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POLICY ARENA

VULNERABILITY, CAPACITY AND RESILIENCE: PERSPECTIVES FOR CLIMATE AND DEVELOPMENT POLICY

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Abstract: In the decades since the terms 'vulnerability', 'capacity' and 'resilience' became popular in both the disaster and development literatures, through natural and social science discourses, the terms have been applied to many development- and disaster-related policies and have been the subject of much debate and interpretation amongst various schools of thought. An illustrative review of the use of these terms is given followed by a critique of the main discourses, especially regarding the development and disaster policy advantages and disadvantages. Recommendations are given at different scales for closing some of the gaps identified, especially regarding the policy usefulness of certain theoretical approaches. Copyright © 2010 John Wiley & Sons, Ltd.

Keywords: disaster risk reduction; climate; vulnerability; capacity; resilience; development; policy

1 INTRODUCTION

The development, climate change and disaster literatures share numerous concepts which are heavily used by both scientists and policy makers. Three of those concepts stand out by the frequency of their use and the impact they have on contemporary policy making: vulnerability, capacity and resilience. These concepts have been particularly strong and structuring within the disaster risk reduction realm where both the concepts of vulnerability and capacity emerged back in the 1970s and 1980s. Since then, most international policy oriented documents have been relying on these concepts to sustain contemporary

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discourses on sustainable development, climate change mitigation and adaptation and disaster risk reduction.

As an example, the famous and pioneering so-called Brundtland Report of 1987 quoted the word vulnerability/vulnerable 47 times in 300 pages (World Commission on Environment and Development, 1987). More recently, the summary for policy makers of the International Panel on Climate Change report on Impacts, Adaptation and Vulnerability, used the concept of vulnerability 30 times and that of capacity 25 times within only 16 pages (Parry *et al*., 2007). Similarly, in the six-page long 'Hyogo Framework for Action 2005–2015' of the United Nations (UN) International Strategy for Disaster Reduction (2005), vulnerability (10 occurrences), capacity (five occurrences) and resilience (nine occurrences) are the most oft-cited concepts.

In these references, as well as amongst other scientists, policy makers and practitioners, it seems that these concepts are used in diverging ways, for different purposes and sometimes out of their original theoretical frameworks. Consequently, field practitioners seek to tackle conflicting policies, uncoordinated field actions and poor development progress for the most vulnerable, the least capable and the least resilient in the face of climate-related hazards (e.g. Global Network of Civil Society Organisations for Disaster Reduction, 2009; Mercer, 2010).

In this paper, I provide an illustrative review of those three concepts as a mirror of the larger scientific and policy context (Section 2). That enables identifying gaps between the advance of scientific knowledge and the often inflexible character of disaster risk reduction policies at the national level which at the same time inhibit sustainable development in a context of climate change (Sections 3 and 4). Suggestions are then made to bridge this gap in the context of the larger development policy context (Section 5).

2 INTRODUCING VULNERABILITY, CAPACITY AND RESILIENCE

The concept of vulnerability was in the disaster literature as early as the 1970s (e.g. Baird *et al*., 1975; O'Keefe *et al*., 1976; Wisner *et al*., 1977). It then spread quickly in the 1980s, including into the climate change (e.g. Bohle *et al*., 1994; Handmer *et al*., 1999) and development literature (e.g. Chambers, 1989; Devereux, 2001). The definitions refer to the susceptibility to suffer damage in a potentially dangerous event, either natural, economic or political. Vulnerability thus stresses the condition of a society which makes it possible for a hazard to become a disaster (Cannon, 1994: p. 13).

Despite such broad agreement amongst the authors, significant divergences of approaches exist. Those differences have been interpreted through several classifications and typologies (e.g. Timmerman, 1981; D'Ercole, 1998; Wisner, 2004). In its earlier interpretation, the concept of vulnerability refers to the social construct leading people to be fragile in the face of natural hazards and food shortages (O'Keefe *et al*., 1976; Waddell, 1977; Wisner *et al*., 1977; Sen, 1983). It aims at identifying hazard-independent factors of vulnerability rooted in macro-scale structural and societal constraints based on qualitative analysis (Hewitt, 1983; Lewis, 1999; Watts and Bohle, 1993; Wisner *et al*., 2004).

