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BUILDINGS & CITIES

SPECIAL COLLECTION: THE COMPLEXITY OF DISASTER RECONSTRUCTION

RESEARCH

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Post-disaster reconstruction and ethics: the power of social capital

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ABSTRACT

The rising frequency of disasters devastates human settlements, making ethical post-disaster reconstruction (PDR) vital. While disaster scholarship engages with ethics and social capital, the built-environment literature remains focused on technical approaches, leaving the ethical role of social capital unexplored. This study investigates the influence of social capital on ethical PDR, drawing on interviews (n = 33) with professionals in Italy, Mozambique, Nepal, Indonesia and Sri Lanka. Findings reveal the duality of social capital, identifying seven ethical challenges, including socially embedded corruption, gender disparity and dependency, and six measures to strengthen ethical practice, such as building social trust, community empowerment and leveraging emotional connections. It also reveals how networks within social capital and the cognitive dimension affect ethical PDR. This research contributes to the built-environment literature by highlighting its interdisciplinarity with social capital theory, dependency theory and gender studies. Furthermore, it offers insights for policy and practice.

POLICY RELEVANCE

Findings of this study revealed the duality of social capital in ethical PDR. It identified seven key challenges and six measures for strengthening ethical PDR practices through social capital. It also revealed how networks within social capital and the cognitive dimension contribute to ethical PDR. Accordingly, this research offers policymakers a framework for harnessing social capital to advance ethical PDR, advocating for five targeted interventions: mandating social capital audits in PDR planning to identify ethical risks and opportunities; strengthening governance linkages through formal accountability mechanisms; mainstreaming gender equity via enforced ethical codes and whistleblowing channels; funding trauma-informed capacity-building to foster resilient community partnerships; and codifying inclusive co-production to ensure marginalised groups shape decisions. For practitioners, this necessitates adopting empathetic engagement and continuous social auditing to translate policy into ethical practice.

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1. INTRODUCTION

The rising frequency and severity of disasters globally (UNDRR 2025) destroy human settlements, causing significant loss of life, livelihoods and infrastructure (Lizarralde *et al.* 2010). Post-disaster reconstruction (PDR), now a critical focus within the construction industry, seeks to restore and improve living conditions for disaster survivors (Sanderson *et al.* 2022). Given its social impact, PDR must be grounded in ethical responsibility, prioritising human dignity, social justice and resilience (Amaratunga *et al.* 2017; Lizarralde *et al.* 2010; Ofori 2002; Sanderson *et al.* 2022).

Ethics, identified as the principles governing right and wrong conduct (Davis & Frederick 1984), varies across cultures (Lewis 1985). Unlike deontological (rule-based) (Kant/Pasternack 2020) or consequentialist (outcome-focused) (Mill 2016) approaches, this study adopts a virtue ethics lens (Aristotle 1923). This view prioritises the pursuit of human flourishing through character and practical wisdom (Koehn 1995), supporting the development of a virtuous character over time (Aristotle 1923), which deontological rules or utilitarian outcomes alone cannot achieve (Hursthouse 1999).

Social capital comprises resources within social networks (Lin 2004). Examining PDR through a lens that integrates ethics with social capital is vital, as social capital intrinsically shapes ethical outcomes, influencing collective behaviour, trust and equity in recovery efforts (Putnam 2001). It bridges micro-level interactions and macro-level impacts on civic and organisational performance (Coleman 1990; Putnam 2001). However, its ethical implications are complex and dualistic. While facilitating collective action through trust and reciprocity (Coleman 1990), it can also reinforce exclusionary social hierarchies (Bourdieu 1986), erode civic engagement (Putnam 2001) or be appropriated for individual advancement rather than communal asset (Lin 2004).

This study examines the intersection of ethics and social capital in the context of PDR, explores the ethical challenges associated with social capital in reconstruction, and identifies measures for harnessing social capital to facilitate ethical PDR. The following sections contextualise the study and argue the need for intersecting social capital with PDR to reconstruct after disasters ethically.

1.1 PDR AND ETHICS

Ethics in PDR emphasise equity, justice and accountability. Corruption, weak building codes and poor transparency can transform natural hazards into 'man-made' crises (Cifuentes-Faura 2024; Sanderson *et al.* 2022). Ficara & Wheeler (2023) advocate for a human rights-based approach that frame disasters as injustices rather than misfortunes. Cajilig (2017) critiques top-down models that marginalise displaced communities, urging participatory, community-centred planning. Ubesingha *et al.* (2024) identify challenges to professional and ethical conduct in PDR that encompass intra-industry issues such as project complexity and skills gaps; and extra-industry pressures including weak governance and social structure.

Ethical challenges in PDR are exacerbated by corruption, organisational constraints (*e.g.* poor leadership, unclear organisational structures) (Bosher *et al.* 2009), poor coordination among actors with conflicting objectives (Olshansky *et al.* 2012), poor governance, politically motivated decision-making (Koria 2009) and resource scarcity (*e.g.* materials, labour and infrastructure) (Chang *et al.* 2011). Reconstruction often privileges those with pre-existing social capital, reinforcing inequality (Medwinter 2021), while top-down governance can exclude vulnerable groups participating in PDR (Johnson & Lizarralde 2012). Transparency and inclusive governance are therefore critical (Hawkins & Prado 2020), as effective PDR requires contextual sensitivity, collaborative governance and ethical accountability to ensure equitable recovery (Kim & Choi 2013).

1.2 SOCIAL CAPITAL AND ETHICS

Social capital benefits communities through collective action, economic development and knowledge-sharing (Woolcock 2001). However, its 'dark side' includes normative imposition (Ecclestone & Field 2003), reinforce inequality (Baycan & Öner 2023; Portes 1998) and create gendered barriers (Burt 1998).

Social capital comprises structural and cognitive dimensions. Structurally, bonding ties within homogeneous groups foster solidarity but risk insularity (Coleman 1990; Putnam 2001); bridging ties across diverse groups facilitate opportunity and innovation (Granovetter 1973; Lin 2004); and linking ties to institutions provide access to power, yet can reinforce hierarchies (Woolcock 2001). The shared norms and values reduce transaction costs and enable cooperation (Coleman 1990; Putnam 2001), but may also entrench dominant groups and marginalise others (Bourdieu 1986; Portes 1998).

