Building global sustainability through local self-reliance

Lessons from landcare

ACIAR MONOGRAPH SERIES

This series contains the results of original research supported by ACIAR, or material deemed relevant to ACIAR research and development objectives. Publications in this series range from detailed scientific reports and analysis, written for researchers, extension agents and policymakers, to guides and manuals to support new or improved practices for smallholder farmers, fishers and foresters. Publications in the series are available as hard copy, in limited numbers, and online from the ACIAR website at aciar.gov.au

Contents

List of tables

List of figures

List of shortened forms

ACIAR	Australian Centre for International Agricultural Research
AMAEP	ACIAR Mindanao Agricultural Extension Project
AT Uganda	Appropriate Technology Uganda
CAO	City Agriculture Office
CBDRR	community-based disaster risk reduction
CBRM	community-based resource management
CENRO	City Environment and Natural Resources Office
CGIAR	formerly the Consultative Group on International Agricultural Research
CLEA	Community Learning for Environmental Action
CSIRO	Commonwealth Scientific and Industrial Research Organisation
FAC Net	Fire Adapted Communities Learning Network
GDP	gross domestic product
ICM	integrated catchment management
ICRAF	International Centre for Research in Agroforestry
IUCN	International Union for Conservation of Nature
KADLACC	Kapchorwa District Landcare Chapter
KCLID	Kagawa Canal Land Improvement District
Landcare Australia	Landcare Australia Limited
LID	land improvement district
LIFE	Livelihood Improvement through Facilitated Extension
NAACP	National Association for the Advancement of Colored People
NAADS	National (Uganda) Agricultural Advisory Services
NRM	natural resource management
NUISE	Nanzan University Institute for Social Ethics
OBLA	Olo-clofe B'laan Landcare Association
OECD	Organisation for Economic Co-operation and Development
PCAARRD	Philippines Council for Agriculture, Aquatic and Natural Resources and Development
PULL	PCAARRD-UP Mindanao-Landcare LIFE
ROCP	Regional Onsite Conservation Program
RMIT	Royal Melbourne Institute of Technology
SDGs	Sustainable Development Goals
TOFA	Tuban Organic Farmers Association
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNU-LRT	United Nations University Land Restoration Training Programme
WWF	World Wide Fund for Nature

PART D

Landcare as a transformative agent in crises

CHAPTER 15

'Everyone, Everywhere, Landcare'

Andrea Mason

Abstract

Some elements of the Australian landcare movement have contributed to its success in that country and helped its spread throughout the globe, becoming the foundation for resilient communities. In this chapter, as a community member, landcarer and a sustainability practitioner with experience in community development, local action, marketing and communications, I will draw on personal and group experience to show how the landcare model has created a vehicle for the development of personal and community disaster response and resilience.

This chapter also discusses how landcare provides a sense of belonging at the personal and group level, the importance of that greater network and its ability to adapt to change. It explores how that sense of belonging manifests itself and builds trust within communities in times of need, and how this is linked to the strong Landcare Australia brand. Landcare's diversity is one of its greatest strengths. Its grassroots approach is embedded in communities that encourage diverse and creative approaches to issues pertinent to them. How does this fit with a sense of belonging and how has the landcare movement achieved this? This chapter discuss the importance of branding, advocacy and political influence in achieving success for landcare where other movements have struggled.

Introduction

Although I began my working life in medical research, this is not a scientific paper. It is the story of my experience and thoughts as a landcare practitioner. In 1990 I moved with my husband and young children to a small property in central Victoria, Australia, to escape city life and return to a rural setting. In 1994, there was a call to action to address weeds in the neighbourhood, facilitated by an extension officer from the local state government agency of the time. Consequently, the Upper Williamson's Creek Landcare Group was formed. This is typical of the way Landcare groups begin across Australia. As the first secretary of this group, my life as a volunteer landcarer began and so did Landcare's influence on my personal and professional development. Since then, I have been a founding member, board member and chair of the Leigh Catchment Group network for over 20 years; a member and chair of the Victorian Landcare Network (a network for Landcare staff now superseded by Landcare Victoria Inc.); and a board member of Australian Landcare International. I have also worked as a Landcare facilitator, run Landcare training workshops, travelled overseas to help deliver training workshops with Australian Landcare International and helped organise the first International Conference of Landcare Studies in Nagoya.

Landcare has offered me the chance to participate in local, state and international issues through a forum that allows women to participate equally. Landcare also provides a training ground for skills and knowledge through coordinated programs targeted at volunteers and coordinators. It requires local action planning and prioritisation for project development and management. It supports communities in matters of mobilisation and governance in a supported framework and it creates opportunities for change at the local level.

Personally, it provided me with a safe place to integrate back into the workforce while I was caring for my family; make friends across the globe; build on my scientific background; and embrace catchment management, natural resource management (NRM), agriculture, community development and sustainability. It enabled me to become a leader in this field.

What is resilience and how does landcare contribute to this?

Resilience means people and things can recover easily and quickly from unpleasant or damaging events. The role of Landcare groups in supporting the resilience of communities in disaster recovery has been well demonstrated in Australia. Since the devastating Black Saturday bushfires of February 2009, the Upper Goulburn Landcare Network has been working with landholders and local communities in the Murrindindi and Mitchell shires to rebuild and rehabilitate the local environment on private property. Projects included Fencers Without Boundaries; nesting boxes for wildlife; the Lorax Project (revegetation); fauna surveys on private land; and weed and pest control (Fire Recovery 2017; Emergency Management Victoria 2017). Similarly, following Cyclone Yasi in Queensland in 2011, Landcare groups were funded to undertake environmental recovery projects to restore rivers, creeks and beaches, including weed removal, rubbish removal and revegetation.

A further example of resilience fostered by Landcare is in the aftermath of the significant event on 19 December 2015, when the Scotsburn community experienced a wildfire that burned out 4,570 hectares and severely affected the community, assets and the natural environment. Since the devastating bushfire, the Corangamite Catchment Management Authority and the Leigh Catchment Group have been working in partnership to support community action in environmental restoration works and community connectivity.

The Victorian Government provided support for the Scotsburn community's recovery from the 2015 bushfire with a $624,000 funding boost to the Corangamite Catchment Management Authority for landscape rehabilitation. The authority has partnered with the Leigh Catchment Group to deliver the Scotsburn Phoenix Project to the community.

The Scotsburn Phoenix Project Plan was developed to guide the delivery of this project. As the event affected so many people, it was vital for the community to be kept up to date on the rehabilitation process and progress on the actions outlined in the Scotsburn Phoenix Project Plan. It was also important for the community to take advantage of the support available to them and be aware of how the Leigh Catchment Group was working to achieve the best outcomes for the natural environment and the community. The project aimed to build community capacity during the recovery phase, empowering disaster-affected residents with the information and tools they needed to recover and rebuild.

In the case of the Scotsburn bushfire, it was the support of the greater Landcare network and its willingness to support and share information and resources that allowed local landcarers to step up to the challenge in this disaster (Bevelander and Mason 2017). The dynamic social relationships and cohesion developed through landcare and NRM can form an intrinsic part of the social fabric, in many cases filling gaps in the community beyond the agricultural and environmental domain. The benefits – particularly for regional and rural communities – include enhanced social capacity and cohesion, stronger local governance, increased recognition of women in rural communities, and self-empowerment and fulfilment (Gutteridge Haskins and Davies 2013).

The benefits [of landcare] include enhanced social capacity and cohesion, stronger local governance, increased recognition of women in rural communities, and self-empowerment and fulfilment.

The key factors that made landcare so central to the resilience of the Scotsburn community after the fire are:

- Landcare offers immediate and ongoing support for community and environmental resilience. The Landcare network and its groups were the most relevant, resourced and operational community group within the fire zone. Although some members were directly affected by the fire, others in the groups were able to take the lead.
- Landcare is embedded in its community or is community driven.
- Initiatives and support offered by friends and neighbours are more likely to be accepted by highly traumatised fellow community members.
- Landcarers have a clear understanding of the impact on local natural environment.
- Landcarers generally have the broadest understanding of the issues in their local area, unshackled by government priorities and narrowly focused programs. In the case of the Scotsburn bushfire, it was Landcare groups that raised concerns about the impact on native bushland and Landcare projects on private land that were not being considered under the emergency management plans.
- Landcare groups offer a point of contact for the recovery team.

- The lead emergency response agency in Victoria has changed since the 2009 bushfires. Now the local municipality leads all the recovery processes. The new recovery team was established using key local community members, and Landcare groups were instrumental in that process.
- Landcare groups provide a coordinated approach to post-disaster extension and act as a conduit and buffer between agency staff and the community for property access.
- Agencies were looking for an immediate connection with the community to assist in the delivery of their programs. This meant there were a lot of agencies wanting to liaise with the fire-affected community members at the same time. This was potentially disastrous for traumatised community members, who were suspicious of government staff members and nervous about intruders following thefts after the fire. Landcare groups played an important role in brokering discussions, providing community gatherings and a 'safe' environment for agency staff to attend and 'be there' if community members had questions. Landcare groups also coordinated joint property visits to reduce the number of interactions that community members had to manage.

How does landcare build self-reliance?

Self-reliance refers to the ability to do things and make decisions by yourself, without needing other people to help you. Not needing other people may be a key to self-reliance but that does not mean you must be alone or that you can't turn to others for assistance when you need them (Bergland 2007). That is why being part of the Landcare family is so important and why Landcare has so much to offer.

As a landcarer, I have a huge network with a wealth of information about landcare that I can turn to. My network includes the local community, Upper Williamson's Creek Landcare Group and the international Landcare community, with over 6,000 groups in Australia, networks across 24 countries plus advocacy groups and bipartisan support from government programs.

I am also active in local sustainability community groups and I know that there is not the same level of network or support in this sector as there is in Landcare. As a sustainability advocate, I have my local group, network and alliance to turn to. There are no state or national level organisations, no international brand and no-one is connected under one banner or a single brand like Landcare. Partnerships, knowledge sharing and networks are ad hoc and generally project-based or issue-based. Having said that, Landcare does not have a monopoly on community action. Possibly the closest organisation to Landcare from a community-driven perspective is the Transition Network, which aims to 'reduce the urgent need to reduce carbon dioxide emissions, greatly reduce our reliance on fossil fuels and make wise use of precious resources is at the forefront of everything we do' (Transition Network 2017).

Transition is an approach rooted in values and principles (Transition Network 2017). These concepts are described differently in various parts of the transition literature, but broadly they are:
- respect resource limits and create resilience
- promote inclusivity and social justice
- adopt subsidiarity (self-organisation and decision-making at the appropriate level)
- pay attention to balance
- be part of an experimental, learning network

- freely share ideas and power
- collaborate and look for synergies
- foster positive visioning and creativity.

Like Landcare, the Transition Network is community driven, is a worldwide organisation and is well branded. However, the Transition Network is generally only supported at the local government level and does not enjoy the bipartisan national level of support that Landcare does in Australia. Transition towns and Landcare groups are similar in their grassroots approach, capacity to be different depending on the community needs, and openness to new ideas and working with others. Both movements enjoy support from governments, have moved into the international arena and offer a great deal of free support for their member groups.

The main difference is their focus. Transition towns are focused on the energy, carbon and fossil fuel issues that face our communities. Landcare groups are focused on the environmental and agricultural issues within our communities, and it is these that are most impacted in times of crises. Fires, floods, drought, cyclones, earthquakes and tsunamis all have the capacity to create devastating and fast impacts on our natural environments and the communities within them. Landcare groups are much better equipped to move into this space than other organisations and their effectiveness in this space has been documented many times.

The landcare approach

> The strength of Australian landcare is that community groups and networks, with government and corporate support, conceive their own visions and set goals for local and regional environmental action. Working from the ground up to achieve these goals creates freedom and flexibility, giving communities a great sense of purpose (Youl et al. 2006).

The landcare principles were originally developed through a stakeholder's workshop in 2003 held in South Africa (Mawangi and Muller 2013) and later defined in Japan (Seigel 2013). They are:
- Landcare is based on local autonomous voluntary groups.
- Landcare groups focus on local issues.
- Landcare groups aim at addressing environmental issues holistically.
- Landcare groups focus not only on the conservation or restoration of the natural environment, but also on the wellbeing of the local community.
- Landcare is characterised by partnership and networking.

The strength of the Landcare brand

The name 'Landcare' evolved in Victoria through an initiative of Joan Kirner (then Minister for Conservation, Forests and Lands) and Heather Mitchell-Carmichael (then president of the Victorian Farmers Federation). With the generous support of community members, farmers and departmental officers, Landcare was launched by Mitchell and Kirner in the small town of Winjallok in central Victoria in November 1986. Many Australian communities had already begun practising landcare decades earlier; accounts from some of our most enduring Landcare groups show grassroots environmental issues being tackled as early as the 1950s. In January 1988, Australia's first official Dunecare groups formed on the New South Wales mid-north coast at Hat Head, Diamond Beach, Scotts Head and Diggers Beach.

In 1989, the national landcare movement officially began with Rick Farley of the National Farmers Federation and Phillip Toyne of the Australian Conservation Foundation successfully lobbying the Australian Government, led by Bob Hawke, to commit to the emerging movement. Landcare became a national program in July 1989 when the Australian Government, with bipartisan support, announced its Decade of Landcare Plan and committed $320 million to fund the National Landcare Program.

Landcare Australia Limited owns and carefully manages the use of the trademarks of the original and refreshed versions of the Landcare, Coastcare and Junior Landcare logos and branding. As the holder of the very reputable and recognisable community brands, Landcare Australia Limited restricts the use of the Landcare hands logo. At one time, the Landcare hands enjoyed 78% brand recognition. This was even higher in rural regions, with 55% of consumers saying they were more likely to buy product endorsed with the Landcare logo (Morgan 2013).

Uniting under one clever brand has brought a sense of broader belonging to over 5,400 Landcare and Coastcare groups across Australia and their members (Landcare Australia Limited 2013). It has helped unite the groups and enabled advocacy resulting in bipartisan political support for Landcare in Australia. It is now recognised worldwide and has been adopted in various forms in many of the over 24 countries across the globe using the landcare approach. This is no small achievement. It should be remembered when new programs are developed that could dilute the effectiveness of this powerful symbol.

Why landcare?

As the journey of landcare has extended into international training expeditions with Australian Landcare International and the Secretariat of International Landcare, it has become evident that the principles of landcare are also relevant to farmers and communities across the globe who face uncertain futures.

Support for agriculture, soil conservation and forestry are often the focus of projects that care for the land but the concept of holistic land and catchment management, incorporating other important issues such as biodiversity and water quality, is not always present. In many regions of the world, agencies are still working in silos and farmers are not connected to each other.

In Zambia and the Caribbean, agriculture and forestry agency staff were challenged during landcare training to work more closely together and to liaise with farmer groups to develop partnership projects for delivery. Farmer groups were encouraged to begin planning what they wanted, instead of gathering to receive handouts and receive predetermined training programs.

In Fiji, there was no planning and little interaction between individual villages, resulting in low uptake of new information and low levels of change in farming methods. The landcare approach offers a way to change this.

In Japan, the damage from earthquakes and subsequent tsunamis had forced some communities to develop community action programs but these were ad hoc and not linked under a single program. A network of groups under a landcare umbrella could provide greater peer-to-peer learning opportunities and support for these groups.

Community landcare coordinators could help local groups, generate projects, encourage disaster planning, help start ecotourism businesses, organise training and research, and help people mitigate climate change.

Conclusion

As landcare continues to spread across the globe, it is evident that the slogan 'Everyone, Everywhere, Landcare', coined by Landcare Australia Limited, is as relevant in Solwezi as it is in Winjallok. The principles of landcare can be adopted in any community and the advantages of working to these can be adapted to any issue those communities face.

If you are about to start a new community action group focused on the environment and agriculture, some questions to ask are:

- Do you want the group to be highly connected and recognised both locally and worldwide?
- Do you want the group to enjoy the benefits of more than 30 years of knowledge and resources that are freely available online and willingly shared by your new landcare family?
- Do you want the group to be respected by governments across the globe?
- Do you want to become part of a movement that nurtures, educates and promotes change?
- Do you want the group to support community resilience and self-reliance?

The key question isn't really 'Why landcare?' but 'Why not?' I know which I prefer – my weapon of choice is landcare!

References

Bergland C (2007) *The athlete's way: sweat and the biology of bliss,* St Martin's Griffin, USA.

