"*You can kiss my Yasi*"[1] – Recovering in time compression

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Recovering from natural hazards often involves the reconstruction of both private and public assets. The need for this reconstruction to happen quickly is seen as a positive sign that affected communities are recovering. However, decisions involving reconstruction are usually made under considerably tight timeframes and can have adverse effects on both the long and short-term broader social and economic recovery of communities. This aspect of the recovery process has been coined by Olshansky et al (2012) as 'time compression'. Improving our understanding of how recovery occurs under time compression is critical as climate change is expected to increase the frequency and intensity of extreme weather events affecting Australia. This paper aims to contribute to this understanding by focusing on the case of the Cardwell community which was severely affected by tropical cyclone Yasi in 2011. The paper draws on empirical data collected through interviews and workshops involving members of the Cardwell community between 2011 and 2013. In particular, the paper reports on the experiences of community members related to the impact the reconstruction process is having on their broader social and economic recovery. This includes the analysis of current institutional arrangements related to disaster recovery at the national level through available financial and non-financial support and recovery governance. Lessons learnt from Cardwell are then discussed to inform future climate change adaptation initiatives related to potential post-disaster recovery processes.

Key words: natural hazards, planning, emergency management, disaster, Australia

1. Introduction

Australian regions are particularly vulnerable to extreme weather events that could be exacerbated by global environmental change, including bushfires, heat waves, intense rainfall events and coupled coastal hazards such as sea level rise, tropical cyclones and severe storm surges (Hennessy et al, 2007). Accordingly, this will posit significant challenges to planning processes across Australian cities and regions, particularly to protect the communities and assets located in vulnerable areas. Extreme weather events can lead to disasters which cause widespread damage and costs to communities from disrupting physical infrastructure through social and economic systems and people's livelihoods (Olshansky & Chang, 2009). However, opportunities are also created in the post-disaster phase for improving conditions over those that existed prior to disasters (Meyer et al, 2010). This includes opportunities for change to occur in their socioeconomic, political and organisational systems thus improving their resilience and adaptation to natural hazards and sustainable recovery (Olshansky & Chang, 2009; Pelling & Manuel-Navarrete, 2011).

Additionally, disaster recovery also demands effective application of planning mechanisms that can both guide the recovery process and minimise the long-term effects of disasters (Olshansky & Chang, 2009). Recovery has been defined as the 'short-term restoration of lifeline systems and long-term restoration of the community to normal functions' (Olshansky & Chang, 2009, pp. 200). However, achieving effective recovery post-disasters through planning is challenging. Specifically, recovery planning processes need to strike a balance between effectively managing the post-disaster reconstruction to ensure communities can continue to exist and function while maximising opportunities for improving their resilience to future natural hazards (Olshansky & Chang, 2009). For example, planning for recovery often is confronted with contentious issues, including rebuilding infrastructure at the same place or relocating it, reversing human interference in natural processes and plan with nature rather than trying to control it, and governments' reliance on emergency management to provide short-term solutions (The World Bank & Queensland Reconstruction Authority, 2011). Further, it is being increasingly recognised that communities play an active role in improving their recovery and resilience to natural hazards (Norris et al, 2008).

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[1] This expression was created by members of the Cardwell community.

However, available planning related research on disaster recovery is limited leaving planners with little guidance when undertaking post-disaster responsibilities (Olshansky et al, 2012; Olshansky & Chang, 2009). Improving the knowledge on post-disaster recovery is critical as there have been major disasters over the last decade which impacted the livelihoods of hundreds of thousands of people (Olshansky et al, 2012). This is particularly relevant for local governments as they are primarily responsible for managing the recovery process. This paper aims to contribute to the understanding of how disaster recovery occurs by focusing on the example of Cardwell and its recovery process following Cyclone Yasi.

