



National Land and Water
Resources Audit

Progress Report

providing information to enhance decision making

National Land & Water Resources Audit

A program of the National Heritage Trust

Outline

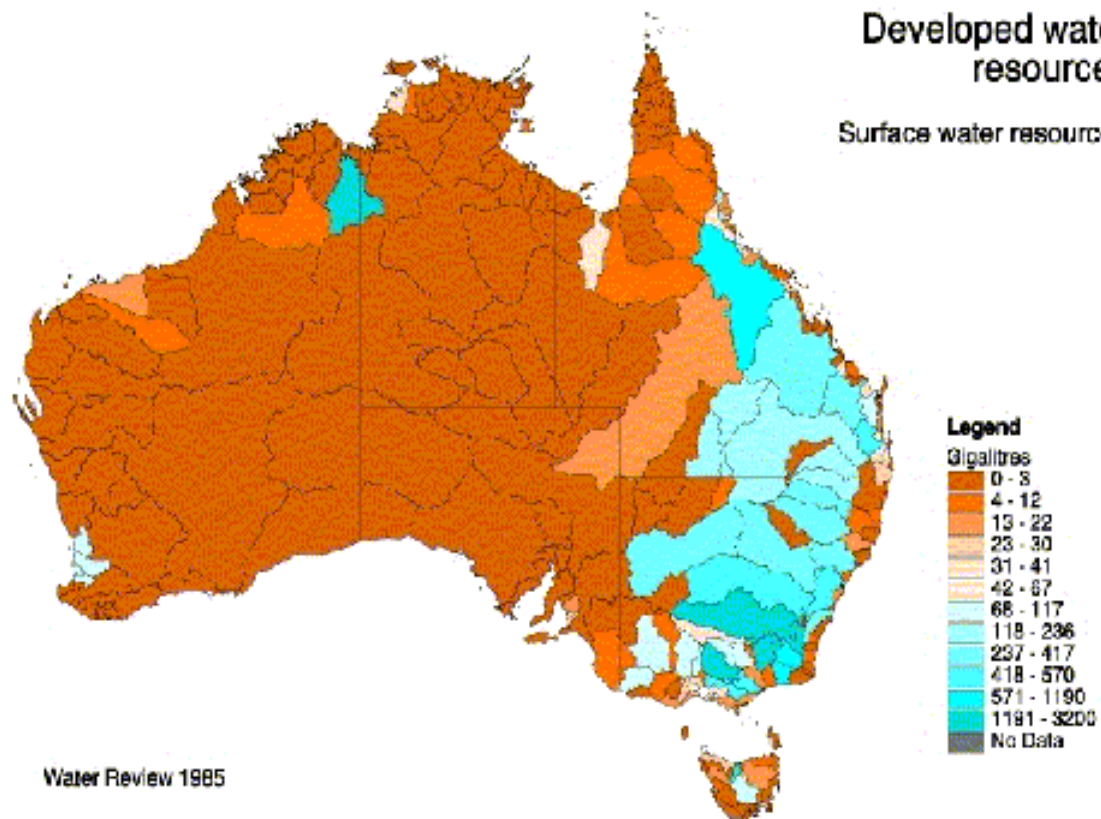
- * Overview of Audit - handout
- * Water Availability - progress and big issues for water resource development
- * Dryland Salinity - progress and need for rethink on land use and intervention strategies
- * Capacity for Change - natural resources is about people and economics
- * Next 12 months - information systems and products

Water Availability

- * Characterisation and categorisation of Australia's water resources - availability, allocation and use
- * Improved definition of Australia's surface & groundwater systems
- * Linking resource status with management and potential for development / need for protection / management
- * National summaries, comparisons with Review 85 and input to Australia wide Water Reform agenda
- * Input to ecological projects e.g waterway health