Other definitions later focused on community or territorial scales to draw vulnerability maps through the integration of quantitative and qualitative data dealing with the actual condition of insecurity of people in the face of climate-related and other natural hazards (e.g. Anderson-Berry, 2003; Birkmann, 2006). This approach emerged with the desire for measuring vulnerability and making it quantitative for disaster risk reduction and

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development practice. Finally, engineers and earth scientists have also used the concept of vulnerability to compute quantitative indices of potential losses of built structures should a damaging event occur (e.g. Stewart, 2003; Kemp, 2007). Based on these different approaches, some models have been proposed to further frame the concept. Some of the most famous include the Pressure and Release model first suggested by Davis (1984) and then popularised by Blaikie *et al.* (1994); the Space of Vulnerability model of Watts and Bohle (1993); and Hewitt and Burton's (1971) 'hazardousness of a place' approach which has continually been reinterpreted in different forms in later literature.

The concept of capacity (as itself and not associated with other concepts such as in the expression 'capacity to resist', 'to face', 'to recover', etc.) emerged from practitioners in the late 1980s (Anderson and Woodrow, 1989). It reflects the increased recognition of people's ability to face climate-related and other natural hazards which was not captured in the mainly negative concept of vulnerability. Capacities refer to the resources and assets people possess to resist, cope with and recover from disaster shocks they experience (Davis *et al*., 2004). The concept of capacity also encompasses the ability to either use and access needed resources and thus goes beyond the sole availability of these resources (Kuban and MacKenzie-Carey, 2001). Capacities are not the opposite end of vulnerability on a single spectrum, because highly vulnerable communities may display a large array of capacities (Davis *et al*., 2004).

Capacities are often rooted in resources which are endogenous to the community and which rely on traditional knowledge, indigenous skills and technologies and solidarity networks. In contrast, vulnerabilities often depend on structural constraints which are exogenous to the community, such as unequal distribution of wealth and resources within the society, market forces, political systems and governance. In that sense, they relate to the academic concept of subculture. Anderson (1965: p. 3) defined a disaster subculture as 'those subcultural patterns operative in a given area which are geared towards the solution of problems, both social and non-social, arising from the awareness of some form of almost periodic disaster threat' and added that 'a community's disaster subculture serves as a blueprint for individual and group behaviour before, during and after the impact of the disaster agent'.

The ways in which capacities are mobilised in times of crisis reflect coping strategies. Coping strategies refer to the manner in which people and organisations use existing resources to achieve various beneficial ends during unusual, abnormal and adverse conditions of a disaster phenomenon or process (United Nations International Strategy for Disaster Reduction, 2002). The concept of capacity has also been long used in connection with the ability to face ecological changes (Holling, 1973) and, more recently, the impact of climate change as emphasised in the definitions of resilience and vulnerability of the Intergovernmental Panel on Climate Change (Parry *et al*., 2007) which explicitly references 'adaptive capacity'.

The concept of resilience emerged in the climate and disaster literature in the 1970s (e.g. Torry, 1979a), then mirroring parallel use in child psychology (e.g. Werner *et al*., 1971), engineering (e.g. Gordon, 1978) and ecology (e.g. Holling, 1973). It then spread widely in the 1990s and is still the object of a conceptual debate around its sense and application among social scientists (e.g. Manyena, 2006). Pelling (2003: p. 48) views resilience as a component of vulnerability or the ability of an actor to cope with or adapt to hazard stress. That includes the planned preparation and the spontaneous or premeditated adjustments undertaken in the face of natural hazards. Others (e.g. SOPAC c, 2002) interpret resilience as the 'flip'—positive—side of vulnerability or the ability to resist damage and change in

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the event of the occurrence of a climate-related or other natural hazard. A third approach breaks away from the previous two to define resilience as the capacity of a system to absorb and recover from the occurrence of a hazardous event (Timmerman, 1981: p. 21).