Bevelander J and Mason A (6–7 October 2017) 'Scotsburn recovery: implementing on ground recovery through landcare projects' [conference presentation], *Living with Bushfire Community Conference*, Ballarat, accessed 3 May 2022. https://federation.edu.au/__data/assets/pdf_file/0007/359764/Living-With-Bushfire-2017-Conference-Proceedings_final.pdf

Emergency Management Victoria (2017) [website], accessed October 2017; inactive on 11 May 2022. https://www.emv.vic.gov.au/news/lessons-learned-lead-to-relief-and-recovery-success

Gutteridge Haskins and Davies (2013) *Report for the Australian Landcare Council: multiple benefits of landcare (21/21673)* [PDF], accessed 20 October 2020. https://landcarensw.org.au/wp-content/uploads/2016/02/Multiple-Benefits-of-Landcare-Exec-Summary.pdf

Landcare Australia Limited (2017) Landcare Australia website, accessed 20 October 2017. https://landcareaustralia.org.au/

Mason A (21 September 2016) 'The role of landcare in fire recovery' [conference presentation], *National Landcare Conference*, Melbourne.

Morgan R (2013) *Landcare branding,* Roy Morgan Research.

Mwangi G and Muller C (2013) *Southern Africa landcare masterclass report* [PDF], no publisher, accessed 11 May 2022. https://globallandcare.org/wp-content/uploads/2022/05/Southern-Africa-Landcare-Masterclass-Report-FINAL.pdf

Seigel M (2013) *SPELJ Newsletter* [PDF], accessed 20 October 2017; inactive on 11 May 2022. http://landcarejapan.com/en/nl/1.pdf

Transition Network (2017) Transition Network website, accessed 20 October 2017. www.transitionnetwork.org

Upper Goulburn Landcare Network (2017) 'Fire recovery', Upper Goulburn Landcare Network website, accessed 24 October 2017. http://ugln.net/category/fire-recovery

Youl R, Marriot S and Nabben T (2006) *Landcare in Australia founded on local action*, SILC and Rob Youl Consulting Pty Ltd, Melbourne.

Photo: Lucy Kealey

CHAPTER 16

Landcare, disaster resilience and the transformative capacity of community

Stewart Lockie

Abstract

Community-based natural resource management and community-based disaster risk reduction reflect what are perceived as the transformative potential of cooperation and social learning within localised communities and the limitations of state capacity. But just how much can be expected of communities faced by multiple challenges, including the potential for disasters, which are, by definition, events that exceed our ability to cope? While the answer to this question will be context specific, this chapter considers whether lessons can be drawn from experience to date for the design and support of community-based programs that make a genuine difference to resource management and disaster risk reduction. Reflecting on Australia's National Landcare Program, a case is made to support the transformative capacities of communities of place through:

- proactive measures to involve those least capable of participation in existing social networks
- sustained institutional support and low compliance costs associated with access to that support
- stable and consistent state policy settings
- two-way accountability between government and community
- mechanisms for coordination at larger spatial scales
- recognition of the importance to participants in community-based programs of additional benefits including social and emotional support.

Introduction

Foundation stories about landcare in Australia usually foreground the role of what were unusual political circumstances: an alliance between the presidents of the National Farmers' Federation and the Australian Conservation Foundation, growing investment in community-based environmental programs at the state level championed by, among others, the Minister for Conservation, Forests and Lands and then Premier of Victoria with a background in community development, and a national government known for consensus-based policymaking. Through the prism of today's hyper-polarised politics, these circumstances appear nothing short of extraordinary. For our purposes here, though, what is more relevant than the rarity of genuinely collaborative policymaking is the role that chronic, and escalating, environmental, social and economic crises played in motivating it.

When it was launched in 1989, the centrepiece of the National Landcare Program was the promotion of community Landcare group formation. Based on localised watersheds or neighbourhoods, Landcare groups were intended to address local environmental degradation in a cooperative and integrated manner. With an emphasis on self-help and private investment, groups remained independent of government but were able to apply for limited funding to establish trial and demonstration projects, undertake farm and catchment planning, and initiate revegetation projects. Consistent with other experiments in community-based natural resource management (NRM) (see Measham and Lumbasi 2013), the landcare approach was thought to offer opportunities to capitalise on local knowledge; encourage collective learning; facilitate coordinated action; improve relationships between resource users, government agencies and research institutions; and, pragmatically, mobilise more financial and human resources to improve environmental management than could be dedicated by government acting alone (Lockie 2020).

Landcare's contributions to revegetation, farm and catchment management, business planning and climate adaptation may all be seen as contributions to disaster risk reduction.

Although not explicitly conceived as a community-based disaster risk reduction (CBDRR) program (something I will come back to), landcare's contributions to revegetation, farm and catchment management, business planning and climate adaptation may all be seen as contributions to disaster risk reduction. Preparing for, and recovering from, intense climate events has been no less fundamental to Landcare group activity than field days and working bees. Yet, when asked to reflect on what landcare has taught us about the transformative capacity of communities when confronted by natural disasters, I was struck by a number of questions. Just how much can be expected of communities when disasters are, by definition, events that exceed our ability to cope? Aren't the NRM problems Landcare was established to address already challenging enough? Is there a risk of landcare and other community-based approaches being cast as silver bullet solutions to problems that are impossible to fully resolve? Are romanticised ideals of 'community' replacing considered analyses of the roles and responsibilities of governments, insurers, resource managers, peak industry groups, civil society and others, at multiple spatial and institutional scales?

One response to these questions is to conclude that community-based resource management and disaster risk reduction programs are probably little more than convenient ways for governments to shift responsibility and leave people to fend for themselves. I have no doubt there are circumstances in which this is true. My experience of landcare, however, suggests a more nuanced response is appropriate. From my earliest conversations with Landcare group members in the late 1980s, it was evident that landcare was about more than the management of land and water degradation. It worried me, certainly, that too much might be expected of community Landcare groups to the neglect of complementary policies and programs. I was bemused by the effusiveness with which many members of the policy and research communities praised the National Landcare Program in advance of any kind of systematic evaluation. Landcare group membership may have been growing rapidly but the idea that landcare had morphed from a government-sponsored program into a transformative social movement seemed premature and potentially counterproductive. Yet, at the same time, the value of Landcare group membership clearly extended well beyond encouragement and assistance to rehabilitate eroded gullies, revegetate groundwater recharge zones, plant perennial pasture species or implement any one of the many other practical resource management practices trialled and promoted by groups.

This chapter will explore the benefits of Landcare group membership in more detail, using this exploration to tease out both opportunities to capitalise on the transformative capacity of community-based NRM and risks that can arise when the limitations of such programs are ignored. First though, it will step outside the immediate context of landcare to distil lessons from experience elsewhere with community-based programs focused explicitly on acute disaster risk reduction.

Community-based disaster risk reduction

To help set some important context for this chapter, the United Nations Office for Disaster Risk Reduction (UNDRR 2020:54) defines disasters as:

> A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

The scale of disruption, moreover, may vary in both spatial and temporal terms. Disasters may be large or small, frequent or infrequent, sudden-onset or slow-onset, short-duration or long-duration. As events that overwhelm people's ability to cope, their management requires responses above and beyond emergency assistance, including responses that reduce the likelihood of adverse events and outcomes and responses that build resilience or, in other words, the ability of communities, societies and systems to absorb or recover from their exposure to hazardous events (UNDRR 2019).

According to the *Sendai Framework for Disaster Risk Reduction 2015–2030*, understanding and responding to disaster risk also requires, among other things, the use of traditional, local and Indigenous knowledge, collaboration among people at the local level, and the development of local disaster risk reduction strategies. As important as it is that governments provide leadership and resources, invest in scientific research and participate in international cooperation, the efficiency and effectiveness of disaster risk reduction depend on multihazard, multisectoral and socially inclusive processes at much finer

scales. The framework thus commits governments to engaging with a diversity of 'relevant stakeholders, including women, children and youth, persons with disabilities, poor people, migrants, Indigenous peoples, volunteers … and older persons in the design and implementation of policies, plans and standards' (UNDRR 2015:10).

CBDRR is a response to the need for practical models of inclusive, multistakeholder cooperation and to the limitations, in many contexts, of governmental capacity and top-down planning (van Aalst et al. 2008). CBDRR is participatory and inclusive of the most vulnerable people (Shaw 2012). Deployed primarily, but not exclusively, in developing countries where central agencies face significant resource constraints, CBDRR recognises existing knowledge and coping mechanisms but attempts to build capacity through people-centred development and community-specific risk reduction measures. CBDRR attempts to turn disaster risk into something foreseeable, manageable and even, in advance of extreme events, socially transformative (Gaillard et al. 2009).

None of this is to suggest that CBDRR is about leaving people to fend for themselves. While communities are conceived as the main actors in CBDRR, government leadership is considered necessary to ensure consistency across policy domains and multistakeholder cooperation among government agencies, non-government organisations, scientists, businesses and other external actors to provide support that is facilitative and catalytic (Shaw 2012).

Synthesising experience across multiple international case studies, Shaw (2012) identifies six characteristics of effective CBDRR programs:

1. innovation to suit the specific context – local or locally-adapted solutions that respect community norms and aspirations, utilise local expertise and provide benefits in addition to risk reduction
2. institutional ownership – whether through government or, less often, non-government organisations and civil society groups working in collaboration with international organisations to provide continuity of support for CBDRR activities
3. social capital – both bonding (relations of trust and reciprocity within a particular group) and bridging (cross-cutting relations with other groups and communities that promote collective good)
4. balanced focus on processes and outcomes – ensuring the process of arriving at a solution is acceptable to the community and enhances social learning as well as providing results
5. education and professionalism – educational opportunities at multiple levels to build the capacity and willingness to contribute of community participants, students and professionals providing support through government and non-government organisations
6. environmental management – attention to immediate environmental issues, providing a key entry point that helps sustain community involvement.

At face value, this suggests potential for community-based resource management programs such as Landcare to either grow into or coexist with and support CBDRR programs by:

• enhancing social capital (that is, those characteristics of social networks such as solidarity, trust, identity and reciprocity that produce demonstrable social and economic outcomes (Portes 1998))
• addressing immediate environmental management and community development needs.

In principle, this should help both to enhance the social networks on which CBDRR depends and to reduce the possibilities of perverse outcomes from disaster risk reduction (such as damage to natural resources or food security) and vice versa (poor environmental management contributing to disaster risk).

Although not discussed by Shaw (2012), also evident here is the role integrated community-based approaches to environmental management and disaster risk reduction have to play in helping participants navigate what is an exceedingly complex temporal and spatial terrain. As noted above, disasters may be large or small, frequent or infrequent, sudden-onset or slow-onset, short-duration or long-duration. Further, every aspect of their scale and timing is characterised by high levels of uncertainty. Far from simplifying this terrain, environmental management adds additional layers of complexity due to the often extensive spatial and temporal distances between changes in management practice and their manifestation in improved or degraded environmental conditions. Collaborative community-based approaches do not simplify the terrain either, but they do afford opportunities for social learning, peer support and coordinated action, thus lowering costs and risks for participants as they experiment with and implement new practices.

Adding to this complexity, a disaster, as noted by Gill (2007), is never a discrete physical event but a series of primary and secondary events defined by the experiences of those most immediately affected and by the responses of governments, emergency relief non-government organisations, other institutions and the broader public. Even the most acute, or sudden-onset, disasters may be experienced through multiple phases that unfold over extended periods of time as immediate impacts give way to secondary threats to public health, food supplies, livelihoods and so on. Moving effectively through these phases to recovery and rehabilitation is facilitated by the altruistic behaviour often observed in impacted and surrounding communities post-disaster – that outpouring of support as people pull together, volunteer and/or donate to clean up and rebuild (Gill 2007). Pulling together is not, however, inevitable. Disasters for which people are seen as in some way culpable may provoke conflict over the causes of negative outcomes and who holds responsibility to remedy them, the erosion of social capital and cooperation within impacted communities, and a lack of empathy from outsiders.

While Gill (2007) argues these 'toxic community' outcomes are evident most often following industrial accidents, it is important to note that conflicts over attribution and responsibility, financial dependence on activities that increase disaster risk, extended time frames for recovery, and uncertainty over lingering threats to environmental and public wellbeing are not unique to industrial accidents. Culpability may be attributed to anyone who fails to prepare for what others regard as a reasonably foreseeable event – people who place themselves in harm's way, ignore warning signs and/ or neglect routine risk management. Drought provides an excellent example – its definition in Australian public discourse swinging between a 'rare and severe' event and a predictable, manageable characteristic of Australian climate for which 'prudent and entrepreneurial' resource managers ought to plan for and around (Higgins 2001; Lockie 2014). It would be fanciful to think community-based approaches might mitigate altogether the possibility that conflicting definitions of hazards such as drought will undermine social capital and cooperation but, by providing forums for deliberation over the meaning of such hazards, in advance, this possibility is at least moderated.

Landcare, transformation and crisis

> Introducing books and media reports with the statement that rural Australia is in 'crisis' has become so commonplace as to seem clichéd. For a decade or more our newspapers and televisions have been … littered with images of drought-stricken, salt-infected and barren landscapes; worthless livestock being shot and buried; bank foreclosures; the grieving relatives and friends of suicide and accident victims; boarded up and derelict buildings; and angry political meetings (Bourke and Lockie 2001:1).

One of the problems with crisis discourses is the sense they can convey that everyone, everywhere, is either equally effected or equally at risk. Not that the scale of land and water degradation in the early days of landcare was insubstantial. Soil salinity, waterlogging, soil erosion, soil acidity, soil structural decline and water quality decline were estimated to cost Australian agriculture $1.4 billion every year in remediation and lost production (LWRRDC 1994). Had costs associated with biodiversity decline and the loss of ecosystem services been included, this estimate would have grown significantly. More important for our purposes here though is the spatial and temporal variability of environmental degradation. Data suggesting that, at its peak, over 40% of Australian broadacre and dairy farms were involved in Landcare groups (meaning, of course, that nearly 60% were not) thus need to be interpreted in context of a national trend towards higher participation rates in the most intensely degraded agricultural regions (Tennent and Lockie 2013). Where natural resources and the businesses they supported were in decline, people joined Landcare groups.

Where natural resources and the businesses they supported were in decline, people joined Landcare groups.

Writing at the end of Australia's first Decade of Landcare, Bourke and Lockie (2001:1–2) noted some of the important and exciting ways rural Australia was changing for the better; serving, in particular, as a focal point 'for the development of more ecologically sustainable production processes and for processes of reconciliation between Indigenous and non-Indigenous peoples'. That a substantial number of rural Australians were participating actively in Landcare group activities, the rural women's movement and other expressions of collective and self-responsibility, stood in dramatic contrast with the growing electoral success of populist politicians campaigning to address low farm incomes and high urban unemployment through trade barriers and cuts to migration (Lockie 2000).

Similar patterns were evident in the local government area in south-west New South Wales where I conducted fieldwork from 1994 to 1996 and a follow-up study, in collaboration, in 2009 (see Tennent and Lockie 2013). At the time of the first study, about two-thirds of farm households were involved in one of the six Landcare groups active in the local government area with group coverage and activity highest where land degradation was perceived as an immanent problem – the word 'perception' being used here not to imply a possibility of misunderstanding but to stress that awareness of land degradation was a function both of changes in natural resource condition and of the knowledge, experiences, values and aspirations through which people viewed and interpreted the landscape. Explaining to me how they had come to be involved in their local Landcare group, one landholder told me:

> Landcare came in exactly the right year for us. There was a beautiful tree down there and … in one month it was dead and it was probably a hundred year old tree, and we've never done anything to put the water there, it just came out of the soil … absolutely oozed out … so when Landcare came about it was just the year we wanted it to come about because that's when our big problem was (Lockie 1996:150).

Others though came to recognise signs of what was, in this case, dryland salinity, following their exposure to Landcare group activities outside the immediate area. One group returned from a visit to projects in Victoria with stories of seeing their own farms 'through a new pair of eyes', of 'looking closer' and taking 'a little more notice of the land' (Lockie 1996:151; see also Lockie 1998). This relationship between perceived landscape change and Landcare group activity was strengthened as groups went on to establish their own demonstration sites, rehabilitation trials, roadside signage and educational materials. Property and catchment planning undertaken through Landcare groups, moreover, encouraged participants to look beyond the immediate state of natural resources and to manage their businesses with an eye to climate and market variability and the challenges these present for NRM.

Also at play here were a raft of social and economic pressures and changes. One participant in my first study expressed the view:

> I would have thought that due to the financial situation, Landcare would fall in a big heap, but it hasn't (Lockie 1996:155).