Developed water resources

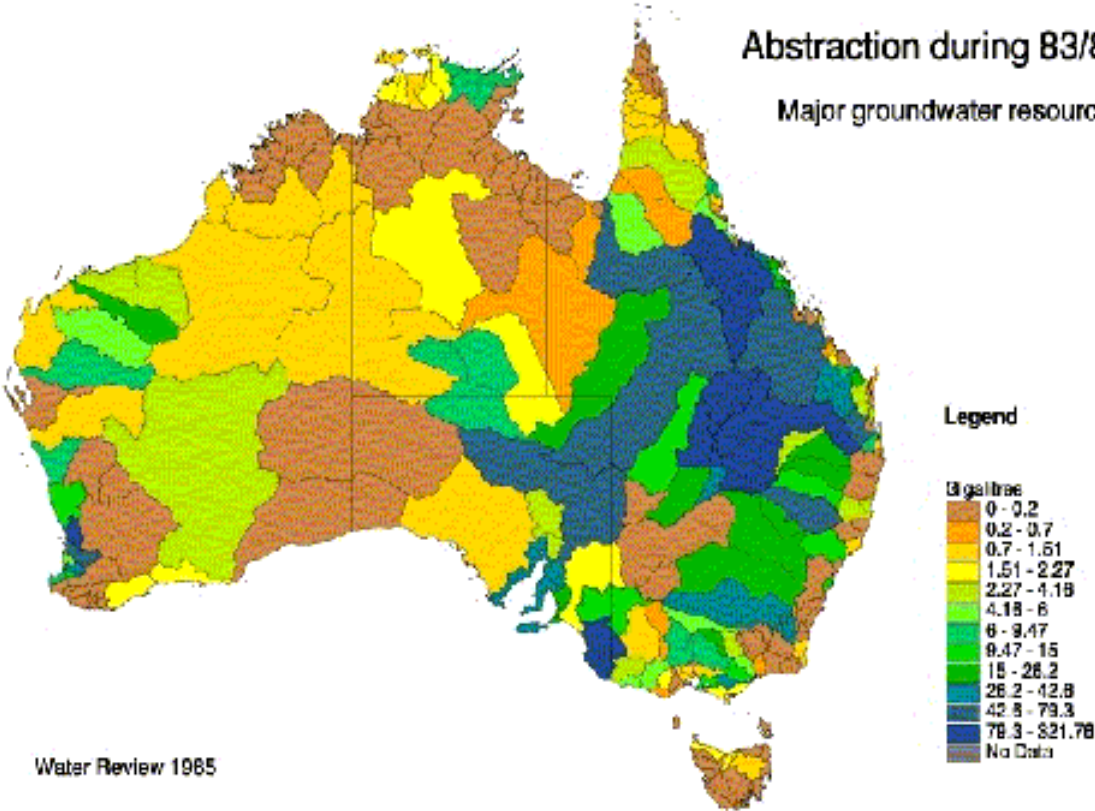
Surface water resources



Water Review 1985

Abstraction during 83/84

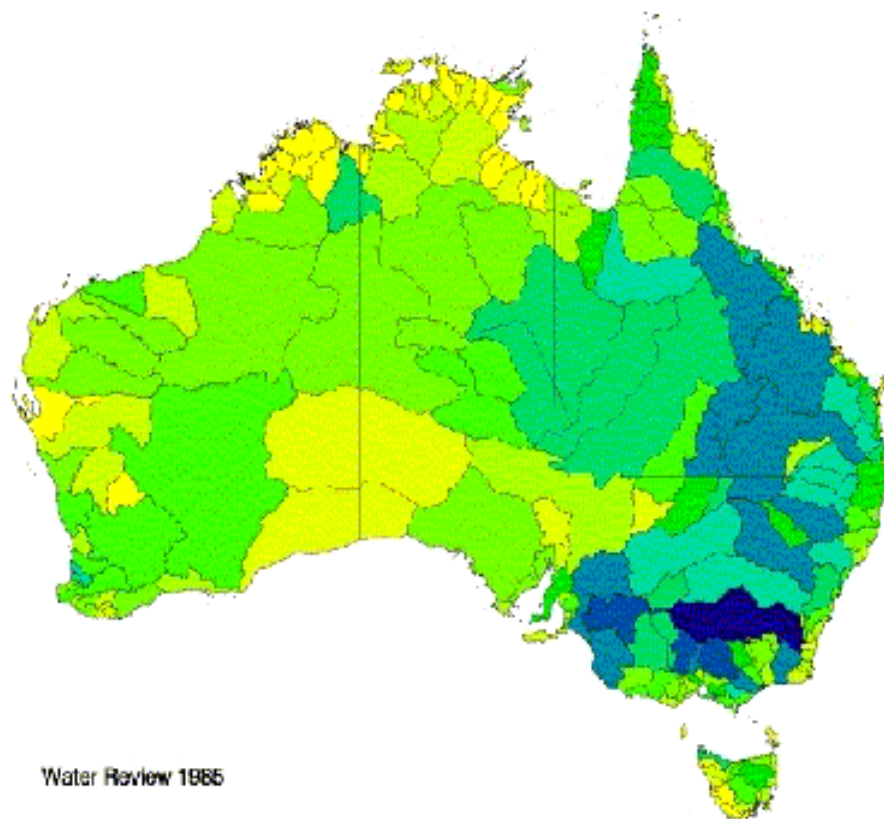
Major groundwater resources



Water Review 1985

Gross water consumed

Water use



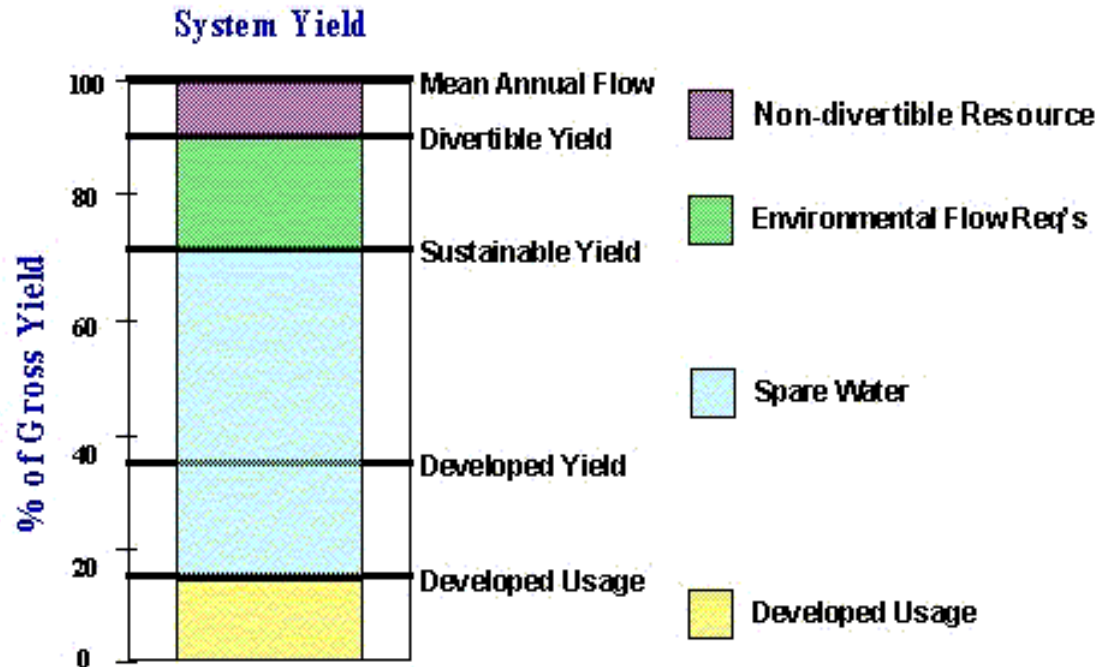
Legend

Gigalitres

0 - 0.45
0.45 - 1.2
1.2 - 3.01
3.01 - 6.25
6.25 - 12.0
12.0 - 22.05
22.05 - 39.83
39.83 - 63.25
63.25 - 130.78
130.78 - 337.19
337.19 - 948.1
948.1 - 1618.7

Water Review 1985

The Assessment Framework



Key Issues for water management — information perspective

- ✿ No Australia wide capacity to report: quantity or quality
 - Consistency in allocation methods e.g volumetric
 - Oceans of data but limited capacity to characterise changes in flow regimes
- ✿ Definition and management of groundwater systems
- ✿ Resource protection - taking a broader view of hydrological functions
- ✿ Integrated natural resource management

