

# Irrigation Efficiency & Benchmarking

## A national perspective

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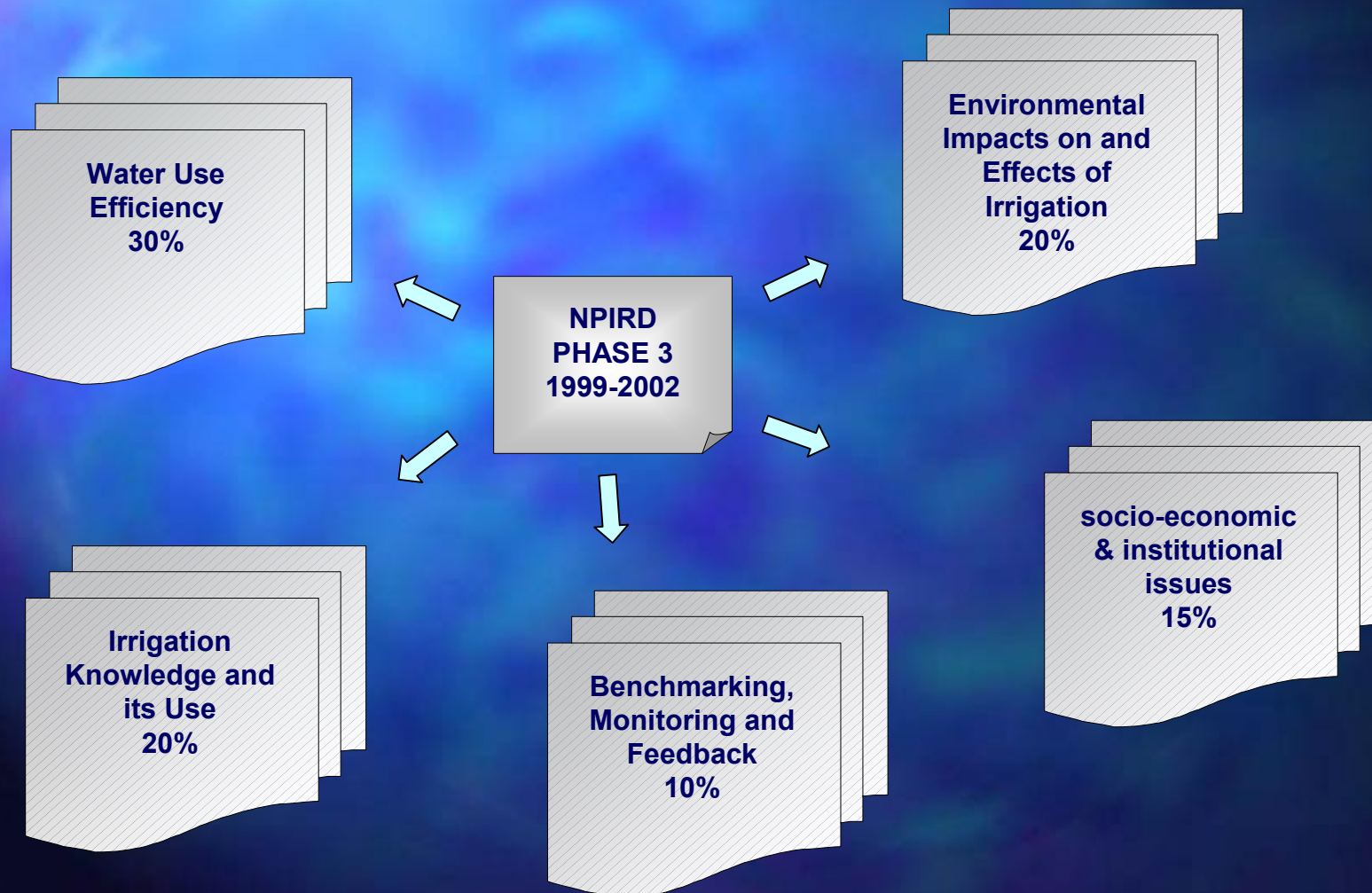
# NPIRD Historical Perspective

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## ■ Investment Phases

- Phase 1 - Broad, technical based.
- Phase 2 – 70% of funds on WUE including benchmarking, mixture of technology and application.
- Phase 3 - Broader range of issues but more strategic focus. 30% of funds on WUE and 15% on benchmarking.
- From 4 partners to 7. From \$1.2 million to \$1.4 million p.a (cash contributions for projects excluding researcher contributions)
- Phase 4 – currently being scoped. Potentially \$2 million.

