



# The Triggers of Change


## What is the environment without people?

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Syme and Nancarrow Water

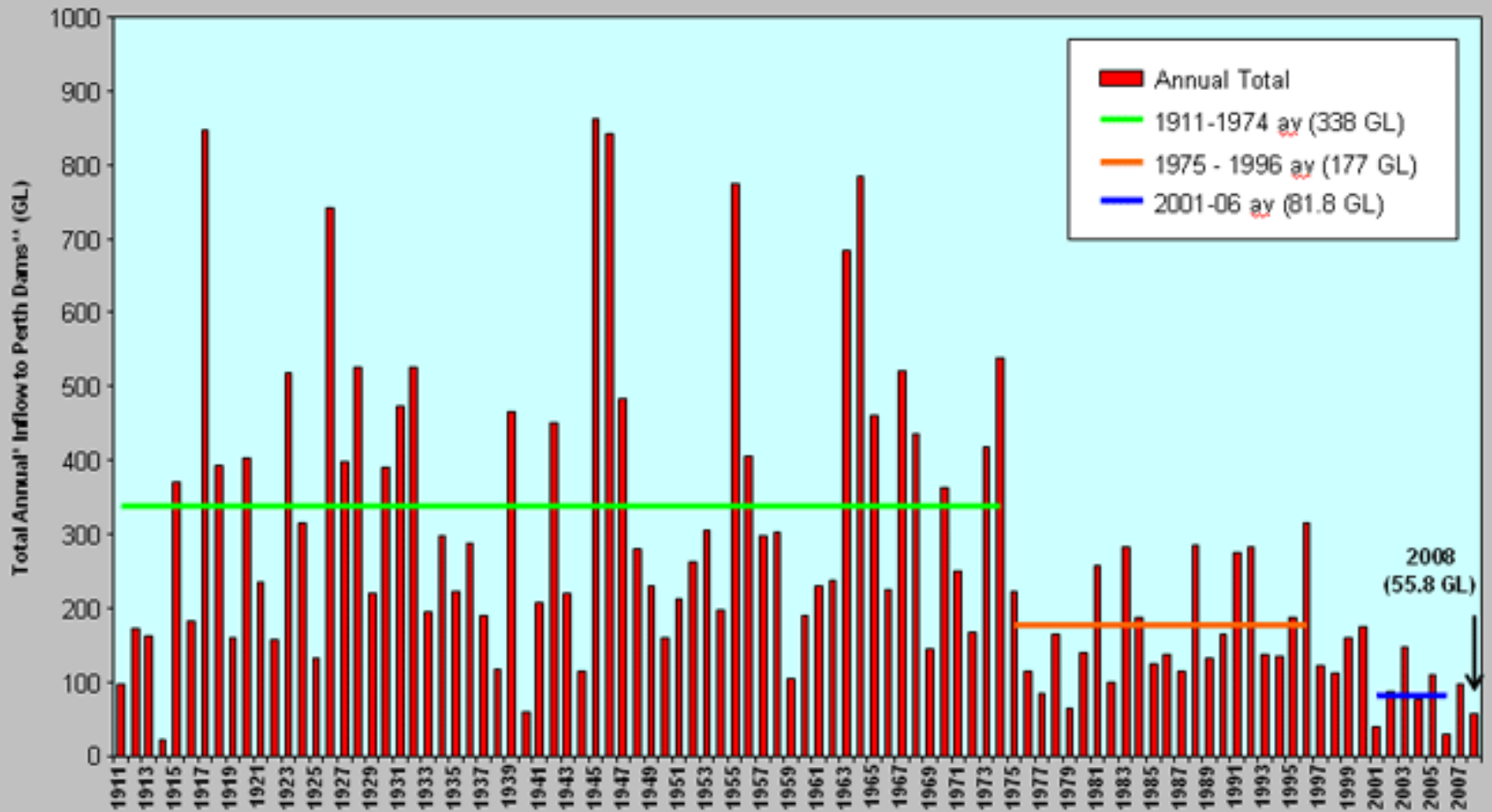
NRM State Conference – Geraldton  
29 October 2009

# Climate Change

1. Little doubt among scientists world-wide that human induced climate change is occurring.
  2. Natural climate variability has always been an issue in Australia but these effects are being exacerbated by climate change due to human activities
  3. SW-WA was the first to be affected, followed closely by SEQ, Victoria and the M-D Basin
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# Inflow to Perth's Dams