Key Issues for water management — resource use perspective

- * Limited water use data
- * Irrigation accounts for ~72% use - need intensive management
- * Water use efficiency measures and incentives limited in rural sector
- * Demand management effective in urban sector
- * Continued shift to higher value use - water not necessarily a limit to economic growth

Key Issues for water management —resource development perspective

- ✿ Increase in non public rural infrastructure development - groundwater, riparian and farm dams
- ✿ Conjunctive use of surface and groundwater poorly managed
- ✿ Differing development status across Australia - development opportunities in Qld, NT and WA
- ✿ Water Infrastructure Development / Redevelopment Guidelines






Dryland Salinity

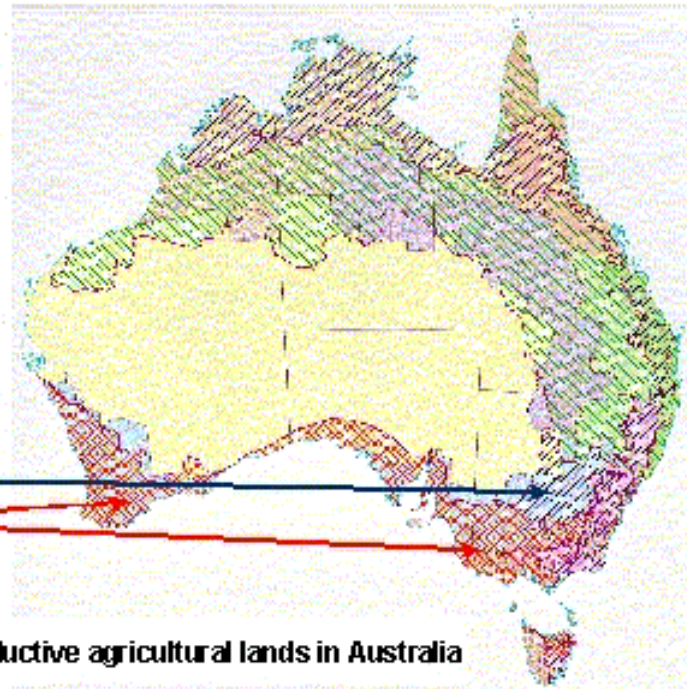
- ✿ Current agricultural production loss ~\$130M pa with capital value ~\$700M
- ✿ 2.5M hectares affected - likely to increase to 15M hectares
- ✿ Infrastructure and environmental assets - yet to be costed - exceed \$140M pa
- ✿ Real costs masked by productivity gains
- ✿ Stream salinity increases will be marked

Areas at Risk of Dryland Salinity

Risk of Dryland Salinisation

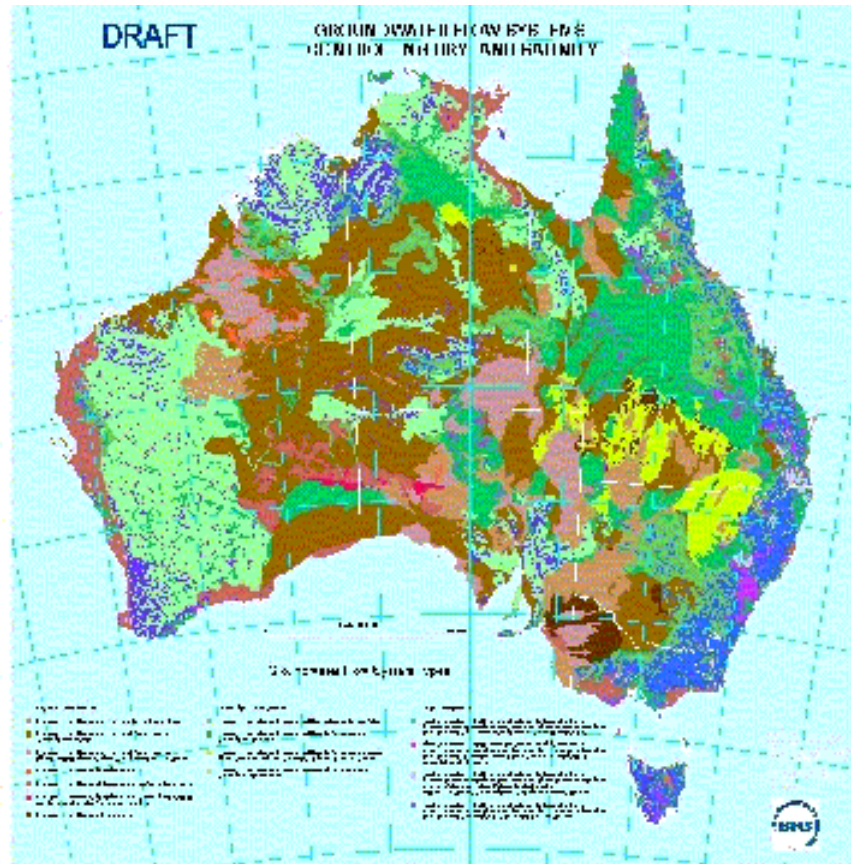
*Based on average annual rainfall and
rainfall winter-summer dominance*