Few people joined Landcare groups to access financial assistance (and those that did often left disappointed). A number told me, though, how they felt comfortable participating in Landcare; spending time with neighbours and enjoying the social interaction that accompanied group activities, without the guilt that accompanied time or money spent on entertainment and other 'non-productive' activity. At a time of considerable financial stress due to tight terms of trade and the beginning of what would become known as the Millennium Drought, Landcare groups provided many of their members with basic social and emotional support. Several of the women I interviewed believed this was particularly important for men they thought were reluctant to access counselling services or even, for that matter, their own social networks.

Landcare groups, at the time of my first study, were doing a better job of involving women, non-farming households and more rural businesses overall than production-focused groups and organisations were. The contribution to social capital appeared substantial. On returning in 2009, however, we found no active groups (Tennent and Lockie 2013). Again, this appeared to reflect broader trends, with studies conducted in Western Australia, Victoria and New South Wales suggesting that groups were disbanding, merging or going into recess, along with declines in membership, outreach and other activity (Curtis and Cooke 2006; Simpson and Clifton 2010).

So what changed? Rural communities and economies were still under considerable pressure, with low and volatile incomes on the majority of Australian farms, poor returns on investment undermining capacity for reinvestment, declining recruitment of women and young people into agriculture, and continued depopulation and loss of employment in inland rural areas (Lockie 2015). Despite these pressures, evaluations of the first Decade of Landcare found strong evidence that active participation in Landcare groups was associated with increased implementation of conservation works (Curtis and De Lacy 1996a, 1996b; Mues et al. 1998; ABARE 2003) and that participation in educational activities organised by Landcare groups was associated with the adoption of more sustainable

farming practices (Curtis and De Lacy 1996a; Mues et al. 1998, Curtis 1999, 2003; Cary and Webb 2000). Landcare was widely perceived in policy circles, however, as a vehicle for capacity building that had failed to translate its success in increasing awareness of environmental degradation into demonstrable improvements in landscape-scale resource condition (Lockie 2006). While, in response, government expenditure on environmental work was increased, resourcing for Landcare group coordination and activity declined. New institutional arrangements for NRM emphasised planning and decision-making at larger spatial scales, measurable environmental outcomes and market-based delivery mechanisms (Robins and Kanowski 2011; Tennant and Lockie 2013).

While it is possible these new arrangements led to positive outcomes (evaluating this possibility was outside the scope of the study), participants in the follow-up study were critical of hierarchical decision-making processes through which they were discouraged from applying for funding, collectively, as Landcare group members (Tennent and Lockie 2013). The devolution of funding for environmental works to individual landholders, they believed, undermined collaboration and the potential it offered to share learning and increase environmental gains. Localised factors, participants conceded, including the retirement of several community leaders and a decline in the extent of dryland salinity, had also contributed to the dissolution or dormancy of Landcare groups. So too, importantly, had the financial and psychological stress of prolonged drought – a chronic, slow-moving disaster no less extreme in its effects than acute, sudden-onset events such as bushfires and floods. Neither the social capital built up over a decade of participation in Landcare nor the potential to keep accessing peer support through a protracted period of drought were sufficient to compensate for the withdrawal of proactive government support for Landcare groups.

Community as transformation agent

Australia's National Landcare Program may have been initiated in response to natural resource degradation but the community groups it mobilised made numerous contributions to members' capacities for dealing with a range of other crises. This suggests that more-considered integration of community-based NRM programs, such as Landcare and CBDRR programs, is likely to deliver significant improvements in environmental management, disaster risk reduction and, in turn, livelihood security. Some improvements will be based on little more than ensuring activities undertaken in one domain provide demonstrable co-benefits in others – for example, ensuring that environmental management practice contributes to disaster resilience and, where possible, the diversification of livelihood options. Other improvements will stem from the platform that cooperation, trust and social learning provide for sharing the intellectual, financial and emotional costs of managing uncertainty and planning for extreme events. In short, social capital accumulated in one domain will be reinvested in others.

Critical in this context, however, is the possibility of social capital contributing to negative outcomes – in other words, of networks mobilised in support of community-based resource management or risk reduction excluding outsiders, burdening members with unreasonable demands or reinforcing exploitative social hierarchies (see Portes 1998). While there is little evidence of this 'dark side' to social capital undermining the effectiveness of community Landcare groups, the possibility of negative outcomes points nonetheless to the importance of avoiding romanticised notions of community and social capital as silver bullet solutions to otherwise intractable societal problems.

The idea of 'community' can mean many things but in this context, it refers to 'communities of place' – people who by virtue of spatial proximity share a material interest in environmental quality and safety but who may otherwise be characterised by multiple dimensions of heterogeneity such as gender, age, ethnicity, occupation and educational background. When the heterogeneity of communities is embraced so too are opportunities to mobilise participants and approach problems from a wider variety of perspectives. Social inclusion becomes less an abstract and worthy ideal and more a source of resources, creativity and innovation.

For community-based NRM and disaster risk reduction, inclusiveness is also important to ensure that:

- a critical mass of participants, including leaders, is available to support group function
- decisions taken by the group are seen as legitimate and representative expressions of community will
- spatial coverage of the relevant area is sufficient to ensure that environmental management and risk reduction activities are effective.

At its peak, landcare in Australia was inclusive enough that groups enjoyed many of these benefits – the groups participating in my research being far more inclusive, as noted above, than most rural community groups. It is not a criticism to add that the activities organised by these Landcare groups were overwhelmingly oriented towards the needs of farmers. It simply indicates that, even in communities of place, inclusiveness may mean slightly different things depending on the task at hand. Had community Landcare groups been charged with more responsibility for disaster risk reduction, they would have needed to reassess both their strategic priorities and their recruitment strategies to involve a higher proportion of the non-farming residents within their respective watersheds. The point is not that groups were less welcoming and diverse than they thought, but that shifting focus from environmental management to risk reduction brings new needs and interests into play.

Relationships outside the spatial bounds of 'the neighbourhood' are also fundamental to realising the transformative potential of community-based programs. Changes to Australian NRM programs that saw less financial support directed to community Landcare groups, along with heightened administrative and accountability requirements for the support that was still provided, led to declines in group activity (Robins and Kanowski 2011). If lessons are to be drawn here for government support of community-based programs, there are several points that bear noting. First, rising compliance costs were as large a disincentive to continued group activity as reduced funding. Increased accountability requirements encouraged projects with measurable short-term outcomes at the expense of higher-risk projects focused on more complex problems (Tennent and Lockie 2013). Second, instability in government policy discouraged voluntary activity by reducing confidence in government agencies, creating uncertainty over whether further changes in policy might undermine long-term investments in improved resource management, and adding their own compliance costs (Lockie 2020). Third, the burden of increased compliance costs and changing policy settings fell particularly heavily on group leaders, as did reduced support for the coordination and administration of Landcare groups. While resources from government and/or other external institutions are needed to supplement local capacity if community-based programs are to be sustained, two-way accountability is just as important to minimise unnecessary compliance costs and ensure respect for local needs and rights (Lockie 2020).

Ensuring NRM or disaster risk reduction activities provide co-benefits for participants is one way to reduce the relative burden of compliance costs. As Shaw (2012) points out, environmental management provides a useful entry point for CBDRR not only because of potential for positive synergies between environmental and risk reduction activities but because dealing with immediate and visible problems associated with environmental quality and health helps maintain enthusiasm and momentum while groups attempt to deal with the more abstract and uncertain problem of disaster risk.

The Landcare experience demonstrates how important it is that while community-based NRM groups also need to balance their focus on complex, long-term challenges with the immediate needs of members, a broad range of co-benefits are potentially relevant. For example, while participation in landcare did not simplify the complex spatial and temporal terrain of inter-related resource management challenges such as dryland salinity and drought, it did provide members with the social and emotional support to participate in collaborative learning, planning and experimental activities. Many of the resource management practices groups experimented with, moreover, provided farm production and income co-benefits when subsequently implemented by group members (Lockie 1999).

> **While participation in landcare did not simplify the complex spatial and temporal terrain of inter-related resource management challenges … it did provide members with the social and emotional support to participate in collaborative learning, planning and experimental activities.**

Conclusion

Landcare, as it evolved in Australia from the late 1980s, was always about helping people deal with events that might otherwise exceed their ability to cope. It was about acknowledging the capacities of all stakeholders, the potential to amplify these by working in partnership, and the importance of mobilising capacity to plan for extreme events including drought, fire and flooding. What has landcare taught us about the transformative capacity of communities when confronted by natural disasters or other crises? There are many lessons to be learned but I will concentrate here on three.

First, landcare reinforces the importance of not casting romanticised notions of community as some sort of panacea for spatially and temporally complex resource management or risk reduction challenges. There is much to be gained by encouraging cooperation and social learning within communities of place but, equally, much to be lost by failing to reflect critically on how people can best be supported in the face of multiple environmental, economic and social challenges and opportunities.

Second, no crisis can be understood independently of the social relationships that produce vulnerability and shape people's experiences of both primary and secondary impacts. While social capital is an invaluable resource, proactive measures are required to ensure this resource is extended to those least capable of participation in existing social networks if genuine progress is to be made towards community resilience.

Third, no community exists in isolation. Sustained institutional support, stable policy settings, and mechanisms for coordination at larger spatial scales are just some of the ways in which the responsibilities of governments and other stakeholders outside the immediate communities of place that define community-based NRM and disaster risk reduction warrant expression.

References

ABARE (Australian Bureau of Agricultural and Resource Economics) (2003) *Natural resources management on Australian farms*, ABARE, Canberra.

Bourke L and Lockie S (2001) 'Rural Australia: an introduction', *in* Lockie S and Bourke L (eds) *Rurality bites: the social and environmental transformation of rural Australia*, Pluto Press, Sydney.

Cary J and Webb T (2000) *Community landcare, the National Landcare Program and the landcare movement: the social dimensions of landcare*, Bureau of Rural Sciences, Canberra.

Curtis A (1999) 'Landcare: beyond onground work', *Natural Resources Management*, 2(2):4–9.

Curtis A (2003) *Reflecting on the landcare experience: a report based on information held within ABARE and BRS, Attachment 1, Review of the National Landcare Program*, Department of Agriculture, Fisheries and Forestry, Canberra.

Curtis A and Cooke P (2006) *Landcare in Victoria: after twenty years*, *a report to the Department of Agriculture, Fisheries and Forestry*, Institute for Land, Water and Society, Albury, NSW.

Curtis A and De Lacy T (1996a) 'Landcare in Australia: beyond the expert farmer', *Agriculture and Human Values,* 13(1):20–31.

Curtis A and De Lacy T (1996b) 'Landcare in Australia: does it make a difference?', *Journal of Environmental Management*, 46(2):119–137.

Gaillard J, Maceda E, Stasiak E, Le Bere I and Espaldon M (2009) 'Sustainable livelihoods and people's vulnerability in the face of coastal hazards', *Journal of Coastal Conservation*, 13:119–129.

Gill D (2007) 'Secondary trauma or secondary disaster? Insights from Hurricane Katrina', *Sociological Spectrum*, 27(6):613–632.

Higgins V (2001) 'Calculating climate: "advanced liberalism" and the governing of risk in Australian drought policy', *Journal of Sociology*, 37(3):299–316.

Lockie S (1996) *Sociocultural dynamics and the development of the landcare movement in Australia* [PhD thesis], Charles Sturt University – Riverina, Wagga Wagga.

Lockie S (1998) 'Landcare in Australia: cultural transformation in the management of rural environments', *Culture and Agriculture*, 20(1):21–29.

Lockie S (1999) 'The state, rural environments and globalisation: "action at a distance" via the Australian Landcare Program', *Environment and Planning A*, 31(4):597–611.

Lockie S (2000) 'Crisis and conflict: shifting discourses of rural and regional Australia', *in* Pritchard B and McManus P (eds) *Land of discontent: the dynamics of change in rural and regional Australia*, University of New South Wales Press.

Lockie S (2006) 'Networks of agri-environmental action: temporality, spatiality and identity within agricultural environments', *Sociologia Ruralis*, 46(1):22–39.

Lockie S (2014) 'Neoliberalism by design: changing modalities of market-based environmental governance', *in* Lockie S, Sonnenfeld D and Fisher D (eds) *The Routledge international handbook of social and environmental change*, Routledge, London and New York.

Lockie S (2015) *Australia's agricultural future: the social and political context* [PDF], *Report to SAF07: Australia's Agricultural Future Project*, Australian Council of Learned Academies, Melbourne, accessed 7 July 2020. https://acola.org/wp-content/uploads/2018/08/agriculture-socio-political-context.pdf

Lockie S (2020) *Failure or reform? Market-based policy instruments for sustainable agriculture and resource management*, Routledge, London.

LWRRDC (Land and Water Resources Research and Development Corporation) (1994) *Annual report 1993*, LWRRDC, Canberra.

Measham T and Lumbasi J (2013) 'Success factors for community-based natural resource management (CBNRM): lessons from Kenya and Australia', *Environmental Management,* 52:649–659.

Mues C, Chapman L and Van Hilst R (1998) *Landcare: promoting improved land management practices on Australian farms: a survey of Landcare and land management related programs*, ABARE, Canberra.

Portes A (1998) 'Social capital: its origins and applications in modern sociology', *Annual Review of Sociology*, 24:1–24.

Robins L and Kanowski P (2011) 'Crying for our country: eight ways in which "Caring for our Country" has undermined Australia's regional model for natural resource management', *Australasian Journal of Environmental Management,* 18(2):88–108.

Shaw R (2012) 'Future perspectives of community-based disaster risk reduction', *Community, Environment and Disaster Risk Management,* 10:389–402.

Simpson G and Clifton J (2010) 'Funding and facilitation: implications of changing government policy for the future of voluntary landcare groups in Western Australia', *Australian Geographer,* 41(3):403–423.

Tennent R and Lockie S (2013) 'Vale Landcare: the rise and decline of community-based natural resource management in rural Australia', *Journal of Environmental Planning and Management,* 56(4):572–587.

UNDRR (United Nations Office for Disaster Risk Reduction) (2015) *Sendai Framework for Disaster Risk Reduction 2015–2030*, UNDRR, Geneva.

UNDRR (2019) *Words into action: local disaster risk reduction and resilience strategies,* UNDRR, Geneva.

UNDRR (2020). *Hazard definition and classification review: technical report,* UNDRR, Geneva.

van Aalst M, Cannon T and Burton I (2008) 'Community level adaptation to climate change: the potential role of participatory community risk assessment', *Global Environmental Change,* 18:165–179.

Photo: Jeffrey Maitem

CHAPTER 17

Lessons from the field: landcare, subsidiarity and community-based extension

Mary Johnson and Evy Elago-Carusos

Abstract

The Philippines is one of the most disaster-prone countries in the world. In addition, for over 40 years, the Mindanao region of the Philippines has experienced armed conflict. A significant outcome of the Mindanao conflict is income deprivation, along with social dislocation and isolation from services. Successful conflict mitigation, post-disaster recovery and rebuilding are highly contingent on community capacity. Since 2013, Australian and Philippine research teams have been working with conflict-vulnerable Mindanao communities on a community-based livelihood improvement project. The project is informed by the Philippines landcare experience, which demonstrated that increased levels of trust, better networks and an enhanced capacity to learn and work collectively lead to livelihood improvement. These social capital attributes also increase the community's ability to respond to disaster mitigation and preparedness.

Our lessons from the field in this chapter are drawn from the Olo-clofe B'laan Landcare Association case study. This association has formed close working arrangements with institutional partners and aligned their local plans to those of local government agencies. Their efforts are improving community resilience in the face of disaster such as conflict in rural communities.

Introduction

The Philippines has been identified as one of the most disaster-prone countries in the world (Bankoff 2007; Brassard et al. 2015; Gaillard 2015). Moreover, the Mindanao region of the Philippines has experienced, for many decades, another form of disaster: armed conflict. Armed conflict is complex in nature and has multiple origins, including insurgency against the Philippines Government, displacement of Indigenous people from their ancestral lands, clan conflict and local conflicts over land and natural resources such as minerals and water.

Rural communities impacted by ongoing conflict experience social dislocation, income deprivation and isolation from services. As communities face the persistent threat of disaster, due to both human activity and natural processes, a range of coping mechanisms have developed to allow for what Bankoff (2004) calls the 'normalization of threat'. These coping mechanisms include practical solutions such as constructing buildings using low-cost materials that can be easily replaced.

Coping with disaster, disaster mitigation, recovery and rebuilding is highly contingent on community capacity. Forging partnerships with relevant authorities establishes arrangements where communities can engage with and lead in local development decision-making.