(Source: Water Corporation)



Notes: - A year is taken as May to April  
- 2008/09 inflow to 10th September 2008

# City – v – Rural

- ▶ Cities in their bids to find enough water for future populations are looking to rural areas.
- ▶ With increasing temperatures, similar pressures will emerge for habitable land
- ▶ Natural species will be players in the quest for more land
- ▶ Increased natural disasters will complicate planning



# People–Environment Interface

- ▶ We can hide our heads in the sand and pretend it's not happening and allow “what will be” to happen

*or*

- ▶ We can work together *with* our changing environments
- ▶ The question “what is the environment without people?” takes on new meaning in the new world of changed climates



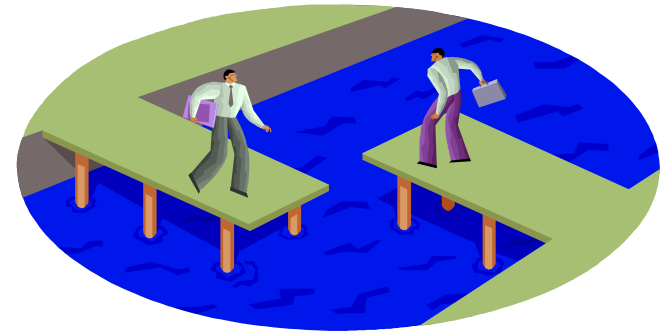
# Challenges

- ▶ Increasingly less water and less arable land
  - Uncertainty in the cities and in the bush
- ▶ Increasing pressure on traditional uses of land
- ▶ Larger areas of land are increasingly required to produce the same as in the past
- ▶ Where will our water come from in the future?
  - Surface water; groundwater; artesian water; sea water; recycled water?
- ▶ How will we share land and water?
  - Between “uses” and “users”
  - Between urban and rural
- ▶ How will we decide what, who, where and how?



# How do we decide?

- ▶ The focus has been on engineering and economic efficiencies
- ▶ People expect cheap resources?
  - Price is a consideration .... but
    - People expect sustainability
    - People expect fairness
- ▶ People expect land and water management and planning to reflect their values and ethics
  - We need to incorporate values and ethics in the decision making process



# Sharing a scarce resource

- ▶ Ask the range of users/interest groups
  - Irrigators
  - Other industry
  - Urban users
  - Environmentalists
  - Recreators
  - Indigenous ..... etc.
- ▶ Fair sharing involves social justice
  - distributive justice
  - *and* procedural justice
- ▶ Fair sharing involves lay ethics and philosophies
  - at the universal level
  - *and* the situational level



# Sharing a scarce resource

## ▶ Consistency in Universal Fairness

- *consistent agreement with*
  - the rights of the environment
  - the rights of all sections of the community to have a say
  - the acceptance of decisions from fair processes
  - no general rules
- *consistent concern about*
  - use of economic analyses to decide who gets what



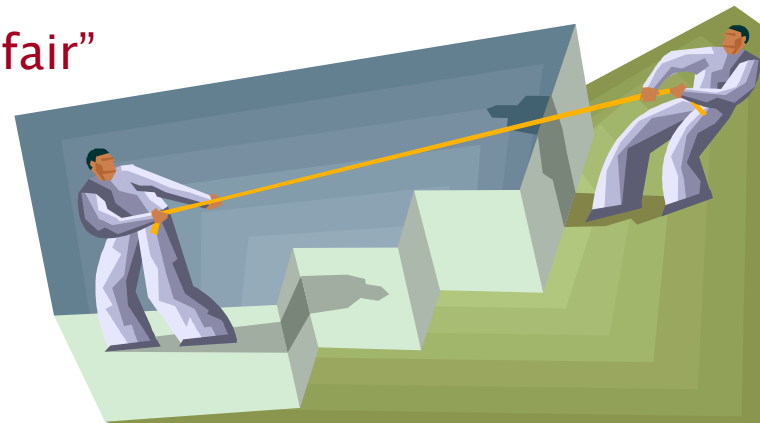
# Sharing a scarce resource

- ▶ Consistency in Situational Fairness
  - *Acceptable*
    - Equality of Opportunity
    - Reward for Hard Work & Investment
    - Efficiency and Management
  - *Unacceptable*
    - History of Use
    - Water Markets

