Institute for Land, Water and Society
Charles Sturt University

Climate Change Adaptation for Sustaining Local Communities and Regional Production and Conservation Landscapes

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Purpose

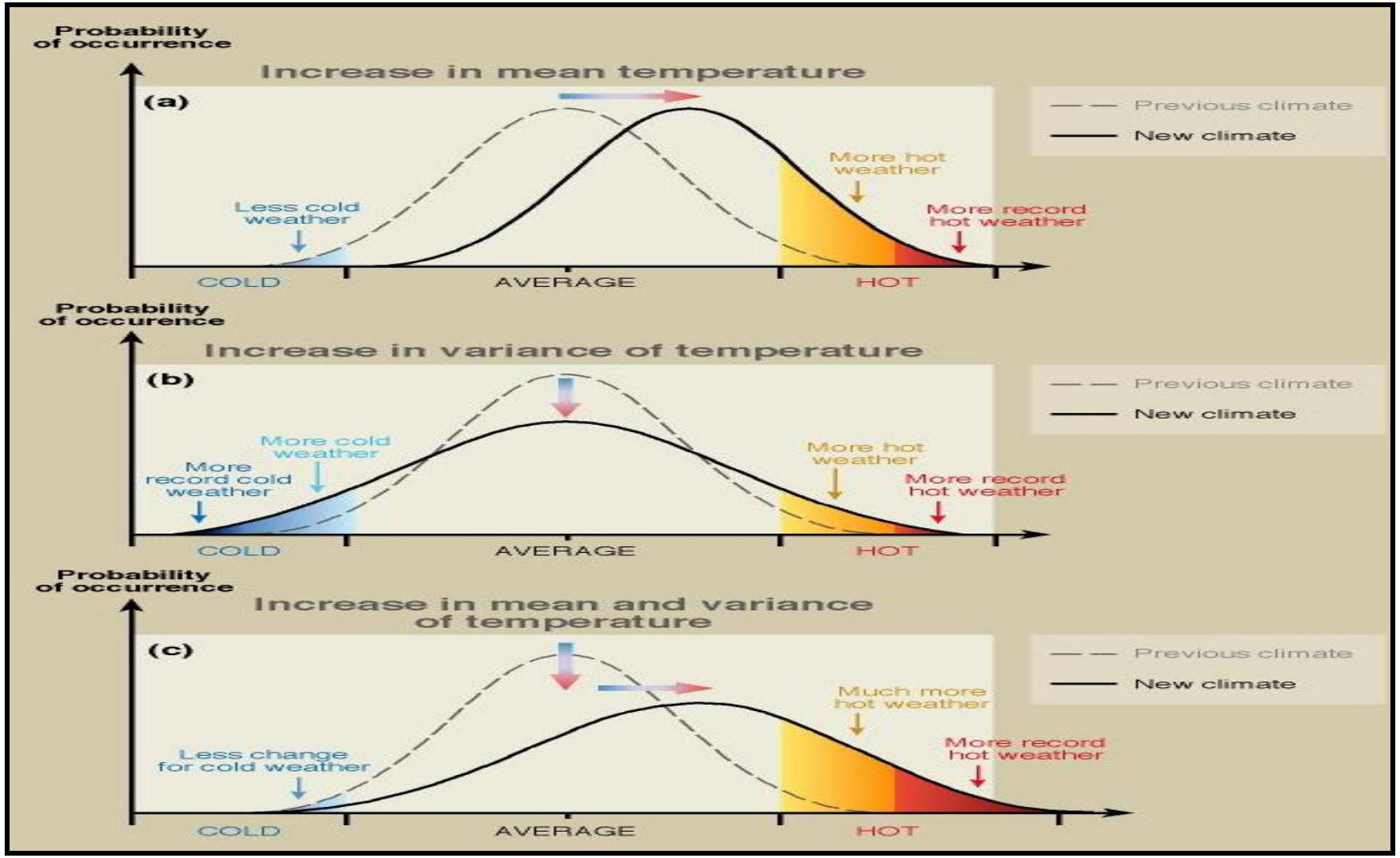
To explore how climate proofing can used as a long-term strategy to build community and regional resilience to changing climatic conditions.

