

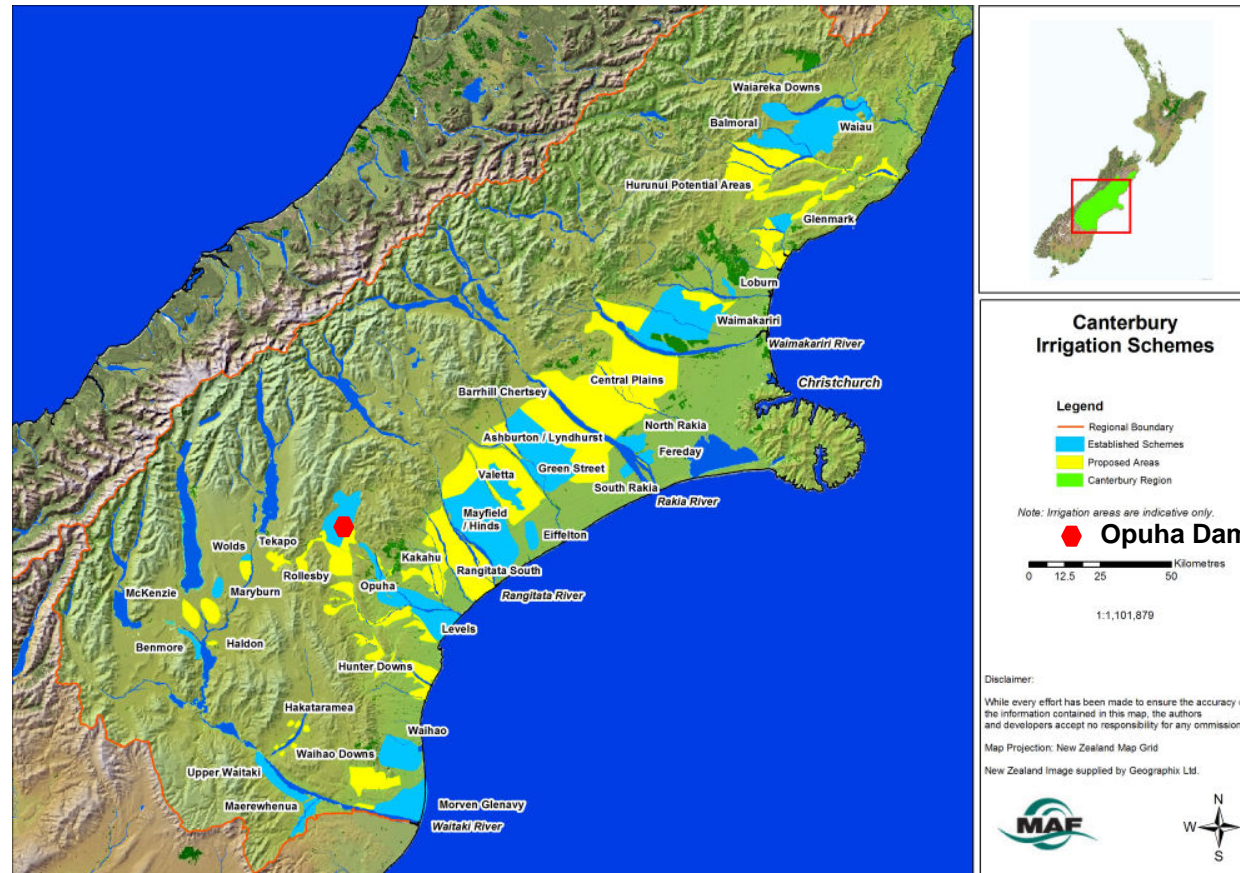
Overview of Irrigation in Canterbury

John Bright
Aqualinc

Content

- What is irrigated at present?
- What is Canterbury's irrigation potential?
- What will limit development?
- What level of development is practical?
- What are the benefits?
- What will it take to achieve them?

