



International Dimensions of Climate Change

Discussion Paper 5: Climate change and social capital

Mark Pelling, Department of Geography, King's College, London.

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Climate Change and Social Capital

Introduction

Social capital describes relational attributes and cultural norms held by individuals and collectively in society. It has been described as a 'slippery' and contested concept, the focus of argument between contrasting ideological and epistemic viewpoints (Fine, 2001). In contrast, climate change enjoys a technical definition. The United Nations Framework Convention on Climate Change (UNFCCC), Article 1, defines climate change as: 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods'. The challenge of climate change lies rather in the uncertainty it brings to development and risk management. This in turn requires better understanding of decision-making as a social process. Social capital can help in this endeavour by providing insight into questions on the nature of social organisation and its formation through the interaction of social structures and agency.

This think piece first examines the range of ideas captured by the term social capital. A vision of social capital based on the work of Robert Putnam, which has come to dominate debates and policy formulation around social capital, is then examined in more detail. Following sections then examine key challenges for the concept of social capital if it is to make a greater impact on climate change research, and also the prominent themes in climate change policy evolution that social capital is well placed to address, or is already making a contribution towards. Key gaps in knowledge and scope for contributions are emphasised in the conclusion.

What is social capital?

Taking a social capital lens to climate change highlights the influence of social relations in shaping vulnerability and capacity to adapt to climate change impacts and opportunities for mitigation. The application of social capital depends very much on its conceptualisation. Most theoretical debate on the term took place in the 1990s, while many challenges remain for the concept a de facto consensus in the limits and application of the term emerged soon after the turn of the millennium.

Early debate on the meaning of social capital reflected quite different approaches associated with the original works of Putnam (social trust), Bourdieu (cultural norms) and Coleman (human capacity), and with the ways in which social capital was being interpreted for policy use by key actors in international development such as the World Bank (instrumental, to add sustainability and cost sharing with beneficiaries) and developmental INGOs (a driver for collective action, grassroots solidarity and more negatively to explain the dynamics of corruption). This section provides a short overview of the principal approaches to social capital, their critiques and the contemporary consensus.

Bourdieu (1984) used the concept of social capital as part of a theory of social stratification, based on the elaboration of different forms of capital, meaning social attributes under the command of individuals. Under Bourdieu, social capital was deployed by individuals to mark out elite status and so help reproduce privileged

status. Here social relations were given meaning and symbolic power by cultural norms including dress codes, habitual behaviour and knowledge worlds. In contrast to Bourdieu's deductive formulation of social capital, Coleman (1990), a rational-choice theorist, introduced social capital as an explanatory variable in a quantitative analysis of students' educational attainment in USA. Where Bourdieu saw social capital as a good consciously maintained by individuals (and whose meaning and power for social division was socially constructed), Coleman conceived of social capital as a largely unintentional outcome of social processes and interaction. Bourdieu's social capital was held and maintained by individuals, Coleman's operated at the level of society.

Despite these rich contributions, the most referenced perspective on social capital comes from the later and independent work of Putnam. Putnam's (1993) first use of social capital was as part of an explanation of differences in institutional performance, governance and economic development in Italy. It was argued that social capital existed in informal social networks that cross-cut formal organisational structures in determining efficiency and equity in the procedures and outcomes of governance. Later, working on popular civic engagement in the USA, Putnam introduced what has become the most frequently used definition of social capital:

“features of social life – networks, norms and trust – that enable participants to act together more effectively to pursue shared objectives” (1995: 664-65).

Today a large literature on social capital exists, with a notable effort from economists who have used social capital as a mechanism for accounting for social resources and emphasised the ability for social capital to be transformed into other forms of capital (financial, physical, political) (e.g. Arrow, 1999; Solow, 1999; Robinson et al., 2002). This literature has received strong critique from sociological theorists (e.g., Fine, 2001) who see the metaphor of capital as reductive and constraining. It is argued that social relations and underlying values are far richer than the notion of a capital and indeed that there are some contradictory aspects of the social that limit the appropriateness of the metaphor – most cited is the tendency for social capital to grow as it is used. Just as social capital has rapidly become prominent in the social sciences, so it has come to be a highly visible element in a wide range of social policy including economic development, health, education, regeneration, community development and social exclusion and poverty alleviation.