-  No risk
-  Low risk
-  Moderate risk
-  High risk
-  Annual precipitation isohyet 400mm



These are among the most productive agricultural lands in Australia

Salinity Provinces



Dryland Salinity - Catchment Water Balance

- ✿ Catchments can be grouped:
 - Do nothing
 - Major change in land use to protect high value "down groundwater slope" lands
 - Land management for improved water balance
- ✿ Trade offs involving
 - Biophysical
 - Economic
 - Social

Dryland Salinity - Policy Issues

- ✿ Resource protection and within catchment transfers of “services”
- ✿ Trade-offs - with recognition that in many catchments - “live with salinity”
- ✿ Incentives and direct intervention for major changes in land use
- ✿ Saltland agronomy
- ✿ Community not just rural based policy

Capacity for Change

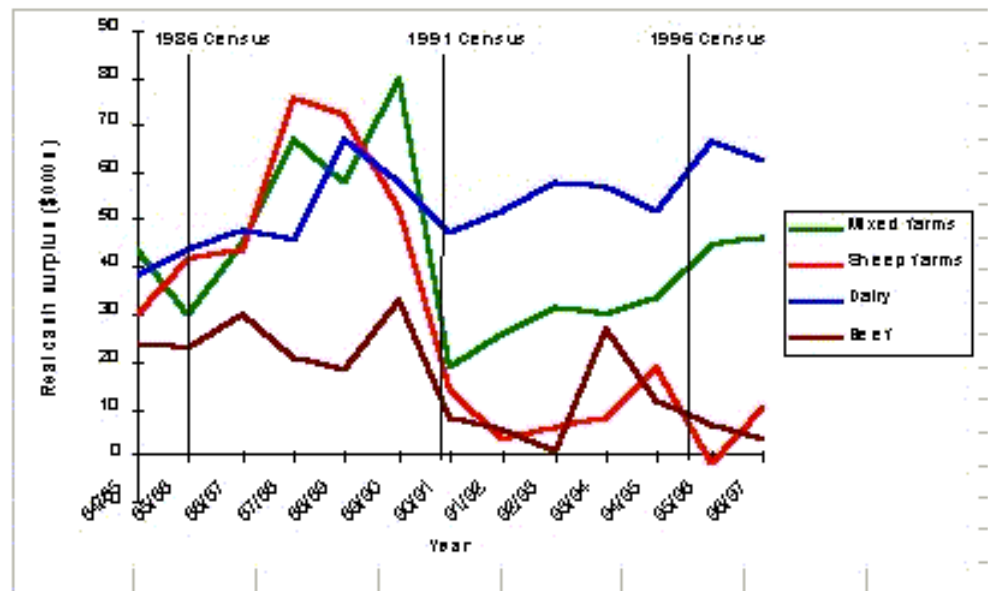
- ✿ Natural resources management changes require achievability and practicality - economic and social imperatives
- ✿ Scales differ to biophysical
- ✿ Science poorly developed
- ✿ For sustainability - major changes in farming systems and policy framework - particularly in dealing with issues like dryland salinity

