Geographical Research

Australia's Indigenous Carbon Economy: A National Snapshot

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Received 26 September 2013; Revised 3 November 2013; Accepted 11 November 2013

Abstract
Many Indigenous communities in Australia are well situated to provide greenhouse gas abatement and carbon sequestration benefits, but little is known about the factors affecting the capability of Australia's Indigenous organisations to participate in climate change mitigation strategies. This paper provides a 'snapshot' summary of certain aspects of Australia's Indigenous organisations' participation in carbon offset schemes. The snapshot provides insight into the degree to which Indigenous organisations are aware of carbon market opportunities in Australia, the level that these Indigenous organisations participate in or engage with carbon-based economic enterprises, and the key pathways through which Indigenous carbon market opportunities are pursued. Analysis of data collected from a national survey conducted between 2011 and 2012 show that most obstacles to Indigenous participation in carbon offset schemes relate to land tenure arrangements; geographic and biophysical factors; low levels of requisite technical, human and financial resources; and appropriate recognition of Indigenous knowledge and cultural responsibilities. The snapshot also highlights the value of supporting regionally specific capacity-building strategies to enable Indigenous people to participate in emerging carbon offset activities and the generation of associated ecosystem services. Cultural, socio-economic or demographic factors that are also likely to influence the ability of many Indigenous communities to participate in carbon market opportunities are identified as important areas for further research.

KEY WORDS *climate change; co-benefits; Carbon Farming Initiative; Indigenous Australians; offset schemes*

Introduction

The Kyoto Protocol was ratified by Australia in 2008 and sets binding targets for the limitation and reduction of greenhouse gas emissions (UNFCCC, 2013). A range of 'flexible mechanisms' have been developed to assist countries meet their targets under the Kyoto Protocol. These mechanisms include the ability for parties (nation states) to trade 'emissions reductions units', or carbon credits. This ability to trade carbon credits enables abatement strategies to be developed in countries where there are opportunities for emissions reduction and allows the certified carbon credits from these activities to be sold to those who have not been able to reduce emissions. These mechanisms commoditise carbon credits and establish a market in an effort to reduce greenhouse gas emissions.

An important principle underpinning these mechanisms is that climate change mitigation activities should be treated as an integral element of sustainable development. The 1992 UN Conference on Environment and Development (UNCED) has also played a critical role in shaping global and national responses to this complex issue, bringing market-based approaches as policy delivery instruments to the fore. As a party to the United Nations Framework Convention on Climate Change and its Kyoto Protocol and other related international agreements, the Australian Government is obliged to adopt a participatory approach to climate governance and uphold the rights of Indigenous peoples in decision-making (DIICCSRT, 2013a).

Australia's national greenhouse gas accounts indicate that agriculture accounted for 16% of Australian inventory in 2012 (DIICCSRT, 2012). As such, Australia has the potential to reduce emissions through improved land management and changing land use practices (Eady *et al*., 2009). These reductions provide opportunities to offset emissions from other sectors through carbon offset projects that either sequester carbon (e.g. through new tree plantings) or reduce the volume of greenhouse gases emitted to the atmosphere (e.g. through effective fire management).

Reporting on a survey of Indigenous organisations across Australia, this paper provides a national snapshot of Indigenous organisations participating or aspiring to participate in various aspects of Australia's carbon economy and helps to form a basis for assessing the various capability issues facing Indigenous organisations that wish to participate in the carbon offset enterprises. Foley (2011) describes this growing Indigenous interest and effort as 'Australia's Indigenous carbon industry' and highlights that Indigenous Australians[1] have an integral role to play in efforts to mitigate impacts of climate change, including participating in offset projects (Foley, 2011; cf. Whitehead *et al*., 2009). The knowledge, natural resource-based enterprises and lands held by Indigenous peoples can be described as 'assets' for many natural resource-based offset opportunities and mitigation efforts (Robinson *et al*., 2011). These assets can be sustained through a range of customary, commercial enterprise and partnership opportunities that comprise the 'hybrid' economies of many Indigenous communities who reside in remote (non-urban) locations (Altman, 2005). The ancillary opportunities (or 'co-benefits') that carbon offset projects might offer Indigenous people include the delivery of ecosystem services in a way that may also provide cultural, health, social, conservation and amenity benefits to local Indigenous communities (in addition to generating carbon credits for commercial sale). The recognition of Indigenous carbon co-benefits is a priority for a range of mitigation schemes, including those established under Australia's Carbon Farming Initiative (CFI) (DIICCSRT, 2013b).

