Murray-Darling Basin Environmental Water Knowledge and Research Project (MDB EWKR)

International River Symposium
Brisbane, September 2015

Introduction

- Murray-Darling Basin Environmental Water Knowledge and Research Project (MDB EWKR)
- $10m over 5 years
- The Project involves:
  - collaboration between research institutions, government agencies and catchment management authorities for scoping, planning and delivery
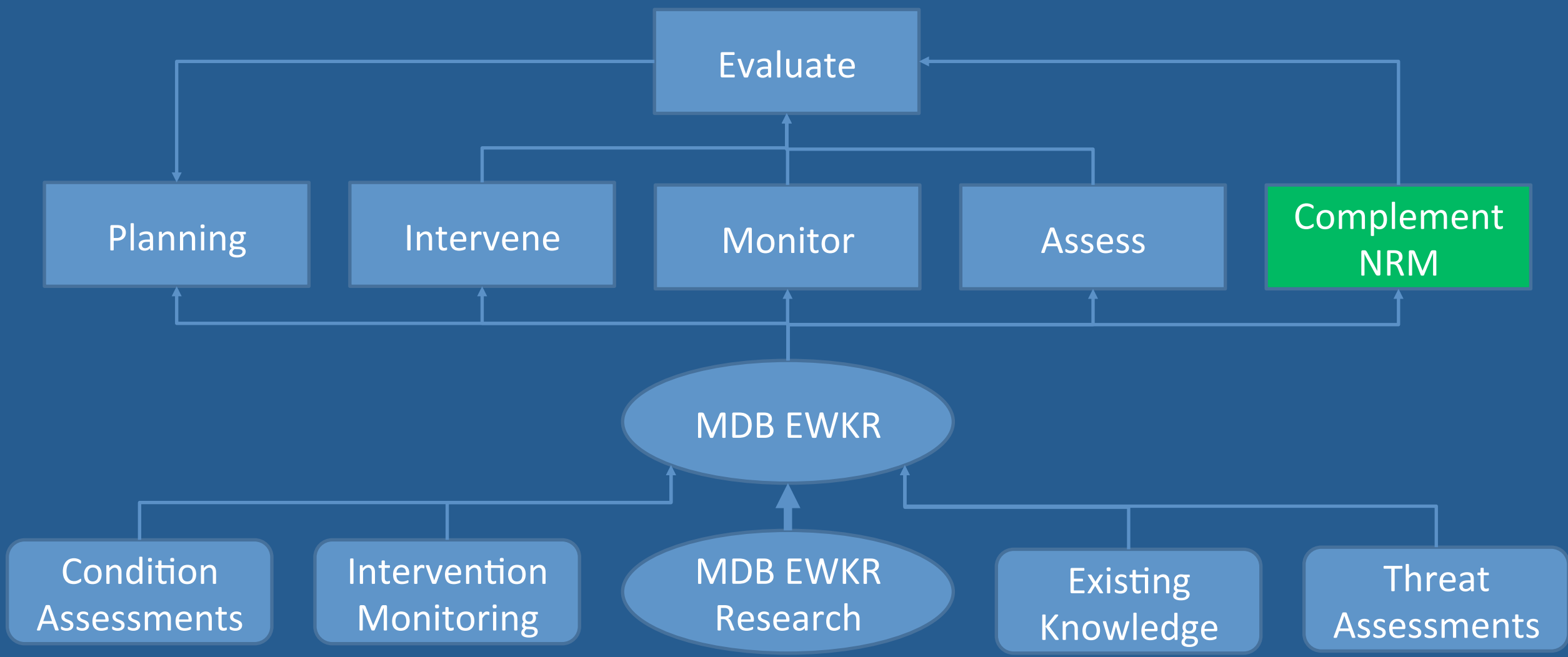
Objectives

The project will:

- Assist in explaining Basin Plan outcomes

- Support environmental watering and NRM decision making

By improving the understanding of:

- The links between ecological responses to flow and medium and long-term changes in condition

- The impacts of threats that affect the outcomes of flow delivery

Introduction

- Presentation concerns relationship between MDB EWKR and its external environment

