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PROCEDURAL (FLOOD) JUSTICE AND MARGINALIZATION IN COMMUNITY ADAPTATION AND DECISION-MAKING

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Abstract
Climate change intensifies urban flooding, yet adaptation governance routinely excludes the most vulnerable communities from decision-making. This descriptive mixed-methods study examines procedural justice in flood adaptation governance in Islamabad, Pakistan, focusing on the inclusion and exclusion of marginalised populations. Grounded in the just sustainability framework, it addresses a critical empirical gap in Global South climate justice research. Quantitative survey data (N = 450 households) were collected across planned sectors, recognised informal settlements, and unrecognised informal settlements, complemented by 35 semi-structured interviews and five focus group discussions with residents, community leaders, government officials, and civil society actors. Findings reveal near-total procedural exclusion: only 2.4% of respondents reported ever being consulted in flood adaptation decisions, with zero participation documented in both recognised and unrecognised informal settlements. Key barriers include lack of information (62.2%), absence of consultation mechanisms (58.9%), institutional distrust (47.8%), and gendered exclusion. Qualitative findings show that non-recognition of informal settlements, tokenistic participation, and a reactive governance culture systematically produce procedural injustice. Despite exclusion, communities demonstrate significant agency through informal adaptation strategies, and 78.2% support inclusive governance. The study concludes that procedural justice is foundational to equitable flood adaptation, requiring institutional recognition of informal settlements, gender-sensitive participation mechanisms, and a shift from reactive to participatory governance.

1. INTRODUCTION

1.1 The Global Challenge: Climate Change, Flooding, and Urban Vulnerability

Climate change has emerged as one of the most pressing challenges of the twenty-first century, with its impacts disproportionately affecting vulnerable populations across the globe (Agyeman, 2013). Among the most devastating manifestations are extreme flooding events, which have intensified in frequency, magnitude, and unpredictability due to rising global temperatures and changing precipitation patterns (IPCC, 2022). Urban centres in the Global South are particularly susceptible, owing to rapid and often unplanned urbanisation, inadequate infrastructure, weak governance structures, and high concentrations of

socioeconomically marginalised populations (Bulkeley, Edwards, & Fuller, 2014). The convergence of these factors creates a complex risk landscape where environmental hazards intersect with deep-seated social vulnerabilities, producing outcomes that are fundamentally unjust.

In this context, climate justice has gained traction within academic and policy circles, challenging the notion that climate impacts are indiscriminate and instead foregrounding systemic inequalities (Schlosberg, 2007). Climate justice demands attention not only to the distribution of environmental harms and benefits but also to the processes through which adaptation decisions are made and the extent to which diverse voices are recognised and valued (Holland, 2017). The present descriptive study situates itself within this intellectual terrain.

1.2 Pakistan's Flood Crisis and Islamabad as a Critical Site of Inquiry

Pakistan is one of the countries most severely affected by climate change, despite contributing less than one per cent of global greenhouse gas emissions (Kamboh & Ittefaq, 2023). The 2022 floods submerged approximately one-third of the country, displaced over eight million people, and caused economic damages exceeding thirty billion US dollars (UNDP, 2022). Affected communities were overwhelmingly those already living in conditions of poverty, informality, and marginalisation.

Islamabad, Pakistan's purpose-built capital, offers a particularly instructive context. Long regarded as a model of planned urban development (Hull, 2008), the city's rapid growth has generated substantial informal settlements, particularly along its peripheries, where residents lack secure land tenure, adequate drainage, and reliable access to basic services (Javed, 2022). In July 2021, a flash flood in Sector E-11/2 claimed two lives and caused widespread property damage, with subsequent analysis revealing that the disaster was more attributable to administrative failure than to any exceptional meteorological event (Javed, 2022). A survey conducted across sixty-two disaster-prone locations found that 91% of respondents reported that governments had not taken adequate measures to address flood risks, while 87% stated that they had never been consulted by officials or included in any flood preparedness committees (Pattan-Coalition 38, 2024). These findings point to a systemic pattern of procedural exclusion demanding rigorous scholarly investigation.

