Healthy Waterways

ONE CLEAR VISION

HEALTHY WATERWAYS **FOR A HEALTHY ECONOMY**

Flood of ideas

Andrew O'Neill, Exec. Manager – Water by Design
andrew.oneill@healthywateryways.org

waterbydesign

Bring us a monsoon

Let it rain

Summer rainfalls in Wivenhoe, Somerset and North Pine Dam catchments

DECEMBER 1991 - MARCH 1992
922.8mm registered at Kilcoy

DECEMBER 1993 - MARCH 1994
414.7mm registered at Esk

DECEMBER 1994 - MARCH 1995
384.2mm registered at Kilcoy

DECEMBER 1995 - MARCH 1996
572.4mm registered at Blackbutt

DECEMBER 1998 - MARCH 1999
838.7mm registered at Esk

DECEMBER 1999 - MARCH 2001
426.2mm registered at Esk

DECEMBER 2003 - MARCH 2004
571.7mm registered at Esk

DECEMBER 2005 - MARCH 2006
392.3mm registered at Kilcoy

Near-tropical storms needed to fill storages

Amanda Gearing

CYCLONES in the Gulf of Carpentaria that have dropped half a metre of rain in tropical Queensland in the past week may have filled dams in the area to overflowing.

But similar amounts of rain would be needed to break the drought gripping southeast Queensland and replenish dwindling water supplies.

The combined storage volume of the region's three main dams is down to 22.17 per cent, well below the previous record low of 44.7 per cent set in November 1995.

SEQWater operations manager for Wivenhoe, Somerset and North Pine dams Rob Drury said a low or a major depression would be needed to cover the whole catchment area of the dams.

Wivenhoe would need 300mm-350mm of rain falling at 120mm a day over three days to fill, he said.

Wivenhoe has the capacity to store 1,165,000 megalitres of water as well as an additional capacity of 1,450,000Ml to mitigate flooding. Brisbane's second largest dam, Somerset Dam, upstream of Wivenhoe, would need 350mm-400mm of intense rain to fill because it has a smaller catchment area, Mr Drury said.

North Pine Dam, which has an even smaller catchment area would need 600mm-650mm of intense rain to fill.

"You do need large, uncommon events to fill large dams. You don't fill them every year," Mr Drury said. "There have been only four main rainfall events in the past 15-16 years. It has been seven years since we had a major rainfall event that has given us a refill of 50 per cent of the dam."

The only two rainfall periods that generated major inflows that filled the dams since 1990 were 922.8mm registered at Kilcoy in the four months to March 1992 and 838.7mm registered at Esk in the four months to March 1999.

"The dam levels were dropping 15-18 per cent a year (before water restrictions began) but last year it was only 10 per cent," Mr Drury said.