Since 2013, Australian and Philippine research teams have been jointly working with conflict-vulnerable Mindanao communities on community-based livelihood improvement activities. This chapter discusses the role of social organisation in the Mindanao context, through a project informed by Philippines landcare. It uses examples of resilience features such as networks, trust and reciprocity that improve the ability of communities to engage in coordinated endeavours and decision-making. The chapter also describes the principle of subsidiarity and how this harmonises with the landcare approach of enhanced community-based extension.

Natural disaster

The Centre for Research on Epidemiology of Disasters defines disaster as 'a situation or event that overwhelms local capacity, necessitating a request at the national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering' (Guha-Sapir et al. 2016:7). Natural disasters involve an event (for example, flood, cyclone, landslide, volcanic eruption, earthquake) that has consequences in terms of casualties, damage, livelihoods and economic disruption and may be too great for the affected area and people to deal with properly on their own (Wisner et al. 2012). The Philippines has been identified as one of the most disaster-prone countries in the world by the Centre for Research on Epidemiology of Disasters. Gaillard's (2015) distribution of natural hazards shows how widespread natural disasters are across the archipelago (Figure 17.1).

Researchers observe that natural disasters often occur in areas populated by poor and vulnerable communities (see Bankoff 2007; Davis 2014; Nakagawa and Shaw 2004). The ability for these communities to respond to disaster with cost-effective and actionable solutions requires support from local agencies such as local government, and partnerships with outside organisations such as aid agencies (Mulligan and Nadarajah 2011).
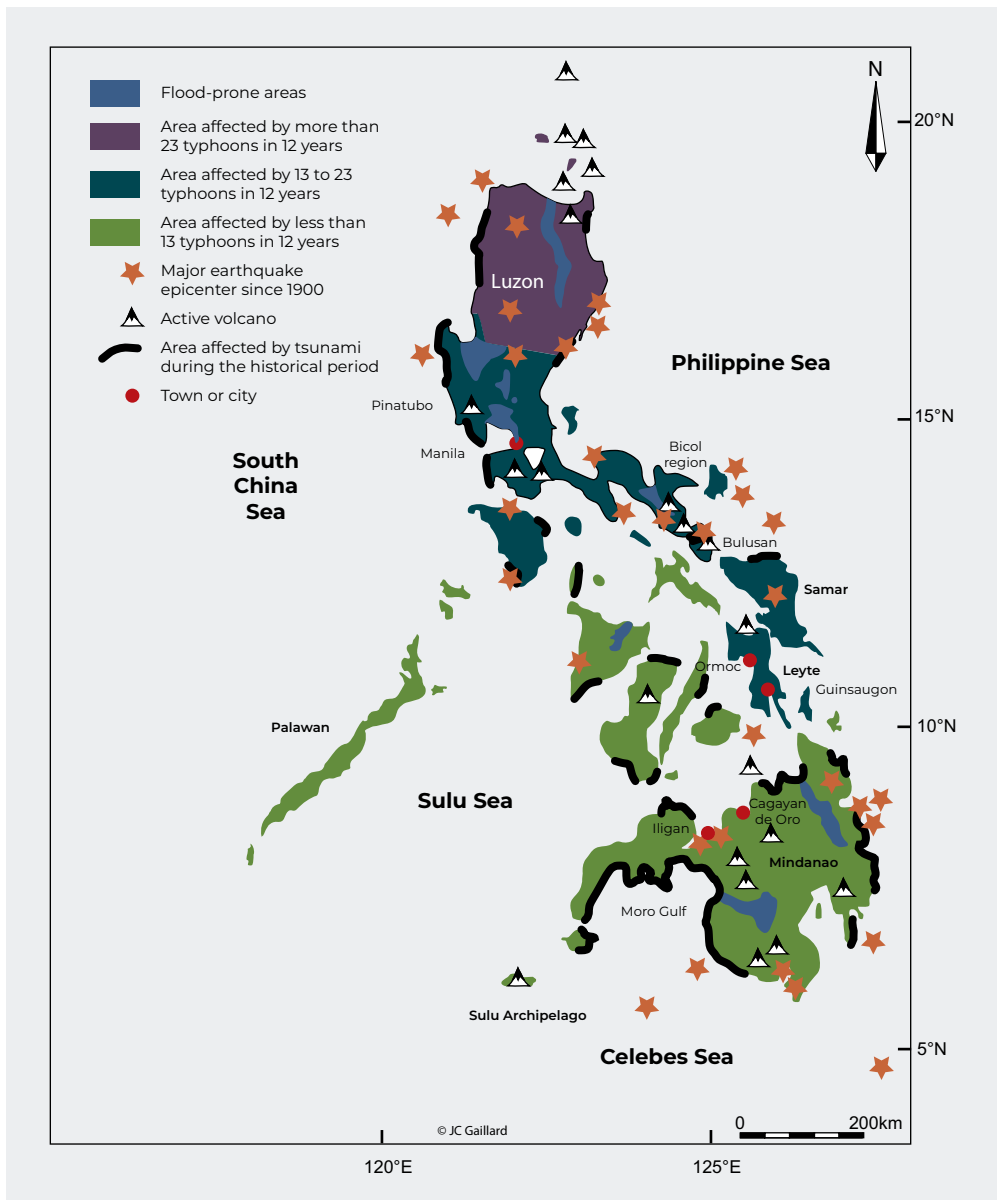
Figure 17.1 Distribution of natural hazards in the Philippines

Source: Gaillard J (2015) *People's response to disasters in the Philippines: vulnerability, capacities and resilience,* Palgrave McMillon, USA. Reproduced with permission.

Formal and informal associations enhance the ability of people to withstand disaster. Recognising the specific ways in which disasters and people interrelate at the community level has ramifications for how disasters are perceived and managed (Bankoff 2007). Appreciating that there are both 'cultures of disaster' and 'cultures of coping' encourages an understanding of people's vulnerabilities and their ability to withstand disaster through strengthening existing capacities. Enlisting people's participation in disaster management through grassroots organisations provides the necessary local knowledge and networks for effective, efficient responses.

Conflict in Mindanao

For over 40 years, the Mindanao region of the Philippines has experienced another form of disaster: armed conflict. The protracted Mindanao conflict is complex, multilayered and results in high rates of poverty and displacement (Adriano and Parks 2013). Two types of Mindanao conflict are described in the literature. The first refers to separatist, political, rebellion-related violence, which concerns armed challenges against the infrastructure of the state by insurgent and rebel groups. The second is non-separatist, bottom-up, inter-ethnic or intra-ethnic, clan or group violence, which concerns armed violence between and among families, clans and larger ethnolinguistic groups (Andales-Escano 2015; Lara and Champain 2009).

During armed conflict, those most often affected are civilians who are caught between the warring parties and forced to leave their communities (Veneracion-Rallonza 2015). In 2015, the United Nations High Commissioner for Refugees (UNHCR) reported the forced displacement of 407,397 Mindanao people. Of this number, approximately 37,000 people were repeatedly displaced because of armed conflict, clan war and generalised forms of violence (UNHCR 2015). By mid-2016, the UNHCR reported some 168,300 people were newly displaced by conflict in the Philippines (UNHCR 2017:20).

Studies also show that conflict and associated displacement results in significant income deprivation, along with social dislocation, isolation from services and psychological trauma to affected families (Malapit et al. 2003; Schiavo-Campo and Judd 2005; Villa 2009; Vellema and Lara Jr 2011). Another form of conflict described in the literature is misappropriation and exploitation of land and natural resources. After World War II and post-independence, large numbers of settlers from the northern islands of Luzon and the Visayas migrated to Mindanao, encouraged by a series of government-sponsored resettlement programs. This resulted in the dispossession of large areas of land that had been communally held by Moros (a collective term for members of Muslim ethnic groups in the southern Philippines) and Indigenous people (Adriano and Parks 2013; Schiavo-Campo and Judd 2005).

The concept of social capital can be understood as 'the goodwill that is engendered by the fabric of social relations … that can be mobilised to facilitate action'

Social capital

The concept of social capital can be understood as 'the goodwill that is engendered by the fabric of social relations … that can be mobilised to facilitate action' (Adler and Kwon 2002:17). It is embodied in the smallest social group (family) to the largest of groups (the nation), and all groups in between (Fukuyama 2001). Social capital consists of networks of relationships that are characterised by norms of trust and reciprocity and that form the basis for collective action and enhanced community wellbeing (Putnam 1995; Ostrom and Ahn 2009).

These networks help local people to take social, environmental and economic action, draw on community spirit and provide local solutions to problems that governments alone cannot provide. In addition, these networks enable 'outside' agencies such as aid relief to connect with local entities, which is important during disaster response and recovery.

In a seminal Mindanao study of *bakwit* (a colloquial Mindanao term to describe forcibly displaced persons), Canuday (2009) found that 'the striking features of *bakwit* are capability, persistence, creativity and power in a world of reoccurring violence and displacements'. While acknowledging the 'endured pain and hardship of displacement', Canuday challenged many representations of displaced persons as helpless victims. On the contrary, he found that displaced persons continuously reordered their lives and social relations, with new sociopolitical arrangements established that enable them to evacuate, return and rebuild their communities (Canuday 2009).

In Canuday's study, social capital is mobilised into social networks that influence how power and responsibility are exercised and distributed. The networks are held together by mutual expectation of benefit and reciprocity and through kinship ties, respect and friendship. Diverse collaborations are important to allow timely and tailored responses. This concept extends to collaborative networks that can be geographically distributed and heterogeneous in terms of culture, but which are linked by a common purpose. Networks enable linkages between stakeholders at different scales and are determined by the structure of interplay between actors.

Collaboration is deeply ingrained in Philippines society through the culture of community cooperation known as *bayanihan* (Heijmans 2009). *Bayanihan* is the communal tradition where everyone works together for a common good. The longest history of *bayanihan* is found in agriculture, but the tradition is diffused throughout Filipino society and is an expression of team spirit and the sharing of labour (Gibson et al. 2010).

Collaboration that does not sacrifice autonomy can occur through the genuine application of the subsidiarity principle, where the functions of government, business and secular activity can be invested in and carried out at local level.

Subsidiarity

The principle of subsidiarity was developed through Catholic social teaching and refers to help and relief in times of need. It is framed within the individual human right of autonomy and dignity, which broadens to include the strengthening and empowering individuals, groups and communities. In a political context, subsidiarity centres on the devolution of responsibility, where issues are dealt with at the most immediate level that is consistent with their resolution, for example, decentralised to a local level. This is evident in the landcare approach, where locally developed plans can complement and inform regional and national planning.

Subsidiarity takes on a particular salience for before and after disasters, when local capacity is critical to planning for disaster mitigation, responding and rebuilding. Local communities and local government are often the first responders to disaster events and the last entities to remain after external assistance has withdrawn. Subsidiarity plays a role in empowering communities to operate at the state–civil society interface (political capital), but this requires community capacity, committed resources and creating partnerships among different stakeholders at the local level (Shaw 2015).

The Mindanao project

Since 2013, a joint Australian and Philippines research team has worked with conflict-vulnerable smallholder Mindanao farmers to improve their livelihoods (Figure 17.2). Commissioned by ACIAR, the ACIAR Mindanao Agricultural Extension Project (AMAEP) used extension methods adapted from Australian and Philippines landcare (Vock and Carusos 2017).
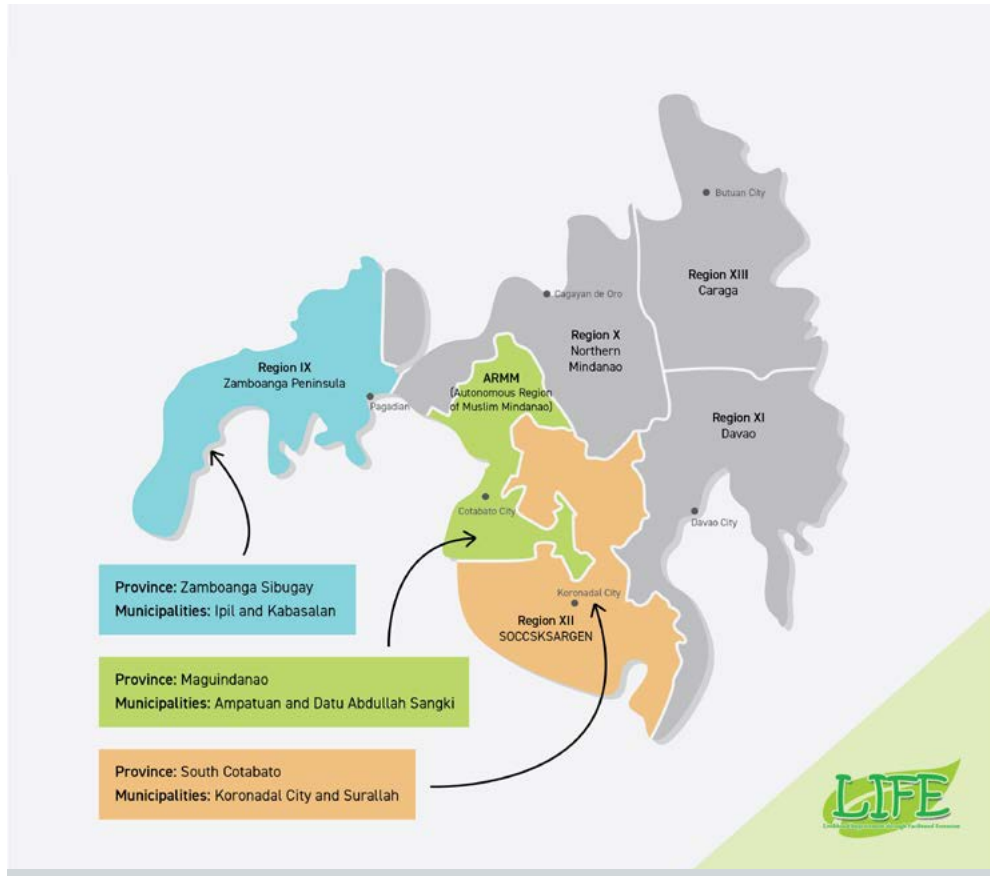
Figure 17.2   ACIAR Mindanao Agricultural Extension Project pilot sites

Landcare emerged in the southern Philippines in the late 1990s as a strategy for collective action to deal with agricultural and land degradation challenges. Studies of Philippines landcare showed that community-based agricultural extension, informed by landcare, can boost agricultural livelihoods through strengthened farmer-based learning networks and enhanced community social capital (Cramb 2006, 2007; Newby and Cramb 2011; Vock 2015; Vock and Carusos 2017). Positive results from a small 2007 to 2009 pilot project working with a remote conflict-affected community in western Mindanao generated the impetus for the larger AMAEP project. AMAEP commenced at three pilot sites in conflict-vulnerable areas of Mindanao and, in mid-2015, was expanded to a further three sites. The farming systems at these sites are characterised by smallholder farmers producing for family food supply and income generation.

Underpinning the delivery of AMAEP is a strong partnership between the project team members that comprises Landcare Foundation of the Philippines staff and community facilitators, and Philippine and Australian university research teams. The role of the Landcare Foundation of the Philippines is primary operational partner and field staff manager. Since commencing in 2003, it has become the lead agency for the promotion of landcare in the Philippines and is a respected and successful implementer of livelihood initiatives in Mindanao. Local landcare facilitators were appointed to undertake the on-ground extension activities and research fieldwork. The facilitators have provided a consistent, committed and reliable point of contact and support for both farmer groups and project partners. They are respected by their communities and important to the ongoing development of trust and networks.

The AMAEP research teams work together in the planning and implementation of all project research activities. The University of the Philippines Mindanao provides social research expertise and the University of the Philippines Los Baños provides economic and livelihood research expertise. Australian RMIT University researchers support the Philippines team in the counterpart disciplines of economics, social research and agronomy.

The extension model developed through AMAEP is known as the LIFE model: Livelihood Improvement through Facilitated Extension. This model recognises the important role of facilitation in enabling farmers to pursue the three essential elements of the model:
- promotion of appropriate technology/information
- improvement in social capital
- building effective partnerships with extension agencies.

Change in practice takes time and the facilitators have steadily worked with their farmer groups to identify the farmers' aims and needs and develop appropriate tailored activities to meet these needs. Underpinning the LIFE model is an asset-based community development approach that places participating farmer groups at the centre of decision-making and takes advantage of available resources such as natural, social, human, physical and financial capital (Mathie and Cunningham 2003; Kretzmann and McKnight 1996).

Working with conflict-vulnerable communities requires a strong focus on building levels of trust, stronger networks and enhancing the local capacity of people to work collectively for mutual gain.