1.3 Research Aim and Questions

This descriptive study examines how procedural justice operates within flood adaptation governance in Islamabad, with a particular focus on the inclusion or exclusion of marginalised communities in decision-making processes. The research addresses four questions:

1. To what extent are marginalised communities in flood-prone areas of Islamabad included in flood adaptation planning and decision-making processes?
2. What are the perceived barriers to meaningful participation experienced by these communities?
3. How do existing governance structures, institutional practices, and power relations shape opportunities for procedural justice in flood adaptation?
4. What are the implications of procedural (in)justice for the broader goal of achieving just sustainabilities in urban Pakistan?

2. Theoretical Framework: Just Sustainabilities and Procedural Justice

2.1 The Just Sustainabilities Framework

This descriptive study is theoretically grounded in the just sustainabilities framework articulated by Agyeman, Bullard, and Evans (2003) and subsequently elaborated by Agyeman (2013). The framework emerged from a critical recognition that mainstream sustainability discourse had treated environmental quality and social equity as separate, and at times competing, objectives. Agyeman and colleagues advanced an integrative vision, arguing that sustainability cannot be achieved without a simultaneous and explicit commitment to justice. The framework defines just sustainabilities as the need to ensure a better quality of life for all, now and into the future, in a just and equitable manner, whilst living within the

limits of supporting ecosystems (Agyeman, 2005, p. 44).

The framework is particularly well-suited to this descriptive study for three reasons. First, it explicitly integrates social justice and environmental sustainability. Second, it directs attention to multiple dimensions of justice, including procedural dimensions. Third, it is avowedly normative and action-oriented, seeking to inform transformative change (Agyeman, 2013).

2.2 Procedural Justice

The analytical work is operationalised through the tripartite framework of environmental justice developed by Schlosberg (2004, 2007), which distinguishes between three interconnected dimensions. Distributional justice concerns the equitable allocation of environmental benefits and burdens. Recognitional justice concerns the respect, dignity, and value accorded to different groups and their knowledges. Procedural justice concerns the fairness, inclusiveness, and transparency of decision-making processes asking who participates, how they participate, and whether their participation meaningfully shapes outcomes (Schlosberg, 2007).

Of these three dimensions, procedural justice is the least studied, yet arguably the most foundational, in climate adaptation governance (Brousseau, Stern, Pownall, & Hansen, 2024). As Holland (2017, p. 391) argues, "theories of procedural justice can help to identify procedural reforms and political strategies that advance the interests of vulnerable populations." Recent scholarship has underscored the persistent neglect of procedural justice in urban climate governance. Diezmartínez and Short Gianotti (2025) demonstrated that less than half of C40 cities included procedural justice in their policy choices, with many exhibiting "tokenistic modes of participation."

2.3 The Global South Research Gap

While the theoretical literature on procedural justice has grown, empirical applications in the Global South remain disproportionately limited. As Schlosberg and Collins (2017) observe, adaptation politics presents both obstacles and opportunities for correcting inequities, yet most empirical studies have been conducted in the Global North (Mcmillan, Kocsis, & Daniere, 2022). Research on inclusive approaches in Quito and Surat revealed that civil society actors' involvement was constrained by limited resources, weak institutional linkages, and entrenched power asymmetries (Chu, Anguelovski, & Carmin, 2016). The present descriptive study responds to the call for more empirically grounded research on climate justice in the Global South.

3. Methods

3.1 Research Design

This descriptive study adopted a convergent parallel mixed-methods design (Creswell & Plano Clark, 2018), wherein quantitative and qualitative data were collected contemporaneously, analysed separately, and subsequently integrated during interpretation. This design permits simultaneous examination of broad patterns of inclusion and exclusion (survey data) and the underlying mechanisms, power relations, and lived experiences that shape those patterns (interviews and focus group discussions). As a descriptive study, the emphasis is on providing a comprehensive, detailed account of existing conditions rather than testing causal hypotheses.

3.2 Study Setting

The study was conducted in Islamabad Capital Territory (ICT), Pakistan, a planned city of approximately 1.1 million permanent residents (Pakistan Bureau of Statistics, 2023). Islamabad's rapid population growth has generated over fifty slums (katchi abadis), of which only eleven are formally recognised by the Capital Development Authority (CDA) (Graana, 2021). A United Nations report published in 2025 revealed that Islamabad is experiencing localised flooding due to the absence of an adequate storm drainage system, with rapid land-use changes and unregulated construction on natural drainage channels substantially increasing surface runoff (UN Pakistan, 2025).