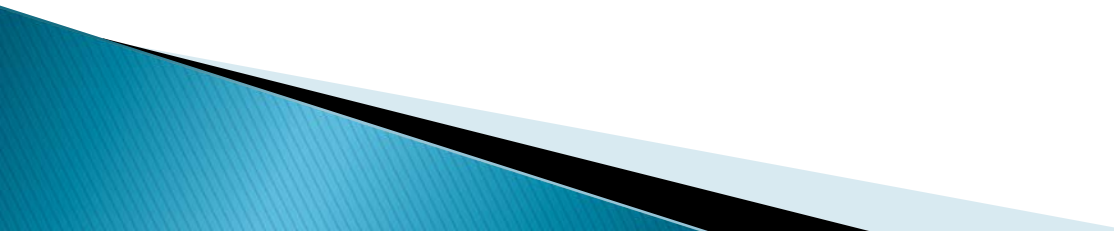


# Current policy

- ▶ Particularly Water Reform Policy
  - Reliance on economic analyses
  - Water should go to the highest value use
  - *History of Use* is a good starting point
  - Allow the market to (re)allocate to achieve sustainability
- ▶ This can only lead to conflict between the community and policy makers?
  - The policies are not seen as being “fair”

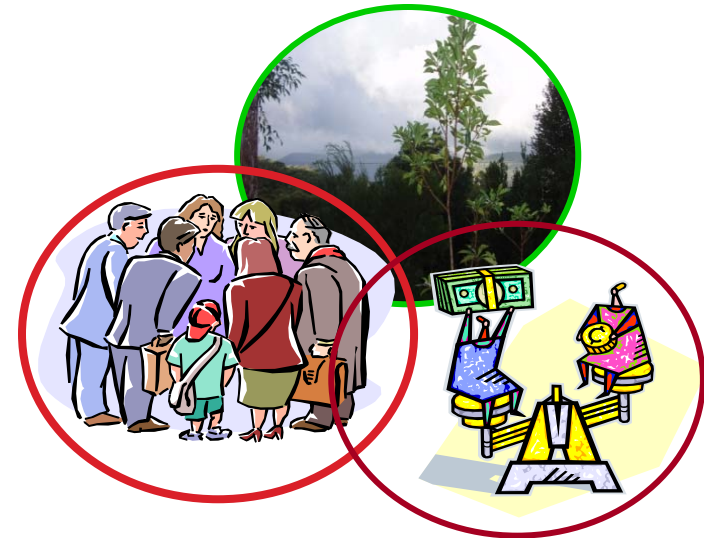


# Policies & fairness

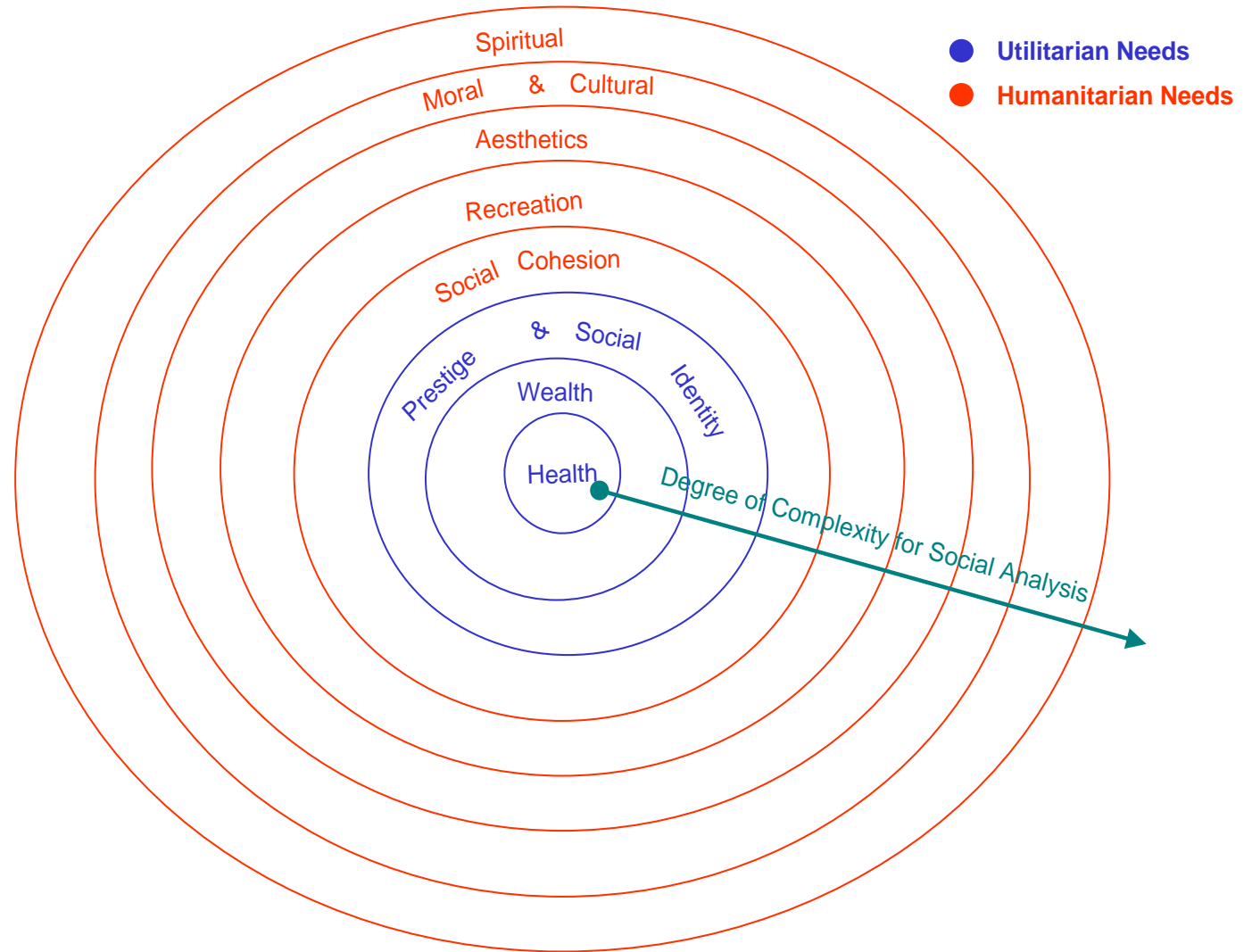
- ▶ How can we reconcile community values and principles of fairness and policies that are driven by economics?
  - ▶ How can we reduce the existing conflict and the future conflict that will occur with increasing resource scarcity?
  - ▶ Maybe we need to change the way we think about land and water planning and decision making.
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# What are we sharing?

- ▶ GigaLitres of water ..... Hectares of land ..... or benefits from water and land?
- ▶ The benefits are many and varied
  - depending on different needs



# Sphere of needs



# How can we measure the range of benefits?

- ▶ A range of tools are available for predicting or estimating the impacts of changes
  - such as impacts on water quality, ecosystem health, agricultural industries, regional employment and so on
- ▶ But how can we compare or measure the ‘benefits’ of change to include all human dimensions?
- ▶ There is a way