# Program Priorities 1999-2002





# Elements of Action Plan

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## 1. Water Use Efficiency

- 1.1. conceptual frameworks within which WUE principles are applied.
- 1.2. systematic processes that underpin increased adoption

## 5. Benchmarking monitoring & feedback

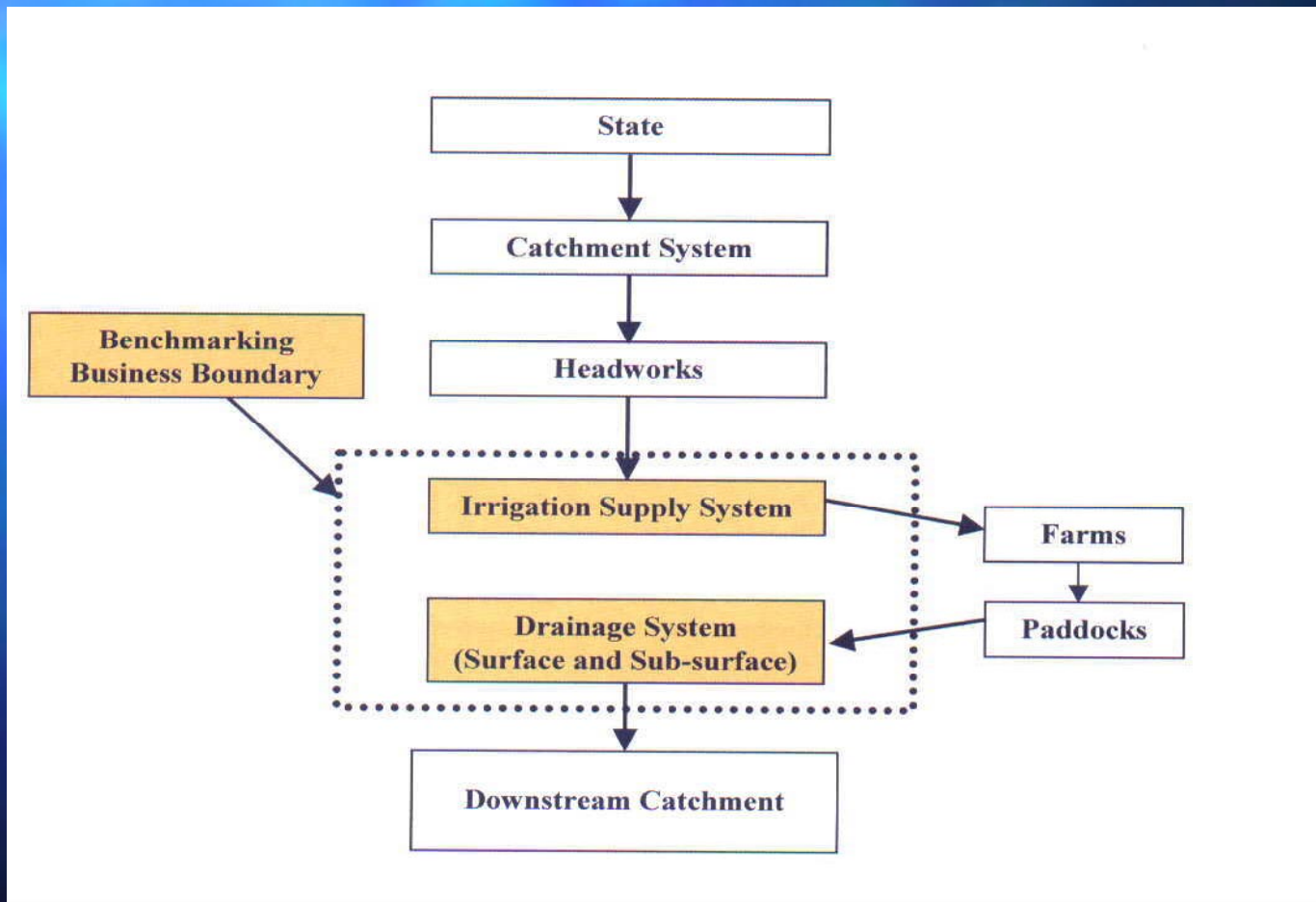
- 5.1. Strategic research to underpin benchmarking activities
- 5.2. Benchmarking activities

# Rationale for data collection

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- Why collect national data?
  - Statistics?
  - Comparative analysis/benchmarking?
  - Promotion?
  - Government audit / compliance?
- What is the best mechanism in each case –
  - National scheme run by central body?
  - National scheme with multiple collection points?
  - Additional ABS questions?
  - Development and promotion of a structured common framework?
- What is the objective and structure that is most likely to be successful?

