁶⁾

Our discussion of recognitional injustice points to a need to renew

our approach to unpacking the sources, experiences and consequences of climate change in cities. These arguments are supported by our two case studies, where we see a transfer of socioeconomic precariousness from rural to urban spaces due to the introduction of neoliberal policies and the transformation of economic production in India over recent decades. Given these realities, theories of climate justice are not only about the actors and the sites of inequality and marginality, but also about the flows, exchanges and processes that contribute to risks and vulnerabilities across the city. Analyses of the unjust distribution of infrastructure or the exclusion of vulnerable populations from decision-making must therefore be tied to larger discussions of urban entrepreneurialism, the revanchist city, land reform, a diminishing social welfare system, and the gradual deconstruction of state authorities in India.

VIII. CONCLUSIONS

In this paper, we unpacked the dynamics of recognitional urban climate justice in a development context. We drew upon Nancy Fraser's and Miranda Fricker's articulations of recognitional justice⁽⁸⁷⁾ to reveal how migrants in Bengaluru and Surat embody intersecting forms of environmental marginality – all of which can be attributed to active processes of sociopolitical domination and non-recognition. Since liberalization in the early 1990s, urban policies across India have promoted opportunities for increasing economic competitiveness, enhancing capital's speculative potential and improving environmental quality for middle-class consumers. These ideals are now further promoted within the articulation of emerging climate change priorities, and offer a utopian vision of economic growth, environmental sustainability and human wellbeing.⁽⁸⁸⁾ However, as both case studies show, this process simultaneously exacerbates vulnerabilities for migrants, who benefit from few or no citizenship rights. Migrants face extreme forms of climate injustice as they are often invisible to the official state apparatus, or worse, are actively erased from cities through force or discriminatory development policies. Those who were marginal or invisible to the benefits of urban development in the past therefore continue to be marginalized and invisibilized in current climate change actions.

From a theoretical standpoint, we assert that recognitional forms of climate injustice should receive additional scholarly attention. Although recent literature on procedural and distributive framings of climate justice have introduced more critical reflections of policy beneficiaries and potential impacts, the delineation of "valid" and "legitimate" actors continues to underpin who gets to participate in policymaking and whose interests and priorities are accounted for.⁽⁸⁹⁾ As our case studies from Bengaluru and Surat have shown, issues of recognition are imbued with conflict as they pertain to contextually dependent formations of social identities, epistemic communities and everyday experiences.⁽⁹⁰⁾ For migrants, this means that they are constantly invisibilized, often negatively stereotyped, and maligned in public or cultural representations. The recognition of different sociocultural, experiential and productive frames is therefore critical to enabling more radical climate justice in cities in India and across the global South.

