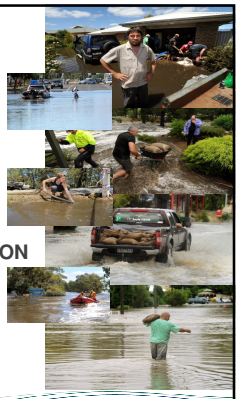
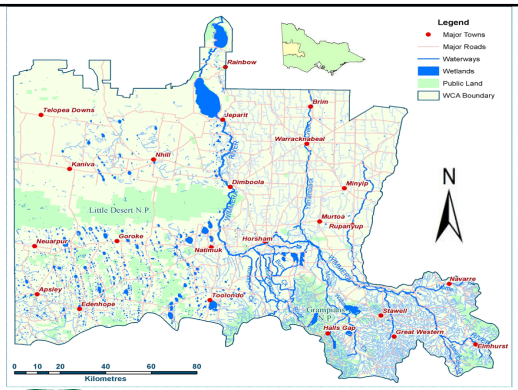
Flood Intelligence in Managing Floodplains
A Wimmera Perspective

Abdul Aziz, Paul Fennell, Greg Fletcher and Tony Baker
Wimmera Catchment Management Authority



OVERVIEW OF THIS PRESENTATION

- CATCHMENT DESCRIPTION
- BACKGROUND
- OUR RESPONSIBILITY
- SOURCES OF FLOOD INTELLIGENCE
- OUR EXPERIENCE IN JANUARY 2011 FLOOD
- DISCUSSION FROM LESSON LEARNT
- CONCLUSION



18 Large Floods in 100 Years

4 Large Floods in last 3 Years!!

FLOOD INTELLIGENCE

Objective of Flood Intelligence

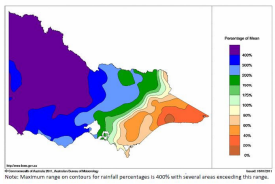
- Understanding the Catchment
- Analysis of flood behaviour
- Predicting flooding impact
- Preparing emergency plans
- Personal flood action plans

SOURCES OF FLOOD INTELLIGENCE

Tools Used for Flood Intelligence

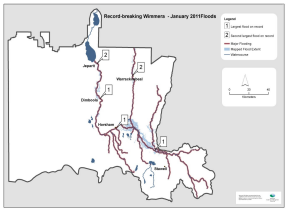
- Flood Warning system with BOM
- Real time gauge information
- Computer based flood modeling
- Flood maps for different ARI Flooding
- Radar rainfall Information
- Aerial and Thermal flood photography
- Rating Curve and FFA information
- Local Knowledge – community information

OUR EXPERIENCE IN JANUARY 2011 FLOOD



In 2010 Victoria recorded its wettest year since 1974

- Major Flood September 2010
- Moderate Flood September December 2010
- Record Breaking Flood January 2011



- Wimmera region received heavy rainfall across the 9th -14th January 2011.
- Thankfully no lives were lost
- 336 houses and 50 business were affected
- Agricultural Cost $27.5 million

DISCUSSION FROM LESSON LEARNT

lesson Learnt Regarding Community Capacity

- Informal levees create a lot of risk near Great Wall of Warracknabeal

Lesson Learnt – Levees

Do we need levee to prevent farm land damage?

Localised levee techniques

Lesson Learnt - Illegal Land filling

- Flood storage is not compromised due to the recent development
- Enforcement a challenge in small councils underfunded/resourced

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Lesson Learnt - Flood Monitoring Gauges

Water Resource Purpose....

Electronics /Telemeter Stream flow Gauges Subject to failure?? Create Uncertainty!!

More gauging to better understand catchment response – temporal distribution

History is different from today, 110 mm rainfall in Half hours, December 2011 Flood.

Special attention on flash flood prone townships Within Wimmera.

Vandalism a continuing problem in remote locations – putting the community at risk.

