

## Flooding in the Hawkesbury-Nepean Valley Geography Project

### *Resilient Valley, Resilient Communities*

## Hawkesbury-Nepean Valley Flood Risk Management Strategy

### Background

The Hawkesbury-Nepean Valley is a massive area in outer north-western Sydney. The topography and rich alluvial soils have made it ideal for farmland, and for well over a century it has provided much of the fresh produce for the Sydney region. More recently, residential development has increased significantly with many new suburbs and associated infrastructure.

The Valley is also a major floodplain. Five major rivers and their tributaries flow into the valley, but there is only one outlet to the ocean, through the narrow Sackville Gorge. Floodwater backs up and spreads across the floodplain causing wide, deep and damaging floods. While flooding is an important natural process, there have been many occasions when floods in this valley have caused widespread destruction of property, and there has also been loss of life.

The flood history of the Hawkesbury-Nepean Valley since European settlement shows a pattern of flood-dominated and drought-dominated periods that can last from 30 to 50 years. The last major flood was in 1990. Flooding will come again.

More than 130,000 people live and work in the floodplain. Social research undertaken within the floodplain during 2018 found just 18% of residents were aware of the high flood risk, 79% had done nothing to prepare for a flood event, and around half of respondents would try to return home in the event of a flood even though an evacuation had been ordered.

These concerning statistics underpin the need for the Hawkesbury-Nepean Valley Flood Risk Management Strategy (Flood Strategy) – a long-term framework for the NSW Government, local councils, businesses and the community to work together to reduce and manage flood risk in the valley. Infrastructure NSW is leading implementation of Phase One of the Flood Strategy on behalf of the NSW Government.

Under the Flood Strategy's Outcome 5 - An aware, prepared and responsive community – a range of activities are being delivered to build the resilience of local communities to flooding. The *Flooding in the Hawkesbury-Nepean* Geography Project is an important project under Outcome 5.

### Aims and focus of the project

This resource is part of a broader program to engage young people and to empower them to be part of an aware, prepared and responsive community. It is designed to help teachers, students and schools understand the flood risk, develop strategies in preparation for hazards and to build resilience.

The aim is to provide teachers and schools with a free online resource that will be a key component of the Stage 4 (Year 7 and 8) Geography syllabus in NSW. Although specifically considering the Hawkesbury-Nepean Valley, the intention is that it be useful and valuable to schools across the state and perhaps the country. Flooding is a significant event in the Australian landscape.

The project's aims have wide relevance:

- increasing students' knowledge of and familiarity with geographical terms
- raising awareness and understanding of flood risk
- developing practical strategies for managing flood hazards and, most importantly,
- doing this from a positive aspect that will build resilience and coping mechanisms.

Consideration was also given to ensuring the resource was simple, practical and flexible for teachers, so they could adapt it to suit the needs of their school and their students. It has the added attraction of being real and meaningful, addressing a significant natural hazard that schools, teachers and students can relate to.

## How it came together

Under the Flood Strategy, an innovative interagency approach to developing the resource pulled together experts and expertise from educational institutions across all levels and from all sectors, as well as government departments and agencies. An extremely high level of cooperation and dedication saw those involved share their skills and knowledge with overwhelming generosity.

Research and specialist input from a Schools Advisory Committee led to the selection of 'Water in the World' as the most suitable element of the school curriculum to support with learning and teaching resources on flood risk and resilience. Following a robust process, the Centre for Educational Research at Western Sydney University was selected to take the lead role as educational specialists to develop the resources.

Five experienced geography teachers made up the writing team and were given outstanding support by the Schools Advisory Committee as well as their principals and schools. Their knowledge and research ensured material was appropriate to the curriculum and stage as well as pedagogically sound. Expert input also came from a range of agencies including NSW SES, Infrastructure NSW, Bureau of Meteorology, NSW Police and Water NSW. These groups provided a wealth of information about the Hawkesbury-Nepean Valley, rainfall, floods, evacuation routes, hazard management and other details to make the material accurate and practical in terms of the specialist subject matter.

The program was piloted in schools during Term 3, 2019 and the feedback from the schools, staff, students and parents involved formed an invaluable part of the final editing and web design process.

All involved approached their tasks with professionalism, enthusiasm and with unwavering support for the project and other members of the project team.

## Acknowledgements

### Agencies and organisations

Infrastructure NSW

NSW SES

Bureau of Meteorology

NSW Police

NSW Office of Emergency Management

Esri Australia

Hawkesbury City Council, Penrith City Council, The Hills Shire Council

## **Schools Advisory Committee**

## **Cross Sector Human Society and Its Environment (HSIE) Committee**

NSW Geography Teachers Association (GTA)

Western Sydney Social Science Teachers Association (WESSSTA)

Association of Independent Schools of NSW (AISNSW)

NSW Department of Education (DOE)

NSW Education Standards Authority (NESA)

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