# Benchmarking conceptual framework





# Benchmarking Irrigation Distribution

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## NPIRD Project – Benchmarking Service providers

- Commenced pilot in 1996 – 6 authorities
- Now in 4<sup>th</sup> year of data collection with 47 participating irrigation utilities (about 50% of irrigation in Australia).
- Budget \$120K (in addition to previous investments)
- Issues benchmarked –
  - Industries overview
  - System operational issues (services provided)
  - Environmental issues (activities and performance measures)
  - Business processes (including OH&S)
  - Financial performance measures
- Investigation / scoping of on-farm benchmarking

# Benchmarking on-farm

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## NPIRD Scoping project

- Audit, workshop and scoping report
- Survey of 38 selected national stakeholders
- Only a representative sample
- Total of 31 on-farm surveys in the last 5 years.
- Overall many of the survey questions were in common, although no linkages



# Survey of on-farm benchmarking

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- Who Carried Out the Surveys? (some overlap)
  - 17 (55%) were undertaken by agricultural industry groups or focussed on a specific agricultural industry group (alone or in conjunction).
  - 9 (29%) were undertaken by Irrigation Supply Authorities (alone or in conjunction).
  - 17 (55%) were undertaken by government agencies alone (DRDC and CRC not treated as government).

# Survey of on-farm benchmarking

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- What was the focus of the surveys?
  - 14 (45%) focussed on Water Use Efficiency
  - 13 (41%) dealt with overall assessments of performance
  - 7 (22%) included environmental aspects in their survey.

# Survey of on-farm benchmarking

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- What was the frequency of surveys?
  - 16 (51%) planned to be undertaken annually.
  - 3 (10%) occur every 2-3 years.
  - 4 (13%) are undertaken every 4-5 years.
  - 8 (25%) are not planned to be repeated.
  - 13 - 18 (42%-58%) are long-term surveys.



# National WUE benchmarking – the requirements / impediments

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- **Robust / consistent ETc measurement**
  - ETc generally the largest component of water balance – potential for greatest errors
  - Inconsistency in methodologies
  - NPIRD consultancy
- **Structured national framework**
  - Disparate collection with different methods
- **National champion**
  - Industry fragmentation and government withdrawal
  - Lack of national vision
- **Common purpose**
  - Common objectives/purpose difficult to establish
  - Fear of data misuse.

# NPIRD Investigations

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- **Scoping report on feasibility of on-farm benchmarking (received)**
- **Second scoping report – clarification of options and objectives (in progress)**
- **Further investments**
  - Pilot study(s)?
  - National framework for data collection and collation?
  - Supplementary ABS statistics?

# Water Use Efficiency

## ■ How does Australia compare?

	AUSTRALIA	INTERNATIONAL
DELIVERY EFFICIENCY	75% channel (45-100) @ 87% pipe (72-100)	37% ~
ON-FARM EFFICIENCY EXAMPLES	Rice – 11.5 ML/Ha (99/00) # Cotton – 200-227 kg/ML	Rice – 36 ML/Ha (1999) # Cotton – 59-200+ kg/ha *

~ Postel (1986), # RGA pers comm. (2001), @ ANCID benchmarking report (2001). \*Anthony (1998)



