

## 9 Serious fun

### Scaling up community-based adaptation through experiential learning

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If adaptation to climate change involves people deciding to do things differently, then the challenge of scaling up community-based adaptation (CBA) is essentially how to create and communicate knowledge so it can be turned into action. As CBA practitioners, how can we accelerate knowledge-sharing dialogue and learning processes? How can we help subsistence farmers, humanitarian and development workers, government officials, donors and other key players to navigate the complex range of plausible climate risk management choices and outcomes? How can we meaningfully engage such diverse people and organisations so that they can access, understand, trust, generate, utilise and disseminate knowledge about adaptation?

This chapter addresses the challenge of scaling up CBA through the lens of participatory games and other *experiential learning* activities designed for engagement with climate-related problems – and possible solutions. These innovative climate communication strategies hold great potential to effectively translate complex and formal climate science-policy concepts in ways that resonate and ‘stick’ with everyday citizens, particularly those at the forefront of climate impacts. Ultimately, we argue that effective deployment of communications on climate change – in particular through experiential learning activities – may be as important as the governance architectures and low-carbon technological innovations to the success or failure of sustained engagement in dealing with contemporary climate change.

We first review the current understanding of some known communication obstacles, then examine some innovative approaches to overcome these challenges, with particular attention to game-based activities that enable people to inhabit complex systems where decisions have consequences. Our concluding discussion about desirable next steps to create an enabling environment for scaling up adaptation underscores the contribution of experiential learning activities to promote adaptive learning and knowledge-sharing dialogue in the adaptation process.

### Understanding the communication challenges

The IPCC *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* (IPCC 2011: 13) states that ‘Measures that provide benefits under current climate and a range of future climate change scenarios’, including early warning systems, are starting points for addressing projected trends in climate extremes. From short-term storm forecasts to long-term climate trends, organisations working at the community level have, as a result of scientific and technological advances, significant ability to anticipate threats to people at risk (e.g. Ghosh 2009). At the same time, the complexity and range of decisions that can be made both by people at risk and by the organisations serving them is rapidly expanding, owing to progress in technologies to obtain, process, communicate and use relevant information (Suarez 2009). From mobile phones and audiovisual equipment to participatory methodologies, we can produce and disseminate information and ideas useful to communities at an unprecedented scale. Yet, paradoxically, exacerbation of the ‘climate problem’ continues to outpace implementation of community-based adaptation measures to manage change and growing uncertainties. This does not mean to imply that effective implementation is a mere communication challenge; rather, we argue that climate communications comprise an often overlooked yet critical component of efforts to enhance multi-scale adaptation strategies over time. By extension, these considerations prompt an important question: what can be done to improve, promote and scale-up adaptive thinking and action on the ground?

Initial steps involve awareness-raising, and improving citizen understanding of the challenges ahead. Just as atmospheric scientists have identified patterns that shape the future of our global climate, social scientists have identified decision patterns that affect the perception, dissemination and utilisation of new ideas. For example: heuristics, or simplified procedures for decision support, are based on judgements about the likelihood of uncertain events (Tversky and Kahneman 1974). Heuristics prove acceptable most of the time, but may lead to undesirable choices in a variety of situations (Patt and Zeckhauser 2002).

Decision-makers tend to steer clear of engagement or involvement in issues and challenges where losses are inevitable. This has been called ‘motivated avoidance’ (Shepherd and Kay 2011). Additionally, people often evaluate a decision to commit an action (a commission, such as preparing for a disaster) more negatively than a decision to omit an action (an omission, such as ignoring warnings). Omission bias is a preference for greater losses arising through errors of omission over smaller losses associated with direct action (Spranca *et al.* 1991). Tetlock and Boettger (1994) demonstrated that accountability amplifies the status quo effect when change creates victims, even when implementing change could save many more lives. Their study found that lives lost from inaction were considered less valuable than lives lost from changing the status quo, with a ratio approaching nine to one in a scenario where subjects were accountable for modifying the existing state of affairs.

Given this built-in predisposition to weigh the risks of potential individual actions more heavily than the risks of inactions, it is no surprise that CBA is not growing fast enough. 'Mass media' – television, films, books, flyers, newspapers, magazines and radio – have provided spaces where public discourses have the potential to scale up from individuals to communities and societies (Boykoff 2008). Opportunities are also embedded in the power of the diverse and dynamic traditional/legacy mass media sources and institutions: the ability to serve as 'mediating' forces between science, policy and public communities; and the potential for directly and indirectly reaching unparalleled numbers of citizens-as-media-consumers.