The descriptive study focused on three distinct types of flood-prone areas within ICT: (a) planned sectors with documented flood vulnerability

(Sector E-11 and Sector D-12); (b) recognised informal settlements located in flood-vulnerable zones (adjacent to nullahs in Sectors F-6, F-7, G-6, and I-8); and (c) unrecognised informal settlements on the urban periphery (Dhok Paracha, Dhok Kala Khan, Shah Allah Ditta, and Nurpur Shahan). This stratified selection enabled comparative description across different governance regimes and settlement types.

3.3 Quantitative Component: Sampling and Data Collection

3.3.1 Target Population and Sampling Frame

The target population consisted of all households residing in the three identified flood-prone site categories. For planned sectors and recognised informal settlements, the Capital Development Authority's ward-level household estimates (Pakistan Bureau of Statistics, 2023) provided a sampling frame. For unrecognised informal settlements which lack official mapping the research team constructed a sampling frame using high-resolution satellite imagery (Google Earth Pro, 2023) validated through ground-truthing and participatory enumeration with community leaders. This approach yielded an estimated 4,850 total households across all sites (planned sectors: 2,450; recognised informal: 1,400; unrecognised informal: 1,000).

3.3.2 Sample Size

The target sample was set at 450 households, stratified proportionally across the three site categories (150 households each from planned sectors, recognised informal settlements, and unrecognised informal settlements). This sample size was selected to provide sufficient precision for descriptive estimates across subgroups.

3.3.3 Sampling Procedure

A systematic sampling approach was applied to the enumerated satellite-derived frame, producing a non-probability sample of unrecognised settlement households. Findings from this stratum are interpreted as exploratory and are not statistically generalisable to all unrecognised settlements in Islamabad

3.3.4 Survey Instrument

A structured questionnaire, administered in Urdu by trained enumerators, comprised five sections: (a) demographic and socioeconomic characteristics; (b) flood exposure and impact history; (c) procedural justice indicators (awareness of flood planning processes, participation in consultations, perceived influence over decisions, trust in institutions), measured using five-point Likert scales adapted from validated instruments (Rosenbaum et al., 2017; Powers et al., 2023); (d) recognitional justice indicators; and (e) distributional justice indicators. The questionnaire was piloted with 30 households, with reliability testing yielding Cronbach's α = 0.87 for the 12-item procedural justice scale.

3.3.5 Quantitative Data Analysis

Survey data were entered into SPSS (Version 29) and R (Version 4.3) for descriptive analysis. Descriptive statistics were calculated for all variables, including frequencies, percentages, means, medians, standard deviations, interquartile ranges, and 95% confidence intervals for proportions using the Clopper-Pearson exact method. For comparisons across settlement types, Kruskal-Wallis tests were used for ordinal and non-normally distributed continuous variables, and Fisher's exact test for categorical variables with small expected cell counts.

3.4 Qualitative Component: Sampling and Data Collection

3.4.1 Purposive Sampling

A total of 35 semi-structured interviews were conducted across four stakeholder categories: (a) residents from flood-prone and marginalised communities (n = 22), selected to represent diversity of age, gender, settlement type, and flood exposure; (b) community leaders and representatives of resident welfare associations (n = 5); (c) government officials from the CDA, Metropolitan Corporation Islamabad (MCI), and National Disaster Management Authority (NDMA) (n = 5); and (d) civil society representatives and journalists with expertise in disaster governance (n = 3).

3.4.2 Focus Group Discussions

Five focus group discussions (FGDs) were conducted, each comprising 6–10 participants, with specific groups: (FGD1) women from informal settlements (n = 8); (FGD2) women from planned sectors (n = 7); (FGD3) youth (aged 18–30) (n = 9); (FGD4) elderly residents (aged 60+) (n = 8); and (FGD5) residents of unrecognised settlements (mixed gender) (n = 10). FGDs were stratified to enable group-specific barriers to emerge without cross-status inhibition.

3.4.3 Interview and FGD Guides

Separate guides were developed for each stakeholder category, exploring: lived experiences of flooding; encounters with authorities; instances of consultation (or non-consultation); perceptions of procedural fairness; barriers to participation; and community-led adaptation strategies. FGD guides were structured around collective experiences, group-specific barriers, perceptions of procedural fairness, and community-generated recommendations.