Wivenhoe at 191% in Jan 2011

A flood of ideas

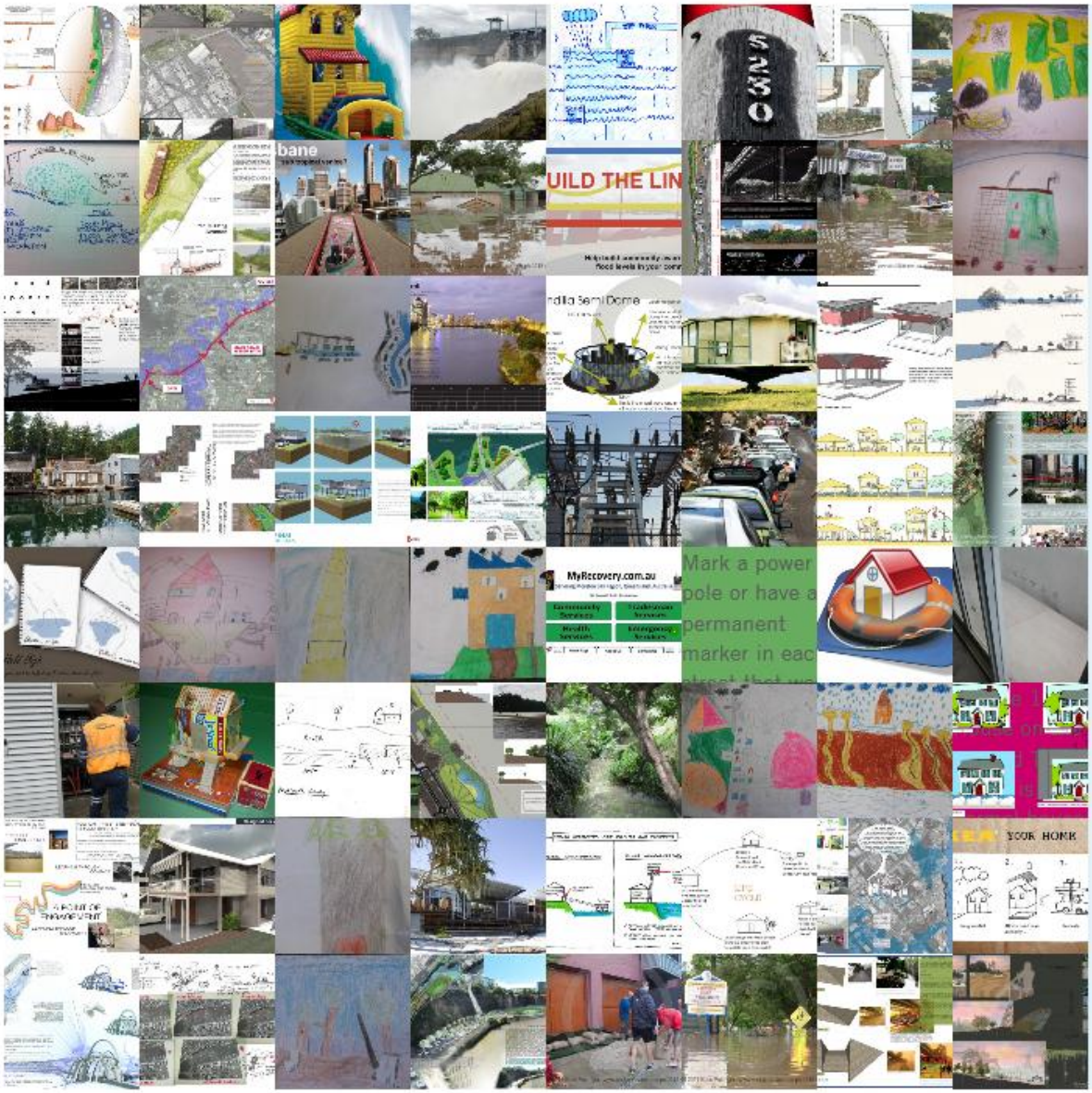
- Directly following the January 2011 floods there was an outpouring of shock
- Strong desire from the community to contribute
- everyone had an idea!
- A small group of creative people got together (instinctively / proactively)
- It is through this lens that the concept of the *flood of ideas* was created.

SUBMIT!

FLOOD OF IDEAS IS GATHERING CREATIVE RESPONSES TO THE THREAT OF FLOOD & NATURAL DISASTER IN OUR COMMUNITY.

FLOOD OF IDEAS

Flooding occurred in many areas of Queensland during late December 2010 and early January 2011, with three quarters of the state declared a disaster zone. *FLOOD OF IDEAS* is an initiative of Healthy Waterways and The Edge, State Library of Queensland to gather diverse and creative ideas from the community on how we can better plan for and respond to future floods.



recent ideas

oxley creek suggestion
be the first to comment

flood mitigation dam
one response

permanent flood height marker in every flooded street
be the first to comment

flood covenants for flood mitigation
2 responses

norman creek 2026
2 responses

rubbish machine
be the first to comment

the barrier and pipe to africa
be the first to comment

more..

follow us on twitter

Lismore flood markers: http://t.co/D6Kc0q2v, very similar to the markers suggest by UQ architecture students: http://t.co/fczr6M8R