Indeed, research has considered how media messaging can potentially influence attitudes and behaviours of public citizenry, empowering people to engage in or resist solutions for climate challenges (e.g. Boykoff 2011; Kahan *et al.* 2010). Moreover, recent analysis of media bias with respect to climate change denial suggests two factors which are likely to override such bias: direct personal experience with weather extremes, and the perception of shared knowledge about climate change (Painter 2011). Meanwhile, community-based organisations (CBOs) recognise that their grassroots communication efforts on climate adaptation cannot rely solely on the media, nor on formal primary and secondary education, to rapidly deploy the knowledge needed to scale up adaptation. These more conventional means of communication are seen to largely:

- depend on linear, unidirectional flows of information;
- view members of the public citizenry as passive, merely acquiring or recalling information;
- focus on the individual, rather than community locus, thereby offering limited, if any, interaction between individuals and groups who will ultimately need to work together on managing climate risks at the local level.

A different approach is needed to support learning at the pace and scale demanded by ongoing climate challenges. In other words, 'innovation' need not be limited to technological advancement; cultural 'innovations' can also help to address twenty-first century climate adaptation. Yet effective and sustained adaptation also requires a new praxis, i.e. 'reflection and action upon the world in order to transform it' (Freire 1974: 36).

Pilot projects abound. The question confronting the CBA community is how to scale up what works. We submit that experiential learning must be part of the answer.

### Experiential learning to anticipate change

In a seminal work on experience as the source of learning and development, Kolb (1984: 38) defined experiential learning as 'a process whereby knowledge is created through transformation of experience'. This approach has been successfully applied to many disciplines and demonstrated to improve professional

practice and the learning process (Kolb, 1984). It requires the resolution of conflicts between dialectically opposed modes of adaptation to the world: Kolb argues that learning requires abilities that are polar opposites, such as concrete experiencing of events at one end and abstract conceptualisation at the other, or reflective observation *and* active experimentation. In other words, if we carefully craft experiences that inspire opposing ways of dealing with the world, learning emerges naturally from the resolution of these conflicts.

CBA involves dynamic and dialectical elements that create tensions between differing valid ways of understanding climate-related issues: long term versus short term, individual versus collective, local versus national or agency versus structure. These opposing forces, including their nuanced interplay, are not easy to grasp through conventional, linear educational approaches. Trade-offs, feedbacks, non-linearities, delays and unanticipated 'side effects' are inherent in risk management decisions (Gonçalves 2008), and should be part of the learning experience of government officials and subsistence farmers alike. How does one devise a communication platform that can successfully convey the existence and relevance of system complexity?

We know that scaling up CBA requires a multi-stakeholder approach, with inherent obstacles in terms of communication and interactions across sectors and disciplines. Where complexity and access to information is a challenge, there is a need to establish innovative platforms to support community-based knowledge generation and sharing. As such, everyone can benefit from innovative learning approaches, especially when dealing with complex, dynamic and often vexing climate adaptation challenges.

A variety of processes are appropriate for facilitating experiential learning for adaptation to climate change: some of these approaches draw on the participatory learning and action (PLA) methodology (Pretty *et al.* 1995) and combine this with participatory action research (PAR) so as to increase resilience through learning (Kemmis and McTaggart 2000; Wadsworth 2001; Koelle and Oettle 2009). The experiential learning process can thus increase resilience by enhancing the capacity to anticipate future change of complex systems and to prepare for such possible change, informed by a collective perception of which future scenarios are most likely to materialise. Of course, the ability of communities to respond appropriately is determined by access to assets (Tschakert and Dietrich 2010).

A learning approach that is focused on detecting change and assessing the most appropriate responses to experienced and anticipated change fosters conditions in which members of affected communities are able to take charge of designing and implementing their own responses. This encourages optimism, resulting in greater empowerment and self-determination.

An experiential learning approach tested successfully in South Africa has utilised quarterly climate change preparedness workshops to create a platform where farmers share climate data, reflect upon observed weather patterns of the previous three months, critically interrogate seasonal forecasts and plan interventions, including innovative adaptation strategies. By following an action

research approach, farmer-led learning has included on-farm experimentation in collaboration with scientists (Archer *et al.* 2008; Koelle and Oettle 2009).