3.4.4 Qualitative Data Analysis

Interview transcripts and FGD recordings were transcribed verbatim in Urdu, then translated into English for analysis. Thematic analysis followed Braun and Clarke's (2006) six-phase procedure: familiarisation, initial coding, theme generation, theme review, theme definition, and write-up. Coding was conducted using NVivo 14 software, employing a dual coding strategy: deductive coding based on Schlosberg's (2007) three dimensions (procedural, recognitional, distributional) and inductive coding to capture emergent themes. Two researchers independently coded a 20% sample of transcripts, achieving Cohen's κ = 0.84.

3.5 Descriptive Approach

As a descriptive study, the primary analytical goal was to provide a comprehensive, nuanced, and detailed account of procedural (in)justice in flood adaptation governance as it currently exists in Islamabad. The study does not aim to establish causal relationships but rather to document patterns, describe experiences, and characterise the governance landscape. Integration of quantitative and qualitative findings occurred through joint display matrices and narrative synthesis, with meta-inferences drawn by synthesising across strands.

4. Results

4.1 Sample Characteristics

A total of 450 households participated in the survey, evenly distributed across planned sectors, recognised informal settlements, and unrecognised informal settlements. Table 1 presents key demographic characteristics by settlement type.

Table 1

Demographic Characteristics by Settlement Type (N = 450)

Characteristic	Planned Sectors (n = 150)	Recognised Informal (n = 150)	Unrecognised Informal (n = 150)	Total (N = 450)
Mean household size (persons)	5.2 (SD = 2.1)	6.4 (SD = 2.4)	6.9 (SD = 2.7)	6.2 (SD = 2.5)
Mean monthly income (PKR)	85,400 (SD = 42,300)	42,100 (SD = 18,700)	28,600 (SD = 12,400)	52,033 (SD = 35,800)
Mean education (years)	11.4 (SD = 4.2)	6.8 (SD = 3.9)	4.2 (SD = 3.1)	7.5 (SD = 4.7)
Female-headed households (%)	12.0	18.7	22.0	17.6
Length of residence (years)	8.3 (SD = 5.1)	12.7 (SD = 6.8)	9.4 (SD = 5.9)	10.1 (SD = 6.2)

Residents of planned sectors exhibited higher income and educational attainment and smaller household sizes relative to residents of both recognised and unrecognised informal settlements. Recognised informal settlement residents had the longest average tenure (12.7 years), indicating well-established yet marginalised communities. These demographic patterns underscore the socio-economic stratification that may influence procedural inclusion in flood adaptation governance.

Table 2
Participation in Flood Adaptation Decision-Making by Settlement Type (N = 450)

Participation Indicator	Planned Sectors (n = 150)	Recognised Informal (n = 150)	Unrecognised Informal (n = 150)	Total (N = 450)	95% CI
Ever invited to consultation (%)	7.3 (11)	0.0 (0)	0.0 (0)	2.4 (11)	1.3–4.2
Aware of responsible agency (%)	28.7 (43)	10.0 (15)	7.3 (11)	15.3 (69)	12.2–19.0
Received flood warning last 2 years (%)	18.0 (27)	42.7 (64)	56.0 (84)	38.9 (175)	34.4–43.6
Ever participated in contingency planning (%)	6.0 (9)	0.0 (0)	0.0 (0)	2.0 (9)	0.9–3.8

Procedural inclusion is heavily concentrated in planned sectors, with negligible participation in informal settlements. Notably, informal settlement residents received the highest proportion of flood warnings (up to 56%) despite zero consultation involvement. This pattern reflects a reactive governance logic prioritising emergency communication over participatory planning. Such asymmetries suggest systemic marginalisation of informal communities, limiting both the legitimacy and effectiveness of flood adaptation interventions.

Table 3
Institutional Trust by Settlement Type (Median, IQR)

Institution	Planned Sectors (n = 150)	Recognised Informal (n = 150)	Unrecognised Informal (n = 150)	Total (N = 450)
CDA	1 (1–2)	1 (1–2)	1 (1–2)	1 (1–2)
NDMA	1 (1–2)	1 (1–2)	1 (1–2)	1 (1–2)
MCI	1 (1–1)	1 (1–1)	1 (1–1)	1 (1–1)

Trust in institutions was uniformly low across all settlement types, reflecting a profound erosion of social licence. Low trust may further undermine engagement in formal flood adaptation initiatives and perpetuate cycles of procedural exclusion.