Another key AMAEP strategy has been the project team working concurrently with both farmer groups and relevant institutions and service providers and partners to build strategic relationships within the local area. This strategy ensures that participating parties share learning experiences, capitalise on opportunities where and when they arise, expand networks (both formal and informal), identify mutual challenges and issues and establish reliable, effective communication pathways.

Working with conflict-vulnerable communities requires a strong focus on building levels of trust, stronger networks and enhancing the local capacity of people to work collectively for mutual gain. Developing a sound understanding of social capital levels at the respective

project sites has enabled the farmer members, project team and facilitators to plan projects and activities together, and focus on areas for strengthening, such as networks and trust. Strong stocks of social capital provide both social and economic benefits. For individual farmers and farmer groups, often in resource-poor circumstances, the ability to form collaborative partnerships, share resources, utilise networks and seek information from reliable sources becomes an important strategy for achieving improved livelihood outcomes.

The following case study is drawn from the AMAEP project. It describes how subsidiarity arrangements enabled a community group, supported by local government, to develop and institutionalise their development goals through an administrative ordinance and associated program.

Case study: Subsidiarity and the Olo-clofe B'laan Landcare Association

In the Philippines, a *barangay* is a basic political unit that serves as the primary planning and implementing unit of government policies, plans, programs and activities in a community. A *sitio* or *purok* is a geographic subunit within a *barangay,* typically composed of 20 to 50 households. The council, made up of elected officials, is the overarching governing body for a particular *barangay*. The development council is the planning and coordinating body, mandated by law to assist the council in setting the direction of economic and social development and coordinating development efforts within the *barangay*. The development council involves accredited local groups and support institutions operating within a *barangay*. It participates in identifying priority areas for development and endorsing those to the local government for funding and implementation. Figure 17.3 describes the levels of administrative division.
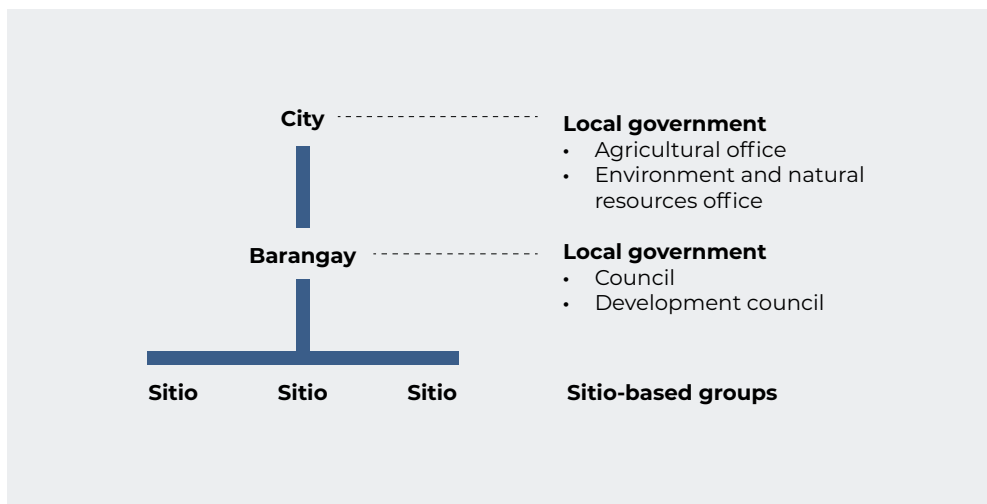

Figure 17.3 Administrative divisions in the Philippines

The Olo-clofe B'laan Landcare Association (OBLA) is a *sitio*-level Indigenous people's group in South Cotabato, Mindanao. Koronadal is the capital city of South Cotabato. OBLA was formed by smallholder subsistence farmers participating in the AMAEP project. Poverty is widespread and OBLA's priority, identified during AMAEP-facilitated visioning workshops, was to grow cash and food crops. Extension officers from Koronadal's City Environment and Natural Resources Office (CENRO) and City Agriculture Office (CAO) collaborated with AMAEP facilitators and OBLA members on building individual and group capacity through activities and training, including a 14-module farmer field school on vegetable production integrated with agroforestry, market exposure trips to markets in Koronadal and farm enterprise planning. These activities also widened OBLA's education, marketing and service provider networks.

New networks generate fresh ideas and can create business and livelihood opportunities. For example, Koronadal's tree-planting festival is now held annually, with trees sourced from outside the area. OBLA started growing tree seedlings in home nurseries and encouraged CENRO to support other local groups to do the same. Consequently, OBLA and other *barangays* now supply trees for the annual tree-planting festival.

With proceeds from the sale of seedlings and vegetables, OBLA established a *sari-sari* (grocery) store. This has resulted in significant economic benefits for the farmers, as group members are able to meet their own household requirements and invest profits back into this small business in a group venture. The OBLA store has also created financial benefits for neighbouring *sitio* members. Their produce is bought and sold at the store, and shoppers can save by purchasing locally and avoiding the cost of travelling to Koronadal.

Subsidiarity in action: creating the Barangay Assumption Ordinance

Barangay Assumption is located in the city of Koronadal. The idea to create a Barangay Ordinance came from an OBLA member who is also a member of the Barangay Assumption Council. An ordinance is a public regulation that covers civic matters, such as infrastructure, health, environment and links with locally planned development programs.

To develop the ordinance, AMAEP facilitators and OBLA worked closely with Barangay Assumption officials and non-OBLA *sitio* members. The facilitators ran workshops on planning and ordinance formulation, and supported the development of a conservation farming and natural resource management (NRM) program, based on environmental management, socioeconomic and social development objectives.

Once endorsed, the ordinance and conservation farming and NRM program triggered an allocation of funds from the Barangay Development Council to implement the program. Additional policies were developed and adopted that reflected CENRO, CAO and community landcare-focused programs and policies. These included no soil cultivation on a slope greater than 18 degrees (to avoid land degradation and land slide), hilly areas to be planted with permanent crops to avoid cash crops, the slash and burn system prohibited, the rehabilitation and protection of spring source area (watershed) and the declaration of protected areas.

Importantly, the gains from this Barangay Assumption Ordinance have been seen across the whole *barangay* and its seven *sitios*, including by non-OBLA members. Institutionalising local level plans within local development planning ensures that, regardless of changes in local government and community leadership, community-designed initiatives will continue.

Conclusion

The AMAEP project, set within a conflict context, practises community-based extension that recognises the importance of local facilitators, collective learning, collective action and group empowerment. The people of the Philippines have developed strong social networks that provide coping mechanisms for dealing with disaster. This is borne out through the Canuday study that challenges representations of Mindanao's displaced persons as helpless victims.

Landcare's principles of networking and collaboration have encouraged increased levels of trust and connectedness within AMAEP sites. Networks are important for everyday transactions but take on a greater level of importance in a disaster context, where rapid but informed responses are required.

Collaboration between civil society and various levels of government is critical to enabling reasoned responses that are owned and implemented by those directly affected. The OBLA case study has described how subsidiary – working together towards a common aim – can be mutually beneficial for both state and non-state actors.

However, subsidiarity might not always guarantee effective outcomes, especially where government retains control (for instance, through funding and regulation) and finds it difficult to devolve power. Furthermore, if the capacity and motivation of communities to participate is weak then engagement on an equitable basis is unlikely.

OBLA was keen to participate in civic planning. AMAEP facilitators provided governance training so that OBLA members understood the mechanisms, process and language they needed to engage with *barangay* councils and local government. This strengthened autonomy as community members had a sound understanding of administrative governance processes and could collaborate with government officers on an equal basis.

The process of subsidiarity through application of the LIFE model in Barangay Assumption has resulted in numerous benefits for farmers, community and the environment. A survey of OBLA members since their participation in AMAEP shows that the farmers are much more confident and informed and are linked to supporting institutions. The environment has also benefited, with fewer trees being felled for charcoal production and improved on-farm practices that ameliorate the degradation of land and water resources, such as soil erosion.

The OBLA case study shows how establishing subsidiarity at the lowest administrative level of the *sitio* has generated benefits for the local community group and the wider *barangay*, and created links with local government programs.

Notes and acknowledgements

References

Adler PS and Kwon S-W (2002) 'Social capital: prospects for a new concept', *Academy of Management Review,* 27(1):17–40.

Adriano F and Parks T (2013) *The contested corners of Asia – subnational conflict and international development assistance: the case of Mindanao, Philippines*, Asia Foundation, San Francisco.

Andales-Escano C (2015) 'Peacebuilding model in diverse conflict lines Southern Philippines', *in* Ha H (ed) *Land and disaster management strategies in Asia,* Springer, New Delhi.

Bankoff G (2004) 'In the eye of the storm: the social construction of the forces of nature and the climatic and seismic construction of God in the Philippines', *Journal of Southeast Asian Studies 35,* (1):91–111.

Bankoff G (2007) 'Living with risk; coping with disasters', *Education About Asia,* 12(2):26–29.

Brassard C, Howitt AM and Giles DW (2015) 'Confronting disaster: recent lessons from the Asia-Pacific', *in Natural Disaster Management in the Asia-Pacific Policy and Governance,* Springer, Tokyo.

Canuday JJ (2009) *Bakwit: the power of the displaced*, Ateneo de Manila University Press, Manila.

Cramb RA (2006) 'The role of social capital in the promotion of conservation farming: the case of "landcare" in the Southern Philippines', *Land Degradation & Development,* 17(1):23–30.

Cramb RA (2007) 'Participation in community landcare groups in the Philippines: a social capital perspective', *Australasian Journal of Environmental Management,* 14(2):93–102.

Davis I (2014) *Disaster risk management in Asia and the Pacific,* Routledge, London.

Fukuyama F (2001) 'Social capital, civil society and development', *Third World Quarterly,* 22(1):7–20.

Gaillard J (2015) *People's response to disasters in the Philippines: vulnerability, capacities and resilience,* Palgrave McMillon, USA.

Gibson K, Cahill A and McKay D (2010) 'Rethinking the dynamics of rural transformation: performing different development pathways in a Philippines municipality', *Transactions of the Institute of British Geographers,* 35(2):237–255.

Guha-Sapir D, Below R and Hoyois P (2016) 'EM-DAT 2016', The OFDA/CRED International Disaster Database, Université Catholique de Louvain, Belgium.

Heijmans A (4–8 February 2009) 'The social life of community-based disaster risk reduction: origins, politics and framing' [conference presentation]*, World Conference of Humanitarian Studies*, Groningen.

Kretzmann J and McKnight JP (1996) 'Assets-based community development', *National Civic Review,* 85(4):23–29.

Lara FJ and Champain P (2009) *Inclusive peace in Muslim Mindanao: revisiting the dynamics of conflict and exclusion*, International Alert, London.

Malapit HJL, Clemente TS and Yunzal C (2003) 'Does violent conflict make chronic poverty more likely?: the Mindanao experience', *Philippine Review of Economics* 40(2):31–58.

Mathie A and Cunningham G (2003) 'From clients to citizens: asset-based community development as a strategy for community-driven development', *Development in Practice,* 13(5):474–486.

Mulligan M and Nadarajah Y (2011) 'Rebuilding community in the wake of disaster: lessons from the recovery from the 2004 tsunami in Sri Lanka and India', *Community Development Journal,* 47(3):353–368.

Nakagawa Y and Shaw R (2004) 'Social capital: a missing link to disaster recovery', *International Journal of Mass Emergencies and Disasters,* 22(1):5–34.

Newby J and Cramb R (2011) 'Economic impacts of conservation farming in a marginal environment: the case of "landcare" in the Philippines', *International Journal of Agricultural Sustainability,* 9(3):456–470.

Ostrom E and Ahn TK (2009) 'The meaning of social capital and its link to collective action', *in* Svendsen GT and Svendsen GLH (eds) *Handbook of social capital: the troika of sociology, political science and economics*, Edward Elgar Publishing, USA.

Putnam RD (1995) 'Bowling alone: America's declining social capital', *Journal of Democracy,* 6(68):65–78.

Schiavo-Campo S and Judd MP (2005) *The Mindanao conflict in the Philippines: roots, costs, and potential peace dividend*, World Bank, Washington DC.

Shaw R (2015) 'Disaster risk management at local and community levels', *in* Davis I (ed) *Disaster risk management in Asia and the Pacific*, Routledge, New York.

UNHCR (United Nations High Commissioner for Refugees) (2015) *Displacement dashboard Mindanao, Philippines, forced displacement annual report*, accessed 3 May 2022. https://reliefweb.int/report/philippines/philippines-displacement-dashboard-mindanao-forced-displacement-annual-report

UNHCR (2017) *Mid-year trends 2016* [PDF], accessed 3 May 2022. http://www.unhcr.org/dach/wp-content/uploads/sites/27/2017/04/midyeartrends_2016.pdf

Vellema S and Lara Jr F (2011) 'The agrarian roots of contemporary violent conflict in Mindanao, Southern Philippines', *Journal of Agrarian Change,* 11(3):298–320.

Veneracion-Rallonza ML (2015) 'Women and armed conflict in the Philippines: narrative portraits of women on the ground', *Philippine Political Science Journal,* 36(1):35–53.

Villa A (2009) *Interviewing Indigenous peoples in Mindanao, Philippines: an emerging challenge to social researchers*, Anthology of Political and Historical Writings, Batingao.

Vock N (2015) 'Sustaining and growing landcare systems in the Philippines and Australia (ASEM/2002/051)', *in* Pearce D and Alford A (eds) *Adoption of ACIAR project outputs 2015 ACIAR adoption studies report,* No 12, ACIAR, Canberra.

Vock N and Carusos E (2017) 'Retooling agricultural extension for conflict-affected areas of the southern Philippines', *Rural Extension and Innovation Systems Journal,* 14(2):1–11.

Wisner B, Gaillard JC and Kelman I (2012) *Handbook of hazards and disaster risk reduction and management*, Routledge, New York.

Photo: Kazuki Kagohashi

CHAPTER 18

Factors determining the resilience of local communities: a comparative analysis of landcare and a pond irrigation system in the Sanuki Plain

Kazuki Kagohashi

Abstract

The management of environmental crises lend themselves to more localised governance approaches. This chapter illustrates two different attempts to adapt to environmental and resource crises: landcare in Australia and a pond irrigation system in the Sanuki Plain, Japan. Specifically, I focus on the landcare principles to test their validity in the context of adaptation to drought in the Sanuki Plain. The results of the comparative analysis confirm the following five core guiding principles of landcare:

- autonomy
- localism
- integrated resource management
- maintaining wellbeing
- promoting partnerships.

These core principles can be found embedded in the case of the Sanuki Plain, implying that they promote successful adaptation to drought events. Further research is required to expand the analysis to various other cases related to the response to crises and to compare how these core principles pertain to each case.

Introduction

This chapter examines the similarities between the adaptive responses to environmental crises in Australia and Japan. It focuses on the land degradation problem in Australia, which initiated the landcare movement in 1986, and on the drought in the Sanuki Plain, Japan, in 1994. Although the social context differs significantly between Australia and Japan, this chapter argues that some governance similarities between these cases do exist.

In Australia, various environmental problems have been reported since the beginning of European occupation in 1788, including clearing of indigenous vegetation, soil degradation, salinisation, extinction of native species, and weed and pest infestation, among other issues (Catacutan et al. 2009:13). Michael Seigel (2010) explains the background of these problems. The reasons for clearing can be traced back to the history of agricultural development in Australia. In the 19th and 20th centuries, demand for wool was rapidly growing due to the development of textile industries, hence the number of sheep increased dramatically (Seigel 2010). The emergence of squatters who occupied land and pushed Aboriginal people into the periphery also promoted land clearing.

Taking the Boomanoomana area as an example, Seigel points out that squatters cleared some 10,000 hectares of land that was originally covered by bushes and forest. The landcare movement, which emerged in 1986, was devised to use local-level solutions to tackle these local environmental problems. Landcare has been based on voluntary cooperative groups formed by landholders to improve agricultural productivity, including tree planting and lowering of the groundwater level, which causes soil salinisation (Johnson et al. 2009; Robins 2018). The landcare approach was effective in solving land degradation problems, such as soil erosion and salinisation, and it has been progressively expanded to include urban areas. The number of Landcare groups grew to over 4,000 in the early 1990s, reaching over 5,000 today (Love 2012; Curtis et al. 2014; Robins 2018). The period from 1990 to 2000 was called the Decade of Landcare, during which the Australian Government committed to spending $360 million to support landcare (Curtis et al. 2014).

Landcare can be understood as community-based natural resource management (NRM). It is embodied by local Landcare groups, regional NRM bodies, and regional and national NRM group networks, forming a nested governance system (Curtis et al. 2014). This type of multilayered NRM system, in accordance with public participation and community engagement principles, could increase landscape resilience. From the perspective of a community-based NRM group, it is possible to see similarities between Australian landcare and the pond irrigation system in Japan.