Tropical Cyclone (TC) Yasi hit the north Queensland coast in early February 2011. TC Yasi was a category 4/5 cyclone that caused widespread damage to the north Queensland coast, particularly the area under the jurisdiction of the Cassowary Coast Regional Council. The eye of the cyclone crossed the coast near the townships of Mission Beach, Tully Heads and Cardwell, hence these places had significant damage to private and public assets, including the major highway that connects the region to the state capital of Brisbane. TC Yasi also caused substantial damage to banana and sugar cane crops - the two predominant agricultural activities of the area.

To this end, the paper is organised in four parts. In the first part, we present key challenges related to disaster recovery under time compression and describe key features of how institutional arrangements for emergency management are structured in Australia and Queensland. In the second part, we describe the research approach and methodology, including case study descriptions and key findings informed by empirical data. Drawing on the findings, we then discuss issues associated with strategic planning decisions under time compression as well as the efficacy and limitations of current institutional arrangements guiding disaster recovery in Australia and Queensland. We conclude the paper by extracting insights that can inform both the recovery form future natural hazards as well as climate change impacts.

2. Recovering under time compression

Recovering from the impacts from disasters caused natural hazards involves multiple layers, including housing needs, restoration of infrastructure and facilities, restoration of economic activities as well as improved coping mechanisms of affected communities and individuals (Olshansky, 2012). Additionally, the impact of disasters can exacerbate existing pre-disaster conditions. In particular, scholars (Kates et al, 2006; Lang, 2006; Olshansky et al, 2006) argue that pre-disaster social and economic conditions are determinants of how the post-disaster recovery occurs. Further, economic recovery is directly linked to social, political and physical conditions (Vale, 2006) and financial along with other resources are thus critical for recovery to occur (Olshansky et al, 2006). These conditions include job creation and training of local workforce towards reconstruction works, transitional housing and support to restoring social networks (Vale, 2006).

Nonetheless, there is a critical limitation that augments these post-disaster and recovery challenges and that is time. Following a disaster, Olshansky (2012) stresses that there is a compression in time and space under which recovery activities such as reconstructions works need to occur. There is also less time than normal for questions, decisions and actions to occur. Olshansky (2012) suggests that this time issue denotes an overarching characteristic that differentiates post-disaster from normal times and comprises a key element to better understand and improve recovery efforts.

Typically, there is a trend toward immediate reconstruction and rebuilding of damaged structures to enable communities to recover more rapidly and return to pre-disaster normality (Kates et al, 2006). However, as highlighted by Giegengack & Foster (2006), based on the learnings from Hurricane Katrina, there is no 'technological fix' to securing long term recovery and social measures along with thorough assessment of proposed engineering solutions need to be considered to improve the safety of places which are vulnerable to recurrent natural hazards. Additionally, Kates et al (2006) point out that conflicts arise between groups and institutions when rapid recovery is sought because different goals are not given sufficient attention in time, resources and values. Hence, in understanding how these decisions and activities have occurred under time compression lights can be shed on how to improve the recovery process of future disasters. For example, the concept of 'betterment' has emerged to counterbalance the trend of rapid reconstruction and rebuilding of affected communities as a mean to incorporate necessary

and/ or more robust changes that need to occur to ensure long-term recovery as well as reduce the vulnerability of places. In particular, reconstruction in the post-disaster phase is usually seen as an opportunity amongst planners to build better and more resilient structures. However, this opportunity is often confronted with the desire to rebuild the familiar quickly (Olshansky, 2012). Furthermore, the concept of betterment needs to be extended beyond physical structures as highlighted by the case of New Orleans. New Orleans' recovery from Hurricane Katrina led to the emergence of three pillars associated with betterment, including improved urban planning, greater social equity and economy development focused on the strength of local industries (Kates et al, 2006).

