

**From:** [NSW Government](#)  
**To:** [Flood Inquiry](#)  
**Subject:** Floods Inquiry  
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**Attachments:** [20220519 UTS Submission to 2022 NSW Flood Inquiry.pdf](#)



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## Your details

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## Submission details

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**I am making this submission as** An academic/researcher

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**Submission type** I am submitting on behalf of my organisation

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**Organisation making the submission (if applicable)** University of Technology Sydney

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**Your position in the organisation (if applicable)** Director, Strategy and Planning

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**Consent to make submission public** I give my consent for this submission to be made public

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## Share your experience or tell your story

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## **Terms of Reference (optional)**

The Inquiry welcomes submissions that address the particular matters identified in its [Terms of Reference](#)

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## **Supporting documents or images**

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### **Attach files**

- [20220519 UTS Submission to 2022 NSW Flood Inquiry.pdf](#)
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19 May 2022

Professor Mary O'Kane AC and Mr Michael Fuller APM  
2022 NSW Flood Inquiry  
Flood Inquiry Submissions Portal

Dear Professor O'Kane and Mr Fuller

## **UTS Submission to 2022 NSW Flood Inquiry - The Northern Rivers Resilience Initiative**

### **Introduction**

The University of Technology Sydney (UTS) has a keen interest in partnering with government in finding solutions to the impacts of ongoing and future disasters in New South Wales.

In partnership with Southern Cross University, this proposal focuses on addressing the urgent range of issues facing the Northern Rivers arising from the devastating floods of 2022. This established collaboration brings together social sciences and physical sciences in a unique socio-tech collaboration with a broad range of world-leading research and implementation expertise (across both institutions). The collaboration combines a trusted regional institution with deep community relationships and demonstrated commitment to the future health of the region, with an internationally recognised technical university.

As part of this collaboration, we propose to create two urgently-needed, locally-focussed pilot projects based out of Southern Cross University in Lismore to provide overarching resilience capability in the region and expert support for government and communities working to increase resilience. Below we summarise the key elements of these projects with fuller details provided overleaf.

The Digital Portal and Clearing House involves the establishment of a specialist digital portal and clearing house for all Northern Rivers Recovery activity. The portal will collect all relevant community data, provide specialist data and links, access to public reports and information, and create a venue for visiting stakeholders and researchers to access community resources. The clearing house will partner with government to assign priorities and coordinate local project support. The portal will also collect and archive all relevant research and community data as it becomes available.

The Recovery Studio will be a transdisciplinary studio that brings together expertise in engineering, science, health, planning and design. It is at the intersection of disciplines and communities where truly transformational innovations are made; innovations critical for meeting and overcoming the challenges we now face as a State. The studio would provide:

- Transdisciplinary resilience experiences/upskilling to students in existing undergraduate and postgraduate programs at both institutions,
- Create and deliver specialist short courses in resilience to industry, government and community stakeholders,
- Investigate the development and delivery of specialist credentials in resilience for universities and the VET sector,
- Undertake sponsored projects in resilience, and
- Support community-tailored research projects.

These pilot projects offer the opportunity to provide the framework for future community-government-university collaborations for other environmental and social challenges. Our integrated transdisciplinary teams and agile methods create a unique and effective approach

currently not available in Australia. We believe that this approach partnering with regional universities (and other institutions) can develop effective strategies to mitigate impact and help communities adapt to and rapidly recover in a disrupted world. Once proven locally, the approach can be deployed in other regions. With the increased frequency of disasters impacting people across New South Wales and Australia, it is urgent we pilot new methods of addressing these complex issues that are informed by the best science and engineering, creative thinking and real-world understanding.

### **Background**

As well as world-leading expertise, the collaboration will draw from the teams' international experience of the post 2005 Hurricane Katrina environment in New Orleans and Louisiana, and historical experiences in the Northern Rivers. The two pilot projects proposed can contribute to the focus areas of the inquiry in key areas:

1. Effective community engagement established early is crucial to successful long-term implementation of resilient adaptation to dynamic conditions. Creating methods for the integration of local and expert knowledge is vital to long term success.
2. Coordinated and accurate data is vital to the development of effective solutions. Creating a single source of truth and archive of completed projects allows the most effective use of resources.
3. Building regional capacity in disaster preparedness and resilience through all forms of education and training will increase economic stability into the future.
4. We can bring together technical, scientific, social and planning experts in the cross-disciplinary teams essential to explore future scenarios and solutions. The collaborative team has access to world-leading expertise in public participation, digital twinning of wicked problems for assessing management approaches prior to implementation, the use of virtual reality for enhanced visualisation of alternatives and the use of AI in many and varied ways.
5. We have a broad range of specialist expertise. To get the best minds working on these wicked problems, we will also convene expert teams across our (and other) institutions and our broader national and international networks.

### **The Digital Portal and Clearing House**

As outlined above this pilot involves the establishment of a specialist digital portal and central clearing house for data and projects related to increasing the resilience of the Northern Rivers region.

In post-disaster environments, access to reliable information and data is a crucial problem for all stakeholders: government, industry, researchers and community groups. The creation of a digital portal where there is a single source of truth for technical data, up-to-date information and reports, plans and relevant research outputs, provides tremendous value as well as preventing duplication, wasted effort, and dissemination of misinformation.