@floodofideas

signup for updates

name

email

SIGN UP

recent ideas
oxley creek suggestion
be the first to comment
flood mitigation dam
one response
permanent flood height marker in every flooded street
be the first to comment
flood covenants for flood mitigation
2 responses
norman creek 2026
2 responses
rubbish machine
be the first to comment
the barrier and pipe to africa
be the first to comment
more..
follow us on twitter
Lismore flood markers: http://t.co/D6Kc0q2v, very similar to the markers suggest by UQ architecture students: http://t.co/fczr6M8R
@floodofideas
signup for updates
name
email
SIGN UP

ydesign

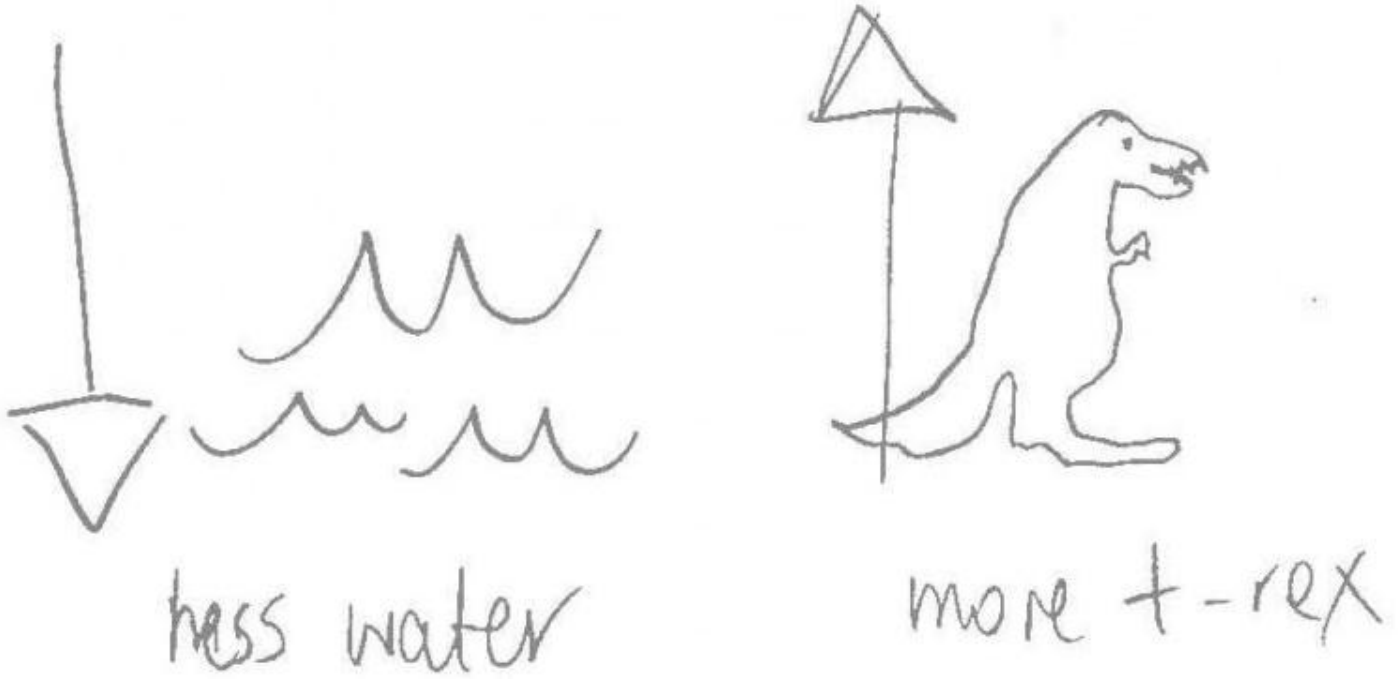
WHAT'S YOUR IDEA FOR FLOOD-PROOFING QUEENSLAND IN THE FUTURE?

DESCRIBE IT IN A FEW WORDS OR
A QUICK SKETCH IN THE SPACE BELOW:

what's your idea?

WHAT'S YOUR IDEA FOR FLOOD-PROOFING QUEENSLAND IN THE FUTURE?