Ethically, social capital has both enabling and constraining effects. Dense networks in non-profit organisations, which enforce reputation, ethical norms, trust and informal sanctions, reduce opportunism and promote moral conduct (Subedi *et al.* 2025). In high-pressure work environments, trust, shared values and safety build cognitive capital, fostering moral courage and happiness (Pirdelkhosh *et al.* 2022). The structural dimension of social capital supports crisis resilience by providing essential infrastructure for action. Cognitive dimension provides the motivation, trust and shared understanding needed to make this action effective and sustainable (Zhao *et al.* 2025). This holds true across contexts: during general crises, in rural collective action through network trust (Alipour *et al.* 2025) and in urban areas through trust and attention (Ghalambordezfooli & Hosseini 2019). Conversely, social capital can fuel cronyism and corruption. This occurs when political insiders exploit preferential access to resources, or when trust among insiders leads to the belief that personal connections supersede formal rules (Cao *et al.* 2016). It also arises from closed networks and geographical clustering, where norms of loyalty encourage in-group favouritism over fairness, fostering inequality and corruption (Bai *et al.* 2022).

1.3 SOCIAL CAPITAL: ETHICS IN THE BUILT ENVIRONMENT AND DISASTER CONTEXTS

Built-environment scholarship implicitly links social capital to ethics through themes of equity and justice in reconstruction, housing, and planning. Ethical concerns are evident in socially embedded corruption (Sanderson *et al.* 2022), inequitable urban access (Mullenbach *et al.* 2022) and unsafe labour conditions (Sunindijo & Kamardeen 2017). These issues highlight the need for trust-building and participatory governance (Kennedy *et al.* 2008).

The disaster literature reveals more explicit intersections between ethics and social capital. Mutual aid after Hurricane María (in Puerto Rico, 2017) temporarily transcended social divisions (Schrauf & Rodríguez 2024) and philanthropic models such as giving circles exemplify how shared ethics and pooled networks can democratise disaster response (Miller-Stevens & Taylor 2020). Superstorm Sandy (in the Caribbean and US coastal mid-Atlantic, 2012) exposed how pre-existing social capital reproduces inequality by channelling post-disaster resources to already advantaged, predominantly white communities, while excluding marginalised communities (Medwinter 2021).

Social capital can empower marginalised groups such as women (Nguyen 2019). However, linking social capital is vulnerable to elite capture, skewing disaster aid distribution and further disadvantaging vulnerable groups such as women, the elderly and remote households (Panday *et al.* 2021). Further, linking social networks between households and non-governmental organisations (NGOs) can create aid dependency (Islam & Walkerden 2015), while ethical recovery depends on accountability, fairness and culturally appropriate practices (Nurdin 2024; Storr *et al.* 2025).

1.4 SOCIAL CAPITAL FOR ETHICS IN PDR

PDR is not merely a technical challenge but an ethical obligation to rebuild with justice, transparency and dignity (Ficara & Wheeler 2023). However, ethical PDR is often undermined by systemic failures such as corruption, political interference and inequality (Cifuentes-Faura 2024; Ubesingha *et al.* 2024). Social capital can promote ethical outcomes by fostering the accountability of public officials, construction industry actors and the broader governance system (Sanderson *et al.* 2022), equitable distribution of resources, rights and participation (Ficara & Wheeler 2023), and empowering communities by enabling everyday resilience, resourcefulness and solidarity (Cajilig 2017), while countering elite capture (Portes 1998) and entrenched disparities (Medwinter 2021).

Disaster scholarship has explored different social networks (Heffernan *et al.* 2025; Versaillot & Honda 2024) and exclusions from network benefits (Nguyen 2019). Social capital is implicated

in collective action (Schrauf & Rodríguez 2024), justice (Islam & Walkerden 2015), Indigenous practices (Galarza-Villamar *et al.* 2024), power asymmetries (Storr *et al.* 2025) and temporal ethics (Miller-Stevens & Taylor 2020). Yet how social capital shapes the ethics of PDR remains unexplored.

The built-environment literature on social capital remains sparse. It is largely limited to neighbourhood development in urban environments (Lee *et al.* 2018), community facilities in housing developments (Kang 2025), equity in low-income neighbourhoods (Mullenbach *et al.* 2022), workplace dynamics (Li *et al.* 2018) and gender barriers (Sunindijo & Kamardeen 2017). In disaster contexts, Sanderson *et al.* (2022) stress the embeddedness of corruption, while Lizarralde *et al.* (2015) demonstrate how Cuba's integrated planning enhances collective resilience. Though community participation in PDR is discussed (Davidson *et al.* 2007), it is seldom linked to social capital.

The present study addresses this gap by examining the intersection of ethics and social capital in the context of PDR.

2. METHODS

This study employed a qualitative design, and in light of the limited previous research, it employs a multiple-case study design to explore a real-world phenomenon of social capital for ethical PDR within its natural setting (Yin 2018).

2.1 CASE STUDY

The selection of case studies employed a two-phase selection process, following Yin (2018): first, stratifying potential cases by the World Bank's 2022–23 country income level, disaster type and scale, and informant availability (World Bank 2024); and second, selecting five representative cases. This design enabled richer data collection than single case studies (Yin 2018). The marked differences in socio-economic conditions, formal and informal systems, and governance quality are summarised in Table 1. PDR implementation mechanisms vary across these contexts, ranging from centrally managed, state-funded reconstruction in high-capacity settings to fragmented, donor-driven projects in fragile states that rely on informal community systems.

Table 1: Case studies and their key contextual differences.

Note: CPI = corruption perceptions index; HDI = human development index; PDR = post-disaster reconstruction.

Sources: Transparency International (2023); UNDP (2024); World Bank (2024).