Overarching context------ the Murry Darling Basin

Coming to grips with changing climatic conditions: some useful terms to know

- ***Weather*** is what we are experiencing now
- ***Climate*** is 30 years of weather (World Meteorological Organisation [WMO] baseline 1961-1990)
- ***Climate variability*** is measured in terms of extremes such has conditions being hotter and colder or wetter and drier
- ***Climate change*** is statistically measurable from a baseline (usually the WMO baseline)
- Climatic Variability and Climate Change- ***'there is a difference'***
- Climate Change **does not equal** 'emission trading schemes or carbon tax
- ***Global Warming*** is the heating of the earth's atmosphere by natural and human drivers

Changes in extreme events due to shifts in mean and variance
(IPPCC 2007)



We know that :

- Globally temperatures are rising
- Temperatures have been increasing across Australia over the past sixty years
- Rainfall has been decreasing along the East coast of Australia and across the Murray Darling Basin and increasing in the North West over the past sixty years
- Australia wide weather is becoming more variable and with greater extremes

Although there is ongoing debate as to the causation of climatic variability and change, the volume of scientific evidence collated since the late 1980's leads to the conclusion that human actions are the greatest contributor to global warming and changing climatic conditions.

A discussion for another day.

We also know that----------

Changes are occurring and experience has shown that it is cheaper to do something now than face high costs in the future.

People can adapt to change because we are good at changing, we are doing it all the time.

Communities need to focus on climate change adaptation using tools such as climate proofing that is tailored to the realities of our community and regional catchment situations.

What do we mean by *adaptation*?

We need to see *Adaptation* as:

- discrete ***measures*** or actions
- the ***capacity*** to adapt
- an evolving, dynamic ***process*** that is tailored to a particular set of circumstances and location

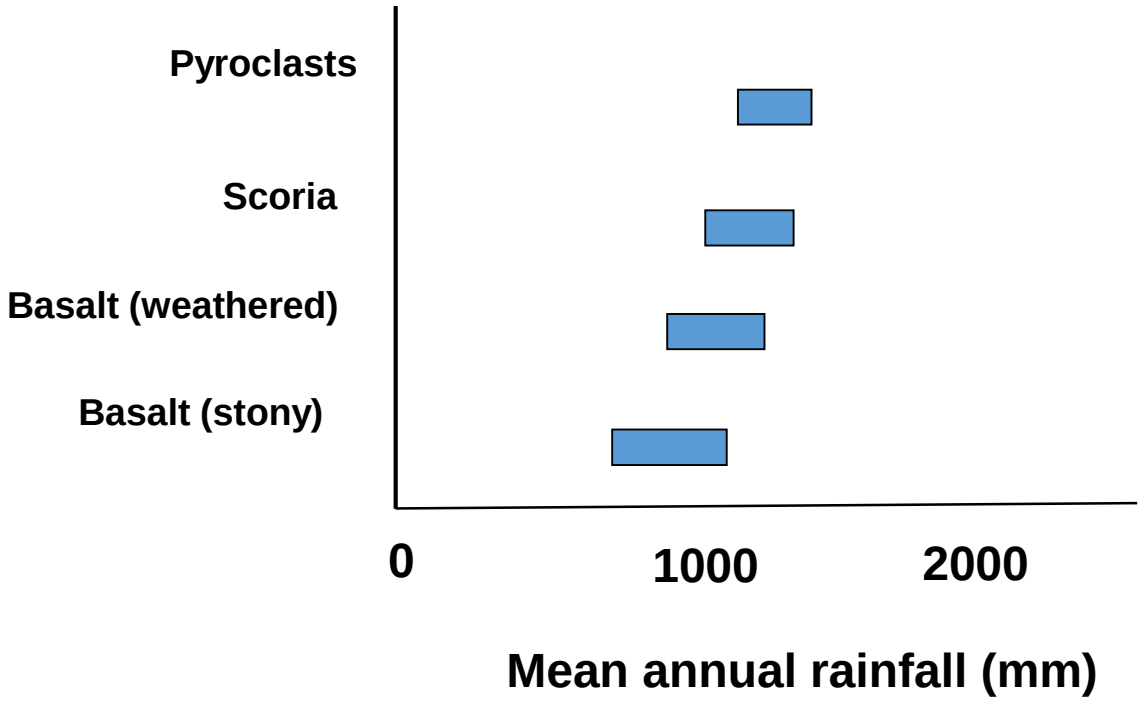
Hold on----- *Do people and communities really need to adapt?*