### Games for CBA: five cases

Albert Einstein once said that 'Games are the most elevated form of investigation' (McGonigal 2011). Well-designed games, like adaptation measures, involve decisions with consequences (Suarez *et al.* 2011; Mendler de Suarez *et al.* 2012). Participatory games are systems made up of interconnected parts which work together through a combination of rules, goals, narrative content, symbols and the delivery platform (whether it be a deck of cards, people's own bodies moving about a field or conference room, or a website) and can help people and organisations investigate a range of CBA choices and associated outcomes. Games can be designed so that simple rules can set into motion a game-play experience filled with variety, novelty and surprise, from which meaning emerges – what Salen and Zimmerman (2004) describe as emergent complexity. Through games we can learn how systems work, and the game-based system rewards us as we learn (Macklin and Sharp 2012). Players inhabit, enliven and interpret these systems through play, and are readily compelled to learn how a game works for the sake of pleasure, discovery, competition and a whole host of other reasons that can be compressed into the notion of 'fun'. Games can train us to take a longer view, to practice complex thinking, and to examine multiple strategies aimed at solving planetary-scale problems (McGonigal 2011: 348).

This section shares case studies where participatory games were designed and facilitated to support rapid and effective communication of CBA concepts through experiential learning, involving members of vulnerable communities, scientists, government officials, donors, humanitarian and development workers and other stakeholders. These examples draw from gameplay experiences in Africa, the Americas, Asia and Europe, with CBA games addressing (1) forecast communication, (2) forecast use, (3) investments in climate risk management, (4) mosquito-borne diseases and (5) risk financing instruments.

#### Forecast (mis)communication

People continue to suffer and die due to entirely predictable extreme events. Notwithstanding the ambition to take humanitarian action *before* a disaster or health emergency happens (IFRC 2009), forecasts regularly go unused. Regrettably, conventional approaches to training workshops on science-based forecasts for risk management (such as PowerPoint presentations from decision-averse scientists to decision-oriented practitioners) tend to lead to utter confusion, or simple boredom.

The Red Cross/Red Crescent Climate Centre joined forces with game designers from the Parsons School for Design to co-create experiential learning processes for linking early warning to early action. The occasion was a four-day workshop held in northern Senegal in December 2009. It convened about 40 people who would

not normally talk with each other: forecasters, Red Cross personnel and members of a vulnerable community. The event was carefully designed using participatory games to create an atmosphere of collaboration without hierarchies, in which every participant had something to learn and something to teach.

When conceiving ways to link knowledge with decisions, many stakeholders assume messages will travel in a reliable and timely manner from the source (such as experts or government authorities) to the receiver (e.g. communities at risk), yet we know that the information content will likely be distorted as the message travels through various channels. 'Spreading the word' is a game on communication gone awry, a serious yet fun learning experience that irrefutably demonstrates to forecasters and users the risks inherent in communicating information about climate risks. Adapted from a classic party game about the degradation of information over time and distance known as 'telephone' or 'Chinese whispers', the facilitator writes a sentence involving CBA on a piece of paper, and invites the first person from each row to read and memorise the short text (i.e. 'the message' that each team must communicate down the row). Then each person in the row conveys the message only to their neighbour, and only once. When the last person receives the message, she writes it as heard (the 'end message'), and brings the text to the facilitator, who notes the order in which each team completes the task. The winning team is the first to communicate the message without any consequential distortions (Figure 9.1).

When players learn the rules before gameplay, they are told how crucial it is that the message not be altered, and to ensure there is no distortion. Teams immediately understand the tension that emerges between *speed* in communicating the message (which determines which team wins) and potential distortion along the communication chain (which can lead to a team's elimination). Typically, at least some of the teams' end message is radically different from the original message – resulting in hilarious outcomes – illustrating how easily crucial communications can break down.

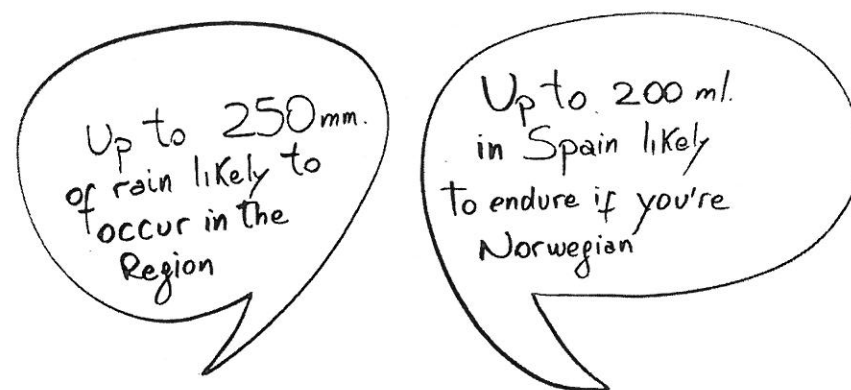


Figure 9.1 Distortion of science-based forecasts was vividly experienced by scientists, humanitarian workers and villagers playing the game 'spreading the word'.