87. Fraser (1997); Fricker (2007).

88. Joseph (2013); Gillard (2016).

89. Walker and Day (2012).

90. Young (1990); Meerow and Newell (2016); Sovacool et al. (2015).

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REFERENCES

- ACCCRN (2011), *Surat City Resilience Strategy*, Asian Cities Climate Change Resilience Network (ACCCRN) and TARU-Leading Edge, Surat, 52 pages.
- Agrawal, Arun (2010), "Local institutions and adaptation to climate change", in Robin Mearns and Andrew Norton (editors), *The Social Dimensions of Climate Change: Equity and Vulnerability in a Warming World*, World Bank, Washington, DC, pages 173–197.
- Anguelovski, Isabelle and JoAnn Carmin (2011), "Something borrowed, everything new: innovation and institutionalization in urban climate governance", *Current Opinion in Environmental Sustainability* Vol 3, No 3, pages 169–175.
- Anguelovski, Isabelle, Eric Chu and JoAnn Carmin (2014), "Variations in approaches to urban climate adaptation: experiences and experimentation from the Global South", *Global Environmental Change* Vol 27, pages 156–167.
- Anguelovski, Isabelle, Linda Shi, Eric Chu, Daniel Gallagher, Kian Goh, Zachary Lamb, Kara Reeve and Hannah Teicher (2016), "Equity impacts of urban land use planning for climate adaptation", *Journal of Planning Education and Research* Vol 36, No 3, pages 333–348.
- Archer, Diane, Florencia Almansi, Michael DiGregorio, Debra Roberts, Divya Sharma and Denia Syam (2014), "Moving towards inclusive urban adaptation: approaches to integrating community-based adaptation to climate change at city and national scale", *Climate and Development* Vol 6, No 4, pages 345–356.
- Arora-Jonsson, Seema (2011), "Virtue and vulnerability: discourses on women, gender and climate change", *Global Environmental Change* Vol 21, No 2, pages 744–751.
- Ayers, Jessica and David Dodman (2010), "Climate change adaptation and development I", *Progress in Development Studies* Vol 10, No 2, pages 161–168.
- Ayers, Jessica and Tim Forsyth (2009), "Community-based adaptation to climate change", *Environment: Science and Policy for Sustainable Development* Vol 51, No 4, pages 22–31.
- Bartlett, Sheridan and David Satterthwaite (editors) (2016), *Cities on a Finite Planet: Towards Transformative Responses to Climate Change*, Routledge, 273 pages.
- Basu, Ritwika and Amir Bazaz (2016), "Assessing climate change risks and contextual vulnerability in urban areas of semi-arid India: the case of Bangalore", CARIAA-ASSAR working paper, Ottawa and London.
- Beckman, Ludvig and Edward Page (2008), "Perspectives on justice, democracy and global climate change", *Environmental Politics* Vol 17, No 4, pages 527–535.
- Benjamin, Solomon (2000), "Governance, economic settings and poverty in Bangalore", *Environment and Urbanization* Vol 12, No 1, pages 35–56.
- Berkes, Fikret, Johan Colding and Carl Folke (2000), "Rediscovery of traditional ecological knowledge as adaptive management", *Ecological Applications* Vol 10, No 5, pages 1251–1262.
- Bhagat, R B (2017), "Migration, gender and right to the city", *Economic and Political Weekly* Vol 52, No 32, pages 35–40.
- Bhat, G K, Anup Karanth, Lalit Dashora and Umamaheshwaran Rajasekar (2013), "Addressing flooding in the city of Surat beyond its boundaries", *Environment and Urbanization* Vol 25, No 2, pages 429–441.

- Brand, Peter (2007), "Green subjection: the politics of neoliberal urban environmental management", *International Journal of Urban and Regional Research* Vol 31, No 3, pages 616–632.
- Breman, Jan (2010), *Outcast Labour in Asia: Circulation and Informalization of the Workforce at the Bottom of the Economy*, Oxford University Press, Oxford.
- Breman, Jan (2013), *At Work in the Informal Economy of India: A Perspective from the Bottom Up*, Oxford University Press, New Delhi.
- Carmin, JoAnn, David Dodman and Eric Chu (2013), *Urban Climate Adaptation and Leadership: From Conceptual Understanding to Practical Action*, Organisation for Economic Co-operation and Development (OECD), Paris, 48 pages.
- Chibber, Vivek (2003), *Locked in Place: State-Building and Late Industrialization in India*, Oxford University Press, Princeton and Oxford.