Catchment Plan Assumptions

- ✿ Land use in catchments is unsustainable.
- ✿ Large areas are managed as commercial farms.
- ✿ Farm management practices need to change.
- ✿ These changes will need to be self funding.
- ✿ Government will play a catalysing role.
- ✿ The structure of agricultural communities will adjust following classic patterns of aggregation.
- ✿ Catchments will remain as farming communities

Trends in mean real farm cash surplus

[Neil Barr, DNRE, Vic]



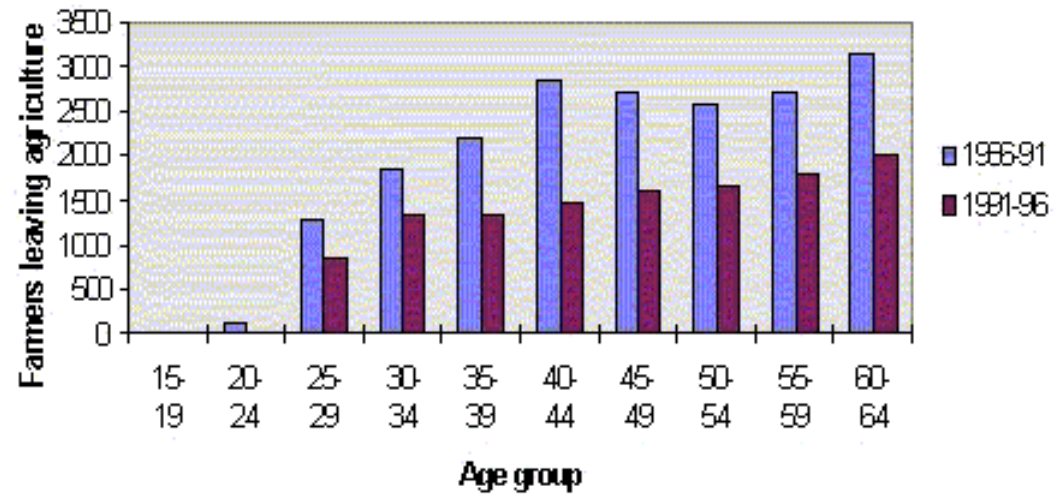
Adjustment assumptions

- ✿ Poorly performing farm businesses will encourage exit from agriculture
- ✿ Property aggregation will follow, resulting in fewer, larger businesses.
- ✿ Larger businesses will be better able to and will invest in catchment management

Exits from agriculture

MDB 1986-96

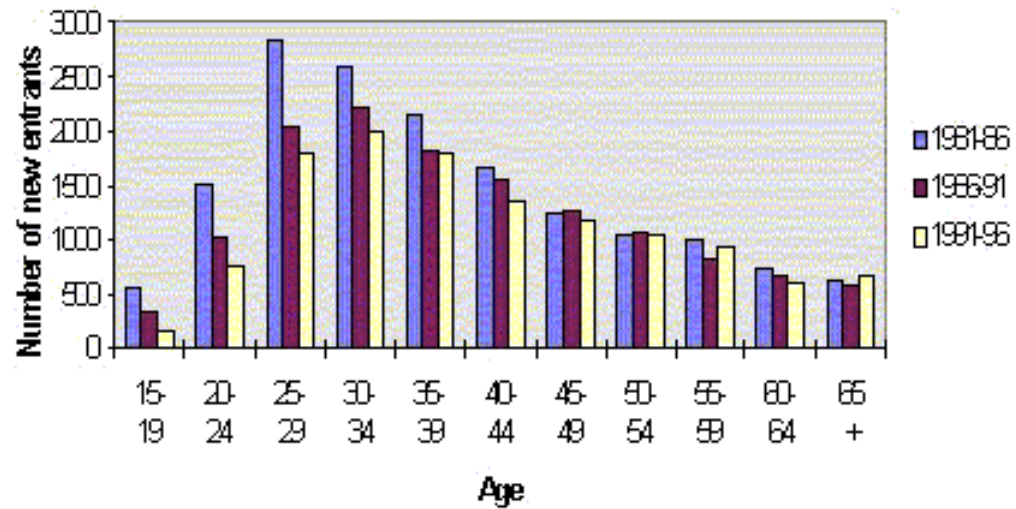
[Neil Barr, DNRE, Vic]