Participation in the CFI is voluntary and allows farmers and land managers to earn carbon credits by storing carbon, or reducing greenhouse gas emissions, on their land. CFI credits can then be sold to those wishing to offset carbon emissions (DIICCSRT, 2013a). Some Indigenous leaders across Australia have expressed an interest in participating in carbon offset activities, assessing that this market represents 'the largest opportunity in history to drive sustainable poverty alleviation in Aboriginal communities' (Molitor and Tilmouth, 2011, 1). The CFI has been described as forming 'the fundamental basis of Aboriginal and Torres Strait Islander participation in carbon sequestration, abatement and storage activities on Indigenous land' (Centrefarm, 2011, 2), and it is expected to provide Indigenous peoples with an opportunity 'to respond to the very significant threats to their livelihoods and land posed by climate change' (NAILSMA 2011, 2). Despite such positive endorsements, carbon offset schemes are not without challenges. Reflecting on international voluntary carbon offset schemes (e.g. the Verified Carbon Standard [VCS] and the collaborative program to Reduce Emissions from Deforestation and Forest Degradation [REDD+]), some commentators argue that powerful organisations and stakeholders have unfairly influenced climate governance to create regimes that best suit themselves (Jaung and Bae, 2012). The next section draws on this growing area of research and on-ground experience to identify key issues that might affect the capability of Indigenous organisations in their efforts to realise the benefits of participating in carbon offset schemes.

Significance of Australia's emerging carbon economy for Indigenous Australians

The potential benefits of Indigenous communities' participating in carbon offset schemes could be significant in some regions and include improving the social and economic well-being of local communities and contributing to the sustainability of Indigenous livelihoods generated through the delivery of ecosystem services

(NAILSMA, 2011; Heckbert *et al.*, 2012). The capability of Indigenous organisations to realise these benefits is a critical issue that has been identified by Indigenous leaders across Australia and sets the framing of this paper.

Issues affecting Indigenous organisational efforts to engage in carbon offset projects extend beyond the scope of any single Indigenous individual, community or organisation, and mechanisms that involve and benefit Indigenous people and organisations need to be examined in an integrated way (cf. Hill *et al.*, 2013). Evaluations of Indigenous land management initiatives in Australia, for example, highlight Indigenous leadership and appropriate training as key individual capabilities required for program success (e.g. Gilligan, 2006). Yet high transaction costs imposed by uncertain and short-term grants and continuous involvement in training programs that do not lead to jobs are critical impediments for Indigenous individuals and communities' being able to achieve their intended goals (Luckert *et al.*, 2007; Putnis *et al.*, 2007). Indigenous organisations and land management capacity are not always hamstrung by these constraints at present but remain vulnerable to them under potential policy change (Hill *et al.*, 2013). Program and stakeholder assumptions about what Indigenous people and Indigenous knowledge can bring to the environmental planning table can also limit opportunities for Indigenous participation in environmental management or markets (e.g. Weir *et al.*, 2011; Robinson and Lane, 2013).