Examples of what the future may look like under changed climatic conditions ?

SIMPLE EXAMPLE OF IMPACT ASSESSMENT

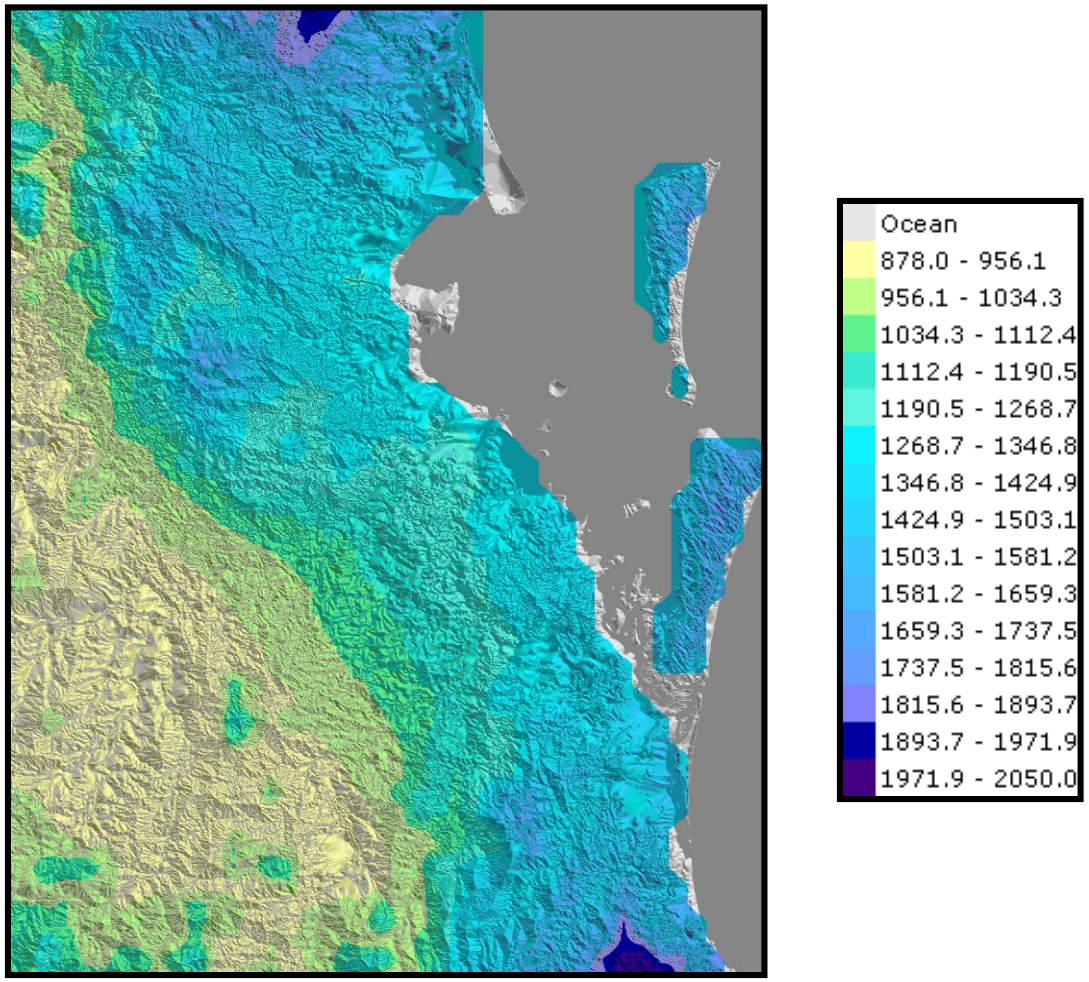
Border Ranges World Heritage Area
in Southeast Queensland

