

# REPORT

# Community workshop on Nature-based Solutions for flood resilience in the Bremer Catchment

Institute for Climate, Energy and Disaster Solutions (ICEDS)

Ipswich Civic Centre, Thursday 24 August 2023

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## Introduction

**ANU project quick overview:** We are an inter-disciplinary team of researchers partnering with communities to develop the first ever Australian guidelines on Nature-based Solutions for flood mitigation and resilience. We are partnering with communities to:

- Develop a framework and process to evaluate options for reducing flood impacts on communities
- Quantify and value the impact of nature-based solutions on flood mitigation and other cobenefits
- Seek innovative and practical nature-based approaches to flood risk mitigation in the study location
- Recommend novel and effective financial incentives for implementing nature-based solutions
- Provide a foundation that will empower local government decision-making on solutions suitable in the local context
- Identify opportunities to overcome barriers to implementation.

**Workshop objectives**: The workshop aimed to capture local understanding of Nature-based Solutions, share local examples of Nature-based Solutions to floods, and better understand what content would be useful for community groups and stakeholders in the Australian guidelines for Nature-based Solutions to flooding. Participants worked on four questions, following are the outcomes of the workshop for each question (see Appendix)

The **ANU team** comprised Dr Astrid Vachette, political ecologist and research fellow, and Bill McAlister, senior ecologist, at the Institute for Climate, Energy and Disaster Solutions (ICEDS) at the Australian National University. The ANU team was supported by Phil Smith and Vada Hoger from the Ipswich City Council.

## Understanding of Nature-based Solutions

Workshop participants shared their understanding of what Nature-based Solutions to flooding are and entail. Across the different groups, they highlighted that floods are <u>natural</u>, and the environment, which is <u>natural capital</u>, is a solution to flood destruction. Nature-based solutions are <u>conscious planning choices</u> based on natural and constructed flood management options so that the community, ecosystems, economy and social networks become more <u>resilient</u> and can <u>bounce</u> <u>back</u> from flood events. Nature-based Solutions planning needs to reflect the need to <u>maintain</u> <u>environment</u> in the first place, through a <u>combination of natural and constructed science-based</u> <u>solutions</u>.

Workshop participants identified <u>co-benefits</u> of Nature-based Solutions to flooding including:

- Return/restore animals' habitat (e.g. animal refuge)
- Better water quality: removing sediment and debris
- Natural capital
- Carbon sequestration
- Economic co-benefits (tourism)
- Quality of life
- Air quality
- Sustainable agriculture (more appropriate to local Australian conditions)
- Multi-hazard (heatwave)
- Allowing the agriculture (clearing) to have a balance to regenerate and maintain production
- Rewilding

Nature-based Solutions identified by the workshop participants could be classified into in the following five categories (please note that these categories are an attempt to organise ideas but several Nature-based Solutions could arguably be classified under more than one category – this classification is to be refined with community and stakeholders' further feedback):

- 1. Strategic land use
  - Don't develop on floodplains keep natural
  - Returning floodplains to the river
  - Sometimes places cannot be resilient so other solutions are needed (local buyback) some areas can't be resilient in terms of rebuild (conscious planning/buyback)
- 2. Urban green infrastructure
  - Adjust topography (e.g. paleochannels)
  - Sponge cities
  - Turning drains back into natural stream channels
  - Increase green spaces, green areas in homes, wild spaces with public access (parks with a lot of trees)
  - Alternative transport
- 3. Stewardship and agricultural practice
  - Terracing
  - Livestock exclusion from riverbanks (offline watering points)
  - Infiltration
  - Regenerative agriculture (crop rotation)
  - Planting on contours: control run-off of sediment
  - Maintenance of ground cover
- 4. Stream restoration
  - Erosion control
  - Increasing native plants on river banks
  - Riparian revegetation (lomandra, melaleuca), tree planting along river bank
  - Removing debris and dumping from waterways (slow flows in some places & helping in others)
- 5. Ecosystem restoration or conservation
  - Revegetate upper catchment slow the water down
  - Trees, natural environment
  - Wetlands

## Local initiatives of Nature-based Solutions

The workshop participants shared the following instances of activities in the area, which are relevant to Nature-based Solutions to floods:

- Healthy Land and Water projects: Water by Design and Living Water
- Housing estate at Walloon has areas for water to pool away from homes
- Bushcare groups: Cribb Park 'Garden of Eden' project
- Regenerative farming and crop rotation in the area
- Native planting in local parks
- Green spaces integrated in planning by developers
- Ironpot Creek stabilisation works (sediment control, revegetation)
- SEQ Water does offline watering points along the Brisbane River
- Pylons in the river to address erosion of the Brisbane River
- Revegetation at Gladstone Reserve
- Voluntary buy backs (QRA with Ipswich City Council)

## Considerations for guideline content

As part of this project, the ANU team will prepare a series of guidelines to help key stakeholder to design Nature-based Solutions adapted to the local context (e.g. Retention basins guidelines). The workshop participants identified the following considerations for the creation of national guidelines to Nature-based Solution to flooding in Australia:

#### Scope, audience and limit of the guidelines

The guideline should define the parameters, boundaries, project constraints and objectives of the Nature-based Solutions design. The guidelines should be delivered differently depending on the targeted audience. The content needs to be adaptable and scalable so that the guidelines can be used by Landcare groups, local state governments etc.

#### Key players for Nature-based Solutions

The guidelines should include a directory of the relevant groups, highlighting the role and responsibilities of the different players/agencies.

#### Federal and State regulatory framework

Governance arrangements needs to be described in the guidelines. The guidelines should indicate what is doable for community groups without governmental approval, and what is required to scale up to a catchment scale.

#### Local specific information

The guidelines need to take into account that ecosystems vary a lot, for instance environments are very different in the tropics to the temperate zone so the guideline content needs to reflect appropriate guidance based on the bioregion. The guidelines should help developing an understanding of the local context, including 'what has flooded and where', 'the lay of the land', 'the history'. The guidelines should build capacity to map the river, to integrate local inputs, more particularly from First Nations and Landcare groups, who hold great local historical knowledge, and to know how to identify and contact key players.

#### Design and implementation of effective Nature-based Solutions

The guidelines need to provide general advice on what types of Nature-based Solutions will work in the local area, from the general principles of design to the implementation. A directory of technical advice (academic, evidence) and case books of relevant expert studies would be helpful for community groups and stakeholders to design effective Nature-based Solutions. Clear desirable outcomes of Nature-based Solutions options need to be well described.

#### Funding

The guidelines need to indicate funding options and provide funding advice, including novel funding instruments, e.g. getting businesses to pay for a Nature-based Solutions, and how to get resources e.g. free plant programs. A template for grant application could be really useful.

#### Review and evaluation of Nature-based Solutions flooding projects.

The guidelines need to include a measurement process to assess whether the guidelines have been effective.

#### Awareness

The guidelines need to raise consciousness and awareness. They should include information on how to get flood information, educational material, more particularly for school groups and youth.

## Community engagement strategy

Participants provided ideas on how to develop good community engagement strategies when thinking about designing Nature-based Solutions to flooding.

To start with, the most crucial component for effective engagement is to ensure that the community understands how getting engaged is beneficial to them. The engagement needs to cover the whole spectrum, and include catchment players that are at a greater risk of flood as well as catchment players who are less at risk (north and south communities of Ipswich have different exposures to flood but are all in the catchment). Ways to effectively involve community include the development of booklets and information sessions, as well as more practical elements such as workshops and fieldwork.

This ICEDS project in particular needs to be sustainable and long-term; to do so, it is important to work with the existing local groups (e.g. Bremer Catchment Association), to collaborate with Landcare groups, who have a lot of local knowledge, and to involve the youth. For effective participatory design, it is important to allow community to share community success stories, and to build understanding of which areas are at flood risk based on experience. Crowdsourcing historical knowledge of the environment is essential for effective design and implementation of Nature-based Solutions to flooding.

## Conclusion and next steps

This workshop provided insight into the understanding of Nature-based Solutions among the Bremer catchment community. It also provided information about the types of content that would be useful in Australian guidelines for Nature-based Solutions for flood resilience. Another workshop will be held soon (date to be confirmed) to start working with the Bremer catchment community to explore Nature-based Solutions options in the area.

Workshop participants highlighted in their wish list that the guidelines should provide guidance for individuals willing to design Nature-based Solutions, especially those who are isolated; as well as information on disaster warning. As the current project focuses on catchment scale Nature-based Solutions, these topics are outside the scope of the current project, however there is an opportunity for this to be addressed by future research on flood resilience. There was also very interesting conversation around the idea of integrating Nature-based Solutions in the school curriculum to educate the youth on environmental practices.