This game was played with facing teams sitting on both sides of a long table. A senior member of Senegal's National Meteorological Agency was asked to write the message (in French), roughly translated as 'There is an 80% chance of at least 250 millimetres of rainfall during the next 72 hours in the north of the Saint-Louis Province' (a forecast of extreme rains, worth acting upon for flood preparedness). The message travelled down the rows and the last person in each team shared the message with all participants. The fastest team turned the message into an enigmatic sentence involving vegetables, drawing considerable laughter. The slower team perpetrated only one minor modification: instead of '250 millimetres' the end message was '50 millimetres'. All teams had failed to communicate the original message and thus there was no winning team.

The significance of these distortions emerged among players, first as an entertaining recognition of which team had done better, and then the 'Aha!' moment sunk in: these participants were actual producers and users of climate predictions, and each player was convinced of having relayed the message correctly. Yet, even for the best-performing team, the distortion meant the difference between catastrophic rain (original message) and a normal event, not worth acting upon (end message). Rich conversation spontaneously ensued about how experts, Red Cross and community members should work together to anticipate the risk of miscommunication, and design early warning systems that are both robust and quick in delivering information. Experiential learning transformed collective understanding of practical challenges, abilities and limitations in communicating forecasts and, by extension, CBA.

### Forecast use

Producers and users of forecasts have very different languages, perspectives and priorities, and are not used to jointly examining the issue of whether or not to act based on a given forecast expressed in terms of probabilities. As a result, users often cannot understand the meaning and implications of experts' statements about likely future conditions, and scientists cannot understand why their forecasts are not used. To open a dialogue process whereby forecasters and users can understand each other's way of understanding the role of forecasts for informing action, a game can establish a playful atmosphere as a safe space for expressing disagreement and finding or creating common ground for future, long-term collaboration.

'Early warning, early action' is a decision-making card game about climate risk management at different timescales, designed for participants to explore different perspectives on how to link forecasts with action.<sup>1</sup> It was designed for the Senegal workshop described in the previous case study. The learning experience takes about 45–90 minutes, depending on how much time is dedicated to discussion.

People form groups of 5–8 players around a table, with forecasters and users in each group. In each round, one of the players serves as 'Decider', and all other players are 'advisors', receiving four cards from a deck of illustrated *action*



Figure 9.2 Members of a vulnerable Senegalese community play the 'early warning, early action' card game with forecasters and Red Cross staff.

cards. Each action card has an idea for a task that could be carried out before a disaster materialises, such as 'evacuate', 'pre-position tents for shelter' or 'wait and see'. Then three forecasts are revealed, showing expected future conditions with different lead times – and different levels of complexity, such as 'The village upstream is flooded, and the peak flood may arrive at your village in 12 hours', or 'Up to 35 mm accumulated rainfall expected with 80% probability in this region for the coming ten days'.

Advisors must recommend a plan for disaster preparedness. For each forecast, each advisor chooses one action card from their hand (or writes their own action card if they drew a blank card), placing it face down. The Decider chooses from all the recommended action cards the one she thinks most appropriate for each forecast. Advisors whose cards are chosen receive one point for each pre-written action card and two points for each player-generated action card selected. Advisors may challenge the Decider's choice, generating discussion as the challenger advocates for her action, the Decider defends her decision and other players vote to uphold or overturn the Decider's choice. Forecasters, humanitarian workers and community members engaged fully in selecting among multiple plausible forecast-based actions, discussing their merits and risks – including what can go wrong either in terms of 'acting in vain' or 'failing to act'. Differences of opinion led to rich conversations about the links between what science can say and what people are willing and able to do given vulnerabilities, capacities, cultural norms and many other aspects shaping whether early warnings trigger early action.