Location of rainforest vegetation boundaries in relation to mean annual rainfall and substrate (Ash, 1988)



Precipitation

Southern SEQ Area

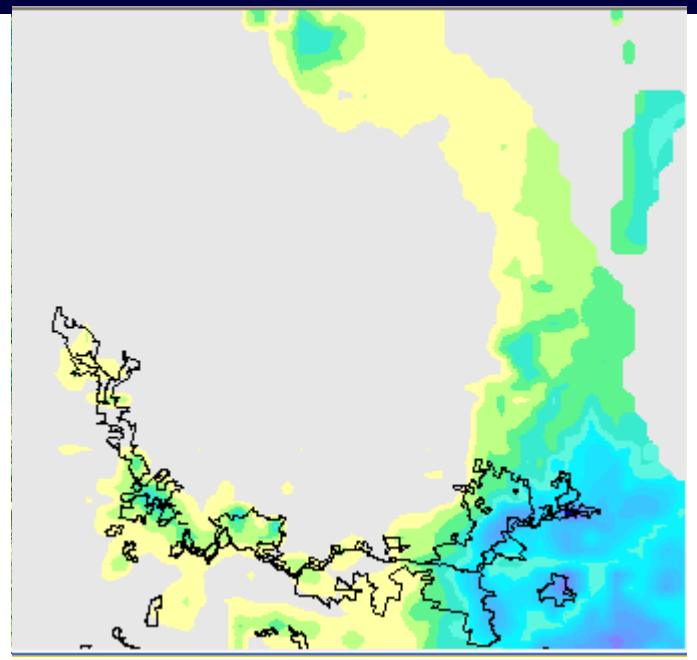