Experience from other Indigenous land management initiatives and partnerships suggests that to be effective, the governance of the CFI needs to offer a 'good fit' between Indigenous and non-Indigenous cultural and legal systems that sustains the rights and interests of Indigenous peoples in Australia (Gerrard, 2012; Robinson and Lane, 2013). This requires policies and program support to enable active Indigenous participation in natural resource markets and management. Planning arrangements must also reflect the centrality of Indigenous people's country to Indigenous people's culture and identity, as well as their aspirations for economic opportunities, political representation and independence (Smith and Hunt, 2011). Appropriate knowledge management mechanisms need to be part of such planning arrangements to facilitate the interactions between scientific, industry and Indigenous knowledge contributions and enable Indigenous communities to shape the type and delivery of carbon co-benefits (Roux *et al.*, 2006; Robinson *et al.*, 2011). As such, efforts to analyse Indigenous community participation in carbon offset activities require due consideration of not only the *size* of the potential economic opportunity for Indigenous people, but also *how* Indigenous people will be able to access carbon markets to realise these opportunities in a manner that is fair, equitable and accountable. The research approach and methods to undertake this assessment in the Australian context are outlined below.

Research approach and methods

In order to prepare the national snapshot of Indigenous organisations participating in or aspiring to participate in carbon offset project activities, the research team conducted a desktop review of existing organisations, projects and research initiatives to develop a baseline assessment of the degree to which Indigenous agencies and representative bodies across all Australian states and territories have been, may be or are interested in becoming engaged in carbon market opportunities. It is acknowledged that this work was done in late 2011 and early 2012, before the Australian Government's establishment of the Indigenous Carbon Farming Fund (ICFF). The ICFF is likely to lead to an increased number of agencies, representatives or organisations that are interested in becoming or have become involved in carbon market opportunities. The research team identified three main types of organisations that could be readily contacted and that could be involved in carbon offset projects:

1. Aboriginal land councils (recognised under state/territory legislation);
2. Registered native title bodies corporate, also known as PsBCs (prescribed bodies corporate), which hold native title rights and interests on behalf of Indigenous traditional owners who have had native title recognised; and
3. Indigenous land and sea management groups or natural resource management (NRM) units (hereafter described as Indigenous land management [ILM] groups). ILM groups were contacted because these organisations employ Indigenous rangers who can provide carbon offset services such as tree planting, feral animal control and fire management (Hill *et al.*, 2013).

It is important to note that Indigenous organisations might be based in cities and regional centres, but their jurisdictions often cover rural

and remote areas. The research team also created a questionnaire designed to gather general information about key factors relevant to Indigenous organisations participating in carbon offset activities. The questionnaire consisted of three questions.

1. Question 1 explored the level of organisational awareness about carbon market opportunities, as well as the level of interest in pursuing these opportunities. Respondents were asked to choose from one of four options: no interest; aware and keen for more information; aware but in need of more expertise/resources; and aware and informed, but not interested.
2. Question 2 probed the level of the Indigenous organisation's participation in or engagement with carbon offset schemes. Options included not talking to anyone (low level of participation), actively talking to community (medium), engaging with potential partners (medium–high) and having established a carbon market (e.g. voluntary market, offset service/supply contracts) (high).
3. Question 3 explored the organisational pathways through which carbon market and offset opportunities were pursued. Respondents were asked to identify if the organisation had a dedicated NRM/economic unit team, a land and sea NRM or ranger unit, land tenure or any title rights, and/or a dedicated climate change team or unit that was being used to pursue carbon offset opportunities. Respondents were only asked this question if it had been determined (either through survey participants or organisational web-based material) that opportunities had been pursued.

Of the 128 Indigenous organisations around Australia identified by the desktop review, 62 of these organisations participated in the survey. The survey and additional web-based search enabled the research team to map the level and type of interest and participation in carbon market opportunities of 43 of these organisations. Telephone interviews were held with an additional 19 organisations, but respondents did not wish to provide detailed answers required to map and quantify answers to each question. Key issues raised were recorded from all 62 participating organisations and used to inform the analysis of results.