Disaster management in Australia has evolved significantly since the 1980s from a strong focus on response towards a greater recognition of the importance of prevention, preparedness planning, training and recovery activities (Salter, 1997; Handmer et al, 1999; Pearce, 2003) but the recovery phase still faces similar decision-making challenges as described earlier. The current Australian system is based on the 'comprehensive', 'all hazards' and 'all agencies' approach. Operationally, disaster management arrangements in Australia are based around the three levels of government: local, state and national governments. However, the primary responsibility for emergency management falls to the local and state governments, as the Commonwealth Government does not have specific constitutional power in respect of emergency management. The main role of the Australian Government is to support the development by the states and territories of a national emergency management capability and to provide national coordination and resources in cases of major national disasters. As result, Australian states undertake disaster management differently.

For example, in Queensland the disaster management arrangements operate under the Disaster Management Act 2003 (DM Act 2003). In addition, the Disaster Management Strategic Policy Framework guides the development and implementation of disaster management policy and programs at State and local government levels (Queensland Government, 2010), and the Interim State Disaster Management Plan (SDMP) 2012 operationalises the Strategic Policy Framework and sets out the State's approach to disaster management across the four phases of prevention, preparedness, response and recovery. Recovery arrangements and processes are outlined in the Interim SDMP 2012, but there is no specific State Recovery Plan. Under the previous Queensland government a State Community Recovery Plan was released in 2008 and a draft overarching State Recovery Plan was developed in 2011. However, both of these plans have been shelved since the change in state government at the end of 2011.

Another key feature of disaster management in Queensland is the creation of specialised temporary agencies and portfolios to guide post-disaster recovery and reconstruction. For instance, the Queensland Reconstruction Authority (QRA) was established under the Queensland Reconstruction Act 2011 in early 2011 following the extensive flooding that affected Queensland between November 2010 and April 2011. In addition, in February 2013 the Minister for Local Government was given an expanded portfolio to deliver on the recovery from the 2013 floods. The newly formed Department of Local Government, Community Recovery and Resilience is now responsible for community recovery and resilience and for the delivery of a resilience programme to reduce the impact of natural disasters in the future (Queensland Government, 2013). This expanded portfolio recognises the lead role that local government and local communities have to play in building resilience. In addition to the traditional role for Local Government, this Department is also now responsible for enabling government to work together to build community resilience.

3. Research Approach and Methodology

This study takes an action research approach (Midgley, 2008) comprising a collaborative planning initiative (Healey, 2006 and 2008) established in the aftermath of cyclone Yasi between key stakeholders from the Cardwell community and university researchers. Located in Far North Queensland, Australia, the urban area of Cardwell covers an area of 4.9km^2 and has a population of approximately 1,176 persons (Australian Bureau of Statistics, 2011). The township is located more than 1,500km from the State capital Brisbane and halfway between two regional centres, Townsville and Cairns. The area is known to be vulnerable to extreme weather events such as cyclones which often cause widespread floods and wind destruction (Australian Bureau of Meteorology, 2011). In particular, the economic impact associated with

cyclone Yasi in terms of damage costs was estimated to be three times higher than previous category four cyclone Larry's half billion dollars (O'Brien and Howells, 2011; Australian Bureau of Meteorology, 2011).

Qualitative mixed-methods approaches were employed to undertake data collection between March 2011 and February 2013. These included workshops involving community stakeholders, semi-structured interviews (Hay, 2005), participant observation (Hammersley and Atkinson, 1983; Tedlock, 1991) and focus group (Morgan, 1998). In total, seven scenario planning (Schoemaker, 1993) workshops involving community members were held between March 2011 and November 2012. With an average participation of 15 people, workshops involved the collaborative development of an action plan to strengthen Cardwell's capacity in dealing with recurrent natural hazards. Notes taken at each workshop were compiled through participant observation reports. Additionally, two rounds totalling thirty-six semi-structured interviews were conducted. The first round involving eighteen interviews occurred between August and November 2011; the second round occurred in January and February 2013. A focus group meeting was held to validate information collected through the second round of interviews. Empirical data was analysed through in-depth content analysis (Bardin, 1977) followed by coding using NVivo software. Key findings presented here are based on empirical data collected with the described pool of stakeholders in the post-Yasi recovery phase; thereby generalisations to the broader Cardwell community and other temporal scales are not applicable.