Lesson Learnt- Contingency planning for the future

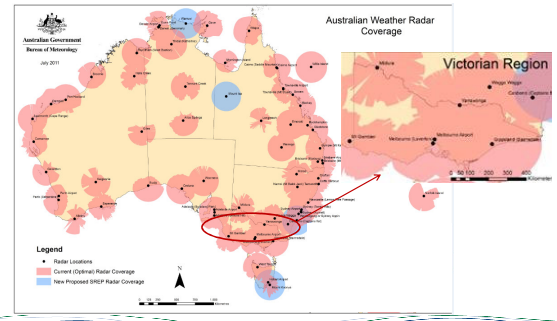
Community Engagement – Wimmera Flood Volunteers

Statistical Approach (Artificial Intelligence Model/ Data Driven Model)

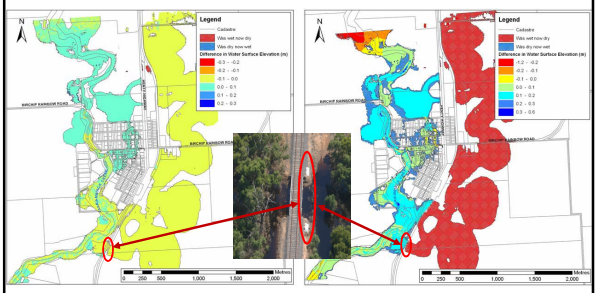
Infra red remote camera (Used in South-West QLD)

Source: http://webcamerasystems.com.au/info/HD-solar-3G-time-lapse-camera-system

Lesson Learnt- Improved Rainfall Information



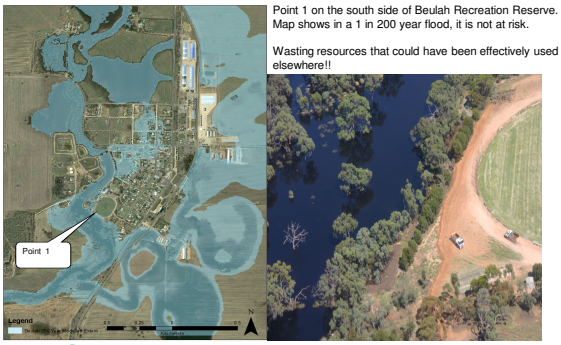
Lesson Learnt from Flood Mitigation Strategy



Lesson Learnt- Flood Mapping

Point 1 on the south side of Beulah Recreation Reserve. Map shows in a 1 in 200 year flood, it is not at risk.

Wasting resources that could have been effectively used elsewhere!!

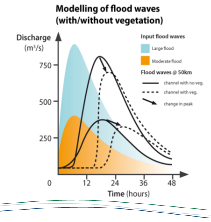


Lesson Learnt – In stream Vegetation

Clearing waterways would address flooding issues?

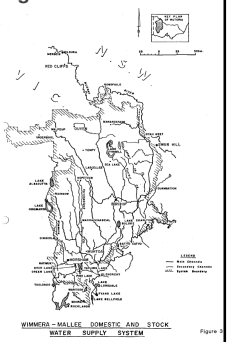
Role of vegetation in flooding
- relief valve
- lowering flood peaks
- provide additional time

Research outcome in Catchment Scale



Lesson Learnt – Major Land use Changes

- Recent development of pipe network instead of stock and channel system
- What happen to these channels?
- Who will manage the retired structures?
- Impact in flooding??



Conclusion

- Special attention should be given in managing levees and vegetation in water ways.
- Educate the community about flood model results, monitoring gauges, levees and vegetation impacts etc.
- Work with local and state government agencies to improve gauging, redundancy in measuring gauges.
- Assist councils in implementing key recommendations from flood studies

Understand the nature before try to guide the nature.

Acknowledgements

Paul Fennell (WCMA)
Greg Fletcher (WCMA)
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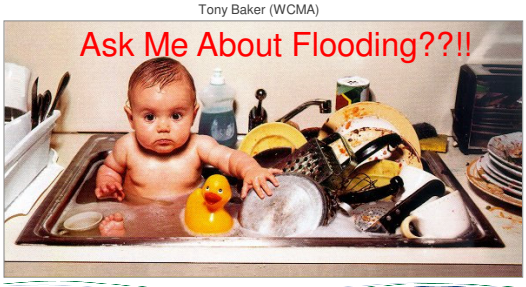
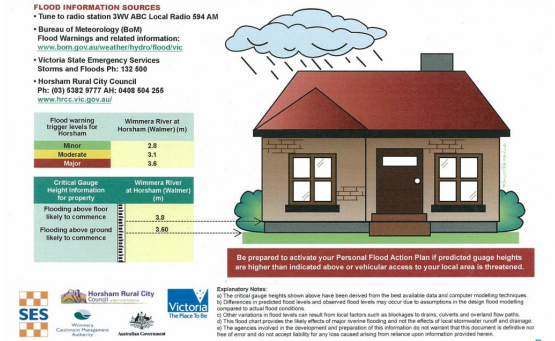
Tony Baker (WCMA)