The United Nations International Strategy for Disaster Reduction (2002) adopted this approach in its definition of resilience as '*the capacity of a system, community or society to resist or change in order that it may obtain an acceptable level of functioning and structure*'. Considering that resisting to change may be one way among others to overcoming disasters is problematic as it brings back the social system to the pre-event state of vulnerability which leads to the disaster (Manyena, 2006). It thus conflicts with development policy suggesting that post-disaster reconstruction should be an opportunity to build back better and foster development (e.g. Anderson and Woodrow, 1989; Christoplos, 2006). Changes—social, cultural, economic or political—may therefore be viewed as a pre-requisite to achieving resilience.

3 FROM THEORETICAL CONCEPTS TO SCIENTIFIC PARADIGMS

The progressive emergence of the three concepts of vulnerability, capacity and resilience mirrors a critical paradigm evolution amongst academics. The paradigm which has long dominated scientific studies of disasters emphasises the importance of Nature's threats, called natural hazards. This approach has been spearheaded by White's (1945) pioneering dissertation on people's adjustments in the face of flooding in the US. This paradigm is known as the hazard paradigm. Burton and Kates (1964: p. 413), two of White's students, define natural hazards as '*those elements in the physical environment, harmful to man and caused by forces extraneous to him'*. Frampton *et al.* (2000) further stress the '*uncontrollable dimension*' of the physical event while Chapman (1994) mentions '*rare and extreme natural phenomena greatly exceeding human expectation in terms of its magnitude and frequency*'. Many more definitions of natural hazards similarly emphasise extreme (function of magnitude) and rare (function of time) natural phenomena that exceed human's ability to resist.

The 'extraneous' and extreme dimension of natural hazards thus leads disasters identified with these natural phenomena to being considered out of the regular social fabric (e.g. Kates and Clark, 1996). Scientists, institutions, governments and media thus often mention 'extra-ordinary', 'un-controllable', 'in-credible', 'un-predictable' and 'un-certain' phenomena along with 'un-expected' disasters and 'un-scheduled' and 'un-anticipated' damage (see Hewitt, 1983 for a critique). Regions affected are unable to face such forces of Nature and often those which are considered 'under-developed', 'over-populated', 'un-informed', 'un-prepared' and 'un-planned' (again see Hewitt, 1983 for a critique). Therefore, a clear and brutal border is manufactured between regions of the world which are often struck by disastrous events and those which are supposed to be safe (see Bankoff, 2001 for a critique).

In this context, earth and climate scientists and engineers tend to aim at understanding, monitoring and predicting extreme natural events. They rely on probabilistic models and the latest available technological devices. Social scientists further focus on how people and societies perceive the danger and how they adjust to rare and extreme threats. Individuals and societies with a low perception of risk allegedly adjust poorly to the threat. People and societies with a high risk perception are assumed to adjust well (Kates, 1971; Burton *et al.*, 1978; Fischhoff *et al.*, 1978; Slovic, 1987). Factors which affect people's perception of risk

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are hazard-related too, i.e. hazard magnitude, duration, frequency and temporal spacing, plus the recentness, frequency and intensity of past personal experiences with hazards. Kates (1971: p. 441) underlines that those factors are independent from the socio-economic environment.