Survey questions were administered either by telephone interview or email questionnaire. Aboriginal land councils and Indigenous land and sea management groups were contacted by telephone and, where possible, a telephone interview was conducted with an organisational representative who was self-identified as able to discuss the issue of carbon market opportunities. If it was not possible to conduct a telephone interview or if the organisational representative requested an email interview, responses were elicited via an email questionnaire. Finally, a number of datasets of Indigenous lands were identified and mapped using publicly available datasets at the time the survey was conducted.[2] As Hill *et al*. (2013, 19) note, Indigenous interests in country are significant and now recognised formally to varying extents in well over half of Australia's land area through grants or purchase of land title, determination of native title, Indigenous land use agreements and Indigenous protected areas.

Results

Figure 2 shows that Indigenous organisations interested in carbon market opportunities span Australia. When asked to self-assess their level of organisational awareness about carbon market opportunities, as well as their level of interest in pursuing these opportunities (Question 1), the vast majority of respondent organisations indicated a high level of interest to pursue carbon market opportunities (94%), and these organisations are located across Australia. The same respondents indicated an interest in obtaining more information (15%), a need for additional expertise/resources (24%) or both (56%). Only one respondent indicated that there was no interest in carbon market or management opportunities within the organisation.

Telephone interviews with survey respondents highlighted the importance of knowledge sharing needed to build Indigenous organisational capability to take advantage of carbon market opportunities. Critical to this effort is the establishment of robust knowledge partnerships to guide the focus and scope of carbon projects. As one respondent observed:

> It is important we work in partnership . . . so the local Traditional Owners can have the right information to decide if this is the right pathway forward . . . [and] Indigenous knowledge is used to manage the carbon [offset] program.

The high degree of uncertainty related to the biophysical and economic potential of carbon offset programs in many regions of Australia was also identified as a key area of concern for 78%

of the respondents interviewed. Trusting information provided by 'experts' in carbon offset programs and allowing knowledge contributions from local Indigenous community members were matters identified by some respondents as necessary components of the relevant knowledge needed for a carbon offset program to succeed. As noted by a respondent from Cape York:

> We don't want another expert turning up, giving false hope [about carbon market opportunities] without scientific information to back this up . . . and without thinking about what the local community can or want to do.

The results for Question 2 (Figure 3) indicate a relatively high level of dialogue regarding carbon market opportunities with the community (43%) or with potential partners as well as the community (32%). Fewer respondents indicated that their organisation was not talking to anyone (25%). Only one organisation that responded to the survey had already established a carbon market at the time the survey was conducted.

Participant responses highlighted the range of pathways Indigenous organisations are interested to pursue to participate in Australia's emerging carbon economy. Figure 1 shows that in some regions of Australia (in particular northern and central Australia), Indigenous organisations have an established land management unit and secure land tenure through which carbon market opportunities can be pursued; in other (particularly southern Australian) regions, Indigenous organisations do not have secure tenure but intend to secure payment for carbon offset management services through their ILM unit. In many remote regions Indigenous organisations have secure tenure but no unit to support economic development opportunities offered by carbon offset schemes.

Many respondents (74%) identified potential opportunities available through local ecosystem service delivery activities, such as the generation of carbon credits through Indigenous fire management aligned with traditional burning regimes in the savannas of Australia's tropical north (cf. Russell-Smith *et al.*, 2009). All respondents