COUNTRY	DISASTER	IMPACT	WORLD BANK INCOME GROUP/ ECONOMY	GOVERNANCE AND CORRUPTION (CPI 2023 RANK)	KEY SOCIO-ECONOMIC INDICATORS (HDI RANK/POVERTY)	PERTINENT CONTEXT FOR PDR
Italy	L'Aquila earthquake (April 2009)	308 deaths, 66,000 homeless, 3,893 buildings destroyed, 69,591 buildings damaged	High-income/ advanced, diversified	European Union member; strong formal institutions. (rank 42/180)	HDI = 0.906 (very high); poverty = 20.1%; life expectancy = 83 years	High institutional capacity but complex bureaucracy and noted corruption risks
Mozambique	Cyclone Idai (March 2019)	905 deaths, 111,163 houses destroyed, 112,735 houses affected	Low-income/agrarian, aid dependent	Post-colonial; fragile institutions; high aid reliance (rank 145/180)	HDI = 0.461 (low); poverty = 54.7%; life expectancy = 59 years	Pervasive poverty, weak governance and high corruption risk shape donor-dependent reconstruction
Indonesia	Earthquake and tsunami (September 2018)	4,340 deaths, over 70,000 houses damaged	Upper-middle income/newly industrialised	Decentralised governance; mixed formal–informal systems (rank 115/180)	HDI = 0.716 (medium); poverty = 10.1%; significant gender inequality	Large-scale, state-led programmes with international loans; challenges in coordination and integrity
Nepal	Nepal earthquake (April 2015)	8,964 deaths, thousands of houses destroyed	Lower-middle income/fragile, post-conflict	Nascent federal system; post-conflict fragility (rank 108/180)	HDI = 0.601 (medium); poverty = 20.3%; deep gender disparities	Donor-driven reconstruction in a fragile state with complex geography and evolving institutions
Sri Lanka	Landslide (May 2016)	235 houses destroyed; 1665 houses damaged	Lower-middle income/volatile, service based	Unitary state; strong social indicators but clientelism (rank 115/180)	HDI = 0.780 (high); poverty = 14.3%; high education, low female labour participation	State-led, multi-scheme approaches within a context of political patronage and economic instability

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2.2 DATA COLLECTION

Data collection followed established case study protocols (Yin 2018), including: semi-structured interviews conducted online in English (n = 33) using an interview guide (Creswell & Poth 2018) and pilot-testing in Mozambique to refine the procedures (Yin 2018). The interview guide was pilot-tested with three domain experts and five colleagues to enhance validity (Bryman 2016). Purposive sampling of built-environment professionals and humanitarian workers was combined with respondent-driven snowballing, where an incorporated tracking system mitigated snowball sampling bias (Saunders *et al.* 2019). Interviews explored how cognitive dimensions and social networks impacted ethical outcomes in PDR. Interviews continued until reaching data saturation, with each case yielding six to nine interviews (Table 2). The inclusion criteria targeted built-environment and humanitarian professionals engaged in PDR. The final sample (n = 33) comprised professionals with over five years of experience.

Table 2: Details of interviews conducted in each case.

Note: UNDRR = United Nations Office for Disaster Risk Reduction.

CASE	INTERVIEWEE GROUP	PROFESSIONAL BACKGROUND	INTERVIEWEE CODE	GENDER	EXPERIENCE (years)	DATE OF INTERVIEW	DURATION (min)
Italy	Built-environment professionals	Engineer	IT1BE	Female	6	11 January 2024	68
		Engineer	IT2BE	Female	7	29 April 2024	58
		Architect	IT3BE	Female	5	5 December 2023	58
		Engineer	IT4BE	Male	12	20 April 2024	59
		Engineer	IT5BE	Male	6	10 May 2024	62
		Engineer	IT6BE	Male	8	11 January 2024	48
Mozambique	Built-environment professionals	Architect	MO1BE	Male	12	30 October 2023	51
		Architect	MO2BE	Male	20	8 November 2023	57
		Architect	MO3BE	Male	22	7 November 2023	56
		Engineer	MO4BE	Male	14	29 April 2024	51
		Architect	MO5BE	Male	8	31 December 2023	52
	Non-built-environment professionals	Project manager	MO6NBE	Male	7	7 March 2024	58
Indonesia	Built-environment professionals	Engineer	IN1BE	Male	27	16 January 2024	56
		Architect	IN2BE	Male	14	20 April 2024	55
		Engineer	IN3BE	Male	12	11 January 2024	63
		Engineer–academic	IN5BE	Male	18	20 April 2024	54
	Non-built-environment professionals	Advisor: shelter and settlement	IN4NBE	Male	33	12 April 2024	74
		National coordinator	IN6NBE	Male	21	7 March 2024	57
Nepal	Built-environment professionals	Architect	NE1BE	Female	12	13 January 2024	58
		Engineer	NE3BE	Male	8	24 December 2023	91
		Engineer	NE4BE	Male	10	2 January 2024	65
		Engineer	NE5BE	Male	14	15 January 2024	46
		Architect	NE6BE	Female	9	7 January 2024	58
	Non-built-environment professionals	Project coordinator	NE2NBE	Female	8	7 January 2024	59
Sri Lanka	Built-environment professionals	Engineer	SL1BE	Male	12	14 February 2024	46
		Engineer	SL3BE	Male	16	15 February 2024	64
		Engineer	SL4BE	Male	23	15 February 2024	46
		Planner	SL5BE	Male	11	6 February 2024	54
		Architect	SL6BE	Female	9	12 February 2024	53
		Planner	SL7BE	Male	12	16 February 2024	58
	Non-built-environment professionals	Disaster management director	SL2NBE	Male	25	7 February 2024	63
		Geologist	SL8NBE	Male	14	12 February 2024	68
		Advisor UNDRR	SL9NBE	Male	23	21 May 2024	49

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2.3 DATA ANALYSIS

Qualitative analysis followed a six-phase thematic analysis framework, as summarised in Table 3 (Braun & Clarke 2012).

Table 3: Six-phased approach to data analysis.

Source: Adopted from Braun & Clarke (2012).