The emergence of the concept of vulnerability in the 1970s, and later those of capacity and resilience, reflects a critical evolution in the way disasters have been considered and faced (Waddell, 1977; Torry, 1979b). Drawing on cases from the developing world, scholars such as O'Keefe *et al.* (1976), Wisner *et al.* (1977) and Hewitt (1983) increasingly emphasise people's vulnerability in the face of natural hazards, coined the vulnerability paradigm. Vulnerability in facing natural hazards reflects people's marginalisation within society. Disaster-affected people are disproportionately drawn from the segments of the society which are chronically marginalised in daily life (Wisner, 1993; Wisner *et al*., 2004; Gaillard, 2007). Disaster-affected people are marginalised geographically because they live in hazardous places (e.g. informal settlers); socially because they are members of minority groups (e.g. ethnic or caste minorities, disabled individuals, prisoners and refugees); economically because they are poor (e.g. homeless and jobless); and politically because their voice is disregarded (e.g. women, non-heterosexuals, children, and elderly) by those with political power. People's vulnerability varies in time and space and is determined by hazard independent, structural constraints which are social, cultural, economic and political (Watts and Bohle, 1993; Wisner *et al*., 2004; Gaillard, 2007).

Disasters thus hit individuals with limited and fragile incomes (low wages, informal jobs, lack of savings) that reduce the capability to deal with natural hazards (location of home, type of housing, knowledge of protection measures), thereby inhibiting development processes. Vulnerability and marginality also result from inadequate social protection (health insurance, health services, construction rules, prevention measures, etc.) and limited solidarity networks.

The failure of entitlement does not mean that means of protection are unavailable locally. In many instances, such as for famines (Hartmann and Boyce, 1983; Sen, 1983; Watts and Bohle, 1993), lack of capacity does not reflect the lack of food, knowledge, technologies or financial capital, but rather an unequal distribution of available resources and the nature, strength and diversity of people's livelihoods. Assets and resources essential in the sustainability or un-sustainability of livelihoods are conversely crucial in defining vulnerability. Such an intimate relationship between livelihood and vulnerability justifies that many people have no other choice but to face natural hazards to sustain their daily needs. The difficulty of accessing sustainable livelihoods may further lead to environmental degradation which often materialises in increasing natural hazards; for instance, the need for firewood aggravates deforestation which in return exacerbates landslides and floods.

People's incapacity to safely face climate-related and other natural hazards therefore results from their inability to control their daily life and to choose the location of their home and their livelihoods (Blaikie, 1985). In that context, disasters highlight or amplify people's daily hardship and everyday emergencies (Baird *et al*., 1975; Maskrey, 1989). Disastrous events can thus not be considered as accidents beyond the usual functioning of the society (Hewitt, 1983; Wisner, 1993). Instead, disasters reflect development failure where the root causes of vulnerability merge with the origins of other development-related crises.

The concepts of capacity and resilience further reflect the emergence of the vulnerability paradigm. People's capacities emphasise that those affected by disasters should not be considered as helpless victims whose risk perception should be changed from the outside.

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Instead, development policy should use people's capacities to help the people themselves to rebuild and to reduce future disaster risk.

4 FROM SCIENCE TO POLICY AND PRACTICE: THE MISSING LINK

The concepts of vulnerability, capacity and resilience played a pivotal role in the progressive emergence of the vulnerability paradigm within the scientific realm. Eventually, some of the central ideas of the vulnerability paradigm were progressively integrated into some, but not all, international policy documents such as UN strategies (United Nations International Decade for Natural Disaster Reduction, 1994; United Nations International Strategy for Disaster Reduction, 2005, 2009). Numerous NGOs focusing on development, climate change adaptation and disaster risk reduction have also adopted ideas from the vulnerability paradigm, translating them into sound policies (e.g. http://www.globalnetwork-dr.org/). Conversely, some obviously more powerful institutions like the International Monetary Fund (IMF) have not yet integrated the bottom-line arguments of the vulnerability paradigm (Freeman *et al*., 2003) while others such as the World Trade Organization (WTO) downplay the negative effect of disasters on development (World Trade Organization, 2006).