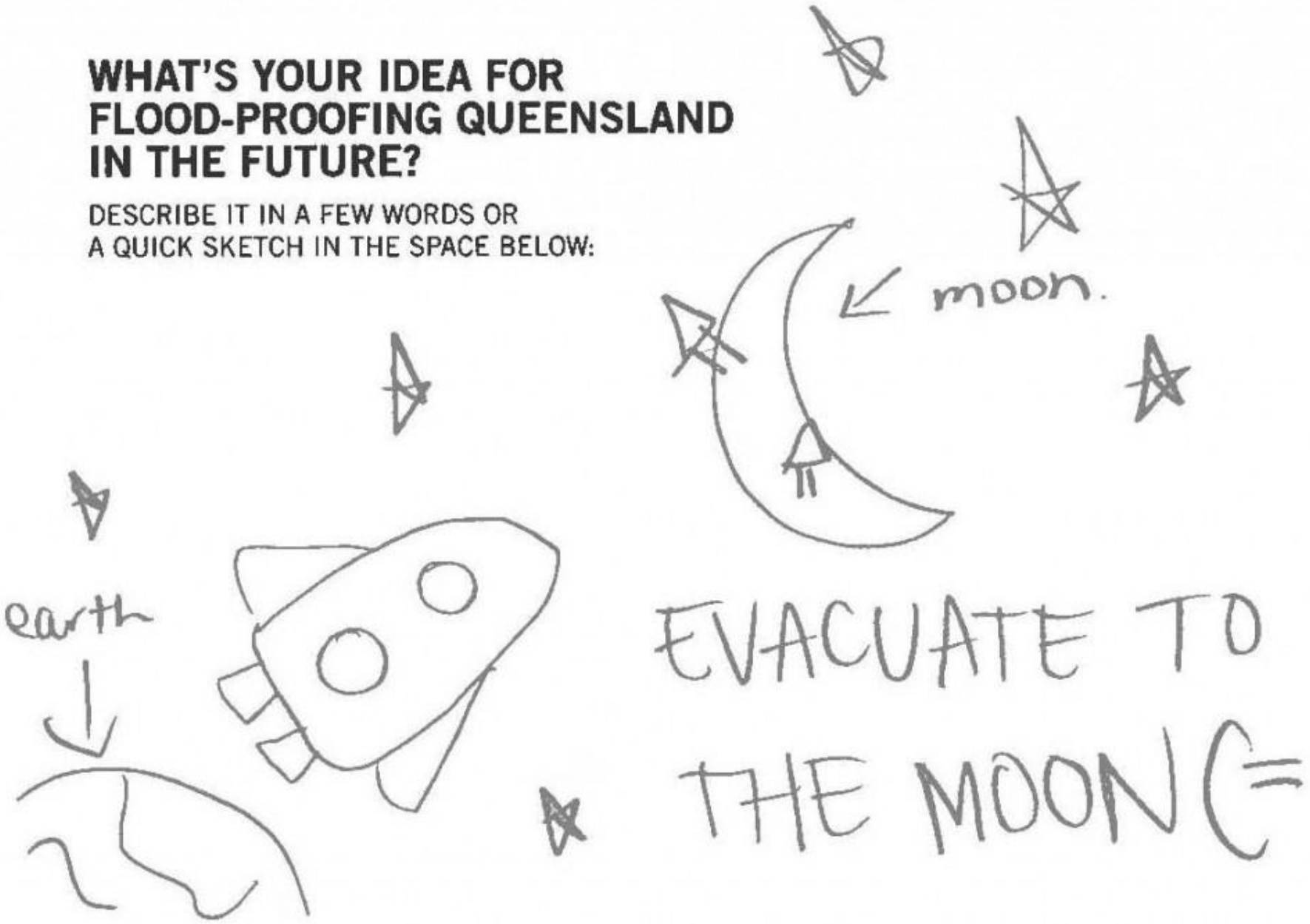
DESCRIBE IT IN A FEW WORDS OR
A QUICK SKETCH IN THE SPACE BELOW:



anonymous submission at *Floodlines*

WHAT'S YOUR IDEA FOR FLOOD-PROOFING QUEENSLAND IN THE FUTURE?