PHASE	DESCRIPTION OF THE PROCESS
1. Data familiarisation	All interviews transcribed and repeatedly read; initial notes on ethical challenges and enabling factors noted
2. Initial coding	Data coded inductively in NVivo 14 (*e.g.* 'bribes unreported', 'gender exclusion', 'trust-building gestures'). Codes collated by case and theme
3. Theme development	Related codes grouped into candidate themes (*e.g.* 'socially embedded corruption', 'community empowerment'). Data extracts assembled for each theme
4. Theme review	Themes reviewed against coded extracts and full dataset; thematic map created; themes refined
5. Theme refinement	Final themes named and defined; core narratives clarified
6. Final analysis	Representative quotations selected; themes contextualised within cases and the literature; narrative structured around ethical challenges and measures

Content analysis of key terms (*e.g.* 'trust', 'corruption') and three-step coding (levels 1–3) (Strauss 1987) were integrated within the thematic process. A final cross-case analysis (Yin 2018) identified patterns across contexts to strengthen generalisability.

The coding structures are shown in Table 4 (ethical challenges) and Table 5 (enhancing ethics).

Table 4: Coding structure for ethical challenge to post-disaster reconstruction (PDR) posed by social capital.

THEME	SUBTHEME	CODES
Negative societal perception	Distrust of formal channels	Avoidance of official support; suspicion of intentions, impediments to fund delivery and compliance
	In-group prioritisation	Withholding support from outsiders; prioritisation based on tribal/socio-economic identity
Poor construction know-how	Technical skill gaps	Lack of technical construction skills; non-compliance with building standards
	Gendered labour	Women lacking construction skills; communities collectively reconstructing
	Vulnerability to exploitation	Acceptance of inferior standards; pressure from opportunistic actors
Dependent mentality	Culture of dependency	Mendicant approach; 'vicious cycle' of aid; creating situations for self-benefit
	Low expectations	Acceptance of low-quality assistance; immediate individual benefit over collective recovery
Socially embedded corruption	Normalisation of corruption	Daily bribes; normalised behaviour; corruption as part of the social fabric
	Impunity and lack of reporting	Fear of reprisal; lack of evidence for investigations; distrust in reporting mechanisms
	Subtle manifestations	Unethical commissions; social gifts and friendships for corrupt exchanges
Gender disparity	Systemic sexism in profession	Male-dominated environment; marginalisation of women
	Exploitative power dynamics	Superiority complex; exploiting females; hostile work environment
	Abuse of vulnerable groups	Abuse of power; child abuse; secondary trauma
Resistance to change	Cultural conservatism	Reluctance for new materials; deep-seated conservatism
	Negotiating preferences	Rejection of safer alternatives; conflict with technical best practices
Pre-existing complexities	Systemic governance Issues	Pre-existing corruption, nepotism, crime complicating reconstruction
	Financial governance issues	High corruption risk associated with large financial flows in housing programs
	Infrastructural deficits	Pre-existing lack of basic infrastructure

THEME	SUBTHEME	CODES
Promoting mutual dependency	Collaborative frameworks	Collaborative framework; mutual interdependence
	Valuing community input	Shared positive engagement; shared goals
Developing social trust	Building trust via engagement	Transparent communication; empathetic engagement
	Multiplier effect of trust	Word-of-mouth dissemination; earned credibility; community support for inquiries
Empowering the community	Participatory decision-making	Involving in resettlement decisions; advocacy for behavioural change
	Transformative empowerment	Training for women; psychological empowerment
	Long-term resilience education	Disaster resilience in early education; environmental awareness
Construction skills for the community	Addressing skill gaps	Targeted training programmes; accommodating local methodologies; providing technical knowledge
	Challenging gender norms	Understanding women's roles; diversifying the workforce
Emotional attachment	Lived experience as a motivator	Personal disaster experience; emotional connection to community
	Empathy and community responsibility	Driving force for ethical behaviour; principles of honesty and fairness; wanting to be treated ethically
Using social capital for good governance	Community accountability	Public scrutiny; community feedback mechanisms; challenging political pressure; curbing favouritism
	Participatory monitoring	Focus group meetings; digital platforms (social media) for reporting; civil society participation

Table 5: Coding structure for enhancing post-disaster reconstruction (PDR) ethics through social capital.

3. FINDINGS

3.1 ETHICAL CHALLENGE TO PDR POSED BY SOCIAL CAPITAL

Analysis of the five case studies revealed that social capital, while often considered a positive force, can also obstruct ethical reconstruction.

3.1.1 Negative societal perception towards authorities and aid

Prevalent distrust in authorities and aid systems, an erosion of cognitive social capital, undermined the professional's ability to conduct PDR ethically. Corruption, non-transparent and political favouritism led communities to question professional intentions. In Nepal, communities avoided official support, delaying fund disbursement. NE1BE stated:

> Initially, people were reluctant to approach us for assistance [...] eventually, their construction failed to comply with regulations. So, we were unable to release the remaining tranches of funding.

In Mozambique, MO3BE, a foreign professional, noted that despite strong ties with local traders, key support was often withheld:

> When crucial support is needed, it's often withheld. Communities prioritise their own members. I attribute this to socioeconomic factors and historical tribal divisions.

This climate of suspicion constrained transparent ethical action, and fostered professional isolation.

3.1.2 Poor construction know-how leading to vulnerability and substandard construction

A common challenge across the case studies was the limited construction knowledge within affected communities. This deficiency hindered the formation of effective bridging of social capital between communities and professionals. This knowledge gap created vulnerability to unethical practices, including corner-cutting and accepting substandard work. In Nepal, NE1BE shared:

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> Earthquake-affected people didn't know anything about the correct construction methods.

This lack of technical understanding hindered guiding communities to appropriate construction methods. In Mozambique, where women also bore reconstruction burdens, MO3BE described, 'Women lack any proper construction skills.' These limitations impeded the delivery of quality, disaster-resilient housing.

