

# Scenarios and Socioeconomic outcomes

Simon Harris

## Background

- 3 scenarios
  - Current
  - Business as usual 20 years out
  - Extensive irrigation development 20 years out
- Scenarios explore futures, they are not forecasting
- Used to discuss changes to values
- Will be developing more scenarios in response to feedback, values

## Current situation

- Uses study catchment, including hill and high country
- Based on Agribase, information from people in catchment.
- Still some tidy up to do

## Business as usual

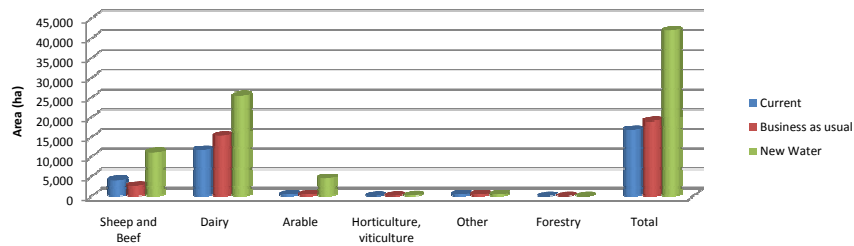
- No major extra irrigation
- Irrigation development through efficiency gains
- Most new irrigation near existing irrigation for infrastructure
- New irrigation is developed as dairy, with existing border also going to dairy
- Intensification of sheep and beef, dairy based on trends over last 10 years
- No change in upper catchment other than intensification
- Assumes current land use practice

Land Use	Historical change	Period	Extrapolated gain	Source
Dairy (MS)	18%	10	0.36	LIC data for Hurunui
Intensive sheep and beef irrigated (lambs/meat produced)	11%	9	0.22	Beef and Lamb Survey
Intensive sheep and beef dryland (lambs/meat produced)	17%	9	0.35	Beef and Lamb Survey
Hill country sheep and beef (lambs/meat produced)	25%	9	0.50	Beef and Lamb Survey

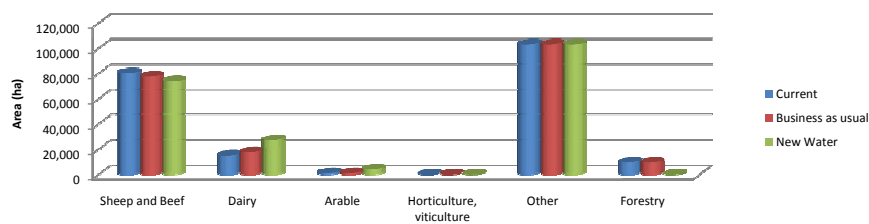
## Extensive irrigation development

- 42,000 ha irrigated
- Includes some efficiency gains and new water
- No specific water source
- Land use mix is based on HWP survey information
- Converts forestry to dairy
- Considerable new water on south of river
- Intensification as per Business as Usual
- No change in upper catchment other than intensification
- Current land use practice

Irrigated land by land use and scenario



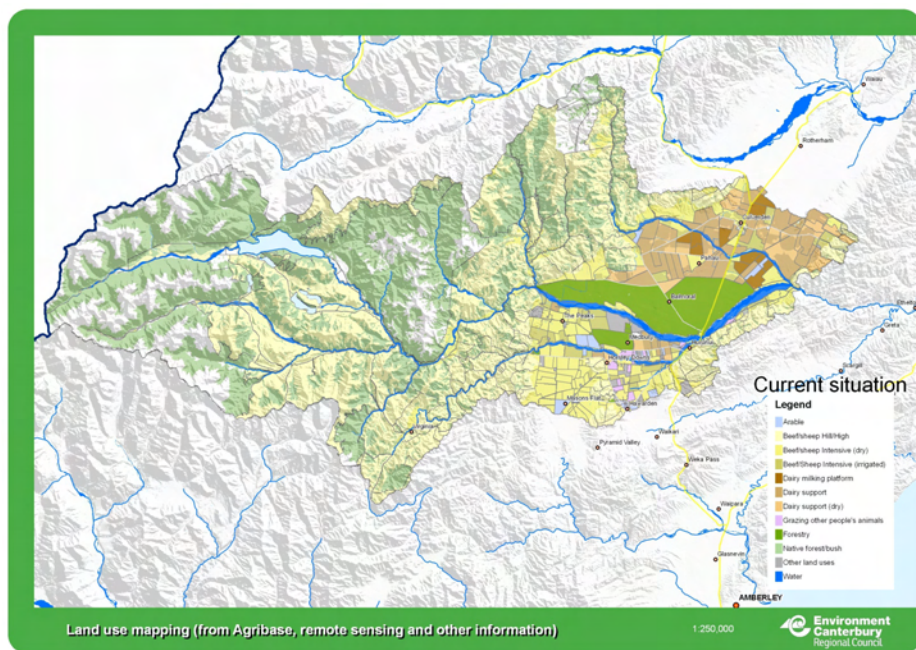
Total catchment area by land use and scenario