Key Empirical Findings

Recovering from disasters involves multiple layers of efforts that permeate the affected community's physical, social and economic contexts. Table 1 and 2 present key recovery issues that emerged from the narratives collated through the interviews and focus group with members of the Cardwell community. While issues are interdependent, for the purpose of this paper, we have grouped them under two broader categories: social and economic recovery.

Social recovery

Key issues related to social recovery are presented in Table 1. Issues were grouped under two domains: the community context, and the institutional and political context. Issues raised in the community context included the re-establishment of social networks and the various types of support provided to the community. In particular, it was outlined the need to create opportunities for people to celebrate and have social interaction. These opportunities were thought to help people to overcome their difficulties associated with the impact created by Yasi. Additionally, it was highlighted the importance of providing longer-term psychological support to the community as the effects of the disaster continue to emerge as time goes by. It was also stressed that there needs to be better coordination in terms of how support is provided to the community to clarify the roles and types of support provided by the different agencies and organisations that approach the communities following a disaster. Usually, community members are already under stress to carry on with their individual and familial responsibilities and recovery to take on additional responsibilities such as coordinating support for the broader community. Yasi caused significant economic impact on the region and appeared to have exacerbated a preceding economic stagnation. In this case, it was reiterated the need to improve the provision of financial support beyond the cash payouts established by existing relief arrangements.

Table 1. Key issues related to social recovery

Key issues			Empirical example
Community context	Re-establishing social networks	Opportunities for celebration and social interaction	It's a thing, I think. You know, you feel like, 'Oh, I'm not mad. I don't want to do that.' So I think it's more the community should be getting out there and sort of – and one of our Lions has started up a morning tea for anyone who wants to turn up, mainly women, and that's working well because they're all starting to come out of the woodwork now. They talk about it, and any problems they have, they natter about those...
	Supporting the affected community	Psychological support	I think we all need someone to listen to – I know about three months afterwards it sort of got to me, and I was – I'd had, you know – you know how you get drained, or whatever you call it, and I have a fella who comes round … We just sat and talked and I ranted and raved at them, and they sort of – you know, and after that I was fine. It's just – I think everyone gets to that stage where they just have to let it out.
		Coordination of support	I'd say in that community side, yeah. In terms of there's so many different organisations that wanted to come in and help. It seems very hard to - and we found it very hard to get information from them too, in terms of sharing anything that we could find as useful to help us understand the issues. So yeah, I'd say the lack of coordination in the real community assistance recovery area is one of the big issues that came out of it all.
		Timing and duration of support	The recovery people, the social side of recovery was, I think they did a good job, they made themselves available. I think probably they needed to stay in the community longer, particularly the specialist people, the councils [sic]. Straight after the cyclone there was the mental health available, people like Lifeline, Salvos, all these people, which is great but they filtered away very quickly when they didn't get a lot of responses. So people say they were full on but two months later, six weeks later, eight months later people just go crash. That contact has got to be maintained somehow, or should be.
		Financial support	Yeah they should come and have - talk to you and find out your - where you're at. Like financially if you're right because it all comes back to money. It doesn't matter what it is. I know mental is a bit, but if you've got no money your mental goes and that's nine out of 10 problems with everybody - it's always money. So they should have look and say is there any way we can minimise things like rates to help people out. Not just come and say you're going to get better. Everything's going to be alright.
Institutional and political context	Improving institutional capacity	Dealing with multiple natural hazards	The recovery, the problem we had this time is that if cyclone Yasi had come without the Brisbane floods, without the Grantham problems, and without some of those other big disasters that happened this year, I think the outcomes up here would have been probably a lot more focussed in the recovery side of it. At the moment we're still riding it a bit. It's still in everyone's minds so it seems to be slow and the recovery of the town seems to be slow. It's happening now.
	Assessing performance of insurance industry		Everybody's kind of got their limit. And you've got – it's not just getting mobile the next and, "Oh my God," and that. It really does hit you later on. It hits you with – the inconvenience side of things hits you. Well, you know, when the hell is this all going to be fixed up kind of hits you. It's the toing and froing with the insurance companies.
	Engaging the community in decisions		I think involving the community more because a lot of these decisions were made and they would walk along and want answers then and were having a workshop then and I'd think to myself, well you need to involve the community as much as you possibly can with these sort of recoveries because ultimately we live here, or you live in your community and you know what your community needs and quite often you have the people sitting down in Brisbane making the decisions that really don't have any idea.