With such diverse roots and application it is not surprising that during the 1990s and early 2000s the literature on social capital was presented as being amorphous (Johnston and Percy-Smith, 2002) with the concept at risk of becoming a cure all, robbed of any distinct meaning (Portes, 1998). In the last five to ten years theoretical debate has declined as an (uneasy) consensus has emerged around Putnam's definition. The majority of contributions now focus on the use of social capital as an element rather than the principal focus of applied studies of social life and development challenges, including those related to climate change. This said, diversity remains but is simply less prominent in debate. To some extent the retreat from theoretical questions that had proven a barrier to aggregating data and analysis and also in building theory across studies (Schuller, Baron and Field, 2000) provides additional scope for comparative analysis. This is particularly salient to climate

change research where comparability across case studies and datasets are an essential step for building international comparisons as well as showing change through time.

The movement from social capital as focus to social capital as an input variable amongst many is especially visible in the burgeoning number of quantitative assessments of vulnerability and adaptive capacity. This includes work that derives indicators of vulnerability or adaptive capacity that incorporate social capital as an input variable. While the movement from theory to application has allowed increased data generation this productivity comes with a health warning: social capital is now most often being indicated by the richness of formal social organisation in society, rather than the cultural norms that underpin such relationships. In this way the dominant contemporary use of social capital has drifted to describe an outcome – collective action – not the substance itself, which is far more elusive and not easily incorporated in quantitative data collection or reduced to allow easy comparative analysis.

Research questions opened by Putnam's social capital

Putnam's work locates social capital in values and norms of trust and reciprocity, assets which manifest in social relationships. These are often summarised as bonding ties (holding together tight communities), bridging ties (connecting specific communities) and linking ties (holding vertical hierarchies together). This framework also recognises the potential for these ties to be used by individuals, or systematically, to produce counter developmental outcomes, the so called 'dark side' of, or 'perverse' (Rubio, 1997) social capital.

The balance between bridging, bonding and linking capital in a social system can help in our understanding of the direction and speed with which climate change adaptations unfold. Strong bonding ties are associated more with survival than development and are often observed in recovery from natural disaster and conflict (Pelling, 2003). Individuals withdraw from maintaining associations with the wider society and turn to close-knit groups. This reduces the exposure of group members to perceived external risks, but also breaks down wider social trust and interaction, slowing the flow of information, building inequality and undermining collective action and society wide adaptive capacity (Pelling, 1998). This is the distinction between local acts to build resistance and societal resilience in the face of threats.

Indicators are needed for comparative assessment of adaptive capacity to natural hazard and climate change. But on the ground it may often be difficult to distinguish between bridging and bonding ties. The nature of social capital may change depending on the use to which it is put and even the position of the observer. Burt (1997) has shown whilst individuals with large social networks will have more social connections, social capital is a reflection of how one is positioned within an organisation's fields of formal and informal interaction.

Societies rich in linking capital benefit from active pathways for facilitating the transfer of goods and information up and down the social hierarchy, but are likely to have difficulties in maintaining social trust and cooperation. In unequal patron-client relationships clients have the opportunity to leverage resources from the hierarchy.

But this is at the cost of limited scope to impose sanctions on patrons opening up relationships to exploitation and dependency. The hierarchical relations underpinning linking capital are as useful for top-down social control as they are for delivering social development. For assessments of adaptive potential mapping linking bonds will not be sufficient, it is essential to embed these in their social context. Recent work on the social contract and climate change has highlighted the social manipulation of such bonds for achieving social change or stability goals (Pelling and Dill, 2009, O'Brien, 2009)

The bonding/bridging/linking triplet has become the mainstay of social capital analysis. But the apparent clarity it offers needs to be seen against the detail that can be obscured. The language used to describe interpersonal relationships needs refining: not all bonding ties can be described as 'strong' and neither are bridging ties necessarily 'weak'. Moreover, the ability of individuals to change the orientation and character of their social ties gives social capital a dynamic and contextual quality through time and in response to external and internal stressors (Leonard and Onyx, 2003). This is an especially important concern for indicators of adaptive capacity that seek to measure generic social resources that could be the foundation of responding to future climate stressors.