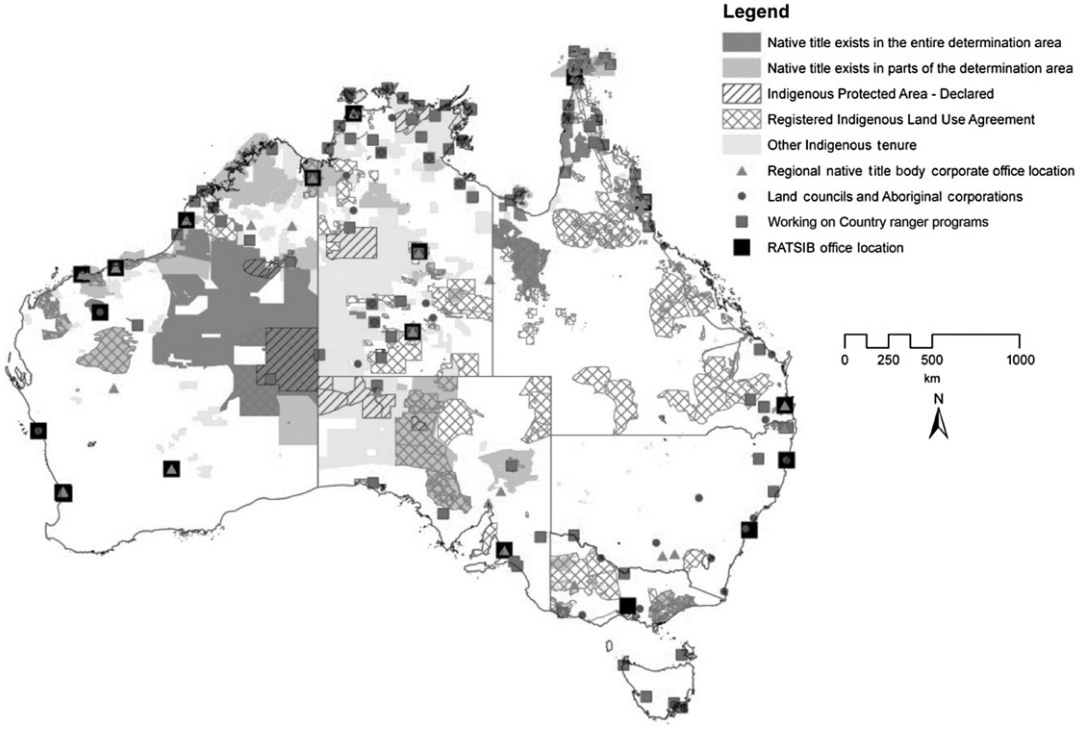

Figure 1 Indigenous land tenure and management organisations in Australia identified for the purposes of national survey, 2012.

who self-reported a medium to high level of participation in carbon offset schemes and markets noted the potential of carbon emissions trading as another economic tool for management of their traditional landscapes. Respondents linked the revenues from carbon offset projects with the creation of employment opportunities for local people, particularly ranger groups.

The pathways available to participate in carbon markets and offset activities identified by Indigenous organisations surveyed varied between respondents. The survey revealed that some respondents (30%) indicated they had an established Indigenous land management unit through which carbon market opportunities would be pursued. A further 38% of organisations had used the existing unit to pursue opportunities. Some survey respondents (32%) reported that there was no dedicated unit or staff resource for this purpose. Secure land tenure (native title or state sanctioned land rights) was reported to be held by 35% of survey respondents. Only one respondent reported the existence of a dedicated climate change unit within the organisation.

The national survey also highlighted the issues facing Indigenous organisational involvement in Australia's growing carbon economy. Some respondents reported a lack of knowledge and access to appropriate information about climate change more broadly, including the potential impacts on Indigenous communities and the potential of carbon market opportunities. As an example, some organisational representatives explained that the challenges surrounding legal, health, cultural and livelihood issues affecting Indigenous lands and lives were central to the erosion of Indigenous resilience, which further impacts upon their level of interest in climate change opportunities and issues (cf. Bardsley and Wiseman, 2012; McIntyre-Tamwoy *et al*., 2013).

Survey respondents discussed carbon market opportunities as a land management enterprise development that explicitly aims to deliver cultural, conservation and amenity outcomes to local Indigenous communities. However, many (94%) of the respondents that were interviewed reported that they did not have sufficient organisational capacity to take up desired opportunities. This lack of capacity could be a pertinent risk, both for these organisations and other potential investors involved in offset partnerships. Interviewees explained that addressing these issues and strengthening organisational capacity will require additional technical skills and governance arrangements within and between Indigenous organisations responsible for representing Indigenous legal, economic development and NRM activities and interests in the region. The need for coordination of policies and activities across levels of government was also highlighted as crucial to achieve such mutual benefits.