3.1.3 Dependent mentality

The research revealed that a long-standing model of top-down aid fostered deep-rooted dependency, described as a 'vicious cycle'. It distorted the norms of reciprocity and collective action that underpin bonding social capital. Rather than promoting resilience, this structure cultivated a passive and opportunistic mindset. In Mozambique, MO3BE stated:

> They are expecting everything [...] this is leading to some not-so-good behaviours. Sometimes people are trying to create situations to benefit themselves.

MO5BE further contextualised:

> Mozambique is one of the ten poorest countries in the world. Unfortunately, they have a very mendicant approach. They have the habit of accepting whatever is given to them. [...] The bar is very low.

This dependency impaired reconstruction ethics as communities redirected social ties towards securing individual short-term gains over collective recovery.

3.1.4 Socially embedded corruption

Corruption presented a pervasive, often subtle, challenge normalised within daily social transactions and woven into social norms (cognitive capital), often enabled by closely knit networks (bonding capital). In Nepal, bribes to engineers went unreported. NE3BE described:

> No family or house member told us that engineers took money [...] we didn't get any evidence

explaining the reluctance to report corruption, driven by fear, distrust and normalisation of corruption, which weakened the society. In Indonesia, corruption was masked as friendship. IN3BE remarked:

> It's very subtle [...] like friendship, but this is an open door for corruption.

In Mozambique, corruption extended into everyday life. MO5BE noted:

> There is a lot of corruption [...] they have to pay tolls, not just in reconstruction but every day.

Such widespread unethical behaviour made it difficult for professionals to maintain integrity without systemic support.

3.1.5 Gender disparity

Female professionals encountered systemic discrimination, characterised by exclusion from male-bonding networks and reinforced gendered hierarchies. In Italy, female construction professionals experienced sexism, often feeling marginalised and relegated to a lower status. Sharing her experience, IT3BE remarked:

> You are not an engineer. You're a 'miss'. [...] There's a hierarchy, and you're not anywhere but at the bottom of it. Males are more friendly with other male colleagues, then they create a kind of group, a 'boy['s] club'. There was a gender imbalance in my group.

Nepal's case was similar. NE4BE described gendered power dynamics:

> Some guys consider themselves superior. [...] They used female colleagues to get their work done by imposing superiority.

These hierarchies marginalised the female contribution and fostered an unhealthy work environment and compromised professional and PDR integrity.

Child abuse by professionals was disclosed as an ethical breach within the Nepali reconstruction context, representing a common gendered power imbalance in remote, high-power-imbalance settings. Vulnerable children, already traumatised by the disaster, became victims of exploitation by professionals who abused their positions of power. NE4BE, describing a wider pattern of exploitation, shared:

> In remote villages in Nepal, you don't get many educated people, so they can be influenced easily. Engineers were treating local young girls in a very bad manner. [...] Their professional ethics as engineers were not followed. They molested young girls in villages.

It also generated secondary trauma among reconstruction teams undermining effective PDR.

3.1.6 Resistance to change that hinder resilience

Even when safer or more sustainable building materials were available, communities frequently rejected innovations due to deep-seated conservatism (cognitive dimension of social capital). While alternative building materials and technologies can alleviate post-disaster material shortages and promote more equitable markets, their adoption was hindered. In Nepal, NE1BE noted:

> New building materials like compressed stabilised earth blocks, and hollow concrete blocks came into the market. But people were reluctant to use new and alternative materials. They prefer traditional materials that they were familiar with.

Professionals often had to negotiate these preferences, even if they conflicted with technical best practices, undermining ethical goals such as safety and resource efficiency.

3.1.7 Pre-existing complexities

Underlying societal problems, such as organised crime in Italy, an underdeveloped private sector due to poverty in Mozambique and nepotism in Indonesia, compounded ethical challenges. These systemic challenges stemmed from structural networks and shared norms required professionals to constantly negotiate. Referring to Indonesia, IN4NBE stated:

> It's extremely complicated because you're looking at an emerging nation that has disasters because of a bunch of sociological reasons. People are poor because we made them poor. [...] All the constructs that happen around that corruption and nepotism are still there. So, how can the country's leadership not stand aside from its own sociological context? It can't. You will permanently have to negotiate through that maze.

In Sri Lanka, infrastructure gaps further hindered reconstruction efforts. SL8NBE recalled:

> Some lands didn't have access roads, water, or electricity [...] they didn't have water to do the construction.

These pre-existing limitations delayed reconstruction and intensified political pressures.

3.2 ENHANCING PDR ETHICS THROUGH SOCIAL CAPITAL

Despite these challenges, the analysis disclosed that social capital, when properly strengthened, can support ethical conduct. Six key themes emerged from the analysis.

3.2.1 Promoting mutual dependency

Bridging social capital fostered collaborative work between community and professionals, strengthening mutual support and ethical engagement. In Sri Lanka, emotional sustenance from the community proved a key motivator for ethical conduct. SL4BE, a male local engineering professional, recalled:

> People were very nice. Even though they had thousands of problems, they always smiled and laughed. So, every morning we started work, sharing smiles and laughs with the people. That positive energy was our motivation, it's what kept us going through the difficult days.

This collaborative dynamic cultivated a sense of mutual dependency in the PDR context.

3.2.2 Developing social trust

Building cognitive social capital, specifically trust, was a critical enabler. IN6NBE in Indonesia emphasised:

> Half the problems are due to trust. If we have good communication, regular coordination, they build good trust with us. When trust is there, everyone will support with everything.

In Sri Lanka, interpersonal engagement made professionals more approachable. SL8NBE described:

> We wanted to make them feel that we are not outsiders, we should be very friendly, we acted warmly, shared a joke with them, and asked for a glass of water. Then things become easy. We should make their problems ours and try to console them.

Such empathetic and respectful interactions built meaningful connections, directly improving the ethical conduct of PDR professionals.

Once established, trust spread organically through word of mouth. This boosted community participation, adherence to professional advice and project success, while also encouraging communities to report unethical conduct. This credibility had a multiplier effect, facilitating more ethical reconstruction. As NE1BE recalled from Nepal:

> So we tried to improve those houses. [...] People actually started to believe us afterward. The word of mouth spread so fast. [...] And they influence the whole community.