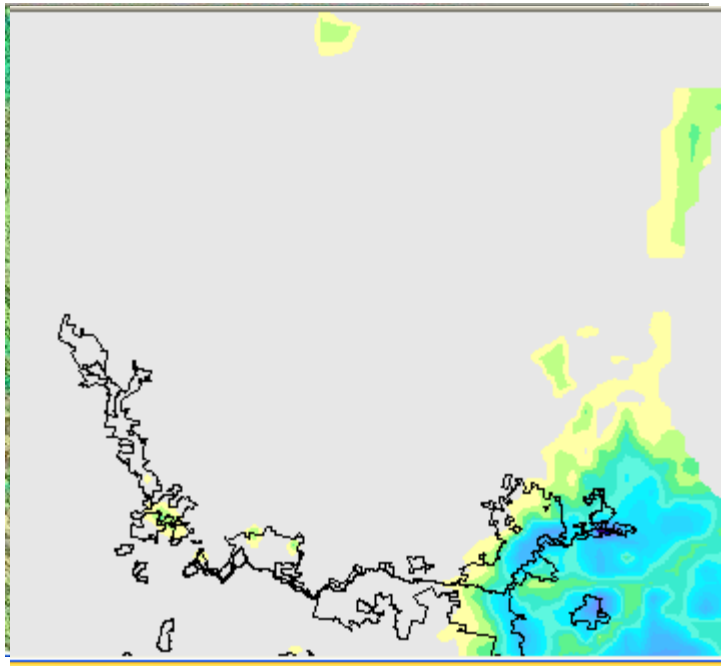
Baseline Rainfall

Current climate

2100

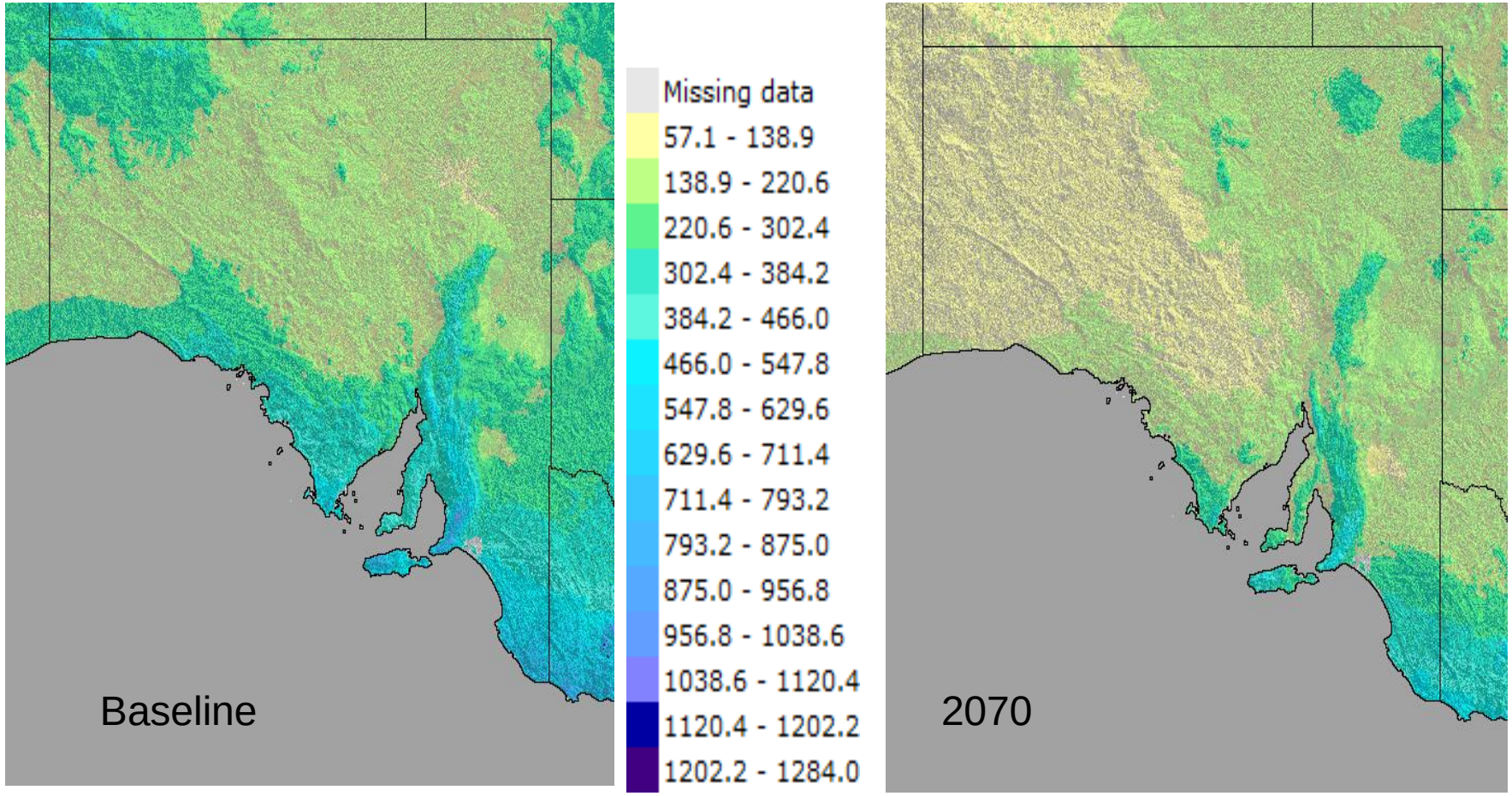
>1200mm



