

Rising to the challenge of post-disaster buybacks and rebuilding

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After a disaster, there are significant opportunities to improve resilience by building back in ways that better adapts to hazard risk.

Using best adaptive practice can enhance resilience, however, hazard mitigation techniques can also perpetuate a community's vulnerability. This can be improved through pre-disaster planning, simplified government processes and understanding that climate change is making resilience harder to achieve.

In a webinar hosted by Natural Hazards Research Australia, Professor Gavin Smith of North Carolina State University presented the challenges, insights and lessons from his hands-on experience and research into hazard mitigation in the United States and New Zealand. As a leading expert, Professor Smith unpacked the main issues and challenges related to house buyouts, rebuilds and elevations.

'Building back houses to their previous outdated standards perpetuates vulnerability,' Professor Smith said.

Natural Hazards Research Australia CEO, Andrew Gissing, noted that while measures to reduce damage such as retrofitting, house raising and buyouts were not new, the scale and frequency of their adoption was increasing both in Australia and internationally.

'In a warming climate, the pressure to adopt such measures is likely to increase as extreme weather events worsen, placing greater pressures on communities. We have an opportunity to evaluate the implementation of resilience programs here and overseas to best apply investments to Australian community needs,' he said.

Buyouts, buybacks and elevations

Buybacks or voluntary purchase schemes are government-funded programs that purchase homes in areas that are or could be affected by disasters. Programs usually include rebuilding homes in a safer area. In the United States, buyout programs are voluntary and provide homeowners

with the pre-disaster market value for their home, often prioritising low-income residents and vulnerable communities. Once a home is bought back, the land must be maintained as public open land (e.g. parks).

Professor Smith said, 'It's one of the most effective risk reduction techniques. In the US, over 65,000 homes have been acquired since the 1990s.'

House-raising programs or elevations are also used to lift the habitable floor space of a dwelling to a level above frequent flooding and in-line with local floodplain management standards. An example of these mitigation techniques was used in the Queensland Reconstruction Authority Resilient Homes Fund, which encouraged homeowners to either retrofit, raise their home or enter into voluntary buyback. This program is being rolled out in towns including Ipswich in Queensland where, to date, more than 60 homeowners accepted offers for government to buy back their property after the 2022 floods.

Challenges

Professor Smith highlighted that the buyout funding programs in the United States are highly complex, bureaucratic and rigid and are often being micromanaged by federal or state governments without much local government involvement. Communities have difficulty navigating the programs, where success is impeded by a lack of government flexibility.

'One of the biggest challenges we face is that local state and federal capacity and commitment can be lacking,' he said.

It is also common practice that buyout funding is initiated after a disaster. This can be a lengthy and stressful process for community members who are still recovering, which hampers public participation. Effective pre-planning investment



Buybacks and elevations can be used to mitigate the effects of floods in hazard-prone areas.

Image: Victoria State Emergency Service

could ensure that community members can relocate either before or very shortly after a disaster.

‘We are still not adequately planning for these issues, nor are we building the capacity needed to assist local government to engage in these complex programs,’ Professor Smith said.

He also touched on ‘place attachment’ experienced by communities when relocating or buying out homes when people don’t want to leave. There are challenges in sensitively navigating this within government bureaucracies.

‘Moving from your community to a new location is very unsettling. People often come back to their original communities at the anniversary of the storm to reconnect, which tells you something about the social bonds that are torn apart by buyouts. We don’t spend enough time linking land-use planning to public health and psychological wellbeing of individuals,’ he said.

Professor Smith discussed other challenges with buyouts, including use of land after buyouts, rebuilding affordability, uneven levels of participation, length of time to implement, lack of global lesson-sharing and loss of local tax base. To improve the thoughtful use of open spaces left behind once homes are bought, Professor Smith co-authored the Open Space Management Guide¹ for better planning.

Learning from case studies

Professor Smith outlined the results of case studies that compared buyout techniques used in the United States with buyback methods in New Zealand and presented several lessons that might be applied to other contexts such as in Australia.

Broader goals and close community connections

A case study in Charlotte/Mecklenburg, North Carolina, illustrated the importance of broader community goals within buyout programs that extend beyond relocation.

‘Given the prescriptive nature of federal programs, this community developed its own buyout program. This is really important because it shows that buyouts are not only a recreational opportunity but are linked to broader activities and higher goals like water quality, economic development and future floodplain mapping,’ he said.