Discussion and conclusions

The capacity of Indigenous communities and organisations to contribute positively to climate change impacts is a critical issue facing Australia's response to climate change. This national 'snapshot' shows a clear interest among Indigenous Australians and their representative organisations to participate in carbon offset schemes. New management approaches based on Indigenous people's physical and spiritual relationships with their traditional territories will enable many Indigenous organisations to provide relevant management solutions to suit local contexts as well as a broader 'public interest'. Indigenous people are also significant landholders with resource and access rights and may be well situated to provide strategic contributions to national mitigation responses.

The snapshot distils the challenges that currently influence the ability of Indigenous organisations to develop and grow carbon-based economic enterprises in Australia. These challenges include the following:

1. Adequate and appropriate provision of relevant information. Survey responses reported that Indigenous organisations and Indigenous communities often require information to facilitate their decision-making about how they can and should become involved in carbon offset schemes (cf. Robinson and Wallington, 2012). This includes information about possible carbon market opportunities (and related government frameworks) that have arisen from the Australian Government's response to climate change.
2. Integrated and intercultural governance arrangements to govern offset scheme design and evaluation. Interviews conducted as part of this survey revealed that while a lot of Indigenous organisations have substantial expertise in governance of their traditional country, they will require assistance to build strong skills and networks to manage carbon offset activities and interests in the region.

3. The need for Indigenous organisations to build partnerships with landholders who own or hold titles to their traditional land. Some Indigenous organisations that reported a keen interest in and desire to develop capacity to realise carbon market opportunities have no land holdings or requisite tenure interest (e.g. freehold land tenure or relevant native title rights and interests – see Figures 2 and 3). These organisations will need to partner with landowners who hold the relevant land tenure or legal interest in order to participate in offset projects (CFI, 2011). Distinct regional variation in both the type of carbon market opportunities available and the institutional capabilities of Indigenous organisations from different parts of Australia to pursue these opportunities could be an important focus for government design of culturally appropriate offset initiatives and related incentives.

It is clear that increased participation by Indigenous peoples in carbon markets, carbon offset strategies and associated ecosystem services carries significant value for local communities, regions and the broader Australian public. Increasing participation will require a greater effort to develop the capability of Indigenous people and their representative organisations to contribute to available mitigation activities (cf. Weir *et al*., 2011). Since this research was conducted, the Australian Government has announced the Biodiversity Fund (A$ 1 billion) and the ICFF (A$ 22 million), both to be delivered over six years by 2018. The Biodiversity Fund provides voluntary biodiversity and environmental co-benefits through the implementation of carbon projects, and the ICFF supports Indigenous communities to establish or participate in carbon farming projects (DIICCSRT, 2013b). These funds could go some way to bridging the information, technical expertise and resource gaps identified in the national snapshot. Overcoming these issues will be an important part of growing a successful Indigenous carbon industry.

While the survey examined intercultural considerations at a superficial level only, it focused