The portal would also house an ongoing archive to document the narratives of disaster experiences and outcomes across the region and its many settlements. This collection would capture important data, stories and images of peoples' lives. In a post-disaster landscape even the most impactful experiences are often forgotten as time passes, losing the opportunity to learn from these very significant events. One of the first projects the portal would undertake would be the collection of oral histories of the most recent flood events.

The clearing house function would use the portal as a vehicle to concentrate regional data for use by government, researchers and communities undertaking resilience work in the region. It would also allow a team located at Southern Cross University to triage and advise on requests for information, proposed research projects and regional visitors requiring help and support. In a disaster-impacted environment, local communities and organisations are often overpowered by well-meaning visitors proposing to undertake 'helpful' projects, and even the workers on much-needed projects can be stymied by a lack of effective local knowledge. The clearing house would be remunerated to undertake that work and would provide a central resource to all regional resilience projects.

### **The Northern Rivers Recovery Studio**

This studio would be based on the successful Coastal Sustainability Studio (CSS) established in Louisiana after Hurricane Katrina, which was created and led by staff now at UTS. This government-industry-university collaboration played a significant role in influencing planning at the State and Parrish level in Louisiana as well as undertaking many significant recovery projects and increasing regional capability and profile in disaster resilience (<https://css.lsu.edu/>). Like the CSS, the Northern Rivers Recovery Studio would be a transdisciplinary studio bringing together expertise in engineering, science, health, planning and design. The studio would build regional capacity through education, training and community engagement, as well as undertaking projects and research in support of community and government priorities.

#### Capability-Building Education

- Cross-disciplinary resilience experiences/upskilling to students in existing UG and PG programs,
- Combining teaching and research activities in innovative studio projects,
- Create and deliver specialist short courses in resilience to industry, government and community stakeholders, and
- Investigate the development and delivery of specialist credentials in resilience for universities and the VET sector.

#### Community and Government Support

- Undertake sponsored projects in resilience,
- Undertake public interest design projects, and
- Undertake sponsored research.

#### Immediate Support

The Studio could provide immediate support in the following areas:

- Convening community conversations,
- Capturing information from local communities about the flood events,
- Analysis of successes and failures during recent flood events,
- Analysis of existing flood data and design flood approaches,
- Propose design solutions for urgent recovery work, and
- Creating early visualisations of the flood events and existing conditions.

### **About UTS**

The University of Technology Sydney is a dynamic and cosmopolitan university that marks the gateway to Sydney. With 46,000 students and 4,400 academic and specialist professional staff, we are ranked #1 young university in Australia and 8th globally (THE Young University Rankings 2022), and 15th in the world for social and economic impact (THE Impact Rankings 2022). In the most recent Australian Engagement and Impact Assessment, 80% of UTS' assessed research was rated as having a "high" impact beyond academia – the highest proportion in the country. We are world-leaders in Artificial Intelligence (better known as AI) and cyber security, planning and adaptation, disaster management, health, data science, and construction. Our innovative research that cuts across disciplines is directed towards tackling some of the greatest challenges facing the planet today, to deliver economic, social and cultural prosperity in our communities.

At UTS we are recognised for our existing capability across a broad range of research disciplines and house numerous world-leading research centres. The Australian Artificial Intelligence Institute, the Data Science Institute, the Visualisation Institute and the Centre for Advanced Modelling and Geospatial Information Systems all research the application of emerging technologies to real world problems and the Global Technologies Data Centre is already working on Connectivity Innovation in the Northern Rivers region. Applied research and policy are developed in the Centre for Informatics Research Innovation, the Institute for Sustainable Futures and the Institute for Public Policy and Governance. Researchers across the university are also involved in 'living labs' exploring sustainable communities, green buildings, inclusive design, energy from wastewater and transition design. Academics in our Design School are responsible for world-leading research and practice in community engagement, co-design methods and transition design.

UTS has teams who can contribute to study and advice in the following areas:

- Planning and design for recovery and adaptation,
- Resilient Infrastructure (see current work on the Connectivity Innovation Network (CIN) supported by the NSW Government),
- Better understanding future flood scenarios and risks,
- Design for future flood mitigation/adaptation,
- Developing community resilience and disaster preparedness,
- Visualisation of future scenarios,
- Understanding alternative mechanisms for relocation using valuation methods,
- New approaches to flood insurance,
- Transition design of Lismore (its CBD and neighbourhoods) and other towns from the current situation to a more resilient form, and
- Community engagement and co-design processes for successful implementation of disaster resilient planning.

Our research strengths are complimentary with the significant areas of research at Southern Cross University in catchment planning and management, mental health, public health and community resilience and education. We believe strong collaborations across universities and other institutions will help to focus our best expertise in solving the complex problems of future disasters in the regions.

We are keen to explore these concepts further with Government and bring together our capabilities to help meet the ongoing challenges throughout our State. We believe that the project approach proposed here could be a model for collaborations in other regions and cities.

Yours sincerely



Professor Lesley Hitchens  
**Acting Vice-Chancellor**  
**Acting Provost and Senior Vice-President**