# Lake Mulwala Land and Water Management Plan

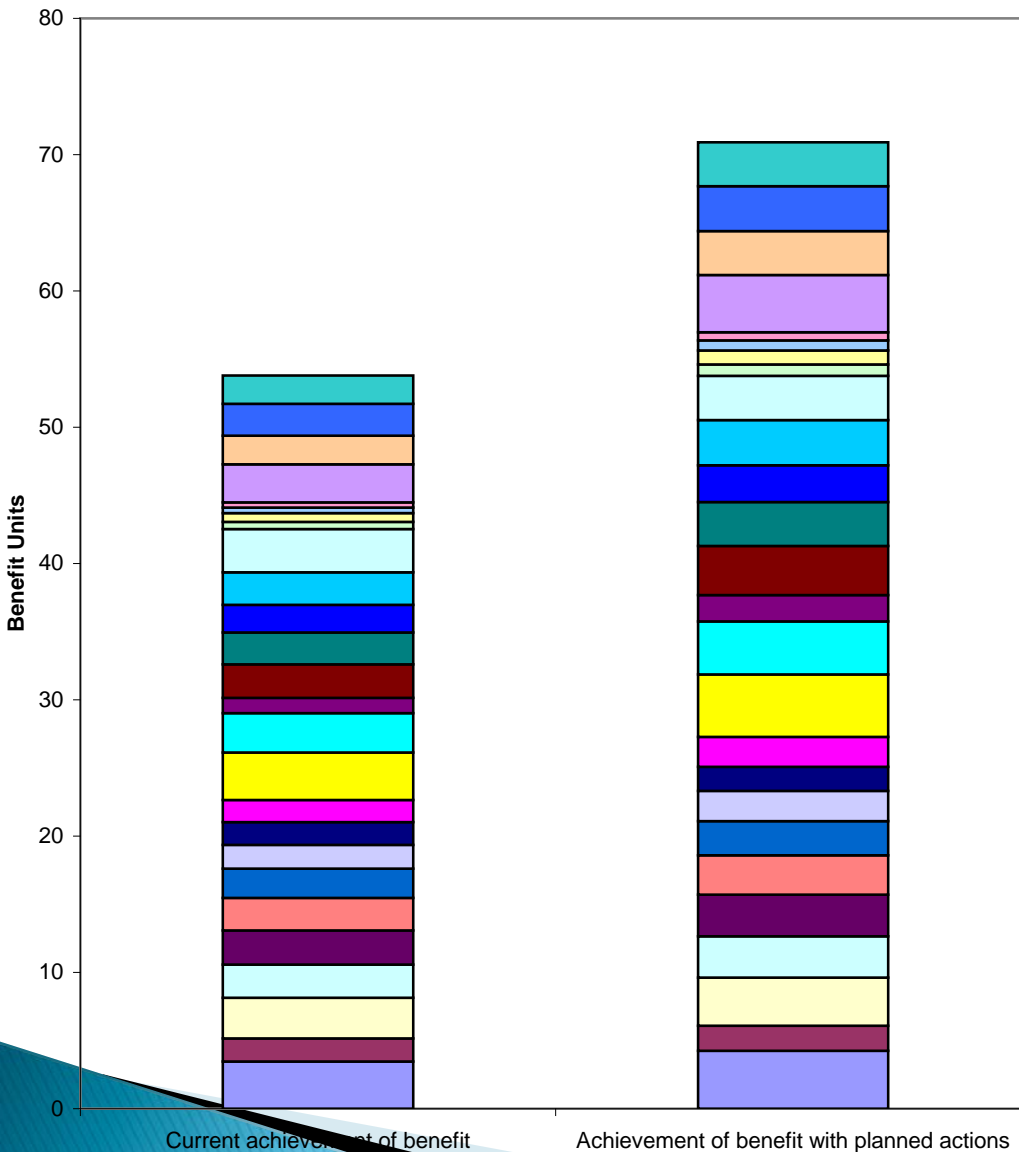
- “Twin Towns” on the Murray River (Yarrowonga–Vic and Mulwala – NSW) ;
- irrigation storage lake;
- local residents and absentee (city) landholders;
- big tourism/recreation industry and influx of population
- major conflict over the development of the Lake Mulwala Land and Water Management Plan
- social issues; economic issues; environmental issues