- Chu, Eric (2016), "The political economy of urban climate adaptation and development planning in Surat, India", *Environment and Planning C: Government and Policy* Vol 34, No 2, pages 281–298.
- Chu, Eric, Isabelle Anguelovski and JoAnn Carmin (2016), "Inclusive approaches to urban climate adaptation planning and implementation in the Global South", *Climate Policy* Vol 16, No 3, pages 372–392.
- Chu, Eric, Isabelle Anguelovski and Debra Roberts (2017), "Climate adaptation as strategic urbanism: assessing opportunities and uncertainties for equity and inclusive development in cities", *Cities* Vol 60, pages 378–387.
- Chu, Eric, Todd Schenk and James Patterson (2018), "The dilemmas of citizen inclusion in urban planning and governance to enable a 1.5 °C climate change scenario", *Urban Planning* Vol 3, No 2, pages 128–140.
- Ciplet, David and J Timmons Roberts (2017), "Climate change and the transition to neoliberal environmental governance", *Global Environmental Change* Vol 46, pages 148–156.
- Denton, Fatima (2002), "Climate change vulnerability, impacts, and adaptation: Why does gender matter?", *Gender & Development* Vol 10, No 2, pages 10–20.
- Desai, Renu and Romola Sanyal (editors) (2012), *Urbanizing Citizenship: Contested Spaces in Indian Cities*, SAGE Publications, New Delhi, 246 pages.
- Fernandes, Leela (2004), "The politics of forgetting: class politics, state power and the restructuring of urban space in India", *Urban Studies* Vol 41, No 12, pages 2415–2430.
- Fraser, Nancy (1997), *Justice Interruptus: Critical Reflections on the "Postsocialist" Condition*, Routledge, New York and London.
- Fraser, Nancy (2000), "Rethinking Recognition", *New Left Review* Vol 3, pages 107–120.
- Fraser, Nancy and Axel Honneth (2003), *Redistribution or Recognition? A Political-Philosophical Exchange*, Verso, London and New York.
- Fricker, Miranda (2007), *Epistemic Injustice*, Oxford University Press.
- Gayer, Laurent and Christophe Jaffrelot (editors) (2012), *Muslims in Indian Cities: Trajectories of Marginalisation*, Hurst, London.
- Gillard, Ross (2016), "Questioning the diffusion of resilience discourses in pursuit of transformational change", *Global Environmental Politics* Vol 16, No 1, pages 13–20.
- Goldman, Michael (2011), "Speculative urbanism and the making of the next world city", *International Journal of Urban and Regional Research* Vol 35, No 3, pages 555–581.
- Harris, Leila M, Eric K Chu and Gina Ziervogel (2018), "Negotiated resilience", *Resilience* Vol 6, No 3, pages 196–214.
- Huntington, Henry P (2000), "Using traditional ecological knowledge in science: methods and applications", *Ecological Applications* Vol 10, No 5, pages 1270–1274.
- Joseph, Jonathan (2013), "Resilience as embedded neoliberalism: a governmentality approach", *Resilience* Vol 1, No 1, pages 38–52.
- Kaika, Maria (2017), "'Don't call me resilient again!': the New Urban Agenda as immunology ... or ... what happens when communities refuse to be vaccinated with 'smart cities' and indicators", *Environment and Urbanization* Vol 29, No 1, pages 89–102.
- Karanth, Anup and Diane Archer (2014), "Institutionalising mechanisms for building urban climate resilience: experiences from India", *Development in Practice* Vol 24, No 4, pages 514–526.
- Kavi Kumar, K S and Brinda Viswanathan (2013), "Influence of weather on temporary and permanent migration in rural India", *Climate Change Economics* Vol 4, No 2, 19 pages.
- Krishna, A, M S Sriram and P Prakash (2014), "Slum types and adaptation strategies: identifying policy-relevant differences in Bangalore", *Environment and Urbanization* Vol 26, No 2, pages 568–585.
- Leichenko, Robin M and Karen L O'Brien (2008), *Environmental Change and Globalization: Double Exposures*, Oxford University Press, Oxford and New York, 167 pages.
- Mahadevia, Darshini (2001), "Sustainable urban development in India: an inclusive perspective", *Development in Practice* Vol 11, No 2–3, pages 242–259.
- McConkey, Jane (2004), "Knowledge and acknowledgement: 'epistemic injustice' as a problem of recognition", *Politics* Vol 24, No 3, pages 198–205.