3.2.3 Empowering the community

Community empowerment, linked to both linking and cognitive social capital, was essential for ethical PDR. Integrating disaster preparedness (environmental awareness and survival skills) into early education, community participation in decision-making and advocating behavioural changes were essential for empowerment. In Sri Lanka, professionals empowered communities through inclusive resettlement decisions and transparent explanations: SL8NBE stated:

> The biggest issue was to convince them to live in small plots of land, as they used to live a free life in large plots of land. Now they cannot even cough loudly. So, we tried to empower them, explaining that we are doing this for their life safety. We presented them with three potential sites and asked them to choose the one that best suited them. Then they eventually agreed to this land.

Further, engaging religious leaders helped communities to empower and recover from psychological trauma. SL4BE, also in Sri Lanka, noted:

> After the disaster, first, we have to set up the mindset of people. Religious leaders have done it even before we get there.

Empowerment also involved leadership and training. In Indonesia, IN3BE explained:

> We developed training for women [...] it gave them the sense that they are empowered.

MO11BE in Mozambique stressed the importance of early education:

> This issue of disaster should be brought up for learning in the early stages of education. Bringing knowledge of the environment is very important. [...] Then, how to react during an emergency situation, and how to build basic structures like houses, what to consider if building in a flood-prone area, should be taught. Thereby, they are well empowered when they become adults.

3.2.4 Construction skills for the community, including women

Providing construction skills training to affected communities, particularly for women, strengthened bonding and bridging social capital. Such programmes helped reconstruction, challenged gender norms and promoted equitable reconstruction, proving essential in low-capacity settings such as Mozambique. MO3BE explained:

> The local community can be artisans, masons, and also women. They don't have skills, but they are going to rebuild houses, because Mozambique is quite poor, it's underdeveloped. So, the community has to get into reconstructing their villages. We need to understand the role that women can play in construction and accommodate skills that need to be developed into our training packages.

Training adapted to local needs reduced the reliance on external actors and encouraged ownership, while providing relevant technical skills were crucial where traditional methods fell short.

3.2.5 Strengthening emotional connections

Strong links between personal disaster experience and professional ethics among PDR professionals were identified. Disasters survivors demonstrated greater empathy and community responsibility, reinforcing their ethical commitment to honesty and fairness—cognitive social capital developed through lived experience. IT1BE, a built-environment professional and L'Aquila earthquake survivor, described how documenting their own damaged home deepened their understanding:

> When we saw the damage in daylight, the cracks, the collapses, I knew I had to act quickly. This experience taught me how crucial it is to understand what survivors lose with their homes.

Similarly, IT3BE, another practitioner and disaster survivor in Italy, highlighted how personal experience shaped their ethical approach:

> I would never want a professional to treat me unfairly, so I hold myself to the same standard. Being part of the affected community influences my work more than formal training ever could.

These emotional connections fostered a commitment to fairness, empathy and diligence enhanced ethical PDR.

3.2.6 Using social capital for good governance

Strong bonding, bridging and linking social capital enabled public scrutiny of officials, preventing unethical practices in PDR. Community networks were vital for transparency, as collective action serving as an accountability mechanism. As NE4BE from Nepal explained, community feedback countered political interference in beneficiary lists:

> When politicians proposed questionable names, community consultations forced their removal through meetings with local mayors.

Similarly, IN1BE noted community feedback prevented favouritism in Indonesia:

> Officials attempting to prioritise relatives for housing were exposed by the community, leaving them no choice but to rectify the situation.

Digital platforms also enhanced scrutiny. IT2BE shared their thoughts on participative civil society in Italy:

> With social media, anyone can report misconduct, creating powerful democratic oversight.

This community-driven accountability complements formal governance to ensure ethical recovery, challenging power abuses and ensuring fair resource distribution.

4. DISCUSSION

This study provides empirical insight into the dual role of social capital in PDR, revealing how its structural and cognitive dimensions can both enhance and undermine ethical practice. The findings presented in Section 3.1—such as negative societal perception, socially embedded corruption and dependency mentality—illustrate failures in cognitive social capital and the negative outcomes of certain bonding network structures. Conversely, the facilitating factors discussed in Section 3.2—including developing social trust, promoting mutual dependency and using networks for accountability—demonstrate how rebuilt cognitive capital and inclusive bridging and linking networks can enable ethical reconstruction. The findings, therefore, extend previous work in disaster scholarship (Carrasco *et al.* 2024) to the PDR context, aligning with the literature that emphasises positive potential of social capital (Heffernan *et al.* 2025; Lizarralde *et al.* 2015; Storr *et al.* 2025), while also corroborating critical perspectives on its negative outcomes (Baycan & Öner 2023; Portes 1998). This research also affirms that social constraints, as discussed in the built-environment literature, challenge reconstruction and ethical professional practice (Foxell 2018; Sunindijo & Kamardeen 2017).

4.1 LINKAGES-BASED CHALLENGES

This discussion interprets findings on exclusionary 'boys' clubs' (Section 3.1.5), corrupt networks (Section 3.1.4) and aid-focused dependency (Section 3.1.3), revealing how bonding and bridging capital can be distorted to obstruct ethics. The network linkages within social capital impede ethical reconstruction, contradicting the notion that dense networks enhance recovery (Woolcock 2001). While bonding social capital (Coleman 1990) typically fosters cohesion, the findings reveal it can also create exclusionary networks. This supports the notion of the 'dark side' of social capital (Baycan & Öner 2023; Portes 1998), whereby tightly knit groups fabricate circumstances that promote aid dependency. A novel insight is the resistance to foreign professionals in underdeveloped contexts, where strong intragroup ties may obstruct external assistance and perpetuate exclusion, a dynamic unexplored in disaster scholarship (Carrasco *et al.* 2024). Tan-Mullins *et al.* (2021) also note that the emergence of new groups, previously non-existent before the crisis, can erode community trust due to shifts in social connections. Another novel finding is the public silence observed during investigations into possibly illegal activities in PDR, which further illustrates the shielding nature of bonded networks.