## Appendix

NATURE	E-BASED SOLMMONS
EROSION	- VEGETATION / TREE PLANTING ALONG RIVERBANK - PREVENTING LIVESTOCK REOM ACCESS- ING RIVERBANKS.
Homes	- INCREASE OPEN SPACES, GREEN AREAS.
WATER -	_ REMOVAL SEDIMENT, DEGRIS
CHAMPLES CARDO	HOUSING ESTATE @ WALLOON HAS AREAS FOR WATER TO POOL AWAY ROOM HOMES. - CRIBB PARK 'BARDEN OF EDEN' PROJECT
MISC -	- ADJUST TOPOGRA PHM
animals -	- RETURN   RESTORE ANIMALS + HABITAT
SUPSTREAM, I ZAGRICULTUR	DOWN STREAM, FLORA, FAUNA, TOPOGRAPHY, S F, INFRASTRUCTURE, COMMUNITY







Understanding of solutions .... · Who late the so lutions for? Catchment, people, neighbours · Trees, natural environment · Ask Filst Nations pp what they're understanding is · Allowing the agriculture Iclearing T to have a balance to regenerates + manifain poduction "Increasing native plants to inversion k. · Mapping river to focus efforts • Environment Indural capita I is a solution to destruction • Planning reflecting Local examples. . maintaining unforment in Full place eq. While with Denuding (iver backs e.g., Burnings (condowner) · Regen farming; crop rotation · Native planting @ loalfalls (Shape · Green spaces integrated in Planning by

NATURE-BASED Soi • Wild spaces - Public accessible of trees • We want better for the next gen. • Generativity - alternative transport. · Better his Quality aland inflationature · Wetlands / loss of the liter. · River becomes an asset. · phall Greek - examp



make things worse (or befor) Understanding of responsible agencies, × Gover nave arrange noto × printutiones are understand + spelled at. × Case book of relevant expert dudiés

× Local input opportunities

\* Heaverement process/review process. How do we know quidelinos have been effective

Engagement

- × Other forums beyond Council objections processes to exforms feelings \* Separate organization to council to do this a cause the plannes of opproved body. Independent.
- × Identify areas of vulnerability and size community a formul prosso to have a pay in these areas.

DESCOURSE THE REGULATORY FORMEWORK TECH EXPERT PONICE ON WHAT WORKS - FROM DESIGN FUNDING OPTIONS - PLANTING SOURCES OF TECH ADVICE LANDOARE GROUPS - AREA SPECIFIC - LOCAL KNOWLEDGE - LOCAL HISTORICAL MNONLEDGE - MOIGENOUS KNOWLEDGE

### WHAT CONTENT / TOOLS DO WE WANT

- WHAT IS IT
- INHO IS INVOLVED; HOW TO CONTACT; WHO DOES WHAT HOW TO GET RESOURCES & FOR PLANT PROGRAMS .
- WHERE TO GET DISASTER WARNINGS, INFORMATION - INHAT ACTIONS CAN INDIVIDUALS TAKE ON THEIR OWN
- INTERACTION OF ALL ELEMENTS (INFO, EDUCATION).
- LINKS TO CHERENT COMMUNITY GROUPS DOWNS THIS WORK
- SCHOOL PROGRAM OUTLINE / LESSON PLAN

## HOW WE WANT TO BE ENGAGED

- WORK WITH THOSE ALREADY ENDAGED 4. BREMER
- ENGAGE WITH YOUTH : TEACH WISTORY, INFORM FUTURE HOLD INFO SESSIONS (LIKE TUDAY) IN IMPACTE COMMUNITIES 1, RIVARIAN COMMUNITIES 2.NON-RIPHRIAN

#### WEBSITE

FIELD SITE VISIT TO A NATURE-BASED SOLUTION PROJE



Who is the addinea? Groups / idivides. Whats in it for me. \$\$. Griterit adaptable to the audiance + Scoloble to Blue risk - how to addice pate y community / individuals. What is the contact - 300pe / individuals. Hears and a contract - 300pe / Limite. -> Review or talkabion Guidalines are the pane for all - delivery depends on conto goalsable to user bedar adde to oner (needer - canceron) such to oner (needer - stopper Catres such (PR) such (Proceentation in Biblic speces - an live advantional - sugeted to different alaber notices. advantional - sugeted to different alaber notices. advantional - mapped to d ook let toot for educating School education de - Address the phat's is I formed Context based. tips. Practical Plapping Example Sites - Land for wildlife - Bush Heitage · Sharing of Community stories & Discuss stories · Nove on poperat inside schools