Efforts to give substance to the social elements underlying and potentially determining social ties highlight trust and reciprocity. Trust has become a common element in disaggregated national comparisons of social capital (e.g., Fukuyama, 1995). At the local level, trust has been incorporated in quantitative analysis of social capital. Such studies predominantly employ surrogate measures for trust, for example: Uslaner and Conley (2003), use respondents statements on cultural identity and group membership as proxies for trust to explain variations in cultural assimilation amongst the Chinese community in America. Leonard and Onyx (2003: 202) have demonstrated that because most people are at the 'intersection of multiple social categories' the bonding/bridging dichotomy is too simple. They argue that it is only when these overlapping connections fail that the fractionalisation of communities and organisations into isolated sub-communities takes place. This suggests that adaptive capacity should take note of the extent to which politically and economically ambiguous social networks cut across the societies. It may well be that this mess of interactions forms the social raw material that shapes capacity to identify new information, learn and cope with change, and is as important for long-term adaptive capacity as the more easily observable formal organisational structures that are predominantly used to indicate adaptive capacity.

Putnam (2000) has shifted emphasis from trust to reciprocity. Trust reinforces norms of generalised reciprocity, but reciprocity is a social attribute through which trust is enacted in interpersonal transfers of information or resources. Reciprocity is differentiated into balanced and generalised forms. Balanced reciprocity takes place between two individuals who, perhaps routinely, exchange gifts of a roughly equal value (friends or neighbours exchanging holiday gifts). Generalised reciprocity is less direct, an individual might help another without expecting anything in return but rather in the knowledge that a third party will be predisposed to extend help knowing the reputation of the first individual for generosity and helpfulness. General reciprocity relies on the propagation of reputation and the threat of its withdrawal as

a social sanction against free riding behaviour (Putnam, 1993). This insight offers one explanation for the observation that networks of social capital can be a resource for individual adaptation whilst simultaneously undermining collective adaptation, for example when well connected community group leaders utilise their social capital to gain resources before less well connected representatives potentially excluding more vulnerable groups from risk reduction programmes (Pelling, 1998).

Challenges for social capital – leading to research questions for climate change

For the full potential of social capital approaches to be realised for climate change research a number of ambiguities in the literature need to be confronted. These challenges also inspire research opportunities that can add clarity to the social context and impacts of climate change. These concerns are commented on in this section.

Perhaps most important is that research on adaptation under climate change reviews the utility of an agreed common understanding of social capital to allow comparative research and give more weight to findings. The context dependent nature of social capital means it will be difficult to entirely escape from methodological pluralism and individual studies will have to choose the analytical categories they see fit, but the argument here is for a concerted effort towards a common understanding of social capital to provide the foundations for work on adaptation, and also mitigation, to build up from isolated case studies and indicators. Pelling and High (2005) identify five characteristics of social capital theory that point to opportunities for building an institutional theory of climate change based upon social capital.

1. **The formation of social capital.** The possibility that policy interventions can construct progressive social capital is a fundamental assumption of many policy makers. But the evidence in support of this claim remains clouded. On one side evidence (Putnam, 1993, McIlwaine, 1998) points to social capital accruing through history, its qualities and quantity for any one society being dependent upon the historical development path taken. The opposing view holds that social capital can be fostered through external interventions that change the social rules and incentives in society and that can result in a wakening of latent social capital. The latter view suggests that individuals and societies can hold potential or dormant social capital, which, in the right social conditions or faced by a particular development challenge or shock, could be brought forward and used to reduce collective risk (Fukuyama, 2001). Current policy debates amongst development donors and NGOs alike tend to assume the constructability of social capital, the evidence for this is slim at best.
2. **The operation of social capital.** Examining the place of social capital in adapting to future climate change directs attention towards the informal or shadow (Shaw, 1997) relationships that cut across and may eventually become part of bureaucratic organisations and wider administrative structures. A potential indicator of adaptive and mitigative capacity could be constructed by taking into account the tension between the innovation associated with informal interaction on the one hand, and the order and transparency of bureaucratic organisation on the other. In an assessment of

the social base of adaptive capacity Adger (2003) uses bonding and networking to distinguish between the public and private faces of social capital and acknowledges that these two realms are likely to deliver conflicts in interest. Whilst it would be in the public interest and long-term individual advantage to build collective social organisations, it is not always advantageous for individuals to contribute toward this process. By contrast, research on participatory development is replete with examples of collective action providing disproportionate individual benefit above the collective good (for example: Desai, 1995). As climate change unfolds and new stressors are felt what constellations of overlapping relationships will be best placed for equitable adaptation and effective mitigation? Will climate change adaptation be a force that leads to the collapse or reinforcement of entrenched roles and the marginalisation of the vulnerable? Rayner and Malone (2001) argue that the diversity of interpersonal ties that constitute social life is a fundamental resource that can facilitate individual and collective change when faced by climate change or other external pressures.