If international policies are slowly changing, their influence on national policies and practice remain limited. The latest report of the Global Network of Civil Society Organisations for Disaster Reduction (2009) shows that the recommendations of the United Nations International Strategy for Disaster Reduction (2005) are actually not 'trickling down' to local communities threatened and affected by disasters. In fact, the United Nations and the NGOs have a limited influence to foster appropriate disaster risk reduction policies at the national level. This is of particular worry since the implementation of policies intended to reduce disaster risks is the primary and sovereign responsibility of national governments. In many countries, disaster and development policies and practices still reflect the influence of the hazard paradigm. These policies are primarily geared towards the extreme dimension of natural phenomena and often reflect war strategies (Gilbert, 1995). In many countries, disaster policies are handled by the army or civil protection institutions, relying on military chains of command and treating climate-related and other natural hazards as enemies to fight against (Alexander, 2002).

Risk reduction strategies thus focus on technocratic, command-and-control measures such as engineering structures, technology-based warning systems, hazard-based land-use planning and hazard-based risk awareness campaigns. Internationally, disaster risk reduction policies have long relied on the above-mentioned regional geography of disasters opposing safe, affluent countries with dangerous, poor countries. That fits into wider development policies which foster top-down transfers of knowledge, technology and experience from the rich to the poor, because the poor countries are allegedly unable to cope without external assistance (Hewitt 1995; de Waal, 1997; Bankoff, 2001). Disaster risk reduction can therefore be viewed as a neo-colonial activity superimposed by regulation overseen by the most affluent states.

This top-down hazard paradigm now seems to be regaining ground, fuelled by the media, political and scientific discourse on climate change (Kelman and Gaillard, 2008). Uncertainties around the evolution of climate conditions constitute a powerful argument for the proponents of the hazard paradigm for considering Nature as the major threat (e.g. White, 2004). Uncertainties are indeed frequently associated to the probability of

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occurrence of rare and extreme natural hazards which should be addressed through scientific models and statistical probabilities. The contemporary focus on climate change thus reinforces a paradigm where Nature is the danger source (even if exacerbated by human activity, as with climate change and other hazards) and where people have to adjust / adapt to that threat. Yet people's capacities to cope with this threat are largely overlooked, even though constrained by the same development-related factors underpinning vulnerability (Bohle *et al*., 1994).

The influence of the climate change discourse on disaster and development policies, and the corruption of the concepts of vulnerability, capacity and resilience are evident in the latest report of the Intergovernmental Panel on Climate Change (2007). In this document, vulnerability is defined as '*the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate change and variation to which a system is exposed, its sensitivity, and its adaptive capacity*'. This definition emphasises extreme events and dependence on climate features, especially the magnitude of change to be experienced, which are both characteristics of the hazard paradigm.

Such a scientific discourse on climate change, highly emphasised by the media, distracts national governments from the root causes of vulnerability. National authorities further find in climate change a perfect scapegoat for the occurrence of disasters and the inhabitation of development (Kelman and Gaillard, 2008). Pinpointing a phenomenon of global scale and diffused responsibility enables governments to evade their own responsibility in addressing the root causes of vulnerability. Therefore, the blame for often inflexible national policies and practice can be attributed to both the academic proponents of the hazard paradigm, including those who emphasise the importance of climate change, and national governments which often fail to implement changing international policies such as those of the UN and many grassroots NGOs.

5 BRIDGING THE GAP: INTEGRATING BOTTOM-UP AND TOP-DOWN

Bridging the gap between the advance of scientific knowledge, international policies and local practice, in the larger context of climate change adaptation within development, requires re-affirming the theoretical principles on which policies claim to be inspired by. The needed measures must be sensitive to local geographic, social, economic and political contexts in order to respond to needs that vary amongst locations, contexts and individuals. No single, miracle solution can fit everywhere; however, a general concept does seem to apply universally: enhancing capacities, reducing vulnerability and building resilience requires increasing participation of local communities, as has long been encouraged in development research, policy and practice (e.g. Chambers, 1983; Wisner, 1995).

Local communities nearly always constitute the first line of defence in reducing vulnerability and building resilience. A wide consensus acknowledges the capacities of local communities in dealing with climate-related and other natural hazards on their own, as long as they are empowered with adequate resources (e.g. Quarantelli and Dynes, 1972; Delica-Willison and Willison, 2004). Community-Based Disaster Risk Reduction (CBDRR) fosters the participation of threatened communities in the evaluation and reduction of risk (including hazards, vulnerability, capacities and resiliences).