The Senegal Red Cross then took workshop participants to the island village of Doun Baba Dieye in the mouth of the Senegal River. The game was played in groups with a majority of local women. Players created over 300 new action

cards, generating ideas for disaster preparedness at the community level. Importantly, people felt comfortable exploring and expressing their views, regardless of scientific credentials or levels of seniority.

### *Investments in climate risk management*

The Rockefeller Foundation has embraced the concept of 'resilience' as one of the pillars of its work. Its website states that 'building resilience goes beyond the concept of adaptation, and refers to the capacity over time of a system, organisation, community, or individual to create and implement multiple adaptive actions'. 'Dissolving disasters: A resilience game where donors walk the talk', was commissioned as part of a series of experiential learning workshops about the concept of resilience and its implications for the work of the Rockefeller Foundation.<sup>2</sup>

Assuming the role of subsistence farmers organised in community teams, players win and lose beans depending on simulated rains – and on their decisions about crop selection. Planting investment decisions are executed by walking to the sector of the room designated for one of three choices:

- *Flood protection*: invest in flood-resistant crops (e.g. rice).
- *Drought protection*: invest in drought-resistant crops (e.g. cassava).
- *No disaster protection*: invest in crops that perform best if no drought or flood occurs (e.g. maize).

Drought and flood protection require an upfront payment of one bean. No protection has no upfront cost, but if there is an extreme event then unprotected farmers must pay four beans to recover. If there is no extreme event, or if a flood or drought occurs but the farmer is protected against it, she gains two beans that round. A die is rolled to represent the probability of disaster occurrence: if a six is rolled, there's flooding; a one is drought; all other rolls mean normal rains. Farmers who can't afford to pay after a disaster must leave the village, and the game.

A few participants take the role of a donor organisation trying to support a community, with limited resources and three distinct choices:

- *Disaster response*: after a disaster, give beans to needy farmers.
- *Disaster preparedness*: before the rains, give farmers incentives for flood or drought protection.
- *Growth*: help farmers to accumulate beans if no disaster occurs.

After a few turns, a climate change variation is introduced: the die is replaced by a truncated cone. The occurrence of a flood, drought or normal year is determined by the way the object lands after spinning in the air. Players find themselves at a loss estimating the new probabilities of rainfall risks, and often competing theories emerge about most likely outcomes.

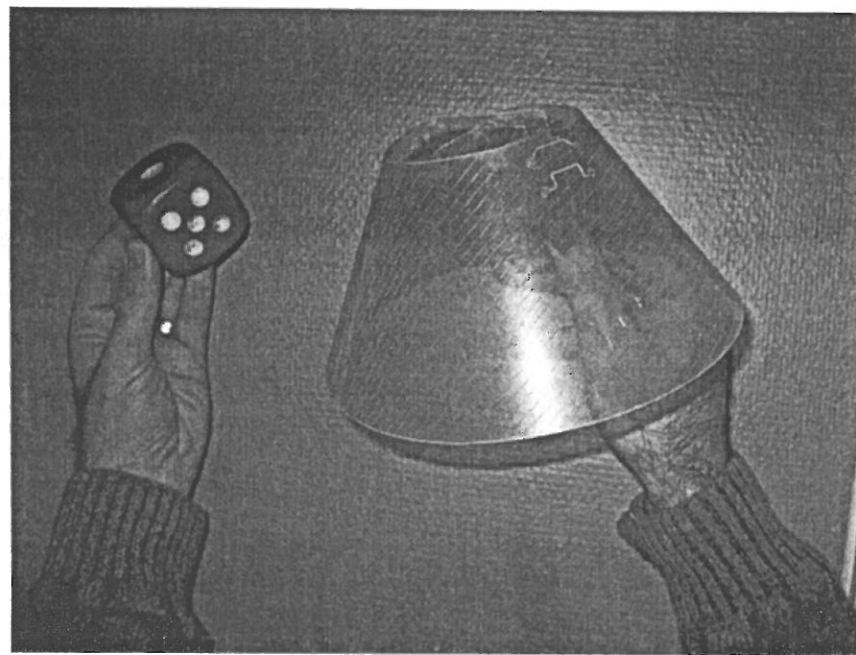


Figure 9.3 The probability of an extreme event in the game 'dissolving disasters' is first portrayed by a roll of the die, and then by a less-understandable object to represent climate change.