Additionally, the study identified the negative implications of bonding among professional groups, particularly 'boys' clubs' that marginalised women, extending the work of Enarson & Meyreles (2004) into social capital theory. Bonding among male professionals (Burt 1998) fostered an unsafe, intimidating workplace culture for females, eroding trust among professionals and, in extreme cases, facilitating sexual and child abuse (Nguyen 2019). In post-disaster contexts, entrenched gender inequalities amplify the risk of abuses of power, including sexual exploitation, as evidenced in studies of post-earthquake Nepal (Tearne *et al.* 2021) and broader disaster contexts (Nguyen 2019). These dynamics undermined the ethical fabric of PDR and inflicted secondary trauma upon professionals, harming work culture and effectiveness.

The study also found that professional networks exploited bridging capital (Granovetter 1973) for unethical purposes forming alliances disguised as friendships to enable corruption, and misconduct. This extends structural holes theory (Burt 2007) by demonstrating that bridging ties can be instrumentalised to facilitate corruption, rather than ethical collaboration, in PDR.

Similarly, linking networks between politicians and community members compromised PDR ethics. This supports Panday *et al.* (2021), who observed that marginalised groups with low social capital had less access to aid than those with political connections. Communities often expected politicians to manipulate beneficiary lists in their favour, illustrating how social capital can be mobilised for unequal advantage (Lin 2004). Certain groups leveraged their political connections to claim unfair benefits, positioning themselves as 'elites', reinforcing cronyism (Cao *et al.* 2016). This undermined ethical aid distribution and placed professionals in ethically compromised positions, forcing them to respond to frequently revised beneficiary lists, often aware that new additions were not genuine victims.

4.2 COGNITIVE DIMENSION-BASED CHALLENGES

Cognitive challenges including profound distrust (Section 3.1.1), normalised corruption (Section 3.1.4) and resistance to innovation (Section 3.1.6) demonstrate how eroded shared norms and values undermine ethical foundations. Values, norms and trust, as cognitive dimensions of social capital, further complicated ethical reconstruction. The normalisation of socially embedded corruption, misconduct and abuse in PDR (Sanderson *et al.* 2022) led communities to withhold support for investigations. This normalisation of corruption supports the critique of social capital (Portes 1998) and reflects the broader societal distrust towards authorities, affirming that distrust undermines collective action (Putnam 2001). This aligns with the view that social capital outcomes are shaped by pre-existing societal norms (Aldrich & Meyer 2015). This is exacerbated in resource-scarce settings, where corruption becomes a rationalised survival strategy.

Moreover, pre-existing limited education and skills training left many without basic construction knowledge, hindering meaningful engagement in PDR. This aligns with Panday *et al.* (2021) who noted that pre-existing socio-cultural inequalities (*e.g.* gender, remoteness) undermine the community social capital disaster resilience. Social capital thus reproduced rather than mitigated these inequalities (Medwinter 2021), which resulted in substandard self-built housing and the acceptance of poor-quality building materials, often promoted by corrupt authorities. These issues were compounded by a dependency mentality rooted in pre-existing poverty, a cognitive dimension of social capital that fostered passive aid acceptance overactive engagement.

Silence in the face of abuse also reflected deep-rooted trust issues, aligning with Finkelhor's (2008) findings on disclosure barriers in unequal societies. This custom concealed crime-entrenched inequalities, normalised subpar construction and enabled the continued abuse of vulnerable individuals by professionals. Ultimately, these dynamics compromised both the ethics of PDR and the professional conduct of those involved.

4.3 LINKAGES OF SOCIAL CAPITAL FOR ETHICAL PDR

Conversely, findings on collaborative dependency (Section 3.2.1), community oversight (Section 3.2.6) and skills training (Section 3.2.4) illustrate how bridging and linking capital can enable ethical practice. This study advances social capital theory by illustrating how different networks contribute to ethical PDR, extending disaster scholarship (Shirleyana *et al.* 2023) into the PDR context. Bonding social capital, often associated with strong ties within homogeneous groups (Putnam 2001), can reduce the overreliance on external aid and foster self-reliance (Hsueh 2019). This research builds on that notion by demonstrating that, when paired with capacity-building (*e.g.* community training), bonding capital strengthens social cohesion and embeds ethics into reconstruction by empowering local actors and promoting collective ownership. This departs from critiques of bonding capital as insular (Portes 1998), revealing its potential for resilience through inclusive interventions, consistent with the literature on social capital in enabling community-based recovery (Shirleyana *et al.* 2023).

Bridging social capital, characterised by connections across diverse groups (Woolcock 2001), was also central to ethical PDR. Beyond facilitating access to new information and opportunities (Kim 2010), this study emphasises its affective and interpersonal dimensions: informal gestures (*e.g.* shared smiles, asking for a glass of water) fostered trust and empathy. These micro-level interactions humanise professional roles, countering top-down approaches and aligning reconstruction with community needs. Furthermore, initiatives such as training women in construction challenged structural inequalities, and broadening the inclusivity of bridging ties, an area where the literature remains comparatively underdeveloped (Aldrich & Meyer 2015).

Linking social capital, the vertical ties between communities and authorities (Woolcock 2001) were key to ethical governance in PDR. Beyond its recognised role in resource mobilisation and legitimacy (Woolcock 2001), this research uncovers its role in facilitating accountability and citizen oversight. The case of communities in Nepal used linking capital to reject politicised beneficiary lists, enabling public scrutiny that improved transparency and minimised governance failures. This extends Bai *et al.*'s (2022) argument in business studies and Gupta *et al.*'s (2018) view that social capital functions as an informal governance and monitoring mechanism against unethical behaviour into PDR. This reflects an important extension of the literature by demonstrating that linking capital, when exercised by informed and cohesive communities, can function as a safeguard for ethical practice, not merely a conduit for aid.