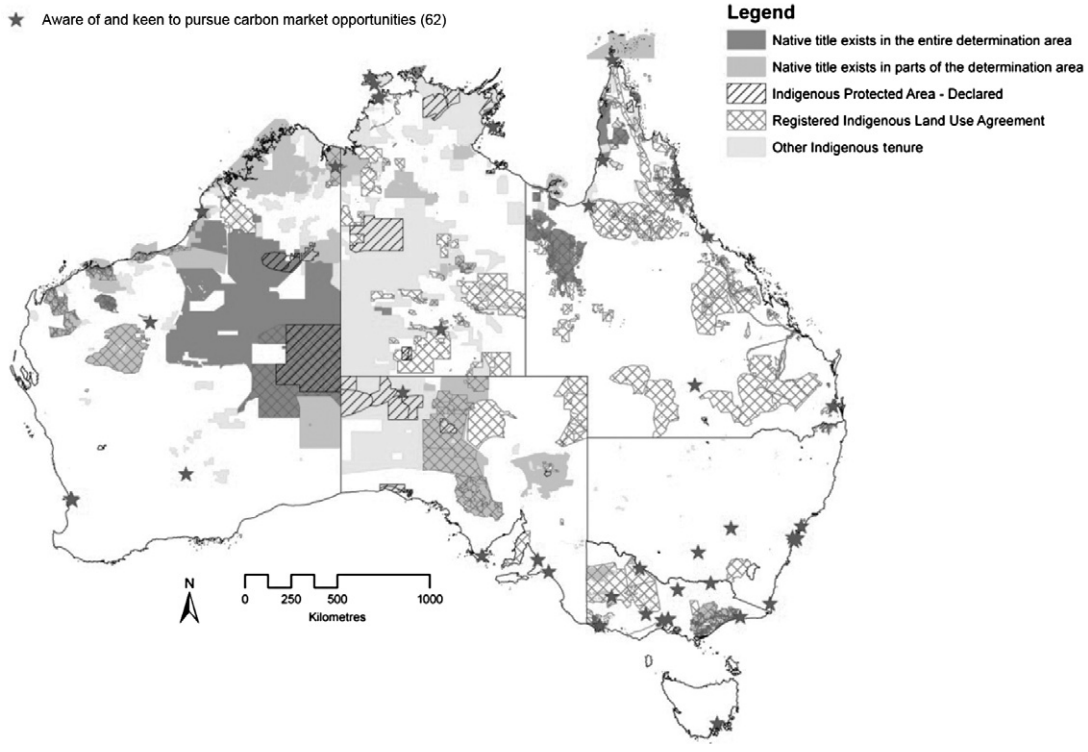

Figure 2 Indigenous organisations that self-assessed a medium–high level of awareness and interest to pursue carbon market opportunities in Australia, 2011–2012. Each star represents the head office of the organisation that responded to the survey – most Indigenous organisations are responsible for multiple communities and cover large regions.