Another dimension of the social recovery highlighted by the narratives involved issues related to the institutional and political context (see Table 1). These included the improvement of institutional capacity to deal with disasters, the performance of insurance companies and community engagement in decision-making involving recovery activities. Specifically, it was highlighted the limitations related to formal institutions to deal with the multiple hazards that affected the State of Queensland at that time. Emergency

management personal were stretched to the limit given the severity and extent of the hazards and immediate assistance to the affected community was presented with several shortfalls, including insufficient manpower and financial resources to speed up the recovery process. Additionally, while there were mixed experiences with insurance companies, the poor rebuilding standards provided by some companies were specially reiterated to be an additional stressor to the recovery process. Another key issue raised by the narratives related to the poor engagement of the community in decision-making involving reconstruction works. This issue was particularly heated in the rebuilding of the major highway that traverses the town as well as the location of cyclone shelters throughout the region.

Economic Recovery

Key issues related to economic recovery are presented in Table 2. Issues were grouped under four domains: the individual context, the local government context, the businesses context, and the institutional and political context. Three main areas were identified in the individual context that require attention in recovery efforts, including improving the assistance provided to individuals in terms of both donated goods and financial support, the generation of employment opportunities and securing affordable housing. In particular, it was highlighted the difficulties individuals had in accessing relief funds in the aftermath of the disaster based on the established rules that determine both fund allocation and eligibility. It was also stressed the lack of opportunities for the creation of jobs for the local workforce which, in some cases, were hindered by existing regulations. Additionally, the limited availability of affordable housing continues to affect the community through impeding the return of formal residents as well as creating additional burden to residents that remained in the community.

With regards to the local government context, it was emphasised the need to improve its capacity to deal with natural hazards, particularly in financial terms given the low rate revenue and recurrent exposure of the region to extreme weather events. From the business context, there were concerns related to the ability to secure the economic viability of small and large local business as well as economic growth broadly. Confirming trends cited in the literature (Kates et al, 2006; Lang, 2006, Olshansky et al, 2006), Yasi further compounded the pre-disaster economic stagnation prompting calls within the business community for more opportunities towards securing existing and new investments within the region.

Last, with relation to current institutional arrangements regulating the provision of reconstruction funds, it was emphasised the need for their review to enable the provision of improved infrastructure as well as the inclusion of environmental rehabilitation, particularly in areas with high quality environmental assets such as the Cassowary Coast which is nestled between two World Heritage Areas, the Wet Tropics and the Greater Barrier Reef.

4. Discussion

The first key point to emerge from the empirical findings is related to how planning processes, particularly strategic planning needs to be improved to facilitate social recovery of places following disasters. As highlighted by Olshansky & Chang (2009), one of the key challenges for planning processes involved in disaster recovery is the need to reach a balance between undertaking reconstruction works to keep communities' lifeline whilst improving their ability to deal with future disasters and achieving better recovery in future disaster events. Additionally, based on the emergent concept of betterment, recovery efforts need to focus not only on physical structures but also include improvements in urban planning and social equity as well as economic opportunities that enhance and strengthen existing industries (Kates et al, 2006). These considerations are also valid for the Cyclone Yasi recovery context, which tended to focus mostly on the physical side with less attention to social issues. Hence, there is greater role to be played by planning processes engaged with community planning. In particular, community planning in areas vulnerable to natural hazards should give specific attention to creating strategies that will facilitate both the re-establishment of social networks as well as community support prior and post disasters. These could include strategies that target the general well-being of communities as well as community strength and social inclusion such as facilitating the creation of partnerships amongst community sectors and groups through to improving skills development and promoting volunteerism.