Another case study in Princeville, North Carolina, in the wake of Hurricane Matthew in 2016, saw community members adopting alternative ways to maintain their pre-disaster community bonds once their houses were moved uphill. Professor Smith’s team hosted a community design workshop that brought together land-use planners, engineers, architects, town officials,

designers, students and residents to work with local, state and federal officials to develop options for new resilient homes, affordable housing and new community structures.

‘Working closely and directly with communities to rebuild is essential. Community members are often considering how to maintain their community,’ Prof Smith said.

Informed pre-disaster planning

Professor Smith reiterated the importance of improved pre-disaster planning, including open space management through good land-use planning and design, and incorporating buyout projects within local hazard mitigation plans.

‘We throw a lot of money at disasters after the fact, but we invest very little for pre-event planning in post-disaster recovery or pre-event planning for governance. How does good governance get us to better engage with governmental actors, the private sector and others? Good planning should be able to build networks and coalitions to achieve the aim of greater resilience,’ he said.

A case study of Kinston, North Carolina, highlighted the value of pre-disaster planning when the community was struck with 2 devastating storms in close succession; Hurricane Fran in 1996 and Hurricane Floyd in 1999.

‘The Kinston community viewed multiple disasters as a window of opportunity to change the spatial structure of their town. Pre-event planning really makes a difference in speeding up these bureaucratic programs,’ he said.

Before Hurricane Fran in 1996, Kinston had dilapidated housing stock, lacked affordable housing and was exposed to extreme flood risk. The application of pre- and post-disaster planning tools allowed for temporary prohibition of new construction on floodplains, no rebuilding of substantially damaged structures on floodplains, increased elevation standards and development of floodplain conservation easements. By the time Hurricane Floyd hit Kinston in 1999 the community had comprehensive buyout applications ready for rapid implementation.

‘Kinston developed application forms for 600 homes in case another disaster struck, so when Hurricane Floyd hit in 1999, they were ready with applications, which were approved within 2 weeks after the storm,’ he said.

Pre-event planning was found to be stronger in case studies from New Zealand. Examples include the ‘red-zoning’ of properties in Christchurch and the establishment of a national agency to assist with regeneration plans and open space management.

Adapting for climate change

A case study in Mississippi after Hurricane Katrina in 2005 reiterated the need to use building codes and standards that incorporate climate projections for future catastrophic disasters, rather than rebuilding using existing standards. Working with the Mississippi community, Professor Smith used future flood maps to help residents adopt stringent and relevant standards within their rebuilds.

‘One of the main questions we need to be asking ourselves is: what are the appropriate structural and non-structural design standards in an era of climate change? This is the big unanswered question. Should we be building in areas where you have to elevate your home 30 feet in the air?’ he said.

Protective action incentives

Professor Smith emphasised the importance of incentivising protective action, including the role of insurance and private sector investment to encourage communities to identify and reduce their risk.

‘Historically, our national flood insurance rates haven’t truly reflected flood risk. The idea was to incentivise people to buy flood insurance, but instead, it sent the signal that middle- and upper-income people can access flood insurance that is inexpensive, thereby incentivising development in the floodplain.

‘Now, the US is moving towards more actuarially sound rates. But we have thousands of homes that aren’t tied to new codes and standards or have flood insurance at lower rates. So, it’s going to take some time to move the meter to better reflect risk.

‘We also need to develop better incentives and do a better job of educating people about risk and the implications of not acting, while changing the powerful disincentives such as post-disaster aid. We’ve got to do a better job of informing communities about the risk and giving them the information and tools to take action,’ he said.

Professor Smith’s 3 pieces of advice provide a pathway for Australia to improve buyback and retrofitting programs:

1. Do a good job of pre-event planning by investing the time to build community relationships, engender trust and think through the buyout process as a continuum; think about what you do with the open space and how you resettle thoughtfully.
2. Think about the capacity of national entities to build capacity for governments to undertake these issues.
3. Think about how buyouts and home elevation should be nested within an overall strategy that considers climate change.

‘Take communities forward while considering not only the risks of tomorrow, but also the future,’ he said.

The webinar is available at www.naturalhazards.com.au/news-and-events/events/rising-challenge-learning-natural-hazards-build-resilient-communities.

Endnote

1. Smith G, Fox A, Klondike T, Black A, Henkel C, Vaughn B, Biswas C, Bhattarai S & Gyawali S 2023, *Open Space Management Guide Building Community Capacity to Program FEMA-Funded Housing Buyout Land*.