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CBDRR empowers communities with self-developed and culturally, socially and economically acceptable ways of coping with and avoiding crises related to natural hazards (e.g. Anderson and Woodrow, 1989; Maskrey, 1989). CBDRR thus enhances endogenous resources which prevent people from resorting to exogenous means which are often hard to access and which often create a cycle of dependency. CBDRR further aims at strengthening people's livelihoods to enable local communities to live with risk on an everyday basis (Benson *et al*., 2001; Cannon *et al*., 2003; Twigg, 2004), thus favouring the integration of disaster risk reduction into development policy and planning. It is actually often impossible to prevent people from settling in hazardous areas, because these same locations often provide resources on a daily basis, as in the case of fertile floodplains and coastal zones with fisheries. Focusing on livelihoods simultaneously addresses people's ability to sustain their daily needs and their capacities to face climate-related and other natural hazards.

CBDRR is also increasingly promoted among local governments and scientific communities in order to strengthen the links between top-down and bottom-up disaster-related measures (Kafle and Murshed, 2006) and to facilitate their integration into wider development policy frameworks. Top-down actions should support, rather substitute for, community capacities. Local communities should indeed be externally assisted when large-scale tasks are essential, such as massive evacuations over long distances, major medical operations and considerable debris cleaning. CBDRR accepts external assistance when appropriate on the community's terms.

The Philippines has long been a strong proponent of CBDRR (Heijmans and Victoria, 2001). Throughout the archipelago, CBDRR has been initiated at the grassroots level by local NGOs partnered with the Citizens' Disaster Response Center (CDRC). CBDRR was then boosted in the early 1990s when a series of disasters struck the country, notably several powerful typhoons. As Heijmans (2009: p. 4) states, CBDRR in the Philippines '*means not only addressing people's immediate survival and recovery needs, but includes long-term strategies to transform social and political structures in society which generate vulnerability*'. In that sense, it fully engages in addressing the root causes of disasters and in integrating disaster risk reduction into development policy and planning.

Today in the Philippines, CBDRR scales up to governmental institutions. Many local governments are progressively integrating community-based activities and programmes into their disaster risk reduction, climate change adaptation and development policies in order to deal with vulnerability, capacity and resilience (Asian Disaster Preparedness Center, 2006; Luneta and Molina, 2008). Nationally, the National Disaster Coordinating Council stresses the need for government agencies to collaborate with local and international NGOs to address priority cross-cutting issues in development (e.g. population age, diversity, environment, gender, human rights) at the community level (National Disaster Coordinating Council, 2007). In parallel, a coalition of NGOs and academics has pressured the Filipino national government to pass a new disaster risk reduction bill which emphasises the importance of CBDRR. Among the most affluent countries, examples of CBDRR implementation are Australia and the UK (Coles and Buckle, 2004), Japan (Bajek *et al*., 2008) and the US (Flint and Brennan, 2006).

CBDRR and other locally driven measures are crucial for development policy; however, these should be backed by a strong commitment from national and international institutions, especially those which have not yet incorporated the central arguments of the vulnerability paradigm (e.g. IMF, WTO). Too many disasters are rooted in disobedience of laws such as building codes, corruption and the misuse of available resources, or the looting of natural and economic resources to benefit the most powerful (e.g. Wisner, 2001; Gaillard

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et al., 2007; Lewis, 2008). In most cases, simple, affordable and locally available measures as part of development policy would avoid disasters (Hewitt, 2007).

Obstacles to dealing with vulnerability, capacity and resilience thus reflect the social injustice and poor governance prevailing in most disaster-affected locales. Governance refers to the larger relationships between governments and the people—the ideology, values and authority imposed on the latter; the distribution of power within the society and the level of priority given to disaster and development topics (Wisner *et al*., 2004).