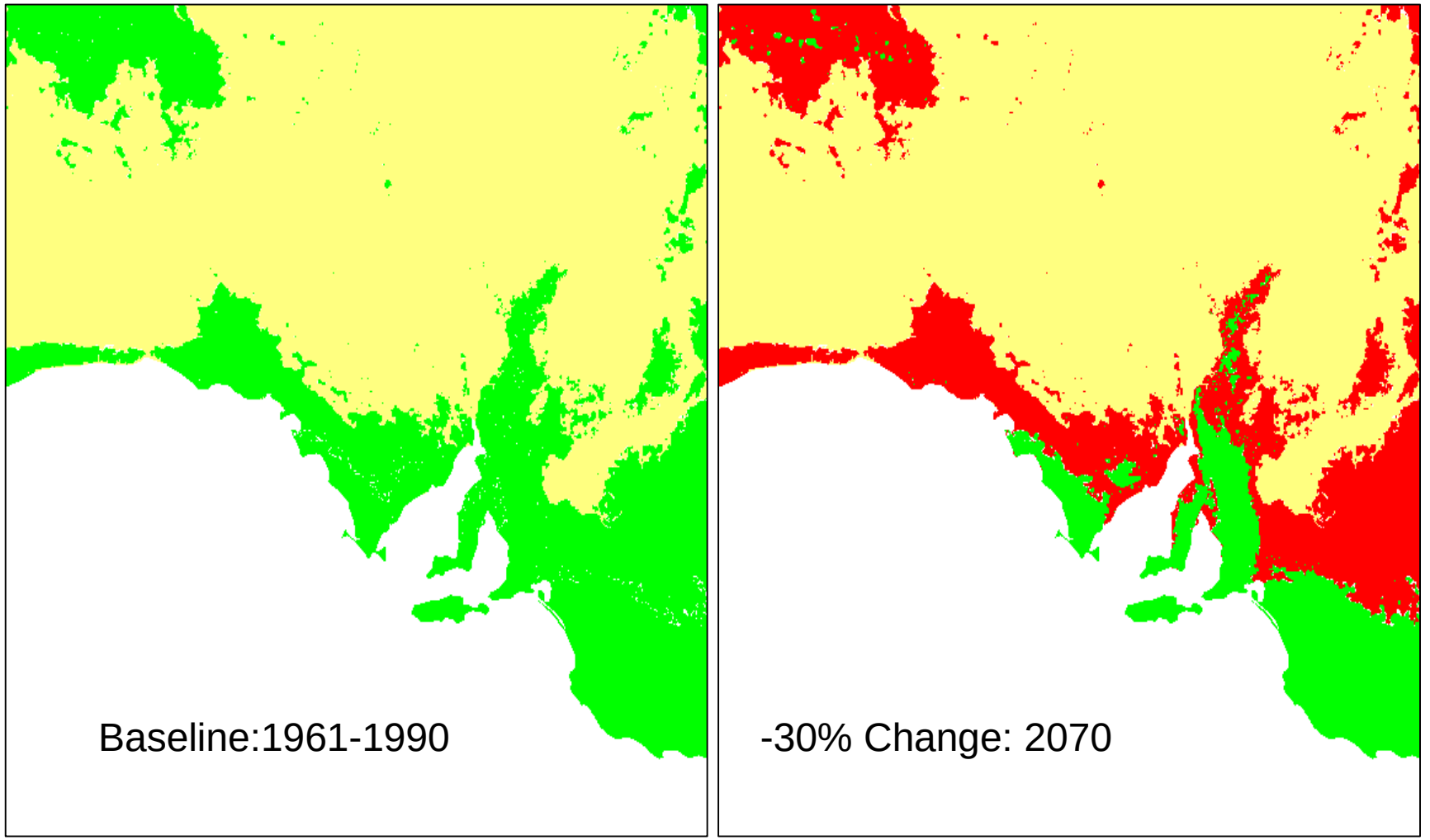


An Agricultural Assessment Example from SA

Changes in Mean Annual Rainfall in SA



Shift in Goyder's line



Hold on: Do we really need to adapt?