Entry to farming by age

MDB 1986-96

[Neil Barr, DNRE, Vic]



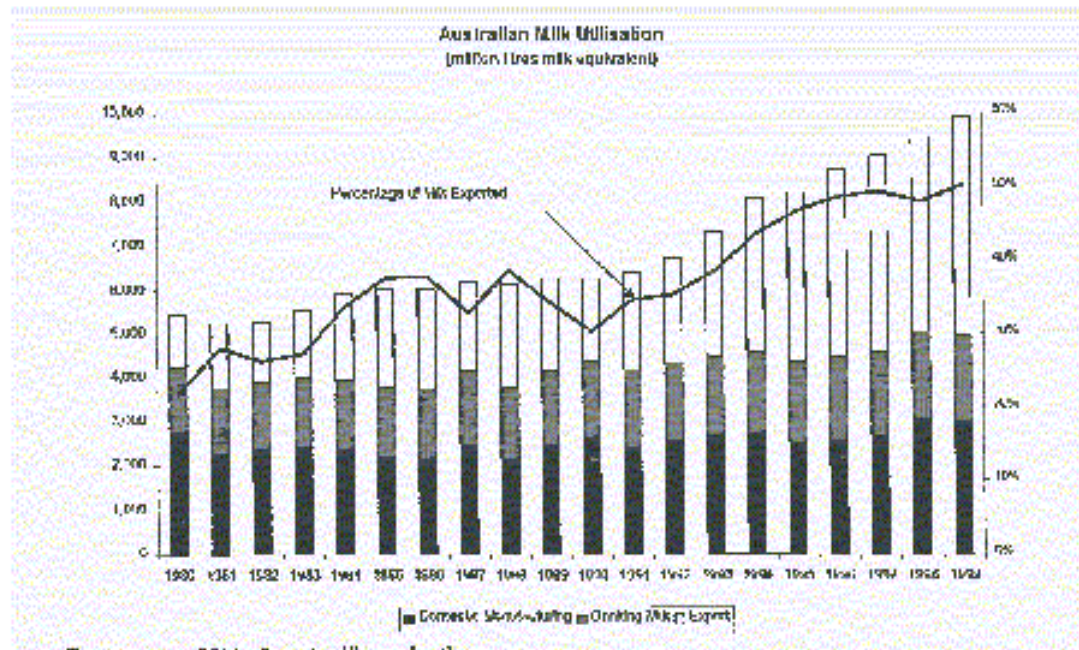
Implications for salinity control

- * Commercial viability of farms in salt risk areas will rapidly decline.
- * Reduces the likelihood of implementing productivity based salinity control measures
- * Structural change may be driven by demographic and non economic forces in next 10 years.
- * Opportunities for radical land use with generational change across landscape.

Dairying - a good news story

- ✿ Continued increase in milk production
- ✿ Continued improvements in yield
- ✿ Herd numbers ~ static
- ✿ Value added terms - largest rural industry - 60,000 people
- ✿ Increasing export profile - now \$2B pa