Table 2. Key issues related to economic recovery

Key issues			Empirical example
Individual context	Improving assistance to individuals	Best type of donations	I think they have come up with some better means of managing that side. But they often say, the best way to sort of provide assistance is for people to provide monetary donations to the agencies so that they can sort of provide funds to people in need, as opposed to donated goods and vouchers, which might be for stores that aren't located in the local region, and therefore don't really sort of provide a help when they need it the most.
		Access to available funds	There's nothing - he said well there's nothing you can get unless you want to tell lies, which a lot of people did mate. Unbelievable. That's the other thing - next time there's a cyclone don't tell the truth. There's three things I'd advise people - don't insure, don't tell *** and don't tell the truth and just get what you can. I tell you what mate a lot of people that's what they've done
	Generating local employment opportunities		And the farmers were doing what they thought was the right thing by keeping their existing staff. And it turned out that it wasn't. They never got compensated for it. It had to be new staff that you employed.
	Securing affordable housing		One of the downsides I think of Yasi or more so probably the workers in the areas, they have pushed the rent up. So a lot of the people that were here a couple of years ago aren't here now. I think that's been something that has impacted on the town because a lot of people who have left the town as a result, not just for the cyclone event, but also the limited accommodation.
Local government context	Improving capacity to deal with future and recurrent hazards		Otherwise we're going to end up with a debt for years and years to come because we'll have another storm surge, we'll lose all the sand they put on the beach, we'll have to replace it. We're going to have all the beautiful boardwalks, all the fancy things there will all be ruined again; we'll have to replace them. I think you can't make a silk purse out of a sow's ear; you can't make this Noosa or Sunshine Coast or Surfer's Paradise, this is Cardwell.
	Improving access and availability of relief funds		Those criteria are set by the Federal Government, so you know there's always a challenge there. Probably more in terms of the community recovery side. It took a lot of time for anything to come out of the system in relation to that. We're very good on the infrastructure side, and the scheme provides a lot of assistance in that regard. But it's not so good on things like the environmental recovery and the community recovery side of it.
Businesses context	Securing viability of local businesses		Small businesses are suffering here - well, even the big businesses like this. I mean, they're all suffering.
	Generating business opportunities		But what is needed right now is something that will bring people into the town. At the moment when you look at the tourism infrastructure that's there at the moment nearly two years on it's non-existent. You've got to say it's non-existent.
	Reverting previous economic condition		Economically it's all struggling I think, really struggling since the cyclone and I don't know whether it will survive, I really don't. But it's always been like this, for 100 and nearly 50 years it's been the same so it's not going to change now.
	Securing investments in the affected area		The test for Cardwell in the next couple of years is what happens when all the tradies leave. That'll be the test because at the moment I can tell you the tradies are carrying this town. Those people, of course, if it wasn't for them I reckon my business would be for sale. It's absolutely scary how many people miss – of the original residents, how many are missing, are gone...What happens when they go I don't know. It's going to be the test.
Institutional and political context	Revising funding rules for recovery	Provisions for the betterment of infrastructure	Well certainly there's a lot of debate going on at the moment, and it's still not resolved. I mean, there's nice political statements being made. But there's been no concrete proposals anyone's seen at this point in time about the issue around resilience for infrastructure for future events. So the rules as they stood were that you had to sort of rebuild in a similar manner…
		Inclusion of environmental rehabilitation	The part that's probably a deficiency would be around the natural environment, that's not covered by NDRRA and there were belatedly some programs through the State Government around natural resource recovery and the includes whether it's just cleaning up the beach or cleaning up the drains.