3. **The utility of social capital.** Through a focus on the uniqueness of place or context, social capital diverts analysis from larger, structural concerns, for example of class subordination (Keane, 1998) and in turn generates preference for local solutions (local environmental management) over wider social action (social safety nets). But this overlooks the potential of social capital to operate at analyses at varying scales – local, national, international (as well as within organisations and networks lying across scales, see below). This calls for research methodologies that combine descriptive structural assessments (often of social capital outputs – civil society organisations – or indirect indicators – newspaper readership) with more analytical, ethnographic work to help understand the cultural context of social capital formation and use. Whilst producing aggregate measures of social capital is proving difficult, social capital can offer a valuable entry point into understanding the operation of scaled decision-making in organisations and communities. As Adger (2001) has noted, the most appropriate governance regime adaptations for climate change will combine action at multiple scales from the individual up. The role for public policy is to create the most favourable socio-economic environment and institutional arrangements to allow climate change adaptation and mitigation to take place. Social capital directs research towards the interaction of formal administrative and organisational structures and conventions for information transfer and decision-making authority, with more informal and personalised networks of influence and learning acting across scale.
4. **Social capital and communities of place.** Because the impacts of climate change are space-bound the majority of ethnographic work on social capital and climate change is interested in communities of place. Literature on adaptation to climate change in communities of place has focussed on the pressures that lead to changes in the quality and quantity of formal and informal networks, and so to the building up or breaking down of entitlements to external resources or capacity to mobilise internal community resources for adaptation. The interplay between structural-political forces and local social capital has produced some useful comparative work. Adger (1999; 2000)

shows that the modernisation and liberalisation process in Vietnam has led to increased inequality in local capacities to mitigate sea-flooding. Yet, these same processes have opened the political space needed for the rekindling of traditional street associations that in their turn are a source of informal resources and coping capacity. This is an example of latent capital becoming active, and of the resilience of informal networks of social capital faced with long-lived repressive political structures. In a comparison between three Caribbean societies, Pelling (2003) examines the challenges to social capital formation and maintenance in regimes undergoing transition towards democracy from military authoritarianism (the Dominican Republic and Guyana) and contrasts this with a crisis in maintaining social capital within a rapidly modernising, democratic state (Barbados). These contextual analyses highlight the perverse and positive faces of social capital. Tensions between individual and collective control of social capital point to the role of power in shaping adaptation to flooding and shape of underlying adaptive capacity. These studies also use a historical perspective that pulls out the dynamic and static elements of local social capital as individuals and communities reinvent local institutions of governance within the broader system of a coevolving socio-environment.

5. **Social capital and communities of practice.** Examining social capital in communities of practice draws on the social learning literature. This is far less developed than the literature on communities of place (see Pelling et al, 2007). Melé (2003) interprets social capital as a public good that can reduce transaction costs and facilitate the exchange of resources and information between individuals and management units enhancing innovation and capacity to learn. In the literature on organisation research, the informal ties and relationships that make up social capital networks within communities of practice have been dubbed 'shadow systems' by Shaw (1997). She criticises the dominant construction of shadow systems as a source of resistance to legitimate efforts at making changes (foot dragging or corruption) – and argues for their recognition as a source of innovation and an alternative to canonical social organisation. Adaptive capacity is seen as an outcome of the tension between actor and organisation, and of short- over long-term gain worked out through the informal relationships and cultural norms of social capital.