DESCRIBE IT IN A FEW WORDS OR
A QUICK SKETCH IN THE SPACE BELOW:



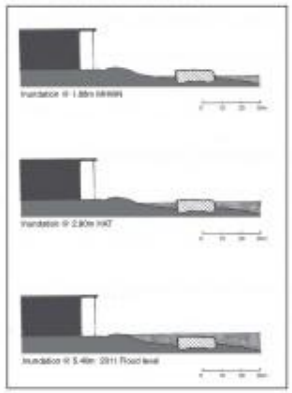
A NEW FLUID LANDSCAPE

Designed as a fluid terrain (1), the site accepts the periodic flooding of the Brisbane River (and stormwater inundation of the low-lying streets) as a normal situation in the life of a river city, and offers a site that evolves and shapes itself to these dynamics. At peak flood level (5.4m in this region), areas such as Kurilpa Point, GOMA (see section below) and State Library riverfront and QPAC riverfront will experience full inundation. Materials and vegetation have been chosen for their specific resilience to this phenomena, and the natural dynamics are crucial to the long-term shaping of the terrain. The interior streets also experience periodic flooding (5-year cycle), and modification of their structure to a Water Sensitive Urban Design (WSUD) format is crucial for dealing with excess stormwater. In doing so, the streets futher expose and educate residents and visitors on the dynamic nature of Brisbane's hydrological cycle.

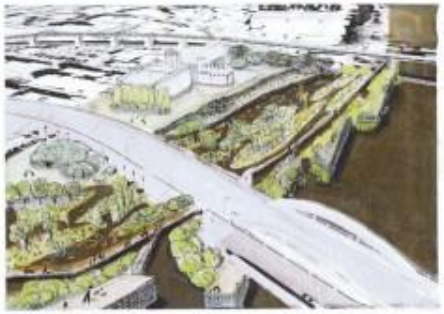
① Impression of design looking over mounded terrain and elevated timber walkway towards GOMA

Impression sketch of gabion wall structures that perforate the river shoreline.

SECTION B-B: G.O.M.A. TO RIVER



Cross-section of proposed new street design for all flood-effected streets in this area (as indicated on Masterplan). Variations on channel width and bike lane provision can be made to suit street width. Hope Street, for instance, would change to a shared traffic zone with limited street parking.



② Impression of design looking south-west across the converted Parmalat site

Tidal surge inundates terrain and scours non-vegetated areas, creating anabranching and forming islands.

Flood inundation flows over gabion walls and scours entire terrain. Significant site alteration occurs.

③ Impression of Grey street WSUD conversion, looking westward. The new street design allows for a more regular flood surge in this low-lying area by incorporating submerged water retention basins under the road and open, vegetated channels that become a street feature, even in dry periods

I. Mathur, A. and De Carlo, D. 2007. 'In Depth: Inscribing the Indian Landscape' Architectural Design, Vol 77, Iss 6, Nov/Dec, pp.70-77

DISTURBANCE EVOLUTION
stuart bull

Outcomes

- A rolling series of community and industry functions and workshops gave much needed face-to-face time to offset the strong on-line presence
- A series of key policy recommendations (including Flood commission of inquiry)
- Lots of media
- Awards including the Australian Institute of Landscape Architects Qld Medal in 2013