Furthermore, the institutional and political context under which planning decisions are made can greatly influence recovery outcomes. For example, given the unbalanced focus on the physical recovery side post Yasi, there is clear need to improve collaboration and dialogue between the multiple agencies that are responsible for disaster recovery. In particular, a cultural shift needs to occur to ensure planning processes are better integrated with other agencies involved with community and social affairs as well as emergency management. For example, as local and state governments have the primary responsibility for emergency management in Australia, it is imperative that planning process become better integrated with those agencies to ensure the institutional capacity, particularly of local governments, is enhanced to deal with future and recurrent natural hazards. The same is applied to linking planning decisions with government agencies that are primarily responsible for the human-social function of recovery such as the Queensland Department of Communities, Child Safety and Disability Services that was responsible for this end of the recovery process following Cyclone Yasi and the 2011 Queensland floods.

This brings us to the second key point that emerged from empirical findings which is the need for improving the implementation of existing recovery arrangements. On paper, the recovery phase seems to be approached in a fairly comprehensive way in Queensland as described next. For example, the Queensland's disaster management system follows an approach clearly in line with the 'all agencies' approach which recognises the collective responsibility of all sectors of society and not only the emergency management sector in managing disasters. Additionally, the Queensland Recovery Guidelines outline in detail key recovery principles, which recognise the importance of understanding the local context, of using community led-approaches and effective coordination, as well as the key steps in the four functions of recovery and in the three short, medium and long-term stages of recovery (The State of Queensland, 2011). The recovery guidelines and the Interim SDMP also give a clear structure and organisation to the recovery phase, recognise that effective recovery goes beyond economic and physical recovery and must also include environment and human-social aspects, and recognise the different temporal aspects of recovery. Nevertheless, there remain some key omissions from these plans and the findings from the Cardwell case study highlight key implementation issues of these arrangements.

First, there is no mention of climate change and its implications for disaster management broadly and disaster recovery more specifically in the latest interim SDMP and the Recovery Guidelines. Yet, the recovery phase is vital to breaking the disaster cycle, building resilience and adapting to climate change. The recognition of changing climatic risks and risk profiles of regions also puts greater emphasis on the notion of betterment – that is the need to rebuild a community/region and its social and physical infrastructures better and more resilient to climate risks and disasters. Additionally, this notion of betterment is not mentioned in the Interim SDMP and only mentioned once under environmental recovery in the Queensland Recovery Guidelines, although it is part of the NDRRA funding guidelines even though it can only be applied to essential public assets. The lack of focus on the notion of betterment is a concern as it suggests that there is no emphasis on rebuilding social and physical infrastructure in a better and more resilient way. Further, there is a need to take a more proactive and long-term approach to ensure successful and effective disaster recovery, as the recovery phase poses "unique challenges for practitioners and researchers alike, as time compresses, stakes increase, additional resources flow, and public interest is heightened (Blanco et al, 2009: 200). As stated by Blanco et al (2009: 198) the recovery phase poses a very clear challenge to local governments: "how can local governments effectively manage post-disaster recovery and reconstruction of social systems – meeting the time-sensitive needs of housing, economic and social recovery, while also maximising the opportunity for community betterment?". Policy processes within emergency management need to address the future rather than respond well to the past (Handmer & Dovers, 2008). To avoid communities becoming "victims to their own circumstances" there needs to be a clearly defined strategy for long-term recovery before a disaster occurs (Meyer et al, 2010).