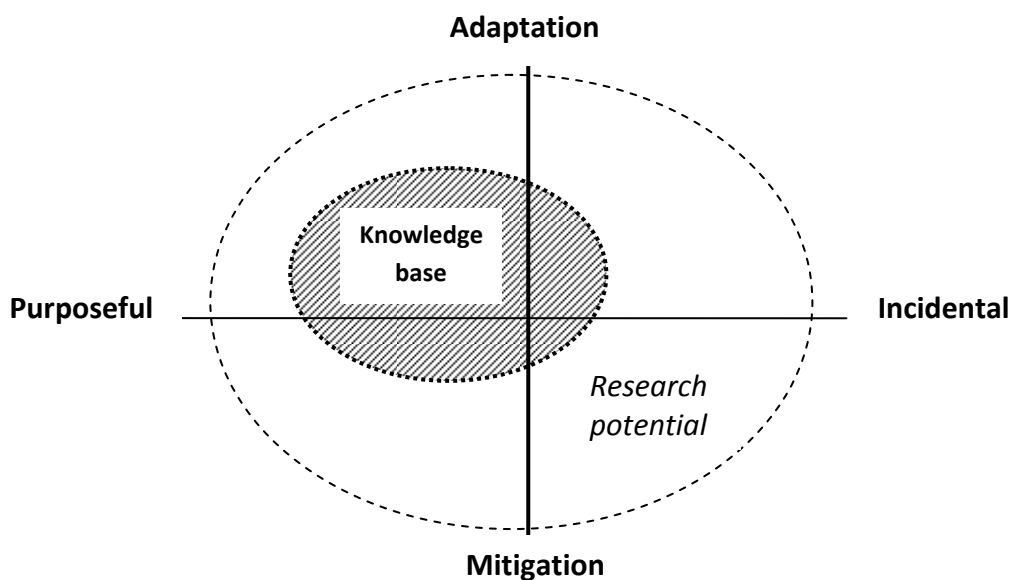
Climate change priorities: existing application, emerging questions and the potential contribution of social capital

The preceding discussions have outlined the character of social capital and the kinds of questions it opens for climate change. In this section we comment on the existing empirical literature on climate change that has already applied social capital and also highlight areas where social capital approaches can further contribute. Vulnerability, adaptation and mitigation are considered in turn.

To frame this assessment, and in summary, Figure 1, presents a simple mapping of the existing knowledge base and scope for social capital and climate change research. It acknowledges the significant volume of work that applies social capital to understand and derive indicators for purposeful adaptation to climate change (and by

extension for human vulnerability). It also identifies three areas of potential application that have thus far been less well developed: purposeful mitigation, and both incidental adaptation and mitigation. Purposeful mitigation includes the range of activities likely to reduce greenhouse gas emissions that can be influenced by social relationships including social learning and has in the last two years received growing attention; incidental mitigation and adaptation place focus on underlying social relations, the social raw material that determines the capacity for society to be able to mitigate or adapt to climate change in the future. Even in studies of purposeful mitigation and adaptation there is often only cursory attention paid to this more generic social resource where knowledge is limited across the existing literature.

Figure 1: Achievements and scope for social capital and climate change research



Vulnerability and adaptation

Social capital theory has already had much influence on our understanding of vulnerability and adaptation to climate change. There are very few climate change vulnerability or adaptation indexes that do not attempt to capture social capital (Birkmann, 2006). As noted above, while the conceptual case has been made, methodological challenges remain such that social capital is measured only indirectly (e.g. through newspaper readership or civil society group membership). These challenges are generic to the application of social capital across other research domains, for example in the comparison of national development capacities or trends. The result is a limited view of social capital that tends to be biased towards a description of the formal institutions of society. Capturing the informal social ties that cross-cut and often direct the formal (e.g. through corruption or social organisation at the local level that is not visible but nonetheless locally significant for reducing risk) remains difficult to capture. Ethnographic work is increasingly recognising the importance of the informal in shaping policy outcomes (i.e. in determining the gap between policy goal and impact).

The increasing tendency to use geographic information systems (GIS) to present and analyse vulnerability and adaptive capacity assessment also presents a challenge for the inclusion of social capital. Social capital is not only difficult to see but is held by individuals and manifest in relational space. These relationships invariably cross spatial and scaled units of analysis that structure GIS approaches. Again, the response is to provide indirect or proxy measures of social capital (group membership) or at best the use of Likert scales to draw out notions of trust.

The focus on local space and scale is reasonable – the impacts of climate change are felt locally. Many of the attributes that determine human vulnerability and adaptive capacity are also local (physical infrastructure, local governance, economic and demographic status). Aspects of social capital are also locally embedded, but social capital crosses scale. Some work has applied social capital together with social learning to examine the ways in which social relationships work across scale and professional or policy domains (e.g. Pelling et al, 2007). But compared to other fields, such as water and forestry resource management the potential for social capital to help analyse cross-scale attributes of vulnerability and adaptation is still undeveloped.