www.facebook.com/mxnewspaper

MONDAY MARCH 28, 2011

FREE

mx

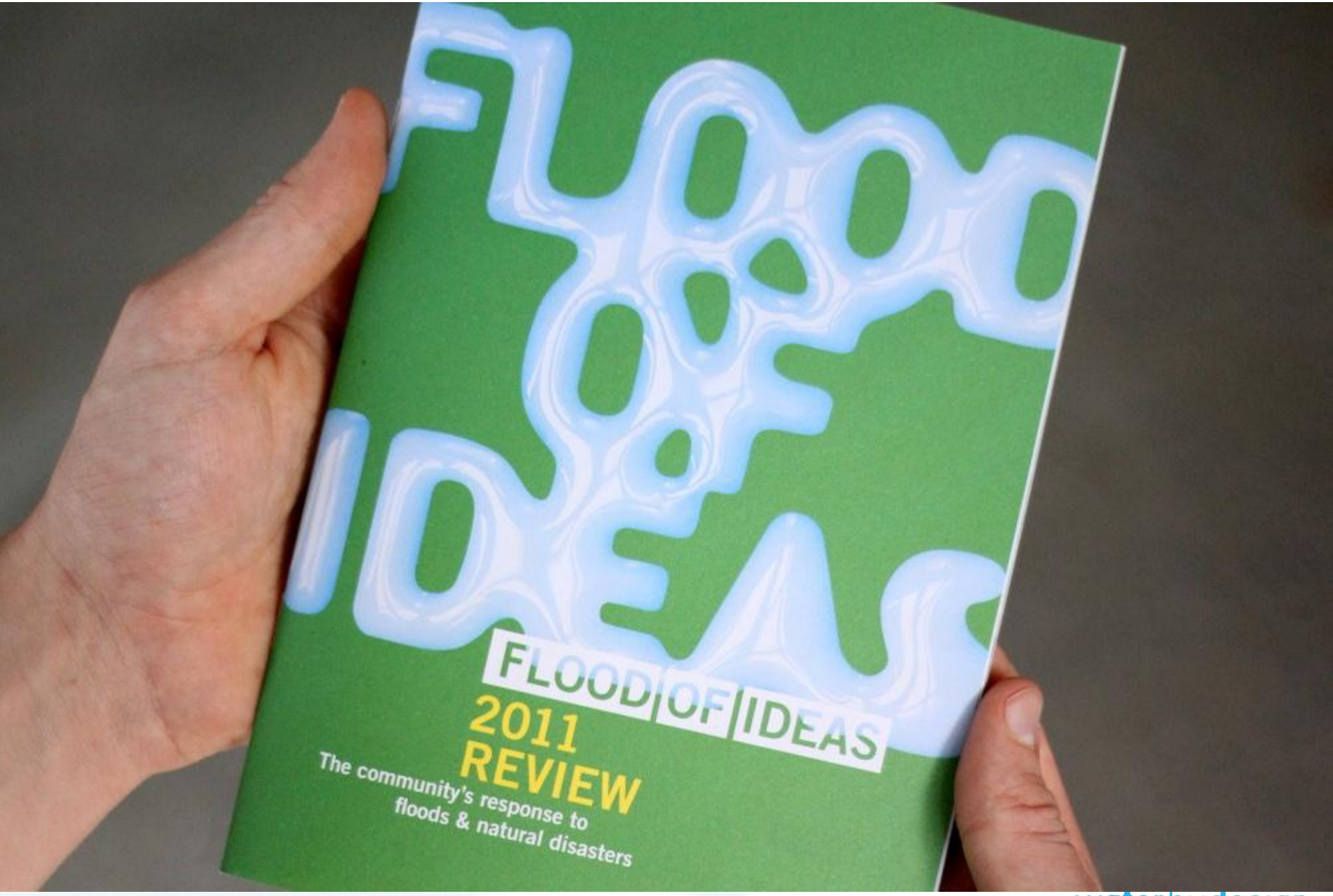
Up to the task

Flood of ideas on how to keep city safe

Cayla Dengate

www.floodofideas.org.au

waterbydesign


FLOOD OF IDEAS
2011
REVIEW
The community's response to
floods & natural disasters

1. Education

Ideas for raising flood knowledge, awareness and education in the community

Ideas submitted in this category encompass a range of formal and informal strategies for educating individuals and the community. The key recommendations identified in this category include:

/ That property owners should be provided with accurate and detailed flood-risk information developed through sophisticated flood modelling

/ That there is a role for incorporating flood awareness and resilience education within the national school curriculum

/ That through greater research and consultation, traditional and local cultural histories should be widely communicated to acknowledge the ongoing presence of peak weather events throughout Queensland's history

/ That there is a place for consistent visual reminders (such as flood level indicators, interpretive artwork and signage) to prevent community complacency and maintain flood awareness


SUNOS

2. Emergency Infrastructure

Public resources incorporating new technology

Ideas submitted in this category promote the use of new technology to enhance existing, and develop new flood-resilient public infrastructure. The key recommendations identified in this category include:

/ That existing and future mobile technology should be developed to consider unrestricted, mass communication during times of crisis

/ That social media and mobile technology can help to promote a more efficient and coordinated community volunteer effort, not only in times of crisis but all year round

/ That new public infrastructure should employ new technology to communicate current weather information and provide renewable energy in crisis situations

/ That the latest data and technology should inform an overhaul process of the design standards for water and sewer systems, power, infrastructure and parks.