Table 4
Perceived Barriers to Participation by Settlement Type (N = 450)

Barrier	Planned Sectors (n = 150)	Recognised Informal (n = 150)	Unrecognised Informal (n = 150)	Total (N = 450)
Lack of information/awareness	54.0 (81)	64.7 (97)	68.0 (102)	62.2 (280)
Absence of consultation mechanism	48.7 (73)	63.3 (95)	64.7 (97)	58.9 (265)
Distrust of authorities	36.0 (54)	52.7 (79)	54.7 (82)	47.8 (215)
Time/resource constraints	52.0 (78)	38.7 (58)	33.3 (50)	41.3 (186)
Language/communication barriers	18.7 (28)	30.0 (45)	32.0 (48)	26.9 (121)
Fear of negative consequences	12.0 (18)	24.0 (36)	28.0 (42)	21.3 (96)

The most frequently cited barriers were lack of information (62.2%) and absence of consultation mechanisms (58.9%). Residents of informal settlements were disproportionately concerned with distrust of authorities and fear of negative consequences, whereas planned sector residents reported time and resource constraints. These patterns indicate that procedural exclusion is compounded by both structural and perceptual barriers.

Table 5
Attitudes Toward Community Participation (N = 450)

Statement	Agree/Strongly Agree	Neutral	Disagree/Strongly Disagree
Flood adaptation would be more effective if community members had a say in planning	78.2% (352) [95% CI: 74.0–82.0]	12.7% (57)	9.1% (41)
Excluding communities from decision-making makes flooding worse	81.6% (367) [95% CI: 77.6–85.1]	10.0% (45)	8.4% (38)
I would participate in neighbourhood-level flood preparedness if organised by trusted community organisations	63.8% (287) [95% CI: 59.2–68.2]	18.2% (82)	18.0% (81)

A substantial majority of respondents recognise the benefits of participatory governance. Willingness to engage in community-led preparedness activities, particularly when organised by trusted local organisations, underscores latent social capacity that can be mobilised to improve flood adaptation outcomes.

5. Qualitative Results

5.1 Procedural Exclusion: The Absence of Consultation Mechanisms

The qualitative data provide a richer understanding of the mechanisms underlying quantitative patterns of exclusion. Across all focus group discussions and interviews, residents consistently described a complete absence of formal consultation mechanisms. As one participant in a recognised informal settlement explained:

"We have never seen any official from the CDA come to this area to ask us about the flooding. Every year, the stream overflows, and every year we suffer. But no one ever comes to talk to us. They only come when someone dies and even then, they just take pictures and leave." (FGD2, female participant, recognised informal settlement)

This absence was not merely a matter of logistical failure but was perceived by residents as systemic neglect. A resident of an unrecognised settlement elaborated:

"The CDA knows about us. They know we are here. They send the police when there is a crime. But when it comes to floods, they pretend we don't exist. Last year, when the water came, we called the helpline eight times. No one came." (Interview 9, male resident, unrecognised informal settlement)

In planned sectors, where formal mechanisms might be expected to exist, residents reported similarly exclusionary experiences, though with occasional tokenistic gestures. A resident of Sector E-11 described:

"After the 2021 flood, the CDA held a public meeting in the sector's community centre. But the meeting was announced only one day in advance, and it was held at a time when most working people could not attend 11am on a Wednesday. When we tried to speak, officials told us that the meeting was only to inform us about what they had already decided, not to take our suggestions. They had a flip chart with their plan already drawn." (Interview 12, male resident, planned sector)

A senior CDA official acknowledged the absence of genuine participatory mechanisms:

"The CDA has a public complaints system. Citizens can call our helpline to report water accumulation or blocked drains. That is a form of community feedback. But we do not have a formal structure for ongoing community involvement in planning. That is not something that has been prioritised. Our engineers design the drainage systems; we don't consult every resident about hydrology." (Interview 28, CDA official)

5.2 Recognitional Injustice: The Non-Recognition of Informal Settlements

A recurring theme across interviews and FGDs was the relationship between formal recognition and procedural access. Residents of unrecognised settlements consistently identified their lack of official status as the foundational barrier to participation. As a community leader explained:

"We do not have an elected union council. We do not have any recognised representative. The CDA does not even have us on their maps. How can we participate when we do not officially exist? When we go to the CDA office to report a problem, they ask for our sector number. We don't have one. They say, 'Then you are not our responsibility.'" (Interview 17, community leader, unrecognised informal settlement)