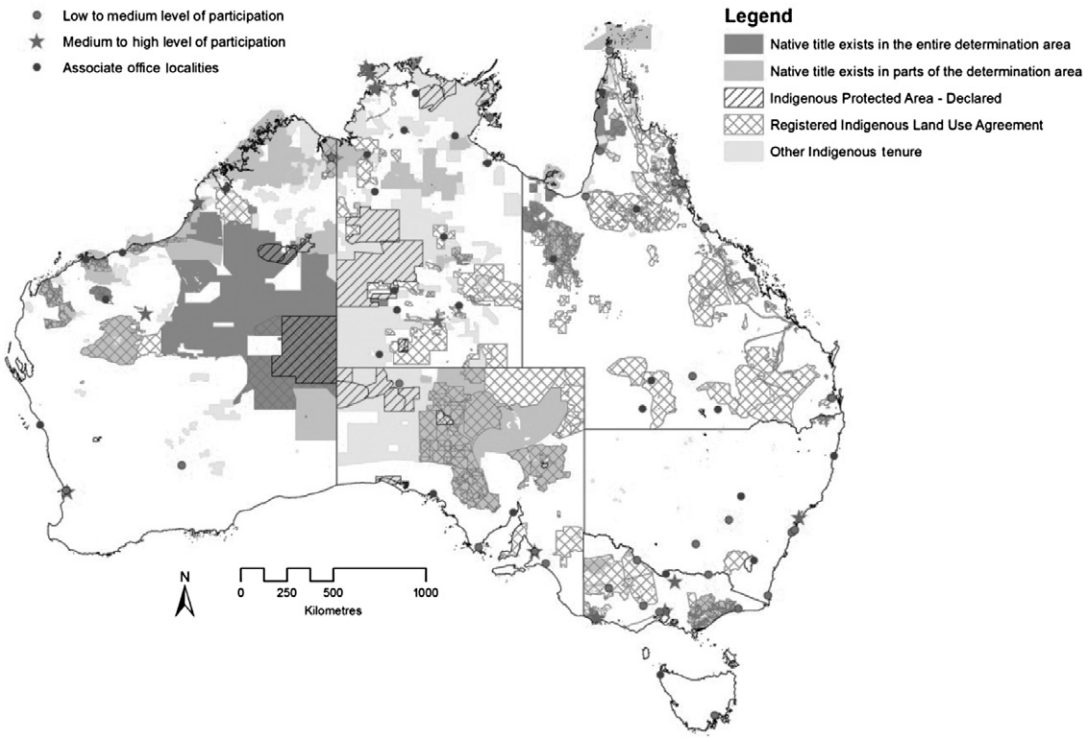

Figure 3 Self-assessed levels of Indigenous organisations' participation in carbon markets and offset schemes, 2012–2013. Each star represents the head office of the organisation that responded to the survey – most Indigenous organisations are responsible for multiple communities and cover large regions.

on general indicators of potential factors that affect participation in emerging market opportunities. Cultural, socio-economic or demographic factors that are also likely to influence the ability of many Indigenous communities to participate in carbon market opportunities are important areas of further research. Even so, the survey results confirm the need for

1. further information dissemination about carbon offset risks and opportunities among Indigenous communities and organisations, and
2. for capabilities to be built and for resources within Indigenous communities and organisations to help bridge identified and/or reported gaps between community interest and capacity and practical carbon offset project implementation and benefits.

Finally, the national snapshot survey highlights that there is a need to explore ways in which mitigation activities can contribute to culturally appropriate pathways to sustainable development. In many parts of Australia climate benefits may not be substantial, direct or immediate, but successful offset scheme implementation and learning the lessons from successful implementation are in the interests of all stakeholders. It is therefore important that local Indigenous decision-makers are able to guide the sort of values and benefits that need to be considered in carbon offset scheme design and evaluation.

ACKNOWLEDGEMENTS

This paper forms part of the research undertaken as part of the National Indigenous Climate Change (NICC) Project – a collaborative forum comprising Indigenous experts and representatives from around Australia, corporate representatives, and the NICC research team. This work is supported by the Rural Industries Research and Development Corporation (Project No PRJ-005438) and co-funded by the CSIRO Sustainable Agricultural Flagship. The authors wish to particularly acknowledge the support of the NICC Indigenous Steering Group and acknowledge the feedback from Tabatha Wallington, Jocelyn Davies and Digby Race. We would also like to thank the reviewers of this journal, whose comments improved the paper.

NOTES

1. The term *Indigenous* is used in this paper to describe Australia's Aboriginal and Torres Strait Islander peoples.
2. Tenure data used for national survey were obtained from a number of sources. Data on Indigenous protected areas (as

of 26/7/2012) were downloaded from http://www.environment.gov.au/indigenous/ipa/index.html. Data on Indigenous land use agreements (as of 2/8/2012) were downloaded from Geoscience Australia, ANZCW0703011415. The Native Title determinations register (as of 17/6/2012) was downloaded from Geoscience Australia, ANZCW0703011416. The Collaborative Australian Protected Areas Database (CAPAD; types of CAPAD reserve include Aboriginal Area, National Park [Aboriginal] and Nature Park [Aboriginal]), which provides a snapshot of protected areas that meet the IUCN definition of protected area for continental Australia, was downloaded from the Australian government website at http://www.environment.gov.au/parks/nrs/science/capad/index.html. Data on Indigenous Land Corporation tenure granted and tenure held (as of 19/10/2011) were supplied by the Indigenous Land Corporation. Information on the Australian boundary (2004) was downloaded from Geoscience Australia at http://www.ga.gov.au. Data on land tenure in Australian rangelands (1995–2000) were compiled by the National Land and Water Resources Audit, which covers Indigenous tenure; Aboriginal land trusts, land councils or Aboriginal local governments; Indigenous lease; and pastoral leases issued to indigenous entities.

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