The Sanuki Plain is one of the driest regions in Japan due to climatic and geographic conditions. It is in Kagawa Prefecture in the north-east part of the Shikoku Island and has a precipitation no greater than 60–70% of the national average. Kagawa Prefecture covers 1,877 km^2, and roughly 16% is used for agriculture (30,200 hectares or 302 km^2). Rice is the main crop in the plain. According to the Kagawa Prefecture Ministry of Agriculture, Forestry and Fisheries Bureau (KPMA 2000), 83% of the farmland is occupied by rice paddy fields (the eighth highest rate in Japan). As the land area of Kagawa Prefecture is restricted (only 0.5% of Japan), the average area of farmland per farmer is 0.9 hectares, compared to a national average of 2.1 hectares per farmer. The population of Kagawa Prefecture is approximately 976,000, with approximately 71,000 farmers in 2015.

To improve drought response, the Kagawa Canal was constructed in 1974. It conveys approximately 247 million tonnes of water (105 million tonnes for irrigation, 122 million

tonnes for municipal water and 20 million tonnes for industrial water) every year from the Yoshino River, which flows outside Kagawa Prefecture. The water is delivered to 30,700 hectares of agricultural land, serving a population of 940,000. The Kagawa Canal plays a critical role in providing water to the Sanuki Plain.

The pond irrigation system can also be regarded as a community-based NRM system, which is similar to landcare. The local land improvement districts (LIDs) manage their own ponds (called child ponds). Regional LIDs, which embody local LIDs, manage parent ponds (the source of child ponds). This nested structure resonates with Landcare's governing structures.

> **The pond irrigation system can also be regarded as a community-based NRM system … The local land improvement districts manage their own ponds (called child ponds). Regional land improvement districts manage parent ponds (the source of child ponds). This nested structure resonates with Landcare's governing structures.**

Landcare principles

Michael Seigel describes the main principles of landcare as follows (SPELJ 2013):

1. Landcare is based on local autonomous voluntary groups. They operate on the initiative and under the control of local residents and are therefore rooted in the local community and attuned to the local natural environment. In many cases, Landcare groups are made up largely of primary producers.

2. Landcare groups focus on local issues. They may address global issues such as climate change or biodiversity, but the focus will still be on what can be done locally to address these issues. Landcare groups are not likely to get into debates about the politics of these issues.

3. Landcare groups aim to address environmental issues holistically. In other words, they do not treat problems such as invasive species, soil degradation and salinity independently from one another, but try to address these issues in relation to one another. The focus may be on a specific issue that is particularly serious in a given environment, but they also attempt to understand that issue and deal with it in relation to the other issues in the local environment.

4. Landcare groups focus not only on the conservation or restoration of the natural environment but also on the wellbeing of the local community. This includes a focus on such things as the income of primary producers. In this sense, the holistic approach mentioned above includes considering human society and the natural environment together in a holistic way.

5. Landcare is characterised by partnership and networking. This means partnership and networking among the different Landcare groups, and partnership and networking with the various levels of government, with academics and specialists, business corporations, non-government organisations, etc.

The first principle illustrates the importance of the autonomy of local groups who are caring for their land. This perspective resonates with the understanding of the landcare ethic, which is 'influencing the way people live in the landscape while caring for the land' (Australian Framework for Landcare Reference Group 2010:1). It defines the 'landcare movement', which stresses the perspective of stewardship and volunteerism in driving local action (Love 2012:6).

Here, we will adopt the 'autonomy of local groups' as the core concept underlying the first principle. The ideas of stewardship and volunteerism related to the landcare ethic and the landcare movement are also important; however, autonomy is an overarching concept. Autonomy is the primary concept from which the stewardship and volunteerism of local groups emanate. In other words, neither stewardship nor volunteerism will occur if a group is not autonomous (at the group level). Autonomy is particularly important in landcare in the sense that the preferences and needs of local communities should be respected, and local people should take responsibility for determining and tackling local affairs. This is closely related to the principle of subsidiarity. Although a definition of subsidiarity has not been agreed yet, a shared understanding implies 'that any particular task should be decentralized to the lowest level of governance with the capacity to conduct it satisfactorily' (Marshall 2008:80). In the context of the common-pool resources management, subsidiarity can be key to the successful governance by nested enterprises/multilevel systems (Marshall 2008; Ostrom 2009).

The second principle incorporates the concept of localism, which emphasises the practical attitude of making local action more constructive. Focusing on local problems can direct local people to what they can do by themselves. This can contribute to creating a positive attitude towards local Landcare groups. Localism will also encourage people to recognise their common interests, such as land degradation, and to gather and form a Landcare group. These common interests will then become the target for their activities.

The third principle emphasises the complexity of local environmental problems, specifically referring to their inter-relatedness. This calls for integrated resource management, which involves collaboration among the actors related to and/or responsible for the problems. This approach encourages people to broaden their view from seeking individualistic interests to achieving a common good for their community, which reduces environmental risk at a regional scale. Broadening the perspective of local community can be interpreted as the recognition of the social cost of the environmental problems, the consequences of which frequently go beyond a single farm. Invasive species, for example, move not just within a farm, but also to and from farms.

The fourth principle stresses the 'maintenance of wellbeing'. Human wellbeing is a broad term and can be affected by various factors, such as income, food, health care, education and social capital (Ormel et al. 1999; Helliwell et al. 2018). At the macro scale, wellbeing can be separated into physical capital, natural capital and human capital, which are collectively called 'inclusive wealth' in the literature on sustainable economic development (Dasgupta 2004). These capital assets are theoretically identified as determinants of the level of wellbeing over generations. It is also interesting to see that, by combining the principles of 'maintenance of wellbeing' at the community level and 'localism', we can derive 'satisfying the local needs and preferences', which is one of the important perspectives of landcare.

The fifth principle describes the importance of creating a collaborative network of various entities, including Landcare groups, private companies, municipalities and non-government organisations. The perspective of partnership and networking means that the network is

based on mutual collaboration and a flat relationship rather than a hierarchical one. A collaborative network enables local groups to acquire essential resources to sustain their activities, including information on sustainable farming, technologies and grants. This can work in two ways.

First, a collaborative network can augment each group's capacity through the diversification of the means. If they are isolated, local groups must use their own limited resources. However, if resources are provided from outside the groups and further reinforced, their capacity to expand the variety of activities will be augmented. Diversifying the means will also lead to higher resilience of local groups as the options to act increase.

Second, the collaborative network can work as a safety net when the local groups face difficulties sustaining their activities due to resource limitations. A collaborative network can serve as a social security for local groups. Thus, creating a network of Landcare groups and other entities can promote local activities by developing the capacities and complementing the shortages of local Landcare groups. Landcare coordinators and facilitators play an important role in this networking.

Seigel's principles of landcare can be classified into three categories (Table 18.1). The first category relates to the ethic of landcare, which includes the concepts of autonomy and localism. The second category is the end of landcare activities and involves 'the maintenance of wellbeing'. The third category is the approach of landcare, which includes the concepts of 'integrated resource management' and 'networking/partnership'.

Table 18.1 Core concepts underpinning Seigel's landcare principles

Category	Principle	Core concept
Ethic	1	Autonomy (of local groups)
	2	Localism
End	4	Wellbeing (of local communities)
Approach	3	Integrated resource management (inclusiveness)
	5	Partnership and networking (capacity building and safety net)

This categorisation enables us to understand Seigel's principles of landcare more structurally. The end of landcare activities is set to sustain the level of wellbeing of local communities and the approaches taken to achieve that end, such as integrated resource management and broadened partnership and networking. The most important category is the ethic of landcare (autonomy and localism that avoids residents or community members losing their initiative to manage their own resources). The approaches of integrated resource management and building partnerships are relevant, but they do not rule out the possibility of dependence on (or the domination by) upper-level entities (such as governmental bodies) or enterprises for the sake of sustaining community wellbeing.

Understood in this way, we can construct the following analytic framework of landcare:
- Landcare's goal is to improve the wellbeing of local people through the formation of and involvement with landcare activities.
- Measures for the environmental problems must be inclusive and should be diversified through the Landcare network.
- The autonomy of local groups and localism must be respected firsthand in landcare activities.

The combination of the concepts of autonomy and localism can create a perception of 'respect to the local people and environment', which would in turn develop the ethic of stewardship. In the next section, I will apply this framework to the case of a successful adaptation to water resource crisis (drought adaptation) in Japan to explore the effectiveness of the landcare principles.

Pond irrigation system in the Sanuki Plain, Japan

The Sanuki Plain is both one of the most developed areas of the pond irrigation system and one of the most drought-prone areas in Japan. In the Sanuki Plain, more than 14,000 pond reservoirs have been constructed. The region has a density of 7.79 reservoirs per km^2, holding the first place in Japan for water development (KPMA 2000). Due to the severe precipitation restriction (natural water supply) compared to the demand for water resources in the Sanuki Plain, farmers have built their own ponds and developed a pond irrigation system over several hundred years (Nagamachi 2013b). Some traditional methods of pond water management were highly effective in mitigating the negative impact of drought.

Droughts in the Sanuki Plain

The oldest drought recorded in Japan was in 701 CE. Roughly 2,000 droughts are documented in the Sanuki Plain, of which 85% occurred after the 17th century (Shikoku Disaster Information Archives n.d.). According to Hayami (1993), the population in the Sanuki Plain increased by 29.5% from 334,153 in 1721 to 432,648 in 1834. The population surge increased demand for rice, the staple diet in Japan. Both the climate condition (supply side) and population increase (demand side) accelerated the scarcity of water, which led to the development of pond irrigation systems in the Sanuki Plain. The number of ponds was 1,372 in 1645; this increased to 1,953 in 1686 and reached 5,555 in 1797 (Nagamachi 2013a).

Drought adaptation measures in the Sanuki Plain

The increase in the number of ponds in the Sanuki Plain includes the development of traditional water usage and management. One of the adaptive measures to droughts that was developed is rotational irrigation (*ban-sui* or *ban-mizu* in Japanese). Rotational irrigation, implemented only in a drought period, is performed by the local pond irrigation association. Pond water is distributed to designated areas in which farmlands are grouped into several blocks (usually three to five) only on a specific day and time. This means that local farmlands can receive the minimum amount of water required to sustain the growth of agricultural crops one or two days per week (depending on the number of blocks). This system effectively reduces water usage, so it can marginally sustain the agricultural crops until the drought condition improves. Kagohashi and Ueta (2011) reveal that traditional water management, including rotational irrigation, had practical effects in reducing crop damage costs and the burden on farmers. Rotational irrigation is labour-intensive water management because it calls for strict monitoring of water gates to prevent illegal manipulation.

Another traditional type of water management is intra-basin water adjustment. In the Sanuki Plain, each pond is connected and the water flows upstream to downstream. The water for irrigation flows from the 'parent' reservoir most upstream to 'child' and 'grandchild' reservoirs downstream. During the severe drought in 1994, the parent pond water was delivered to the child ponds to level out the consequences of drought. In other words, the parent ponds were responsible for ensuring that water depletion would not

occur in the child ponds and their farmlands. If a child pond had grandchild ponds, the same rule applied to ensure that water depletion and crop damage would not occur in its watershed. Together with the rotational irrigation method, this type of water adjustment could increase the equity of water usage under drought conditions.

Drought adaptation measures also include inter-basin water adjustment. This was conducted for the first time in the 1994 drought by the Kagawa Canal Land Improvement District (KCLID), which distributes water through the main line of the Kagawa Canal. KCLID comprises 79 land improvement districts and water associations in the Sanuki Plain. Based on a policy of giving the distribution preference to areas with poor irrigation conditions in the Sanuki Plain, KCLID conducted water adjustment throughout the entire region. Continually gathering information on drought conditions (for example, depletion of each pond's water level; implementation of drought adaptation measures such as rotational irrigation and intra-basin water adjustment; and crop damage conditions), KCLID ensured that drought damage would not be concentrated in a specific region. As the main line of the Kagawa Canal penetrates the main parent pond reservoirs of the Sanuki Plain from east to west, it was possible to adjust water resources beyond the watersheds in the region by adjusting the water volume delivered to each reservoir. KCLID did not control water usage in each pond irrigation system. Rather, it focused on levelling the drought conditions of parent ponds. After delivering water to each parent pond reservoir, the water was distributed along with the traditional rules or customs for each pond irrigation system.

Comparative analysis of landcare and drought adaptation in the Sanuki Plain

The first and second principles – autonomy and localism – of landcare reflect its ethic. These principles fit well with the characteristics of pond irrigators in the Sanuki Plain. Famers in the Sanuki Plain had formed an LID to manage agricultural water, implement farmland consolidation, manipulate and maintain water facilities, and so on (Ishii and Okamoto 2002). Following the Land Improvement Act enacted in 1949, an LID group can be formed if it has more than 15 farmers and if the formation is affirmed by more than two-thirds of the farmers who are supposed to receive benefits from it. An LID is a place-based local group and is composed of landholders.

LIDs in the Sanuki Plain also exhibit distinctive autonomy. First, the LID group has self-organising bodies such as an administrative board, general meetings of the members, etc. The administrative board includes more than five directors and two auditors, and the directors are elected by members. Second, LIDs maintain the water facilities using their own budget (Ishii and Okamoto 2002). LIDs collect a fee from members and repair the waterways, water gates, drainage, etc. using the pooled budget. Third, in the case of the Sanuki Plain, local LIDs allocate water from pond reservoirs according to their rules and traditions, which have developed historically. These traditional water usage and management practices have been respected even when local LIDs could receive additional water through the Kagawa Canal. Local water traditions were especially appreciated in the severe drought of 1994, even when KCLID conducted a regional water transfer. It is especially important that KCLID did not disturb the autonomy of local LIDs in the context of pond water usage and management.

When conducting regional water transfers, the KCLID tried to sustain the wellbeing of local LIDs, not simply the volume of pond water. KCLID understood that drought would decrease the income of farmers through agricultural crop losses. However, it should be noted that,

especially for farmers who were producing rice, the dying of rice meant more than an economic loss. It also meant shame for them, as failure to overcome drought and grow rice is regarded as incompetence. No matter how severe a drought is, maintaining the growth of rice has been deemed as a qualification for farmers in the Sanuki Plain. This may sound peculiar, but it is a social norm that may be attributed to the history of the Sanuki Plain, where farmers have repeatedly adapted to and survived through droughts.

The third landcare principle (integrated resource management) also fits the case of the Sanuki Plain well. During the 1994 drought, not only conjunctive water use within a watershed but also water allocation among the watersheds in the Sanuki Plain was encouraged. The latter was conducted through the manipulation of the water gates of the main Kagawa Canal line, which played a critical role in adjusting water allocation in the entire area of the Sanuki Plain. In 1994, local water development, such as groundwater, was also conducted by local LIDs through digging wells, installing pumps, etc. This was one of the adaptive measures to drought, and the number of projects for local water development reached about 8,200 (Kagohashi 2015:37). Here, integrated resource management involved the utilisation of possible water resources from the local to the regional level.

During the 1994 drought, not only the problem of inefficiency, but also the problem of inequality of water use under drought conditions was recognised. Local farmers tried to increase the efficiency of water use by implementing traditional water management practices. Some of these ceased to be used after the construction of the Kagawa Canal, as water availability in the Sanuki Plain dramatically improved and farmers no longer needed to conduct strict water management. Traditional practices, however, still play an important role in adapting to serious drought. These practices include *ban-sui* (rotating irrigation), *hashiri-mizu* (which permits farmers to take just enough water from an irrigation channel to moisten the surface soil), and *dobin-mizu* (traditional drip irrigation, where farmers carry water by bottles and do the watering).

While pond water was used as efficiently as possible in each farmland in 1994, KCLID promised local LIDs it would deliver water preferentially to those who faced severe water shortages. By conducting water transfer between watersheds in the Sanuki Plain, KCLID tried to level the water inequality among the regions in the Sanuki Plain. Here, the approach of integrated resource management included the harmonisation of efficiency and equity of water use under severe drought conditions.

The adaptation to drought through the augmentation of the level of efficiency and equity of water use would not be possible without partnership among the local LIDs, KCLID and governmental bodies.

The adaptation to drought through the augmentation of the level of efficiency and equity of water use would not be possible without partnership among the local LIDs, KCLID and governmental bodies. The cost of digging wells, installing pumps and amending waterways (160 million yen in the Sanuki Plain) were mostly covered by subsidies from local municipalities and the government (Kagohashi 2015:37). These subsidies motivated farmers in local LIDs to implement water development projects in their district.