Even recognised informal settlements, however, reported similar experiences, suggesting that formal recognition is necessary but insufficient for procedural inclusion. A resident of a recognised settlement noted:

"We are recognised we are on the map, we have a number. But does that change anything? No. They don't come here either. Recognition is just a piece of paper. It doesn't bring drainage or consultation." (FGD1, female participant, recognised informal settlement)

5.3 Gendered Barriers to Participation

Another significant barrier, identified predominantly by female participants, was the gendered nature of participation spaces. Across all settlement types, women reported that existing consultation mechanisms where they exist at all are designed in ways that exclude them. As one female FGD participant explained:

"The CDA meetings are held in the sector's community centre in the evening. Women do not go out alone at that time. And even if we could go, the meetings are all men the officials are men, the residents who speak are men. We would not feel comfortable speaking. There is no women's only session, no female official to talk to." (FGD4, female participant, planned sector)

In informal settlements, the barriers were even more pronounced due to cultural norms and safety concerns. A female resident of an unrecognised settlement stated:

"I have never seen a CDA official in our area. But if they came, I could not speak to them. My husband would have to speak. That is how it is. But even my husband they would not listen to him because we are from here, from the slum. They think we are not educated, that we don't know anything about water or drains. But we live

with the water every year. We know more than their engineers." (FGD5, female participant, unrecognised informal settlement)

5.4 Governance Culture: Reactive Response, Not Participatory Planning

Interviews with government officials revealed that institutional practices are shaped by what one official candidly described as a "reactive rather than proactive" culture. A senior NDMA official elaborated:

"Our mandate is primarily response and relief. The Disaster Management Act does assign responsibilities for preparedness and mitigation, but the funding and political attention always flow to response. When a flood happens, everyone wants to be seen helping. Cameras come. Politicians visit. But prevention and planning that is invisible work, and it does not win elections. Community participation in planning? That would take years. We are measured on how quickly we respond, not on how well we consulted." (Interview 25, NDMA official)

A CDA official responsible for drainage infrastructure offered a similar perspective, while also revealing a technocratic orientation that marginalises local knowledge:

"Flood adaptation is a technical matter. You need hydrological modelling, drainage capacity calculations, engineering solutions. Community members don't understand these things. They can tell us where water collects, but that's not planning. That's just reporting. We have a helpline for that." (Interview 30, CDA engineer)

5.5 Community Agency: Adapting from Below

Despite systematic procedural exclusion, communities have not remained passive. Across all settlement types, but particularly in informal settlements, residents reported developing informal adaptation strategies. As one focus group participant in an unrecognised settlement explained:

"We do not wait for the CDA. We know when the rains will come we watch the clouds, we listen to the news. We build our own small barriers with sandbags and rubble, we dig channels to divert water away from our homes, we warn each other by phone and by calling out. We have a system it is not written down, but it works. If the government wanted to help, they could work with our system. But they do not ask. They do not even know it exists." (FGD3, male participant, unrecognised informal settlement)

Another participant described a community early warning system:

"We have a WhatsApp group for our street. When the water starts rising, someone posts a video. Then everyone knows. The young people help the elderly move their belongings to higher ground. We have a list of who needs help the woman with the new baby, the old man who cannot walk. The government does not do this for us. We do it ourselves." (Interview 14, female resident, recognised informal settlement)

A community leader noted the wasted potential:

"If the CDA spent one day talking to us, they would learn so much. We know exactly where the water comes from, which drains block first, which walls hold and which collapse. We have fifty years of collective memory of floods in this area. But they never ask. They come with their degrees and their computers and they tell us what we need. They don't know that the drain they designed two years ago is already blocked because they didn't consult us about where the garbage collects." (Interview 17, community leader, unrecognised informal settlement)

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6. Discussion

This descriptive study provides a comprehensive account of procedural (in)justice in flood adaptation governance in Islamabad, Pakistan. The findings document a near-total pattern of procedural exclusion: only 2.4% of respondents reported ever being consulted in flood adaptation decision-making, and no residents of informal settlements (whether recognised or unrecognised) reported any form of formal engagement. Awareness of responsible agencies was low at 15.3%, and trust in institutions was uniformly poor across all settlement types. The qualitative findings elaborate on these patterns, revealing that exclusion is produced through multiple mechanisms: the complete absence of consultation mechanisms in informal settlements, tokenistic participation practices in planned sectors, gendered barriers that exclude women from what little participation exists, and a governance culture oriented toward reactive emergency response

rather than proactive, participatory planning. Importantly, the finding that recognised informal settlements experienced identical 0% participation to unrecognised settlements indicates that formal recognition, while necessary, is not sufficient for procedural inclusion.