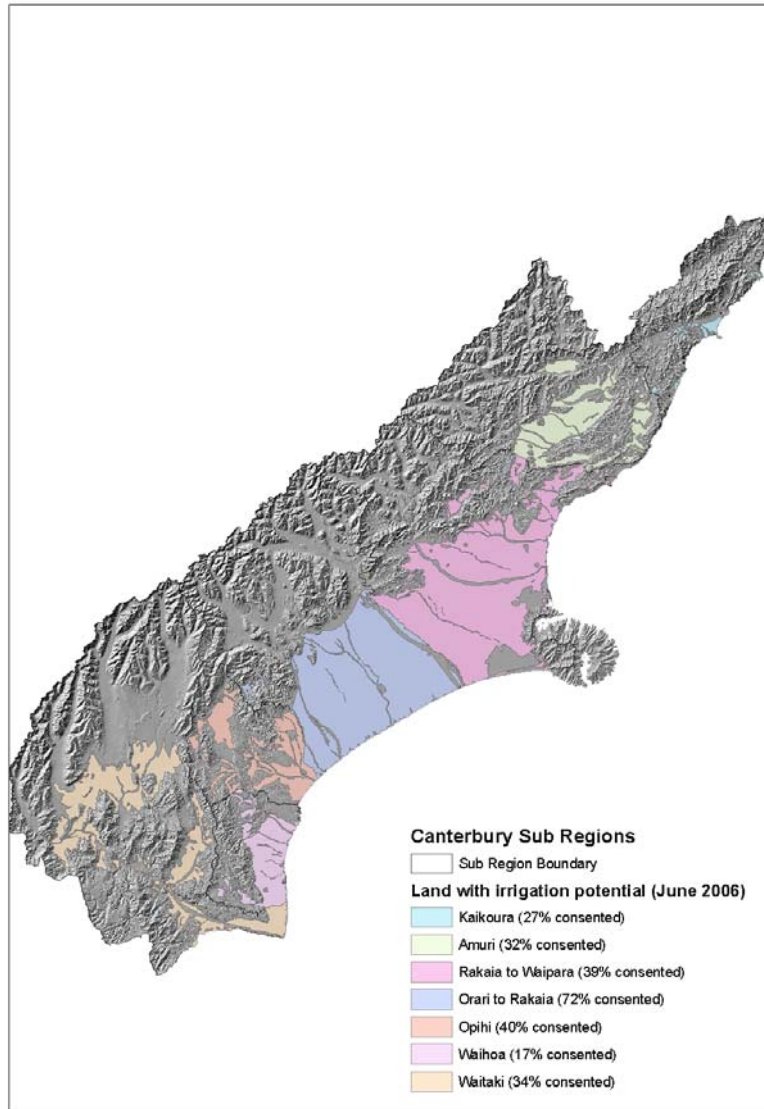
Existing Irrigation Development



Area consented for irrigation development ~ 650,000 hectares

54% of consented area supplied from rivers, 46% from groundwater

Canterbury's Irrigation Potential



Land with Irrigation Potential

~ 1,200,000 hectares

Consents issued to develop

~ 54% of potential area

Existing Development

~ 400,000 hectares

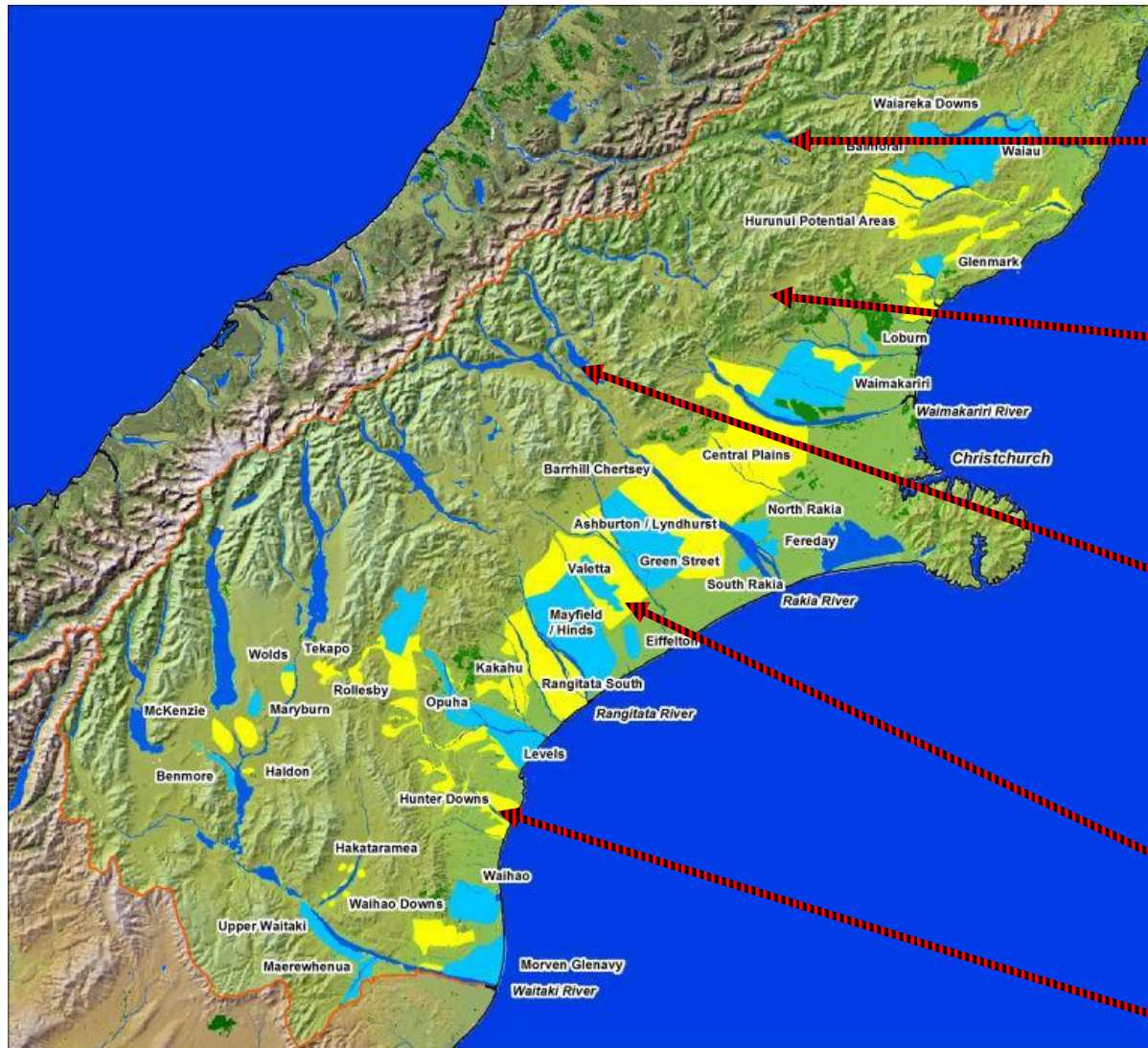
Limits on What is Achievable

- There is enough water!
- Water supply reliability is limiting, on a “business as usual” basis.
- Natural groundwater replenishment is limiting.
- Existing water allocations (Consents, Rules in Plans, NWCOS).
- Competition with Hydropower
- Environmental effects of water takes and of using water to intensify agricultural production.

How Much Land is it Practical to Irrigate?

Sub-Region	% of Potential	Increase on Existing Consented Area
Amuri	75	51,000
Rakaia to Waipara	85	183,000
Orari to Rakaia	90	103,000
Opihi	57	17,000
Waihoa – Otipua	67	40,000
Waitaki	45	20,000
	Total Incr	414,000

Storage option with the fewest new dams



Lake Sumner:

operate as storage, within the current lake level range

Lees Valley dam:

The only large dam required.

Serves Rakaia to Waipara

Lake Coleridge:

Operate within current lake level range, irrigation priority during irrigation season.

Serves Orari to Rakaia

On-Farm storage:

Serves Orari to Rakaia

Waitaki:

Serves Opihi to Waihao

What are the Benefits?

- \$1.1 billion p.a. increase in output at farm-gate.
- Net increase in hydropower output.
- Restored flows in our most heavily stressed rivers and streams.
- Greater resilience to climate variability / change.
- A solution to many of Canterbury's water allocation problems.

What will it take?

1. A Plan – ad hoc development won't do it.
2. Integrated management of rivers and groundwater systems.
3. Satisfy urban NZ that water quality will be protected
4. Satisfy urban NZ that flows in the smaller rivers & rivers will be improved
5. Re-allocation of water (to minimise cost and environmental impact).

What will it take?

6. Substantial efficiency gains.
7. Delivery of benefits beyond the farm gate.
 - a) Agricultural
 - b) Energy
 - c) Customary uses
 - d) Recreation
 - e) Environmental quality
8. \$2 - \$2.5 billion capital expenditure

Concluding Thoughts

- Agricultural development in Canterbury continues to be heavily dependent on water.
- Further development depends on Storage.
 - Store or Stagnate!
- It also depends on delivering environmental benefits.
- Much of what needs to be done to deliver these is beyond the private sector.