It is also important to note that local LIDs were not isolated during the 1994 drought. Not only did KCLID keep local farmers motivated to implement traditional water management and increase water use efficiency, it also promised local LIDs it would provide water if they ever faced pond water depletion. Farmers trusted KCLID, and KCLID respected the autonomy of local LIDs. The mutual respect between KCLID and the local districts promoted partnership in the 1994 drought.

Conclusion

This chapter examines the similarities between landcare's response to soil conservation and the adaptation to drought in the pond irrigation system in the Sanuki Plain. Focusing on the principles that Michael Seigel extracted from the landcare activities in Australia, this chapter draws the core ideas behind each principle: autonomy, localism, integrated resource management, wellbeing and partnership development. These concepts have been classified into three categories: ethic, end and approach.

These three categories can also be found in the adaptation process to the 1994 drought in the Sanuki Plain. Japan. First, the autonomy of local LIDs was appreciated in the Sanuki Plain, even in the time of drought. KCLID did not override the initiative of the local LIDs who have their own rights and responsibility to the use and management of pond water. As for the localism, local LIDs are place-based groups that were formed in the Sanuki Plain over several hundred years or more. The main purpose of LIDs is the management of agricultural water and related facilities. LIDs focus on local issues, such as agricultural production. Together with autonomy, localism may well contribute to the development of stewardship ethic of the productive base, which is essential to sustaining agricultural production.

Second, the more that water resources in the Sanuki Plain became scarce, the more the pond irrigation water system was integrated. Not only was the pond water used efficiently within each watershed, the inter-basin transfer of water was initiated by the level of drought faced by each LID (Kagohashi 2017). This is a good fit with the landcare principle of integrated resource management. Integrated water resource management would not be possible without partnerships between different levels of governance.

Although landcare in Australia and pond irrigation systems in Japan have developed in totally different contexts, the core ideas that underpin Michael Seigel's landcare principles seem to be relevant to achieving successful adaptation to environment and resource crises. This resonates with the discussion of social resilience, which is defined as the ability of communities to withstand external shocks to their social infrastructure (Adger 2000:361). There is an evolving literature on social resilience, which includes studies on operationalising the concept into practical indicators (see Dale et al. 2015, 2016), interpreting the theoretical characteristics of social resilience (see Maclean et al. 2014) and linking the concept to a community's adaptive capacity, such as access to critical resources (Langridge et al. 2006).

The result of this analysis implies that following the core ideas that underpin the landcare principles would contribute to augmenting the level of social resilience at the local and regional scale. It may also be possible to interpret these five core ideas as the components of the principle of subsidiarity. Marshall (2008:8) explains that this principle 'generally shares in common the implication that any particular task should be decentralized to the lowest level of governance with the capacity to conduct it satisfactorily'. He argues that the nested governance of common property resources works well when it is guided by the principle of subsidiarity in the context of landcare.

The results of this study imply that the core ideas behind landcare are relevant in adapting to environmental and resource crises. Of course, oversimplification must be avoided. We should keep in mind that there are historical and cultural differences in the governance system between landcare in Australia and the pond irrigation system in Japan. The process of forming a group, for example, is different: Landcare groups are voluntarily formed, while the members of the local LIDs in Japan are obliged to participate if they are to be involved in farming. Further research is required to take these differences into account. In addition, we need to expand the analysis to responses to other crises and compare how the five core ideas relate to each case.

References

Adger W Neil (2000) 'Social and ecological resilience: are they related?', *Progress in Human Geography* 24(3):347–64.

Australian Framework for Landcare Reference Group (2010) *Australian Framework for Landcare community call for action*, The Australian Landcare Council Secretariat, Canberra and Department of Agriculture, Fisheries and Forestry, Canberra.

Catacutan D, Neely C, Johnson M, Poussard H and Youl R (2009) *Landcare: local action – global progress*, World Agroforestry Centre, Nairobi.

Curtis A, Ross H, Marshall G, Baldwin C, Cavaye J, Freeman C, Carr A and Syme GJ (2014) 'The great experiment with devolved NRM governance: lessons from community engagement in Australia and New Zealand since the 1980s', *Australasian Journal of Environmental Management,* 21(2):175–199.

Dale A, Vella K and Cottrell A (2015) 'Can social resilience inform SA/SIA for adaptive planning for climate change in vulnerable regions?', *Journal of Natural Resources Policy Research,* 7(1):93–104.

Dale AP, Vella K, Potts R, Voyce B, Stevenson B, Cottrell A, King D, Babacan H, Boon H, Gooch M, and Pert P (2016) 'Applying social resilience concepts and indicators to support climate adaptation in Tropical North Queensland, Australia', *in* Jorg JK and Knieling J (eds) *Climate adaptation governance in cities and regions: theoretical fundamentals and practical evidence,* Wiley Blackwell, Chichester and Hoboken, USA.

Dasgupta P (2004) *Human well-being and the natural environment*, Oxford University Press, New York.

Hayami A (1993) 'Chronology of population statistics in early Meiji Japan', *Nihon Bunka,* 9:135–64.

Helliwell JF, Layard R and Sachs JD (2018) *World happiness report 2018*, Sustainable Development Solutions Network, New York.

Ishii A and Okamoto M (2002) 'Tochi kairyo ku' [Land improvement district], *Nouson keikaku gakkai shi* (*Journal of Rural Planning Association*], 21(2):193–4.

Johnson M, Poussard H and Youl R (2009) 'Landcare in Australia', *in* Catacutan D, Neely C, Johnson M, Poussard H and Youl R (eds) *Landcare: local action – global progress*, World Agroforestry Centre, Nairobi.

Kagohashi K (2015) 'Mizu yu-zu no seidoteki tokushitsu ni kansuru ichi kousatsu: 1994 nen no sanuki heiya wo jirei to shite', *Mizushigen Kankyo Kenkyu,* 28(1):31–37.

Kagohashi K (2017) 'Water sharing, drought adaptation and inclusive wealth', *in* Shunsuke M (ed) *The wealth of nations and regions,* Routledge, New York.

Kagohashi K and Ueta K (2011) 'Kassui he no seidoteki tekiou no yuukousei: Sanukiheiya ni okeru mizu yu-zu wo jirei to shite,' *Zaisei to Koukyo Seisaku,* 33(2):81–91.

KPMA (Kagawa Prefecture Ministry of Agriculture, Forestry and Fisheries Bureau) (2000) *Kagawa ken tameike jittai chosa, Kagwa ken norinsuisanshobu*, Kagawa Prefecture Forestry and Fisheries Bureau, Kagawa, Japan.

Langridge R, Christian-Smith J and Lohse KA (2006) 'Access and resilience: analysing the construction of social resilience to the threat of water scarcity', *Ecology and Society*, 11(2):Article 18.

Love C (2012) *Evolution of landcare in Australia: in the context of Australian Government natural resource management policy and programs*, Australian Landcare Council Secretariat, Canberra.

Maclean K, Cuthill M and Ross H (2014) 'Six attributes of social resilience', *Journal of Environmental Planning and Management,* 57(1):144–56.

Marshall G (2008) 'Nesting, subsidiarity and community-based environmental governance beyond the Local Scale', *International Journal of the Commons,* 2(1):75–97.

Nagamachi H (2013a) Sanuki no tameike bunka to kagawa yousui: Kinsei tameike suiri no hattatsu. Mizu to tomoni, September 2013.

Nagamachi H (2013b) 'Tameike bunka no keisho to tameike no hozen', *Civil Engineering Consultant* 259(April):32–35.

Ormel J, Lindenberg S, Steverink N and Verbrugge LM (1999) 'Subjective well-being and social production functions', *Social Indicators Research,* 46(1):61–90.

Ostrom E (2009) 'Design principles of robust property-rights institutions: what have we learned?', *in* Ingram GK and Hong Y (eds) *Property rights and land policies,* Lincoln Institute of Land Policy, Cambridge.

Robins L (2018) 'More than 30 years of landcare in Australia: five phases of development from childhood to mid-life (crisis or renewal?)', *Australasian Journal of Environmental Management,* 1(13).

Seigel M (2010) 'Gou bu-ma nu-mana randokea guru-pu no torikumi, jisseki, oyobi mondaiishiki', *Shakai to Rinri,* 24:63–82.

Shikoku Disaster Information Archives (Shikoku saigai a-kaibusu) (n.d.) [website], accessed 24 March 2020. www.shikoku-saigai.com

SPELJ (Secretariat to Promote the Establishment of Landcare in Japan) (2013) *SPELJ Newsletter*, Issue 1, SPELJ, Nagoya.

Photo: Andrew Campbell

CHAPTER 19

Developing the role of landcare: a reflection on the value of community landcare as a subsidiarity practice model for emergency and natural disaster management

Jennifer Quealy

Abstract

As natural disasters and emergencies increase in number, extent and severity, a powerful and sustainable response would be to develop a network of resilient, locally active, aware and capable landcare communities. The landcare model includes both the local knowledge and values held by members, as well as the on-ground works they undertake. These attributes make Landcare an ideal partner for disaster resilience and risk reduction. The 30-year Australian landcare experience demonstrates how organised communities prepare for and act on the impacts of bushfires, cyclones, floods and droughts, and build local resilience. But while this role and experience is known and greatly appreciated, Landcare has rarely been a formal partner when governments activate responses for natural disasters and emergencies. Landcare groups are regularly left out of such responses, without access to critical resources. Research and the formal activation of Landcare groups could help governments worldwide to develop more effective disaster responses. Where Landcare groups are activated, recovery outcomes are more possible. Landcare networks build resilience in their landscapes and communities, which is highly relevant to disaster responses.

This chapter looks at case studies that suggest an active role that Landcare groups could play in partnership with the usual emergency and disaster agencies. Landcare development could be critical to activating the people power, skills and capacity needed to protect the green infrastructure of landscapes that we need to be resilient to disasters in the long term.

Introduction

The landcare movement, active across Australia (and now the world) is gradually becoming known for more than its usual role in rehabilitating damaged landscapes, promoting sustainable agriculture and improving farming impacts on water, soils, biodiversity and agricultural productivity. Landcare groups are becoming vital local networks that could be critical responders to natural disasters and emergencies. They have valuable knowledge, mapping, connections and experience of local landscapes and properties. Many Landcare members also belong to formal first-responders organisations, such as fire and rescue services, Red Cross, Country Women's Association and other community service groups. These groups all assist communities to deal with the impacts of natural disasters and emergencies. There is critical, valuable intelligence held by Landcare networks and this is often exactly what authorities need before, during and after natural disasters and emergencies.

The roles of Australian Landcare members and groups have evolved over the last 30 years to include natural disasters and emergencies. Local knowledge and networks are very useful during these events. This suggests there should be a more formal role for Landcare groups in helping government agencies to build and support the community resilience required to adapt and respond to natural disasters and emergencies. Global climate change adaptation frameworks and goals almost require the community landcare model, which could form the real-world responses behind the rhetoric of global climate change responses. The Sendai Framework for Disaster Risk Reduction 2015–2030, which was adopted at the Third United Nations World Conference on Disaster Risk Reduction in March 2015, states:

> While the enabling, guiding, and coordinating role of National and State Governments remain essential, it is necessary to empower local authorities and local communities to reduce disaster risk, including through resources, incentives and decision-making responsibilities, as appropriate. States should encourage … civil society, volunteers, organized voluntary work organizations and community-based organizations to participate, in collaboration with public institutions, to … provide specific knowledge and pragmatic guidance; engage in the implementation of local, national, regional and global plans and strategies; contribute to and support public awareness; and advocate for resilient communities and an inclusive and all-of-society disaster risk management (UNDRR 2015).

This is a welcome and resonant call for groups like Landcare to take an active part in disaster risk reduction and management. Many communities are already building their knowledge, skills and capacity to enable them to participate in response and recovery efforts. Such groups are often the first to notice events. They are also the ones who are in place when something happens, even before formal agencies respond. The world needs more Landcare-like networks that are ready, willing and able to contribute their social and landscape literacy and activity towards solving wicked challenges thrown up by complex natural disasters and emergencies.

Landcare groups have needs in this scenario too: they must be officially recognised, valued, supported and engaged in more formal roles in preparation, management and recovery over the long term for communities, landscapes and enterprises. There is a need for appropriate support, resources and capacity building, but many groups have already begun the networking and knowledge-sharing they need to be responsive to events.

This chapter describes how Landcare can leverage formal responses and improve its potential and actual role in events. Landcare is self-reflective and adaptive to change, by nature and by design. Landcare could improve its impacts by reflecting and advocating more on this role, and looking at both what it does and what it offers for responses and adaptations to climate change.

Those in experienced Landcare groups (and those watching them) know that the Landcare model already has what it takes to be an inspired, powerful, leading, 'go-to' community partner in natural disasters and emergencies. Landcare NSW notes:

> With increasing emphasis on localism, Landcare is a potentially valuable ally for governments. Landcare groups are often well placed to be the first responders, on the ground, to natural emergencies such as bushfires; again in a manner where government agencies are sometimes more constrained (Henry et al. 2016).

Landcare as a subsidiarity model

Subsidiarity is a concept that resonates with the Landcare model. The subsidiarity recognises that individuals at their local community level can think and do much for themselves and for each other, even during complex and challenging times. This is what the term 'agency' means. But if 'agency' – the ability to know, act and do at a local level – is taken away from individuals and communities by a higher authority, longer-term complexities may arise that get in the way of recovery and resilience.

For over 30 years, Landcare has been responding to community-level challenges. It is a model of adaptive localism. Landcare requires cooperation, local knowledge and landscape literacy, social connectedness and mapping, and shared values and goals. As a recent review of a significant bushfire event found:

> Historically, the responsibility for community recovery would have rested, almost entirely, with the community itself through the ministrations of churches, welfare and aid groups, philanthropic organisations and individuals … Recovery as a responsibility of government is a more contemporary phenomenon, now forming part of the emergency management spectrum of Prevention, Preparedness, Response and Recovery, or PPRR (Leadbetter 2013).

Landcare is a known, valuable and critical player at the local community level, and in regional and catchment networks, agencies and organisations. There is a constant Landcare presence and effort activation within a myriad of day-to-day challenges across landscapes and industries and land types (social, environmental and sustainable productivity as well as local governance). Landcare can add immense value after natural disasters and emergencies. Landcare has what it takes to be an inspired and powerful local network that can activate when needed. Landcare is a leading 'go-to' community partner, made up of networked individuals who have established their agency and their subsidiarity role and can bring these to the challenges of natural disasters and emergencies.

But Landcare needs to believe this. It must advocate for its role much further, and attract support for its deeper relevance and potential to help the world (and disaster risk reduction agencies) to care about and manage disaster events. Many Landcare groups have experience in responding to post-disaster events. Australia and our regional partners are regularly visited by cyclones, monsoons, floods, droughts, bushfires, water and heat stress events and disastrous pest and weed infestations. All of these are predicted to become

more frequent and severe with climate change. Landcare groups are right there, across all landscape and community types.

Landcare members know that the network has untapped potential. Perhaps it is time for Landcare to evolve a little further, with the support of governments and leading non-government organisations that are involved in natural disasters and emergencies. Many communities understand the very real impacts of climate change – most have been caught up in various emergencies and natural disasters. The difference now – and the reason that 'stepping up' is a matter for serious research and discussion – is the escalation of the frequency, intensity and cost of such events in recent years. Community groups are actively preparing for these events, living through them and assisting their neighbours to recover for many months and years after.

Australia and our regional partners are regularly visited by cyclones, monsoons, floods, droughts, bushfires, water and heat stress events and disastrous pest and weed infestations. All of these are predicted to become more frequent and severe with climate change. Landcare groups are right there, across all landscape and community types.

At times, recovery works pose additional threats (mostly unintentionally) on Landcare works. An example of this occurred in Far North Queensland when coastal and roadside habitat containing important and critical biodiversity, including that of the southern cassowary (*Casuarius casuarius*, a large flightless bird vulnerable to extinction), was severely damaged by Cyclone Larry in March 2006. Many local community members and Landcare groups had been working for years to restore habitat and protect the species. Following Cyclone Larry, however, several government agencies and work crews destroyed roadside vegetation in an attempt to reduce risks to human populations, and this work led to habitat destruction. Landcare and conservation groups had to get back to work again to restore habitat and find resources to repair the additional human-induced damage.

Most Landcare groups have a critical role in managing through and recovering from these events, regardless of whether they have been impacted personally. But it is not just the physical on-ground works – landcare is also about building resilience in people and places, and practices and enterprises. It is a central and multitasking community-led model of the development of landscape practice and work that is critical to community resilience and for building and sustaining subsidiarity. People need the power to act as responsible agents in their own known and loved landscapes.