6.1 Theoretical Contributions

This descriptive study makes several contributions to the theoretical literature on environmental and climate justice. First, it provides empirical grounding for the just sustainabilities framework in a novel geographic and institutional context. While Agyeman's framework has been widely applied in Global North settings (Fiack, Fiack, & D'Agostino, 2021), its application in South Asian urban contexts has been limited. The present descriptive study demonstrates that the framework's insistence on integrating social justice with environmental sustainability is urgently necessary in Pakistan. Second, the study advances understanding of the interconnections between recognitional and procedural injustice. The qualitative data reveal a sequential logic: non-recognition of informal settlements (and, in many cases, of women's legitimate voice) precludes meaningful participation, which in turn produces maldistribution of flood protection. This causal chain has been theorised (Schlosberg, 2007) but rarely documented empirically with the level of detail provided here. Third, the study contributes to the growing descriptive scholarship on procedural justice in climate adaptation governance in the Global South, a domain that remains significantly under-researched relative to its Global North counterpart (Mcmillan et al., 2022).

6.2 Community Agency as a Descriptive Finding

A striking descriptive finding is that procedural exclusion has not extinguished community agency. Despite being systematically ignored by formal governance structures, marginalised communities in Islamabad have developed informal adaptation strategies: self-built barriers, community-managed drainage channels, WhatsApp-based early warning systems, and mutual aid networks. This finding aligns with the emerging literature on community-based adaptation in informal settlements across the Global South (Watkins & Collins, 2025). However, this persistence of community agency should not be romanticised. As Watkins and Collins (2025) argue, current engagement approaches often reinforce rather than alleviate flood disadvantage. The high proportion of survey respondents (78.2%) who agreed that flood adaptation would be more effective with community input indicates substantial latent demand for inclusive governance.

6.3 Policy Implications

The descriptive findings carry several implications for policy and practice. First, the near-total absence of meaningful community participation requires fundamental reorientation of governance arrangements away from the reactive, response-focused culture that currently characterises the CDA and NDMA, and toward a proactive, participatory model that centres community voice in planning processes. Second, the systematic non-recognition of informal settlements must be addressed as a matter of procedural justice. As long as settlements remain unmapped and unrecognised, their residents will continue to be procedurally invisible. Recognition formal acknowledgment of existence, rights, and stakeholdership is a precondition for meaningful participation. Third, gendered barriers to participation require specific attention. Consultation mechanisms must be designed to be accessible to women: women-only sessions, female officials as points of contact, convenient timing, and safe locations.

6.4 Limitations

Several limitations warrant acknowledgment. First, the focus on a single city limits descriptive generalisability to other Pakistani cities. Second, reliance on self-reported data may be subject to recall and social desirability bias. Third, access to government officials was constrained by institutional sensitivities. Fourth, the cross-sectional design captures procedural justice at a single time point. Fifth, the sampling frame for unrecognised informal settlements, while improved through satellite imagery and ground-

truthing, remains non-probability based. Our descriptive findings from these settlements should be interpreted as exploratory and are not statistically generalisable to all unrecognised settlements in Islamabad.

7. Conclusion

This descriptive study has documented a systematic pattern of procedural exclusion in flood adaptation governance in Islamabad, Pakistan. The findings reveal that only 2.4 percent of residents across flood-prone areas have ever been consulted in decision-making processes, with no participation whatsoever documented in either recognised or unrecognised informal settlements. Barriers to participation include institutional non-recognition, gendered exclusion, absence of consultation mechanisms, and a governance culture prioritising reactive emergency response over participatory planning. Despite this exclusion, communities have demonstrated remarkable agency, developing informal adaptation strategies and expressing strong support for inclusive governance. The study concludes that procedural justice cannot be treated as an optional addition to technical adaptation planning but must be understood as foundational to effective and equitable flood governance. In Islamabad, the transformation toward just sustainabilities has not yet occurred, yet the willingness and capacity for partnership already exist within marginalised communities awaiting institutional recognition and genuine engagement.

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