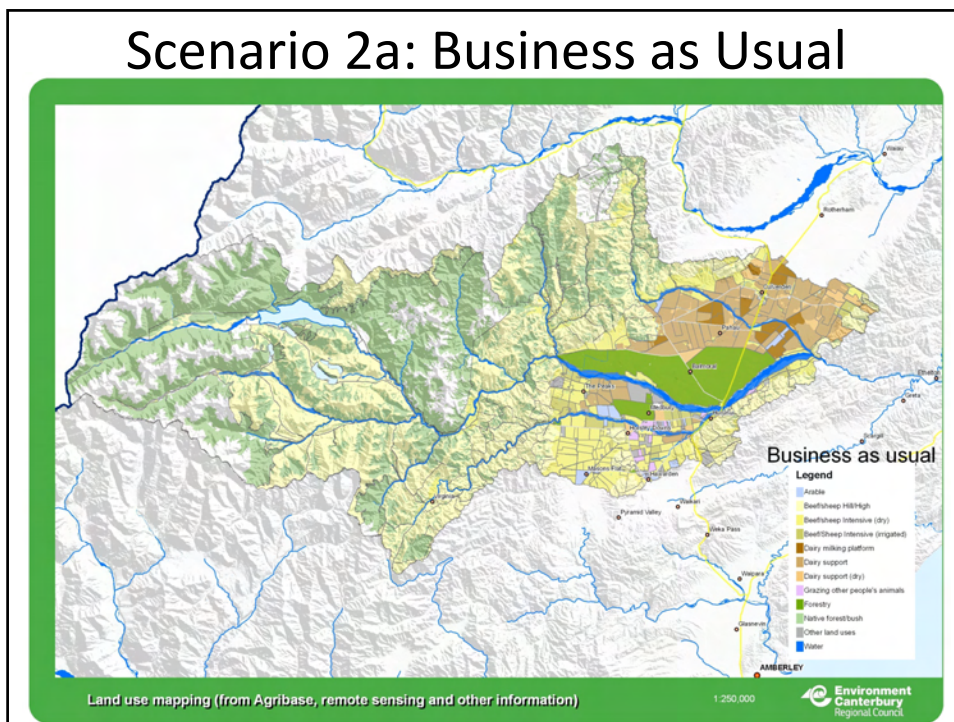
## Converted to GIS maps

- Not targeting specific properties
- Tried to keep random within some rules
- Aim to have general overview rather than specific locations correct
- Need to know whether we have put the land uses in areas where they can't go
- Use for guidance in a generalised sense – not a regulatory process