WILSON OUTLOOK

3. Long-term Change

Strategies incorporating new planning and modelling ideas

Ideas submitted in this category promote a long-term approach to future flood prevention through modelling, forward planning and legislation. The key recommendations identified in this category include:

/ That governments should implement long-term public investment funds to prepare for ongoing community impact from natural disasters in the future

/ That government should employ the latest technology in predictive flood risk modelling to inform future planning controls

/ That through legislation, critical open space located in waterways and flood plains is preserved or regained and utilised for productive or recreational purposes

4. Nature / City Edge

Rethinking the equilibrium between the natural and built environments

Ideas submitted in this category identify the need to develop a more harmonious relationship between natural environments and systems and future building and development. The key recommendations identified in this category include:

/ That future planning and design should be based on a scientific and cultural understanding and respect for the natural landscape

/ That future land use patterns should be developed with a greater understanding of the role and potential of the flood plain in water retention and filtration

/ That future planning and development should not take place in flood plains and that existing development within flood plains be gradually transitioned to a revegetated, natural condition

/ That future legislation should prevent development and construction of affordable housing projects on cheap flood-prone land

A FLOOD OF IDEAS: PARKS AND INUNDATION

Meaningful and safe integration of flood detention into parkland

Extract from Multiple Use of Public Open Space Discussion Paper

Formal recreation areas/ sports grounds may be inundated but should be designed for effective drainage and quick recovery.

Where waterways flow through parks it is important to undertake risk assessment: How soon will it flood? What velocity and depth will it reach? How long will it be inundated?

Paths exposed to risk of inundation must be trafficable as soon as possible and designed with a suitable fall and drainage to accelerate drainage.

Stormwater detention basins can be attractive parkland features if designed carefully in the landscape.

Playground area and picnic shelter should be inundation free to protect people and structural elements from damage: place them on hills and knolls.