From the outset, players realised the need to discuss individual and collective strategies within their team. Tensions emerged between donor and farmer perspectives on risk taking versus risk reduction, which had to be negotiated through thoughtful argumentation about possible consequences of different decision options. Because of the counterintuitive probability of occurrence of different outcomes under climate change, many players found themselves wiped out of the game after only a few rounds. Players lived through the changing probabilities, and experienced the consequences of not knowing what to expect. This powerfully conveyed to participants the need to anticipate and manage changing risks when designing and implementing humanitarian and development work.

After about an hour of gameplay wearing someone else's shoes and walking the talk, players think and feel differently about resilience. As mentioned by a Foundation staff member during game debriefing: 'It was an "aha!" moment for me ... I was a farmer.' The game ends after the sixth round, with winners and losers: the player with the most beans is the individual winner, and the community with most beans is the winning team. The winning donor is the one that supported the village that loses the least number of farmers. These incentives create trade-offs between collaboration and competition, and mimic complex



Figure 9.4 Malawian subsistence farmers learn the basics of index-based micro-insurance in a game using coupons, a roll of the die and real money.

feedbacks and thresholds that trigger rich discussions delving into resilience and adaptation concepts.

This participatory game was deliberately designed with system flexibility in order to enable people and organisations to explore modifications to game rules and narratives aimed at better capturing aspects of specific relationships between context, decisions and consequences. It has been successfully adapted for numerous other climate-related events on four continents. Tailor-made versions were run, for example, for an Oxfam staff retreat in Oxford, a symposium on climate impacts for the government of the Province of Buenos Aires, a UNFCCC workshop on disaster risk reduction in Lima and the Communications Day event during the 2011 UNFCCC conference of the parties in Durban (Reuters 2011).

#### *Mosquito-borne diseases in a changing climate*

The 2011 UNFCCC conference in Durban offered a new, seriously fun way to learn about health risks and climate change: a new participatory game developed for the RC/RC Climate Centre by a team of graduate students and faculty at Yale University and Parsons The New School for Design. Half the players are dengue-carrying mosquitoes attempting to bite humans and lay eggs to reproduce. The opposing team are humans attempting to protect themselves from being bitten and to clean up mosquito breeding grounds – all while a changing climate affects their chances of success (Tran *et al.* 2011) (Figure 9.2b).

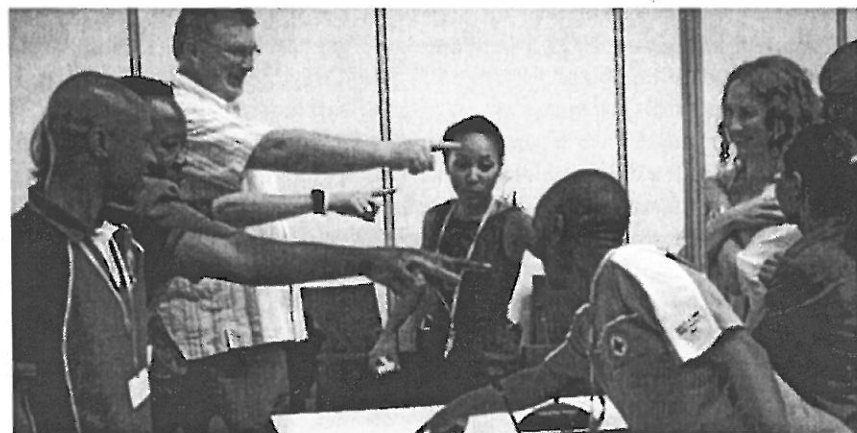


Figure 9.5 Parliamentarians, climate experts and Red Cross youths play 'humans vs. mosquitoes', a rock-paper-scissors-like climate game.

In four sessions, the game 'humans versus mosquitoes' engaged about 40 participants, including Ugandan and Argentinean parliamentarians, Red Cross youth from Africa and the Americas and senior IFRC managers, who are now working on plans to scale-up use of the game in schools and with Red Cross volunteers.

Importantly, the rules of this quick and intense game capture the dynamics of climate and health risk management decisions and associated consequences. It is deliberately designed to be playable in vulnerable communities, and adaptable to other climate-sensitive vector-borne health threats.