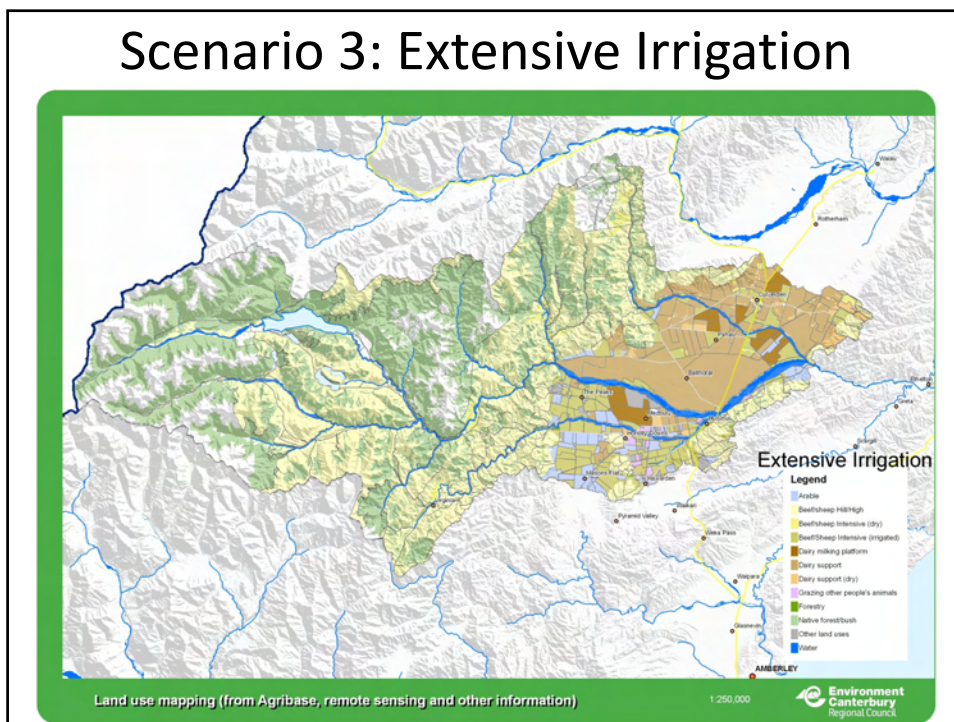
## Scenario 1: Current Land use



## Scenario 2a: Business as Usual



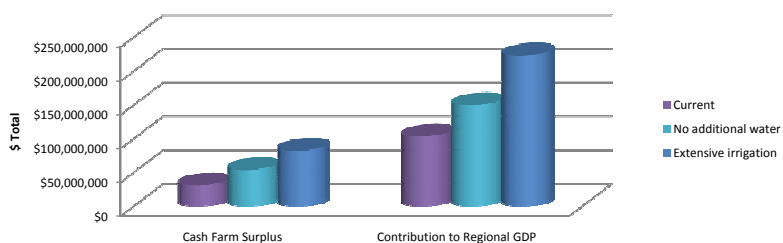
## Scenario 3: Extensive Irrigation



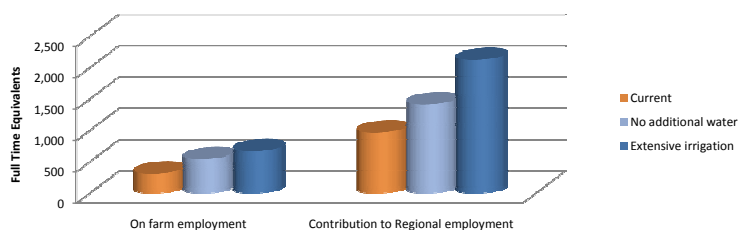
## Economic and employment outcomes

- Significant changes
- Business as Usual
  - Economic indicators up 8 – 12%
  - Employment up 16% on farm and contribution to region by 11%
- Extensive irrigation
  - Economic indicators up 60% - 70%
  - Employment up 2/3rds

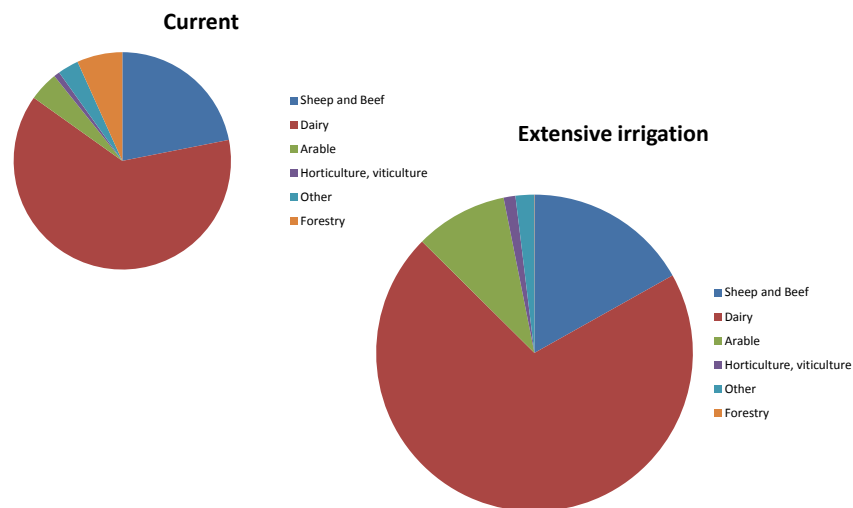
Total economic outcomes by scenario



Employment changes by scenario



## Economic and employment outcomes (share of on farm revenue)



## But!

- But: real trends in relative prices and labour productivity mean gains 20 years out are not as significant relative to current.
- For example labour productivity in the primary sector has increased at an average of 4% per annum (Source: Statistics NZ)
- Have to run to stand still

## Social implications

- Based on survey in Opuha (2002 – 03) that compared equivalent irrigated with dryland
- Irrigated/more intensive land to have:
  - More employees, and more of those full time
  - Younger, and tended to be better educated
- While dryland and irrigated properties spent similarly in local centres, the greater expenditure from irrigated properties resulted in 2.5 times the local expenditure per ha.
- Some studies have shown greater turnover of properties following irrigation development. Not found in Opuha

## How does this flow on to community?

- Increase in employment contributes to greater number of people
- Demographics reported likely to support greater vibrancy in schools, clubs, voluntary services . The absence of these has been shown to contribute to community decline.

## Other indicators

- Have some indicators for energy, greenhouse gases, protein production, transport, central and local government.
- Tend to follow revenue
- Can look at other indicators depending on what is important