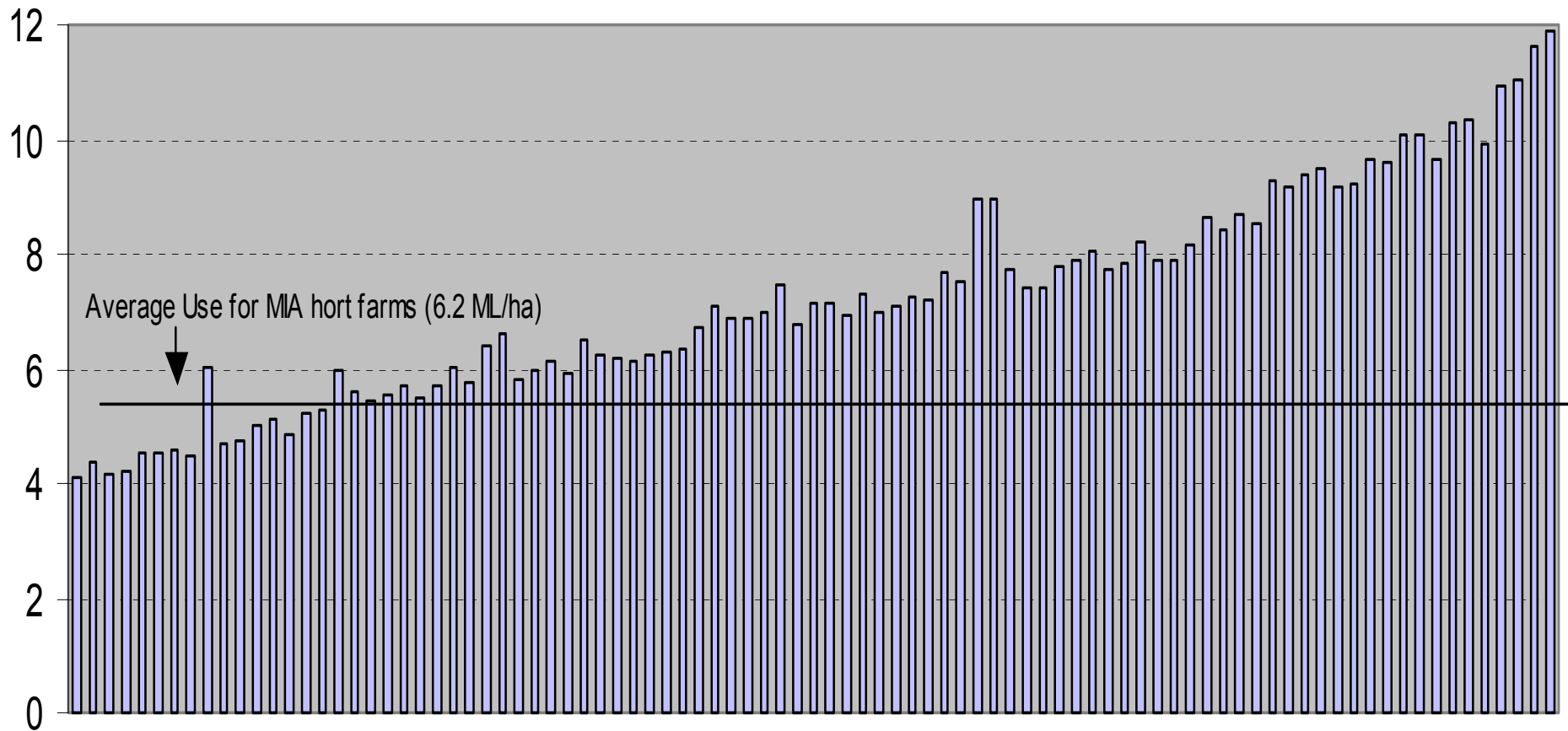
	<b>Lowest</b>	<b>Average</b>	<b>Highest</b>
<b>Dairy Pasture</b> <b>ML/Ha ~</b>	6	9	17
<b>Peach/Nect.</b> <b>ML/Ha *</b>	2.8	5.7	10.6
<b>Pear</b> <b>ML/Ha *</b>	3.3	5	6.8
<b>Maize</b> <b>ML/Ha #</b>	5.6	n/a	12
<b>Citrus</b> <b>ML/Ha #</b>	4	n/a	13.5
<b>Cotton</b> <b>ML/Ha #</b>	4	n/a	12

~ DRDC - More Milk and Dollars, \* MDBC project I7044, # Schofield and Thompson

# Variation in water use per hectare

## Pilot Farms (120 from 1800)

### MIA 1998



# Water Use Efficiency

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- Quality of national data?
  - Generally poor
  - Collection mostly driven by short term projects with little consistency :-
    - Spatial
    - Temporal
    - Methodological
- Ownership of national data
  - Held by plethora of organisations / individuals
  - NLWR Audit has helped