- Meerow, Sara and Joshua P Newell (2016), "Urban resilience for whom, what, when, where, and why?", *Urban Geography*, 21 pages.
- Michael, Kavya, Tanvi Deshpande and Gina Ziervogel (2018), "Examining vulnerability in a dynamic urban setting: the case of Bangalore's interstate migrant waste pickers", *Climate and Development*.
- Michael, Kavya and Vamsi Vakulabharanam (2016), "Class and climate change in post-reform India", *Climate and Development* Vol 8, No 3, pages 224–233.
- Paavola, Jouni and W Neil Adger (2006), "Fair adaptation to climate change", *Ecological Economics* Vol 56, No 4, pages 594–609.
- Parks, Bradley C and J Timmons Roberts (2010), "Climate change, social theory and justice", *Theory, Culture & Society* Vol 27, Nos 2–3, pages 134–166.
- Patterson, James J, Thomas Thaler, Matthew Hoffmann, Sara Hughes, Angela Oels, Eric Chu, Aysem Mert, Dave Huitema, Sarah Burch and Andy Jordan (2018), "Political feasibility of 1.5°C societal transformations: the role of social justice", *Current Opinion in Environmental Sustainability* Vol 31, pages 1–9.
- Pelling, Mark (2010), *Adaptation to Climate Change: From Resilience to Transformation*, Routledge, London and New York.
- Perkins, Harold A (2009), "Out from the (green) shadow? Neoliberal hegemony through the market logic of shared urban environmental governance", *Political Geography* Vol 28, No 7, pages 395–405.
- Rao, Smriti and Vamsi Vakulabharanam (2018), "Migration, crises and social transformation in India since the 1990s", in Cecilia Menjivar, Marie Ruiz and Immanuel Ness (editors), *Handbook of Migration Crises*, Oxford University Press, Oxford.
- Reckien, Diana, Felix Creutzig, Blanca Fernandez, Shuaib Lwasa, Marcela Tovar-Restrepo, Darryn McEvoy and David Satterthwaite (2017), "Climate change, equity and the sustainable development goals: an urban perspective", *Environment and Urbanization* Vol 29, No 1, pages 159–182.
- Revi, Aromar (2008), "Climate change risk: an adaptation and mitigation agenda for Indian cities", *Environment and Urbanization* Vol 20, No 1, pages 207–229.
- Revi, Aromar, S P Gajjar, Amir Bazaz, Garima Jain and Ritwika Basu (2016), "Bangalore, India", in Sheridan Bartlett and David Satterthwaite (editors), *Cities on a Finite Planet: Towards Transformative Responses to Climate Change*, Routledge, New York.
- Rosenzweig, Cynthia and William Solecki (2018), "Action pathways for transforming cities", *Nature Climate Change* Vol 8, No 9, pages 756–759.
- Santha, Sunil D, Surinder Jaswal, Devisha Sasidevan, Kaushik Datta, Ajmal Khan and Annu Kuruvilla (2015), "Climate change, livelihoods and health inequities: the vulnerability of migrant workers in Indian cities", Asian Cities Climate Resilience Working Paper No 10728, International Institute for Environment and Development, London.
- Sanyal, Kalyan (2007), *Rethinking Capitalist Development: Primitive Accumulation, Governmentality and Post-colonial Capitalism*, Routledge, New Delhi.
- Satterthwaite, David (2013), "The political underpinnings of cities' accumulated resilience to climate change", *Environment and Urbanization* Vol 25, No 2, pages 381–391.
- Schlosberg, David (2004), "Reconceiving environmental justice: global movements and political theories", *Environmental Politics* Vol 13, No 3, pages 517–540.
- Sharma, Divya, Raina Singh and Rozita Singh (2014), "Building urban climate resilience: learning from the ACCCRN experience in India", *International Journal of Urban Sustainable Development* Vol 6, No 2, pages 133–153.
- Shi, Linda, Eric Chu, Isabelle Anguelovski, Alexander Aylett, Jessica Debats, Kian Goh, Todd Schenk, Karen C Seto, David Dodman, Debra Roberts, J Timmons Roberts and Stacy D VanDeveer (2016), "Roadmap towards justice in urban climate adaptation research", *Nature Climate Change* Vol 6, No 2, pages 131–137.
- Shrivastava, Aseem and Ashish Kothari (2012), *Churning the Earth: The Making of Global India*, Penguin, New York.
- Sovacool, Benjamin K, Björn-Ola Linnér and Michael E Goodsite (2015), "The political economy of climate adaptation", *Nature Climate Change* Vol 5, No 7, pages 616–618.
- Tacoli, Cecilia (2009), "Crisis or adaptation? Migration and climate change in a context of high mobility", *Environment and Urbanization* Vol 21, No 2, pages 513–525.
- Terry, Geraldine (2009), "No climate justice without gender justice: an overview of the issues", *Gender & Development* Vol 17, No 1, pages 5–18.
- Upadhyay, Carol (2018), "Afterword: middle class activism and Bangalore's environmental predicament", *International Development Policy/Revue internationale de politique de développement* Vol 8, No 2.
- Vakulabharanam, Vamsi and Sripad Motiram (2012), "Understanding poverty and inequality in urban India since reforms: bringing quantitative and qualitative approaches together", *Economic and Political Weekly* Vol 47, Nos 47–48, pages 44–52.
- Viswanathan, Brinda and K S Kavi Kumar (2015), "Weather, agriculture and rural migration: evidence from state and district level migration in India", *Environment and Development Economics* Vol 20, No 4, pages 469–492.

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- Walker, Gordon (2012), *Environmental Justice: Concepts, Evidence and Politics*, Routledge, London and New York.
- Walker, Gordon and Rosie Day (2012), "Fuel poverty as injustice: integrating distribution, recognition and procedure in the struggle for affordable warmth", *Energy Policy* Vol 49, pages 69–75.
- Whitehead, Mark (2013), "Neoliberal urban environmentalism and the adaptive city: towards a critical urban theory and climate change", *Urban Studies* Vol 50, No 7, pages 1348–1367.
- Young, Iris Marion (1990), *Justice and the Politics of Difference*, Princeton University Press, Princeton, NJ.
- Ziervogel, Gina, Mark Pelling, Anton Cartwright, Eric Chu, Tanvi Deshpande, Leila Harris, Keith Hyams, Jean Kaunda, Benjamin Klaus, Kavya Michael, Lorena Pasquini, Robyn Pharoah, Lucy Rodina, Dianne Scott and Patricia Zweig (2017), "Inserting rights and justice into urban resilience: a focus on everyday risk", *Environment and Urbanization* Vol 29, No 1, pages 123–138.