Landcare groups ebb and flow over time. Each one is particular and characterised by the local landscapes, issues and people, as well as the knowledge and diversity of the people. According to some research, however, most Landcare groups tend to go through known stages in their lifecycles (Chamala and Mortiss 1990), albeit at a pace determined by the members themselves. Localism is well in practice in such networks. Sometimes members and networks are dormant during periods when there are no obvious challenges or when members are busy with their individual enterprises (for example, harvesting times). But most groups can be quickly activated and become a vibrant and caring Landcare

community when needed. They activate prior to slow events (bushfires can take days, weeks or even months to get to a local area, for example), or more suddenly as more rapidly appearing events occur. In both scenarios, localism and subsidiarity kick in and Landcare groups are ready to partner with their catchment and disaster agencies when needed.

This reflection highlights the opportunity often found in chaos. Landcare is mature enough to help with risk reduction, preparation and whole-of-community engagement on the socioecological responses needed for climate change adaptation as outlined in the Sendai Framework. But Landcare generally runs 'on the smell of an oily rag'. Locals do what they can with what they have. This works in many scenarios. However, for the greater needs outlined in such discussions as the Sendai Framework, Landcare groups must be more securely funded so they can leverage their efforts to meet local needs, improve skills and capacity building, and access resources that will allow them to be available and connected when they need to respond to challenging events.

How do we know this? When Landcare groups are active, they both act and connect. It is a social movement as much as a group of people sharing tasks for a landscape or community. Media, research and self-reporting for over 30 years shows that Landcare is capable of tackling various challenges because of its work and focus on agriecological landscapes and their people and communities.

Leveraging local people power is necessary for reducing global risk

Readers may be aware of and actively planning in the context of the *Sendai Framework for Disaster Risk Reduction 2015–2030* (UNDRR 2015). Landcare is a perfect model of community awareness and activation capacity for reducing risk and building resilience. But only with recognition of its capacity and potential, and with adequate support, can Landcare act more confidently in such roles. Resilience building is a key theme in emergency and natural disaster thinking internationally. This is a core role and attribute of Landcare.

> Resilience building is a key theme in emergency and natural disaster thinking internationally. This is a core role and attribute of Landcare.

When Landcare and other community actors are not recognised for their roles, skills, capacities, preparedness and people power, and are left out of decisions, subsidiarity fails. The unintended consequences include actual damage to local projects (and social, environmental and productivity impacts), disempowerment of local community networks (often creating tensions and mental health impacts across communities) and wastage of the knowledge of community and landscape when disaster hits. Some groups are sidelined or locked out of event response management, hierarchies, workplans and recovery, despite their intrinsic local knowledge, connections and interest that could be activated to help effectively.

Landcare is generally not named or used in most formal disaster-response arrangements. When an emergency or natural disaster event occurs, governments activate their formal partners into a management hierarchy that has power, influence, activities and resources to implement. These activities can ignore and damage localism, and add greater costs to long-term recovery efforts as communities are disrupted. Invariably, these formal powers and arrangements are activated on both public and private land, impacting on local farms, properties, enterprises and Landcare projects and communities. Landcare is at the very least a stakeholder, and at most an underutilised source of knowledge, mapping, connection and local intelligence – the very ingredients needed for resilience and subsidiarity.

Many Landcare and catchment groups are called in later, when the long-term work of rebuilding, cleaning up, replacing fencing, restocking and replanting is needed. This is when the long-term impacts of the events hit families, farm, businesses and ecosystems, and it is also often when the media and politicians have moved on. This has been the lived experience of Landcare groups in many emergencies and disasters. Landcare groups in Far North Queensland, guided by the regional natural resource management (NRM) group Terrain NRM, have been through this. Terrain NRM worked with local Landcare communities to plan a long-term recovery operation that was still ongoing years later. Locals contributed to and sought external funding from businesses and donors for cassowary habitat restoration; on-farm fencing projects; and farm, riverine, schools and community recovery activities.

Two problems with generic emergency management responses are the perceived focus on urban challenges (that often feature more accessible, quicker and better resourced recovery projects) and the insufficient time allowed to support locals with their long-term recovery needs. Landcare groups often feel that they are left behind when recovery agencies and their resources move on, sometimes after just a few months. It is in the longer term that more complex, landscape-scale challenges within communities, agricultural enterprises and ecological functions of damaged rural landscapes can emerge. This is when the real work of recovery is needed – restoring or rebuilding the social, political and economic elements of the community fabric that will allow a community and its enterprises to return to viability. This is what Landcare can offer.

Landcare groups often feel that they are left behind when recovery agencies and their resources move on, sometimes after just a few months.

The next logical and natural step for Landcare (and governments and non-government organisations generally) is to help the formal emergency management sector avoid unintended consequences and results from recovery decisions made by others, including external partners. The challenge is for formal agencies to embrace the subsidiarity that Landcare offers. Communities need to see an end to decisions being made without the longer-term, on-ground intelligence that could be contributed by Landcare networks. One solution could be to have a roundtable with local Landcare groups in the weeks after an emergency to plan the immediate landscape triage required. This would be led by local knowledge, and could be followed by developing resourced recovery plans for longer-term recovery. Donations and grants would need to be scaled to fit this timetable and should be available and ongoing for local communities to manage (with subsidiarity).

Governments and non-government organisations need to help Landcare maintain its role in communities as knowledge and community-connection hubs. These hubs are most important when events radically disturb the norm in a region. They are made up of people who can access people, places and intelligence about local projects and threatened species and help get communities moving towards a post-disaster 'new normal'.

Agencies can help improve the positioning and value of Landcare groups as essential and valued partners of first responder institutions. Leadbeater (2013) notes the value of Landcare recordkeeping, networking and local knowledge when describing intelligence-gathering after the catastrophic Strathewen bushfires in Victoria. This is a case of a recovery approach being assisted by using:

> an authoritative record of properties impacted, homes destroyed, and lives lost. This was compiled using a map and records from the local Landcare group. In the absence of electricity and telephones, information was collected and shared by means of personal visits … (Leadbeater 2013:43).

Landcare can leverage knowledge of its communities in the face of the trauma and disruption of disaster events, which are now becoming more frequent. Landcare could contribute important knowledge to management discussions on landscapes that are being critically impacted by these events, and learn from and work with emergency management leaders to help develop pre-disaster preparation and post-disaster recovery.

Some may feel this is not the role of Landcare. Many are happy with exactly where Landcare is and where it is heading. They may not want to interfere with the status quo of emergency management. Other people will question the resources, time and skills needed for such a role – it might mean more work and even more commitment. The landcare movement needs robust research to consider these legitimate concerns, ideas and opportunities, as evidentiary background for this approach.

Landcare's attributes naturally align with the Sendai Framework's goals and critical needs, and the UNDRR's strategy for implementation at the community level (UNDRR 2015:46), which calls for local community engagement in disaster risk reduction, particularly 'establishing collaborative action for DRR at the national and local levels'. The goal of the Sendai Framework requires localism, and that makes Landcare, with all its features, a critical player. The goal is to:

> Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery, and thus strengthen resilience (UNDRR 2015).

The guiding principle of the Sendai Framework about community empowerment is particularly relevant:

> Empowerment of local authorities and communities through resources, incentives and decision-making responsibilities as appropriate (UNDRR 2015).

Landcare would be wise to reference, cross check and map its own roles and needs where they align with the Sendai Framework strategies. Table 19.1 lists some Landcare attributes that match with UNDRR strategies at local and community level. Further research by Landcare will strengthen Landcare's role in reducing risk, unwanted impacts and frustrations inherent in more regular disaster responses that do not currently formally

Table 19.1   Key attributes of Landcare groups

Know	Connect	Prevent	Low risk
Understand their landscapes intimately and know how to walk, talk and act	Connect with their community quickly to activate during and after disasters and emergencies	Prevent the worst impacts of post-disaster recovery plans and decisions	Good local reputation
			Effective risk managers
			Low level of insurance claims against them in Australia (via credible ongoing systems and training)
Global	**Informal**	**Adaptive**	**Multipliers**
Model and network that thinks globally and acts locally	Not yet recognised in formal emergency management or natural disaster decision-making hierarchies	Can react quickly, effectively and be fully aware of local needs for both preparation for disasters and emergences and for recovery and resilience at the local level	Share members with other local groups and networks
Active in 22 countries			
Capacity	**Representative**	**Collaborative**	**Leverage**
Have skills, knowledge, active plans and are preparedness-aware	Include landholders and groups at catchment, state, national and global scales	Operate at farm, community, local area levels	Local and business, public and government investments
		Well networked	Return on investment in planning, resilience and repair

include Landcare. This will also greatly assist government and whole of community disaster risk reduction and resilience strategies.

With Landcare groups actively engaged in disaster risk reduction and responses, more people and places will be better prepared for these events. They will be more resilient, and more responsive to event management and recovery. This will also avoid community efforts and investments, and those of governments and industry, being compromised, wasted, vulnerable and disconnected.

Wonderfully, and with some prescience perhaps, some Australian Landcare networks have created excellent informal working relationships in local catchments with other groups, including bushfire brigades, country women's associations, rural women's networks, service clubs, schools and local councils. Links exist with the formal local emergency management groups building deep and sustaining adaptive and empowered community networks. In Chapter 15, Andrea Mason presents a bushfire case study, indicating what is possible with more formal arrangements. What Landcare and the natural disaster and emergency networks need is to build and share the knowledge that those arrangements have delivered and see if and how they can be improved.

Often, short-term recovery decisions that are not based in subsidiarity principles seem to come from fear and ignorance and make recovery a much longer and, in some cases, doomed venture. As Leadbeater states:

> Recovery started badly is almost impossible to reclaim given its longer-term impacts on the structure, relationships and functioning of the community. Creating space and time for the community to come together and for the 'right' answers to emerge is an investment in meaningful, sustainable recovery … the imposition of externally constituted and 'templated' recovery models can seriously undermine inherent community resilience (Leadbeater 2013:46).

Some adverse outcomes from a non-local recovery model include financial and agriecological impacts that layer on top of the physical impacts of the event itself. These can last longer and have more challenging long-term impacts than the original event. When Allan Dale was CEO of Terrain NRM, he experienced these frustrations after cyclones Larry and Yasi. The community couldn't access funding from government or public appeals for Landcare community recovery works to undertake essential activities. Terrain NRM and Landcare Australia had to raise funds separately through corporate supporters. In another example, allegedly adverse impacts arose after the NSW Government allowed tree clearing in the zone between houses and bushland after the 2013 Blue Mountains bushfires. This encouraged inappropriate clearing in a region that sits within a vulnerable World Heritage Area. After the January 2011 flooding in the Lockyer Valley in south-east Queensland, a state agency allowed bulldozing of creekbank vegetation, which many feared would cause more destabilisation of impacted waterways. These are the kind of unintended and additional impacts that can follow disaster events and that subsidiarity can help prevent.

Landcare as a formalised local and empowered voice in global resilience

Landcare networks need a say when disasters are occurring, to give voice to their landscapes and social networks. Disaster-response thinking can work with long-term and deeply held community values and catchment standards through Landcare.

A new model for Landcare would see it added as a formal (and critical) partner, event adviser and actor in emergency management and natural disaster relief and recovery arrangements. Many Landcare members, groups and communities have valuable skills and resources to offer when these events occur. Disaster and emergency responses need (and the Sendai Framework promotes) a whole-of-community approach, working with government on social and agriecological innovation.

This approach will require advocacy by Landcare within its local, national and global networks. Landcare must be enabled and empowered to implement global conventions that support such an approach, and research is needed to back this up. Groups like Australian Landcare International and the Society for the Promotion of Landcare in Japan, and Landcare networks in Iceland, the Philippines, eastern Africa, South Africa, New Zealand, Pakistan and across the Asia-Pacific region, could be the virtual brains trust for this initiative. These global Landcare groups could work together to bring advocacy, research and resources into developing this layer of activity to the Landcare model. Such collaboration needs to be based on good research and practitioner case studies. Landcare must show that it has the capacity, knowledge and skills to operate as a natural disaster and emergency management actor.

The immense costs of disasters requires us to rethink how we prepare for and reduce risks. Landcare is well placed to contribute at the highest level during and after emergencies. This initiative could be called a 'triage' or 'recovery' model. It would focus on planning for disaster event management and recovery for the people and agriecological and social landscapes. This would be a simple step for networks like Landcare.

The basics that Landcare groups need for this development include long-term planning, grassroots knowledge of catchment and landscapes and social networks, community engagement, global knowledge sharing, expertise, resourcing and activation. All of these are core business for Landcare. Many landcarers add to their on-ground works and community networking with activities such as citizen science, crowdsourcing and social media marketing, and use technology to improve agriecological monitoring and management. Governments would be wise to support and leverage the many skills and capacities inherent and ever-developing in active Landcare groups, by listening to and engaging with the knowledge and networks that landcarers want to share, to assist in their care of people and place.

Many landcarers think a lot about emergencies and natural disasters, but many report feeling left out of important decision-making when local events occur. Sometimes when 'disaster thinking' comes into play, it knocks out the hard-fought policies and strategies and even the places and networks that landcarers have worked on for years. This kind of disruption is costly, but it can be avoided.

Landcare can act to bring resilience and socioecological thinking, planning and appropriate action to disaster and emergency events. Landcare needs resources from the funding pool to be available when events occur. Landcare would be a willing partner and could bring the right kind of thinking and ability to post-disaster management, particularly in long-term preparation and recovery.

Conclusion

I propose a formalised triage or recovery role for Landcare in disaster and emergency management. This makes sense economically and socially and in terms of the impact of disasters on landscapes and assets. Landcare's role should be formally recognised and supported by all levels of government as well as major emergency and disaster non-government organisations.

Landcare needs to reflect on these ideas, share thoughts, develop ideas and advocate for this to happen. It needs to sit and act at the planning tables, where local action and larger collective strategies are being planned and rolled out. To support this approach, and with some resourcing, Landcare could create a 'Landcare Lab' of online resources and connections about disaster response by gathering research, case studies, plans and guides that will be accessible to (and built by) all landcare communities across the world.

To carry out this role effectively, Landcare (perhaps driven by Australian Landcare International, ACIAR and other key partners) needs to:
- survey and develop ideas from and with their memberships to understand what Landcare would need to develop to grow and act in ways that develop the capacity of their members and the whole community to respond to disasters and emergencies
- identify risks to networks and projects (including the social and community networks and projects) in rural, regional and remote regions, and explore how Landcare could assist with community development strategies

- collaborate on research about how Landcare effectively builds resilience into landscapes and community networks through its strategies and activity
- develop and circulate thought-leadership papers to local, catchment, state, regional and national Landcare networks, local councils and emergency management teams about how to empower and formalise these roles
- work with catchment agencies and local councils to develop collaborative strategies for risk reduction and preparation, resilience building and recovery
- advocate for partnerships between Landcare networks and governments and non-government organisations, to help them engage with and better understand landscapes and communities that might be impacted by emergencies and natural disasters
- create and develop an open source 'Landcare Lab' to gather and share knowledge and activity plans, results and suggestions widely.

If Landcare does engage, the ability to influence and get appropriate resources will open in ways we can only hope for. Landcare has a great opportunity to take a leadership role at a time when people are becoming aware of more and more damaging events affecting communities around the world. In the Sendai Framework, Landcare has a pathway and opportunity to move from being a silent or locked out partner to becoming a valued, active and critical partner, literally helping to save the world from the impacts of climate change. Landcare already thinks globally and acts locally – in both the 'good times' and the bad.

References

Chamala S and Mortiss PD (1990) *Working together for Landcare: group management skills and strategies*, Australian Academic Press.

Henry A, Koech R and Prior J (2016*) The value of Landcare to the Australian community* [PDF], paper prepared for Landcare NSW, accessed 31 May 2022. https://landcarensw.org.au/wp-content/uploads/2019/06/161216-The-Value-of-Landcare.pdf

Leadbeater A (2013) *Community leadership in disaster recovery: a case study,* Australian Institute for Disaster Resilience website, accessed 20 October 2020. https://knowledge.aidr.org.au/resources/ajem-jul-2013-community-leadership-in-disaster-recovery-a-case-study/

UNDRR (United Nations Office for Disaster Risk Reduction) (2015) *Sendai Framework for Disaster Risk Reduction 2015–2030*, United Nations.

UNU-IAS, Bioversity International, IGES and UNDP (2014) *Toolkit for the indicators of resilience in socio-ecological production landscapes and seascapes,* IGES UNDP, Rome.