Australian Milk Production



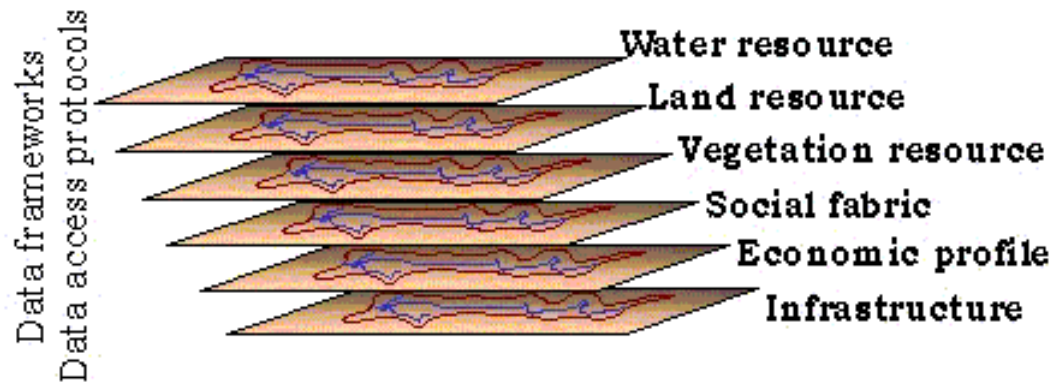
Dairy partnership

- ✿ Dairy industry, DRDC and Audit - led by industry
- ✿ 3 key aspects:
 - What are production opportunities?
 - How / where can industry be more sustainable?
 - What are impediments / opportunities for development?
- ✿ Action Plans for 8 Dairy Regions

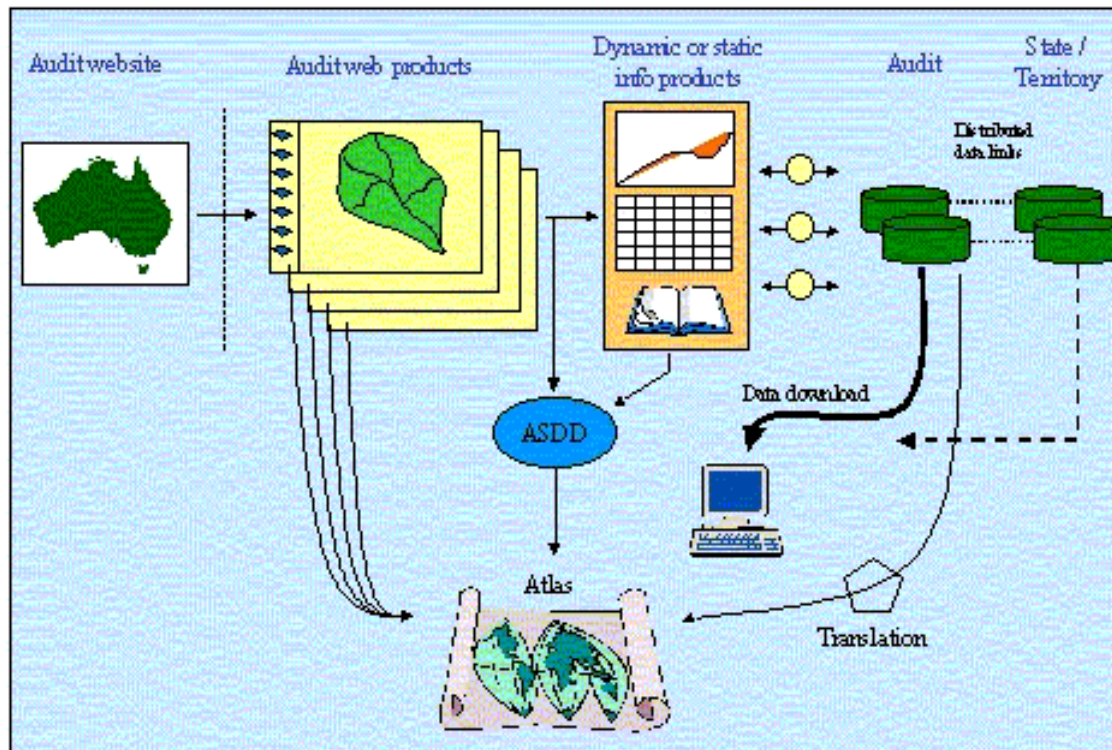
Development Opportunities

- ❁ Deregulation provides climate and opportunities for change
- ❁ Action plans will provide strategic direction
- ❁ An Infrastructure Package could include:
 - Regional works - irrigation development, transport, effluent management, processing / value adding, riparian protection,,
 - On farm incentive schemes for regional issues - soil rehabilitation, laneway management
 - Monitoring, assessment & information collection activities

Audit Final Reporting



Integrating natural resource management across
biophysical, social and economic data sets



After the Audit...

- ✿ Increasing standardisation in data collection
- ✿ Information products for policy and decision makers
- ✿ Better definition of problems and opportunities
- ✿ Improved access to information for industry and community
- ✿ Australia-wide assessment of natural resources and interaction with resource uses

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