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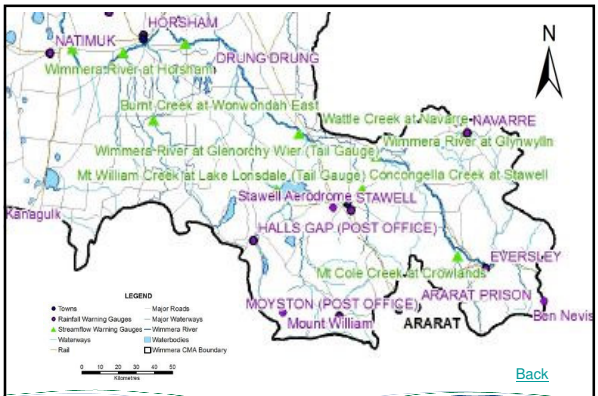

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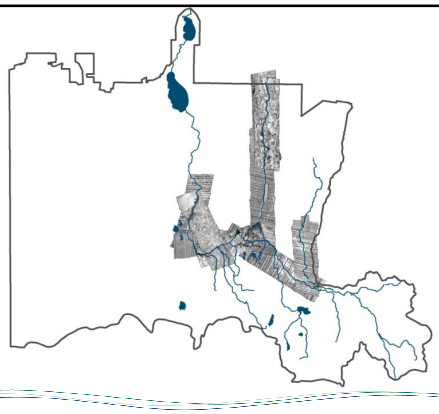

GO

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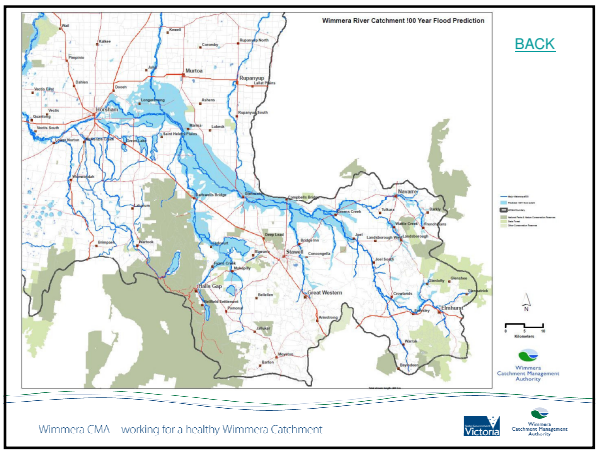
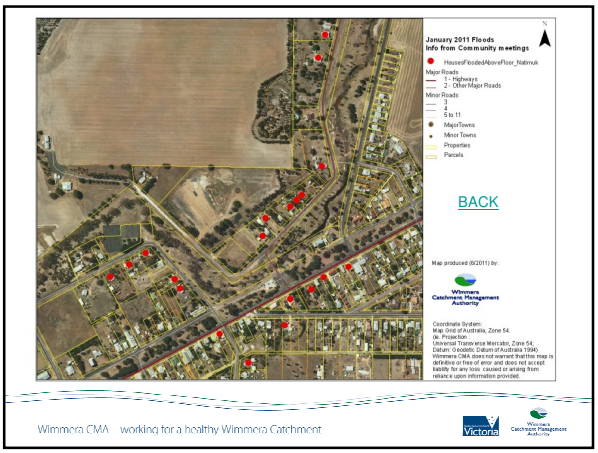

Wimmera River Catchment 100 Year Flood Prediction
BACK
Wimmera CMA working for a healthy Wimmera Catchment


January 2011 Floods
Info from Community meetings
BACK
Wimmera CMA working for a healthy Wimmera Catchment

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Warracknabeal hero to meet Governor General
BY MICHELLE DRYBURGH
11 Feb, 2011 01:00 AM
Entrepreneur inspires the great wall of Warracknabeal
STAR VOLUNTEER: Richard Wilken will be flown to Sydney to meet Governor-General Quentin Bryce at an International Year of Volunteers 10th anniversary function on Monday. Mr Wilken instigated the construction of a six-kilometre levee bank around Yarriambiack Creek to save Warracknabeal homes from flooding last month.
BACK
Wimmera CMA – working for a healthy Wimmera Catchment