Yet, this focus on the future and on proactive planning for long-term recovery is not sufficiently emphasised in Queensland's disaster recovery arrangements. Although medium and long-term recovery are mentioned in the Interim SMDP and the Recovery Guidelines they are described in less detail than the immediate short-term phase, suggesting that the actions required in these phases are still less well understood. For example, the Cardwell case study reveals the need for psychological support to be provided on a long-term basis and not just for the initial few months following a disaster. In addition, successful long-term recovery may well require planning for post-disaster recovery in the pre-disaster

phase (cf. Meyer et al, 2010), i.e. before a disaster occurs to ensure that communities, local governments and even State government agencies are sufficiently well prepared to negotiate the complexities and time compression challenges of recovery following a disaster. Moreover, to reinforce the previous point, there needs to be a long-term forward-looking overarching strategy for recovery efforts. Although the establishment of the QRA has been positive and enabled comprehensive reconstruction across the state, it is only a temporary measure (the reconstruction and recovery plan guiding the activities of the QRA is only for the phase 2011-2013) that focuses on the short and medium term aspects of recovery and that has focused primarily on physical reconstruction and infrastructure aspects, and less on human-social aspects, as evidenced by some of the key issues highlighted by the Cardwell community. Such a long-term recovery strategy would have to ensure not only appropriate coordination between other government agencies but also greater engagement and integration of these agencies in disaster issues from the prevention phase right through to the recovery phase. For example, the need to integrate urban planning and emergency management has long been recognised and called for (Boullé et al, 1997; Pearce, 2003; Siembieda et al, 2004; Department of Climate Change, 2009; Norman, 2009; Yates and Bergin, 2009; Buxton et al, 2011) and yet has not been sufficiently enshrined within appropriate legislation and policies. In particular, urban planning needs to play a greater and more proactive role in the recovery phase to ensure more effective recovery under time compression (Siembieda et al, 2004; Blanco et al, 2009; Olshansky, 2012). Finally, community engagement in recovery needs to be improved and local and state governments need a better understanding of what communities need and to enable greater community involvement in decision-making and recovery efforts. Despite the resilience and shared responsibility approach adopted by the emergency management sector and the increasing emphasis on the need for communities to take greater responsibility, there is still a reluctance among emergency managers to promote community leadership during and after disasters and to give community groups response and recovery powers/responsibilities. Community engagement is still undertaken as a top-down consultation exercise rather than in a manner promoting co-construction of knowledge to ensure that community views are fully integrated into disaster management and recovery decisions.

5. Conclusion

Climate change is expected to exacerbate the occurrence of extreme weather events leading to disasters, which can cause widespread damage and costs to communities from disrupting physical infrastructure through social and economic systems and people's livelihoods. It is being increasingly recognised that planning mechanisms can play a critical role in both guiding the recovery process and minimising the long-term effects of disasters. Drawing on the experience of the recovery process following cyclone Yasi, this paper discussed some of key issues that require further consideration by planning processes involved in recovery activities. In particular, the paper extracts the following key insights that can inform both future recovery efforts as well as climate change adaptation.

Specifically, the implementation of the betterment concept needs to extend beyond its physical dimension, particularly infrastructure and building structures, to include elements of social and environmental recovery. Additionally, at present, the current approach guiding betterment strategies is severely constraining the actual 'on-the-ground' improvement of the physical, economic, social and environmental components of the recovery process following natural hazards. The notion/ concept of betterment is at the core of the resilience approach that needs to be considered in recovery efforts and it needs to create opportunities that not only allow the community to bounce back to its pre-disaster state but also to a better and more adapted state. The conceptualisation of this better/improved/more adapted state needs to emerge from a greater community engagement on decision-making, and perhaps genuine bottom-up approaches, involving recovery needs so the community, as highlighted by Handmer & Dovers (2008), can recover well into the future rather than just respond well to the past.

In this context, we argue that there is a greater role for social/ community planning to play in the recovery phase that will better prepare the community for future extreme weather events. Moreover, the example provided by the recovery following cyclone Yasi clearly exposes the need for better vertical and horizontal coordination amongst the agencies responsible for providing the multiple dimensions of recovery, including the human-social as well as physical and biophysical ends. Last, to have better/improved/more adapted communities, planning processes also need to incorporate post-disaster rebuilding and development considerations into pre-disaster strategic land use and environmental planning.

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