Governance, migration and conflict are three areas of research where the role of social capital has been identified but scope remains for a stronger contribution to help understand the dynamics with climate change risk and adaptation. Figure 1 makes the distinction between incidental and purposeful, hazard specific adaptation. Incidental, or generic adaptation describes all those attributes of society that will give shape to any responses to future climate change related hazards (and opportunities) as they arise. This also reminds us that hazard specific adaptive actions will have potential knock-on effects for generic governance systems. These can be virtuous (more inclusive decision-making) or vicious (increasing inequality). Social capital is a useful tool in examining these relations and in particular between the informal and formal structures of governance. Migration from areas exposed to untenable climate change associated risk is directed not only by local push factors and the pull factors of potential destinations but also by the resources available to potential migrants. Important amongst these is social capital. Familial, tribal or ethnic ties play a significant role in determining decisions when and where to migrate, they also shape the outcomes of migration for families – is it an act of individual advancement or aimed at strengthening options for family survival and improvement in response to the compound dynamics of global environmental and economic change? Finally, conflict interacts with social responses to climate change both a context for climate change impact and an outcome of adaptation. Social capital directs study and policy towards the underlying social ties that lead groups in society towards or away from violence as a mechanism for resolving conflicts of interest under climate change associated resource scarcity.

Post-disaster (and post-conflict) society tends to be strong in bonding capital (tight groups) but weak in bridging capital (connections between groups in society) – this is rational and provides security but is also a break on development and can contribute towards local divisions and further breakdown in trust and cooperation. The potential for humanitarian and development actors to build back better post disaster and so both limit further vulnerability and use the reconstruction period as a mechanisms for

improving development opportunities has long been recognised but there is limited research on this process. That which does exist (e.g., Klein, 2007) focuses on economic reconstruction rather than social reconstruction. This is a major gap in knowledge and one that will become more important under climate change where recovery from past disaster required doing more than returning societies to pre-disaster normality if the evolving risks of climate change are to be factored into development.

Where there is limited awareness of social capital and the wider social context of risk, risk management tends to be partial. The UK approach to heat-wave risk is a case in point the heat-wave management plan is constructed around a narrow medical interpretation of risk management. Doctors rather than elderly care professionals and their regulators are understood to be the local delivery agents of risk management. This approach underplays risk reduction and adaptation which are social rather than narrowly technical acts. Research on social capital and heat-wave risk in the UK has confirmed the central role played by relatives in determining the behaviour of the at risk elderly (Abrahamson et al., 2009). There is less knowledge on the contribution of care professionals and their regulators though research on this topic is underway (MOVE, 2010).

Mitigation

Interest in the mechanisms through which society changes behaviour to reduce greenhouse gas emissions has so far received little contribution from social capital. The exception is research on the UNFCCC negotiation process which includes some (post-structural) work on the derivation of negotiating positions. Here the role of national lobby groups based on social ties and trust in influencing national positions can be seen as including the substance if not the theoretical frame of social capital.

Social capital has been identified as an important element in the formation and replication of low carbon living experiments such as Transition Towns in the UK. These are local, civil society initiatives, networked to provide support and solidarity for citizens concerned with climate change and peak oil. There is no structured research on the contribution of social capital or its manipulation or construction by leaders in this movement but there is great scope for work that can apply existing, fundamental social capital research on social movements and local collective actions.

At a wider level social capital's focus on trust as the glue that determines which social relationships have influence in society could be applied to help understand the troubled relationships between science, politicians and the public – and the role of education and the media in this. A social capital lens would direct research questions towards interpersonal relationships and their role in the social magnification of norms, and also potentially in the diffusion of new values and associated behaviour preferences across society.

Conclusion

Social capital has evolved from a theoretically contested concept to one that has become an everyday part of policy making. Despite the apparent acceptance of the idea of social capital a number of theoretical challenges remain that inhibit its utility

in climate change research and policy making. Most important here are (1) the continuing diversity in interpretation of the concept (2) a drift towards the identification of social capital with indirect indicators or outputs – social organisation rather than trust and reciprocity (3) a preference for the analysis of formalised rather than informal expressions of social capital – organised civil society rather than social norms that distort access to influence and resources (4) the fashion for vulnerability and adaptation to be analysed and presented using GIS approaches which do not fully capture the a-spatial and multi-scalar dynamics of social capital.

These challenges also point to the potential contribution that a social capital lens can make in drawing out the informal, multi-spatial and diverse ways in which social relationships shape the dialectic between values and behaviour which lie at the core of research and policy on adaptation and mitigation.

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