## ▶ Problem

- How can the Plan reflect fair sharing of the benefits of available resources

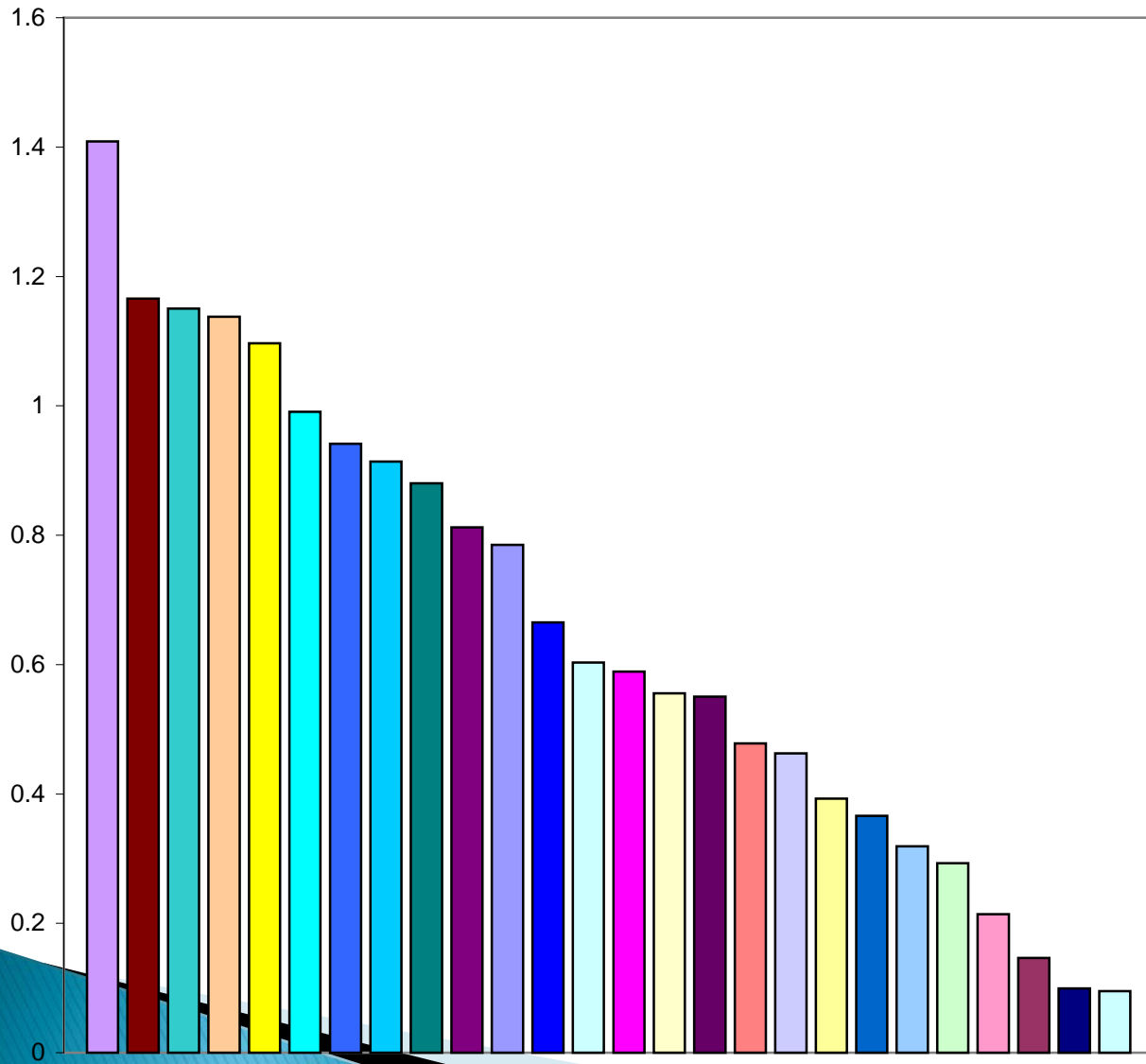


# Benefits – Lake Mulwala Plan



- close relationships between agencies and communities
- cooperation between communities along the river
- consistency of rules along the river
- understanding of what local activities do to downstream communities and the environment
- opportunity for indigenous participation in local bus
- cultural interation in the community
- understanding of indigenous culture
- protection of indigenous heritage
- a relaxed lifestyle
- Harmony on the Lake because of good boat management
- Opportunity to Appreciate Nature Around the Lake
- Public Access to Public Land Along the Foreshore
- Good Camping Facilities
- Waterfront Dining Opportunities
- Good Picnic Facilities
- Sufficient Facilities for Public Boating
- Expanded Industry Base
- Attracting New Resident Population
- A Range of Social Opportunities
- Financial Investment in the Town
- Good Choice of Local Town Services
- Stable Lake Banks
- Sustainable Native Species Around the lake
- Sustainable Native Species in the lake
- A Scenic Lake
- Good Water Quality in the Lake

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# Can this resolve the sharing conflict?

- ▶ This provides an alternative decision metric (benefit units) to the dollar
  - It can quantify the things that don't have a dollar value
- ▶ It provides a more easily defined relationship between the environment and people
  - It can quantify the intrinsic aspects of people and environment



# The Future

- ▶ Meeting the future challenges of climate change will need a new way of thinking
  - Rural communities will be closest to the impacts of climate change
  - City communities will have to play their parts
- ▶ Sharing dwindling and changed resources will mean sharing the benefits of the resources
- ▶ Recognising the interaction and the inter-relationship of people and the environment is paramount in defining the benefits



# Thank you

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