5. Resilient Homes
Redesigning and rebuilding houses

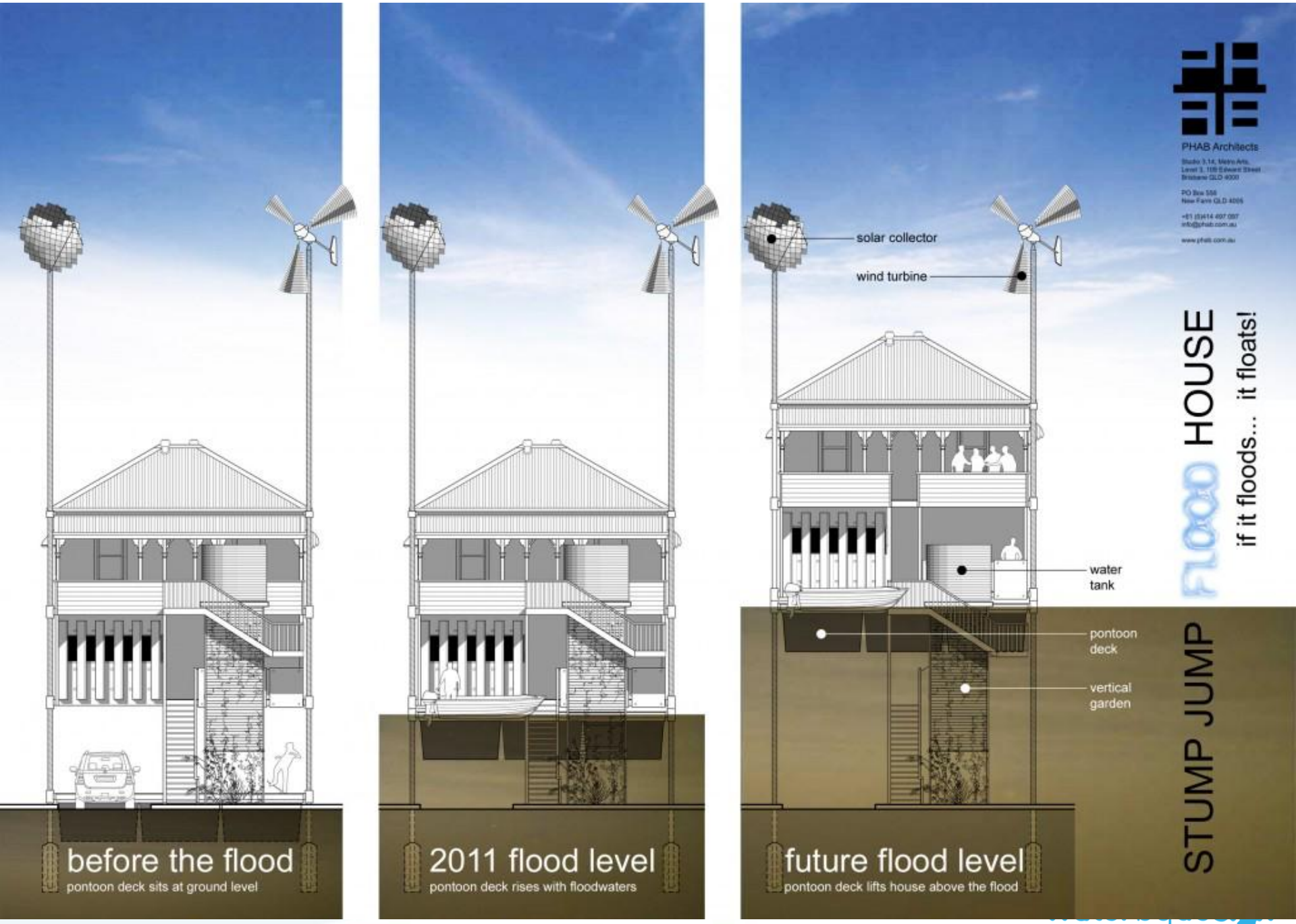
Ideas submitted in this category propose new housing typologies or re-consideration of existing typologies that are more disaster resistant. The key recommendations identified in this category include:

/ That housing in flood-prone areas should be designed in a flexible way, capable of moving and adapting to flood water (either through elevation or flotation)

/ That resilient housing should be designed to incorporate sustainable technology that allows the building to remain self-sufficient in periods of disaster and isolation

/ That flood-resistant materials should be employed in the design of resilient housing

/ That essential services such as electricity and water be elevated within buildings


solar collector
wind turbine
water tank
pontoon deck
vertical garden
before the flood
pontoon deck sits at ground level
2011 flood level
pontoon deck rises with floodwaters
future flood level
pontoon deck lifts house above the flood
PHAB Architects
FLOOD HOUSE
if it floods... it floats!
STUMP JUMP

Four years on… what have we learned?

- Lots of great ideas out there
- Broad, but fall into five main themes
- Floods are easily forgotten(but it will happen again!)
- Many of the ideas have been realised
- There is still much to be done

- What's your idea? www.floodofideas.org.au

Thanks

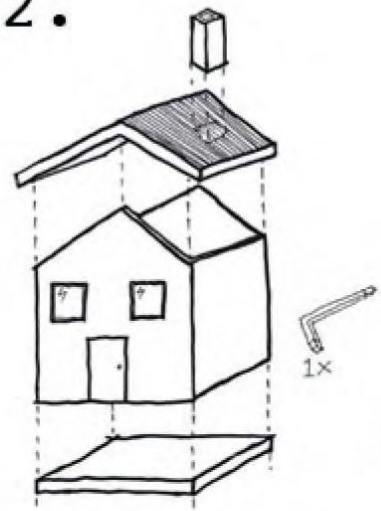
- Alan Hoban (Bligh Tanner)
- Christian Duell (Be Awesome, White Light)
- Damien Thompson (Lat27)
- Peter Skinner (Peter Skinner Architect)
- Jason Grant (Inkahoots)

IKEA YOUR HOME

1.

Heavy rainfall...

2.



All you need is an allen key...

3.

Relocate