Amongst the many development challenges it faces and perpetuates, the Colombian government has some good practices for improving governance for disaster risk reduction. It fosters the systematic integration of disaster risks into land use and development planning, usually with emphasis on community participation (Cardona Arboleda, 1997; Sistema Nacional de Prevención y Atención de Desastres, 2008). Illegal settlers can benefit from public services such as access to electricity, water and sewage and, should they be evicted, they sometimes have supportive resettlement programmes.

Local governments are also often proactive. The city of Manizales suffers from recurrent landslides during heavy rainfall. The municipal government has developed a large and integrated programme of disaster risk reduction encompassing hazard mapping, infrastructure and regular cleaning and monitoring of drainage systems. The programme stabilises landslide-prone areas while reducing vulnerability through social services and supportive relocation programmes for the poor settlers who occupy the steepest slopes (Olave *et al*., 2007; Lavell, 2009).

Within development policy worldwide, these examples of government initiatives in Colombia and grassroots action in the Philippines, remain relatively sparse. Addressing the root causes of climate-related and other disasters within development policy still requires both a push from below and a drive from above.

6 CLOSING RECOMMENDATIONS

Frameworks for integrating bottom-up and top-down actions are not specific to disaster risk reduction, appearing in development policy and climate change literature too (e.g. Chambers, 1995; Shea, 2001, 2003; O'Brien *et al*., 2006). Despite obvious similarities in the concepts used and in the best acknowledged ways to address such pressing and large-scale issues, policy makers of each field have worked in relative isolation so far. Development experts often pay little attention to disaster-related issues or minimise their importance in comparison to other economic and social priorities. The root causes of vulnerability in the face of climate-related and other natural hazards are yet intimately embedded in developmental failure for those who suffer from disasters. In return, these disasters leave a heavy toll on development (Lewis, 1999; Wisner *et al*., 2004).

In parallel, climate and climate change specialists usually overlook disaster risk reduction and consider it to be a subfield of secondary importance. Most of the current discussions, including those at the UN (United Nations Development Group, 2009), suggest the integration of disaster risk reduction into climate change adaptation rather than into development policies, whereas both should be addressing underlying factors of risk (see also Mercer, 2010). Even conflict and displacement topics are being reinterpreted to suit the needs of climate change specialists (for a critique of the terms 'climate conflict' and 'climate refugees', see Hartmann, 2010). Framing disaster risk reduction within climate change adaptation takes us backward rather than forward (Kelman and Gaillard, 2008). On

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the other hand, disaster risk reduction policies are still often enclosed around the rare and extreme dimension of climate-related and other natural hazards, considering disasters as events out of the regular developmental context. Planning to reduce disaster risks in that way means merely treating symptoms while bypassing the root sources of harm.

The gap is wide. Closing it will require huge efforts from all those involved, and will definitely require much more than the metaphorical use of concepts such as vulnerability, capacity and resilience. It will entail a strong commitment of everyone to work together, meaning better science that better serves policy needs alongside better policies developed from science. As of now, many development, climate change and disaster risk reduction practitioners often dismiss the value of scientific knowledge as being too far removed from the daily reality of their work. At the same time, many scientists consider themselves to be experts who should not engage in practice. A huge effort is thus needed to open dialogue, and to build trust, amongst the large array of people and organisations who should be involved in the implementation of both top-down and bottom-up actions. That includes local communities, local governments, national governments, NGOs, international institutions and scientists. Such dialogue would be possible only if the ground for discussion is open, so that there are available tools and methodologies enabling everyone to share their knowledge and expertise (e.g. Gaillard and Maceda, 2009).

Addressing vulnerability, capacity and resilience within the context of climate, disasters and development requires a strong political will to tie all these issues together. Contemporary good practices such as those observed in the Philippines and Colombia tend to be isolated initiatives without always recognising that each place and each group involved has faced and solved similar problems, a process that could have been facilitated by knowing about the other's work. To scale them up worldwide, national governments and international organisations will have to commit to make them priorities for development policy to transfer and adjust lessons for each local context.

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