4.4 COGNITIVE DIMENSION OF SOCIAL CAPITAL FOR ETHICAL PDR

Facilitators such as rebuilt trust (Section 3.2.2), community empowerment (Section 3.2.3) and empathetic engagement (Section 3.2.5) highlight how affirmative cognitive capital—shared trust, norms and empathy—becomes the bedrock of ethical PDR. Thereby, this study extends disaster scholarship (Susanto *et al.* 2023) to the PDR context. While prior work emphasises trust and shared values for cooperation (Versaillot & Honda 2024), this study foregrounds the role of emotional and psychological dimensions in shaping ethical outcomes. In disaster contexts, trust formation is often mediated through empathetic engagement (*e.g.* informal conversations, gestures of kindness). These seemingly minor affective exchanges build mutual respect, social reciprocity and a sense of shared purpose serving as vital ethical building blocks for PDR.

This research also expands community empowerment (Tohani & Wibawa 2019) by integrating psychological readiness through faith-based interventions (Nurdin 2024). Empowerment thus moves beyond technical knowledge to include emotional resilience and cognitive preparedness. While the literature often focuses on structural dimensions of empowerment (Woolcock 2001), this study argues that ethical PDR requires deep cognitive alignment between professionals and communities. Clearly communicating reconstruction plans or land-use changes in accessible, culturally sensitive terms enables meaningful participation of communities in decision-making while maintaining dignity, particularly when safety imperatives challenge traditional values.

Furthermore, this study highlights the transformative potential of empathetic professionals, particularly disaster survivors. Their lived experiences imbue work with ethical significance, complementing and transcending the rational-choice assumptions prevalent in trust and cooperation literature (Coleman 1990). In doing so, this study advocates for a more emotionally grounded model of cognitive social capital in PDR, where empathy becomes both a personal virtue and an embedded professional standard within reconstruction practices.

4.5 LIMITATIONS

While this study provides valuable insights into social capital and ethics in PDR, three limitations should be acknowledged. First, the focus on five country cases (Italy, Mozambique, Indonesia, Nepal and Sri Lanka) may affect transferability. However, the case study selection ensured maximum variation across economic development, disaster type and governance structures. This enhances the analytical generalisability of the findings. Second, findings are drawn exclusively from professional informants (*e.g.* engineers, project managers, NGO professionals). While this offers crucial institutional perspectives, the views of affected community members are not represented. Third, the researcher's positionality as a female construction professional of South

Asian origin and training may have shaped the interpretation of themes such as gender, power and colonial aid legacies, despite reflexive efforts to minimise bias.

4.6 VALIDITY, RELIABILITY AND EVALUATION

This study ensured research rigour through careful attention to validity and reliability. Validity was addressed by employing multiple verification strategies, including the use of logic models and analysis of rival explanations to strengthen internal validity (Yin 2018), while external validity was enhanced through the multi-case study design to support generalisability (Bryman 2016). Ecological validity was maintained by examining natural professional contexts in PDR settings (Bryman 2016). Reliability was safeguarded through strict adherence to case study protocols and the development of a comprehensive case study database (Yin 2018).

5. CONCLUSIONS

5.1 THEORETICAL IMPLICATIONS

This study advances social capital theory by introducing it to the built-environment literature, framing it not as a monolithic good but as a dualistic force that can both enable and undermine ethical post-disaster reconstruction (PDR). First, it expands the cognitive dimension by introducing empathetic capital, forged through lived experience, as a core component of ethical practice, positioning relational labour as a vital ethical mechanism. Second, it reconceptualises linking capital, revealing its role as a community-led tool for downward accountability and scrutiny, not merely as a conduit for extracting resources. Finally, it interrogates the intersection of structural networks and power, demonstrating how bonding and bridging ties can actively entrench gender inequality and facilitate corruption, moving theory beyond neutral mapping to a critical engagement with power dynamics.

5.2 PRACTICAL IMPLICATIONS

This research has five key implications for both policy and practice in the built environment, particularly in PDR:

- *Integrate social capital analysis into the project life-cycle*

  Governments should commission a locally grounded social capital review in prefeasibility to map networks and risks, incorporating this knowledge into planning. Multidisciplinary tools such as the World Bank Social Capital Assessment Tool (SOCAT)[1] can be incorporated. A continual audit process should then assess how project stages interact with community structures to ensure adaptive, ethical management.

- *Invest in community empowerment programmes*

  Policy should support initiatives that build technical and psychosocial capacity, including trauma-informed training adapted to local customs and gender roles. Programmes must recognise power asymmetries to ensure marginalised voices can shape decisions, foster community resilience and enable active partnership from design to maintenance, moving beyond passive aid reception.

- *Establish institutional accountability mechanisms*

  Governments should create formal channels for transparent communication and grievance redress. In resource-poor contexts, these channels must be simple and accessible. This strengthens linking capital and enables public oversight from planning to post-occupancy monitoring, helping mitigate corruption and ensure institutional accountability to communities.

- *Reform professional cultures with policy levers*

  Professional bodies should enforce ethical codes that dismantle exclusionary networks and address power disparities, promoting gender-balanced teams and independent whistleblowing channels to ensure safe, inclusive practice across all project phases.

- *Mandate inclusive co-production*

  Policy should require the formal inclusion of marginalised groups in governance structures, using methods that respect local values, literacy and resource limits. Moving beyond consultation to shared decision-making prevents elite capture and ensures equitable distribution of reconstruction benefits through strengthened linking capital.

NOTE

1 See https://documents.worldbank.org/en/publication/documents-reports/documentdetail/515261468740392133/.

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COMPETING INTERESTS

The authors have no competing interests to declare.

DATA ACCESSIBILITY

Due to the confidential nature of participant interviews and ethical considerations protecting professional identities, the data are not publicly available.

ETHICAL APPROVAL

This research adhered to ethical protocols and received ethics approval from the University Ethics Committee (ethical consent number ETH2223-0129). It followed UK General Data Protection Regulation (GDPR) (Data Protection Act 2018) and the Information Commissioner's Code of Practice (2012). Participants provided written informed consent with clear rights to withdraw, while no financial incentives ensured voluntary participation. Data collection employed anonymisation, pseudonymisation and a motivated intruder test to verify de-identification.

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