#### *Financial instruments for climate risk management*

The World Food Programme commissioned a game to help people in rural communities acquire a working understanding of index-based micro-insurance (a risk-sharing instrument tailored to the needs of the poor, which might help vulnerable farmers deal with extreme events). Altogether 168 subsistence farmers from two communities in Ethiopia and two in Malawi (many illiterate and even innumerate) made decisions in a simulated drought insurance market linked to loans for agricultural inputs. Gameplay employed coupons, a die and real money. Players had to examine the trade-offs between the costly option of buying insurance versus the riskier option of hoping for good rains. Farmers in all play-sites found the game readily understandable and engaging – and quite entertaining. According to one of the most experienced Agricultural Extension Officers involved in marketing a cognate micro-insurance pilot in Malawi, 'the game makes it much easier for us to explain to farmers how insurance really works'.

Analysis of the post-game survey revealed that the game was at least as good as a conventional lecture approach in conveying most of the key insurance



concepts – and significantly better at one key dimension: trust (Patt *et al.* 2010). ‘Diving into the regional insurance pool’ is a similar game successfully played with delegates to the UNFCCC conference in December 2010 in Cancún.<sup>3</sup>

Oxfam America, IRI and partners went even further in a project called HARITA, which integrates micro-insurance into a broader climate risk management package: game-based tools supported collaboration with Ethiopian farmers, eliciting their preferences and facilitating a dialogue process that led to several key innovations in product design, including ‘Insurance for Work’ (farmers who cannot afford the premium can pay for it with monetised labour), and linking risk sharing with risk reduction (monetised labour directly contributes to reducing local vulnerability to future extreme events through measures such as irrigation and soil conservation). Another game, called ‘FAIR’, was designed to help donors and other stakeholders understand how HARITA supports farmer-led CBA. Patt *et al.* (2009) describe four game-based research endeavours for micro-insurance in Africa, Asia and South America.

## The way forward

These trends in new learning approaches are emerging in the context of a wider and fundamental set of questions involving how communication strategies on climate change can be most effective in meeting people where they are, while inspiring and enabling new considerations, capacities and behavioural changes. This chapter has sought to articulate the complexities involved in such endeavours, and has outlined both limitations and opportunities for more effective communication and connected actions that scale up from community levels to a wider scope of adaptation.

The case studies illustrate how recent developments in participatory methods are demonstrating enormous potential for improving the co-production and sharing of information and insights for CBA, by reinforcing both direct personal experience and the perception of shared knowledge. *Experiential learning* is an approach that can enable those managing climate risks to address the complexity of the relevant system through activities that link decisions with consequences, combine collaboration and competition, reveal differences and commonalities in understanding problems and solutions, and generate collective intelligence and new knowledge.

Experiential learning can bring a range of different stakeholders together and encourage improved communication and understanding while the ‘learning partners’ discover joint interests and accept each others’ differences. It is these partnerships that support synergistic approaches to address the complexity in CBA. While experiential learning approaches can offer effective tools to support adaptation, we caution practitioners and community members alike: in order to moderate meaningful experiential learning processes, skilled facilitators are necessary so as to ensure that all participants in the learning process feel they can mindfully and openly share, learn and explore in a safe space. Issues of

power, gender and hierarchy are often very challenging – especially when operating under ongoing social and environmental change and high levels of uncertainty regarding future framing conditions. These factors need to be taken into account when designing and implementing experiential learning processes. It is important to recognise that participation in learning processes is time consuming for participants and exposes them to potentially uncomfortable or challenging situations that they are not able to anticipate and might only be able to steer to a limited extent. Participation in these learning experiences thus requires some risk taking on the part of the participants, and unless this experience and the learning is perceived to be valuable, the participants are unlikely to engage in similar processes in the future.

The experiences and insights of associated approaches and methodologies (psychology, participatory development, disaster risk reduction, etc.) provide valuable resources for innovative learning that will allow us to effectively and creatively implement CBA. However, whatever methodologies and tools are applied, success will depend on skilled and capable facilitators who are sensitive to the cultural and gender dimensions of the community. Furthermore, it is unlikely that stand-alone and one-off interventions will result in profound change: optimally, experiential learning processes should be embedded in ongoing processes in support of CBA.

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## Notes

- 1 See a four-minute video of the game at [www.youtube.com/watch?v=Mpj\\_EbKdwEo](http://www.youtube.com/watch?v=Mpj_EbKdwEo), and the full set of rules at <http://petlab.parsons.edu/redCrossSite/gamesBTS.html>.
- 2 A seven-minute video about the game is online at [www.youtube.com/watch?v=wKHITV9TaAQ](http://www.youtube.com/watch?v=wKHITV9TaAQ).
- 3 A six-minute film showing delegates at play is online at <http://vimeo.com/27571755>.

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