What does the future have in store for Snowy Valleys Council in its regional context ?

Will we see changes similar to those illustrated?

In the absence of a clear picture of the future. *Could we consider climate proofing as a 'no-regrets' risk reducing measure?*

If changing climatic conditions are real, then what can be done?

Community, regional and catchment scale climate proofing

‘Climate proofing’

Means making areas and assets **resistant** and communities and individuals more **resilient** to changing climatic conditions

Recommended by the IPCC and other international bodies such as the European Union, the World Bank and the Asian Development Bank

Major regional and community scale projects have been initiated in Western Europe

Demonstration projects have been undertaken in South East Queensland

Adaptive actions are needed in urban and rural areas of the Snowy Valleys Council for:

- Water security at farm and community levels
- Innovative sustainable primary production initiatives
- Maintaining infrastructure
- Supporting responsible extractive industries
- Integrated waste management
- Self sustaining commercial and native forests, woodlands and grasslands
- Bushfire and flood contingency planning
- Wetlands and soil conservation and wildlife protection
- Human health and welfare

Actions can achieve adaptation AND mitigation objectives

AND

- Communication
- Education
- Capacity-building

are fundamental to all climate proofing actions

So:

What can we do next to ‘climate proof’ our communities and regional production and conservation landscapes?

Use existing organisations and community groups to:

- Take up and action the idea
- Set a direction that meets local expectations, realities and resources
- Build on the strengths within the community
- Celebrate success

And set in train a simple process to ‘climate proof’ your communities and regional assets

8 Steps for 'Climate Proofing': A Risk Reduction Approach

- **Step 1: Increase the level of understanding** of what adapting to climatic variability and change means for communities in the Snowy Valleys region

- **Step 2: Build the strategic partnerships** necessary to mobilise communities and give action to ideas --- this is a long term process that needs collaborative action

- **Step 3: Inventory the resources that are at risk** - What do you value?---Amenity, Biodiversity, Catchments, Water Security, Lifestyle, Ambience

Step 4: Assess vulnerabilities & risks to extreme weather events, greater climatic variability and climate change

- Extreme storm events
- Hail storms
- Strong winds
- Local flooding
- Increasing temperature and heat waves
- Prolonged drought
- Catchment erosion and siltation

Step 5: Identify and prioritise the ‘hot spots’ for on the ground action

- Where are they?
- What are the impacts?
- What are the long and short term risks?
- What can we do to reduce the risks?
- How long will it take?
- Who will do it?
- What will it cost ?

- **Step 6: Prepare and implement a simple 'no regrets'** ***Climate Proofing Action Plan*** based on the assessment of vulnerabilities and risks for the priority hot spots

- **Step 7: Evaluate what is being done** and how to improve the ***Climate Proofing Action Plan***

- **Step 8: Spread the word** and continue the drive to 'Climate Proofing ' in the Snowy Valleys Region and beyond across the Murray Darling basin

So what do we need to do?

We need to acknowledge the reality that weather is more extreme, climates are becoming more variable and are changing

AND

personally become involved in climate change adaptation measures such as climate proofing

Remember

- Heightened personal and community awareness
- Shared knowledge
- Strong partnerships
- Effective communication
- Professional development and education
- Capacity-building

are fundamental to all climate proofing actions

And!

Are you going to help address the ‘climate risk’ challenge by climate proofing your communities and catchments as a regional economic development strategy?

Questions?
and
Hopefully some answers