- Management Context

- Information and Knowledge Context

- Path to Impact

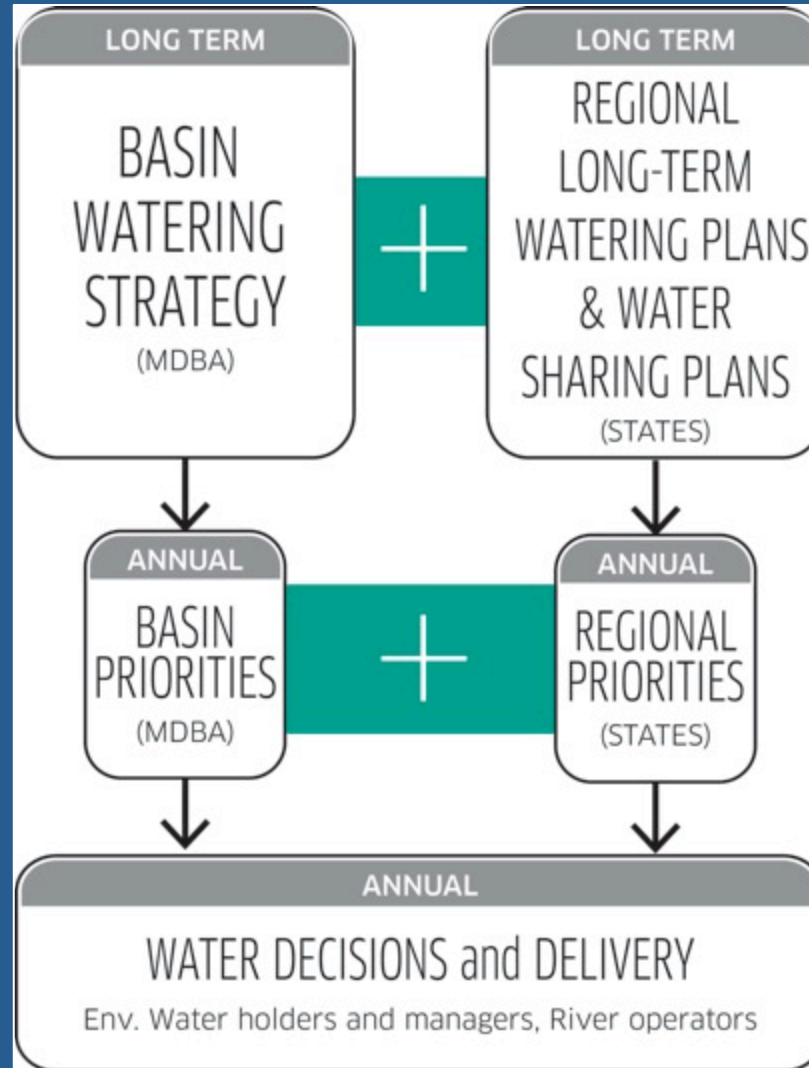# Environmental water management in MDB

Diagram courtesy of the MDBA

Management Context - Commonwealth

- Commonwealth
  - MDBA – Plan and Prioritise
  - Commonwealth Environmental Waterholder – Manage water: contribute to Basin Plan objectives
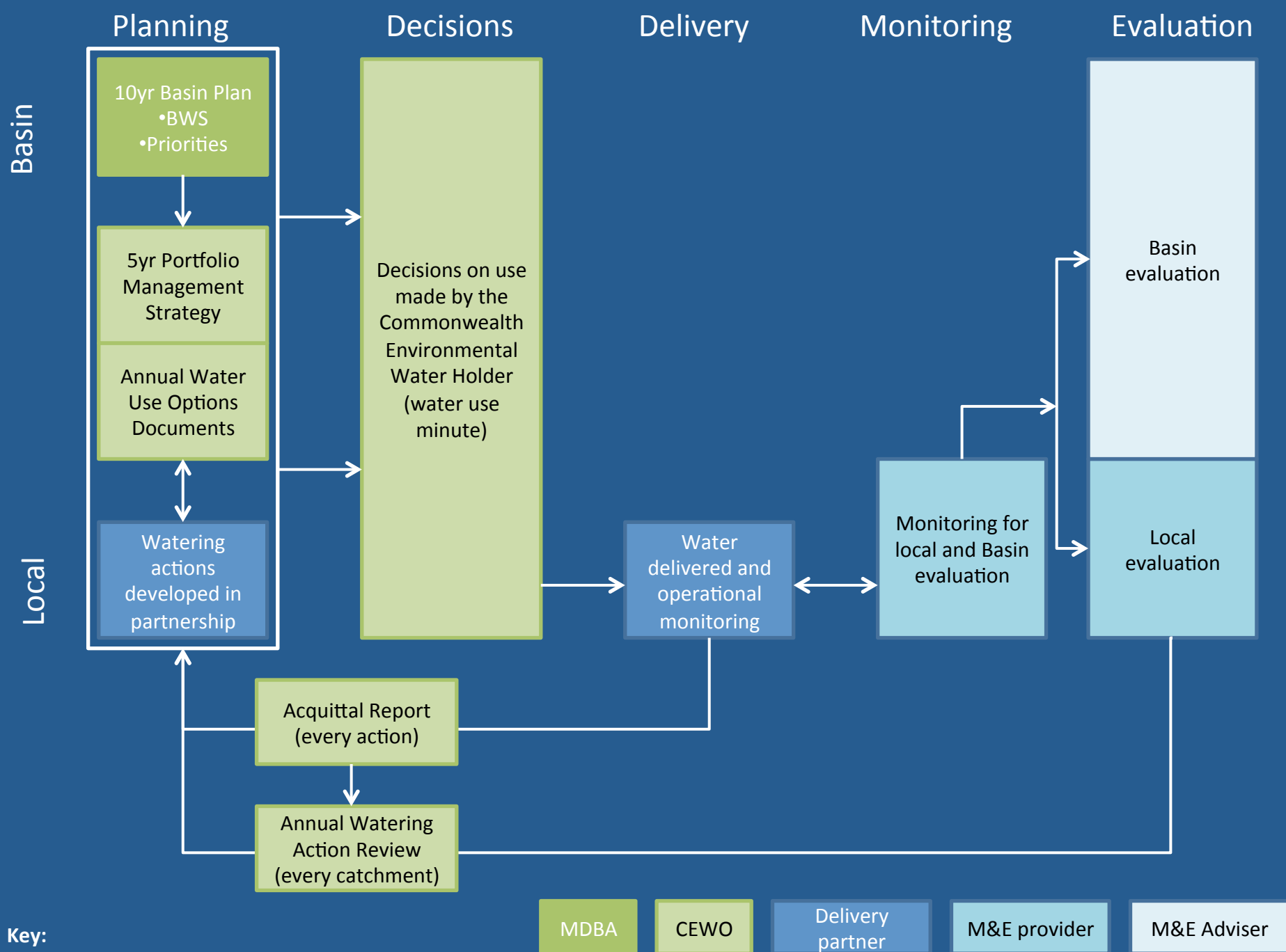 - Department – Water policy and Treaty obligations (e.g. Ramsar)

Management Context - States

- States
  - Plan: Water Sharing Plans
  - Environmental Water: Manage environmental water holdings
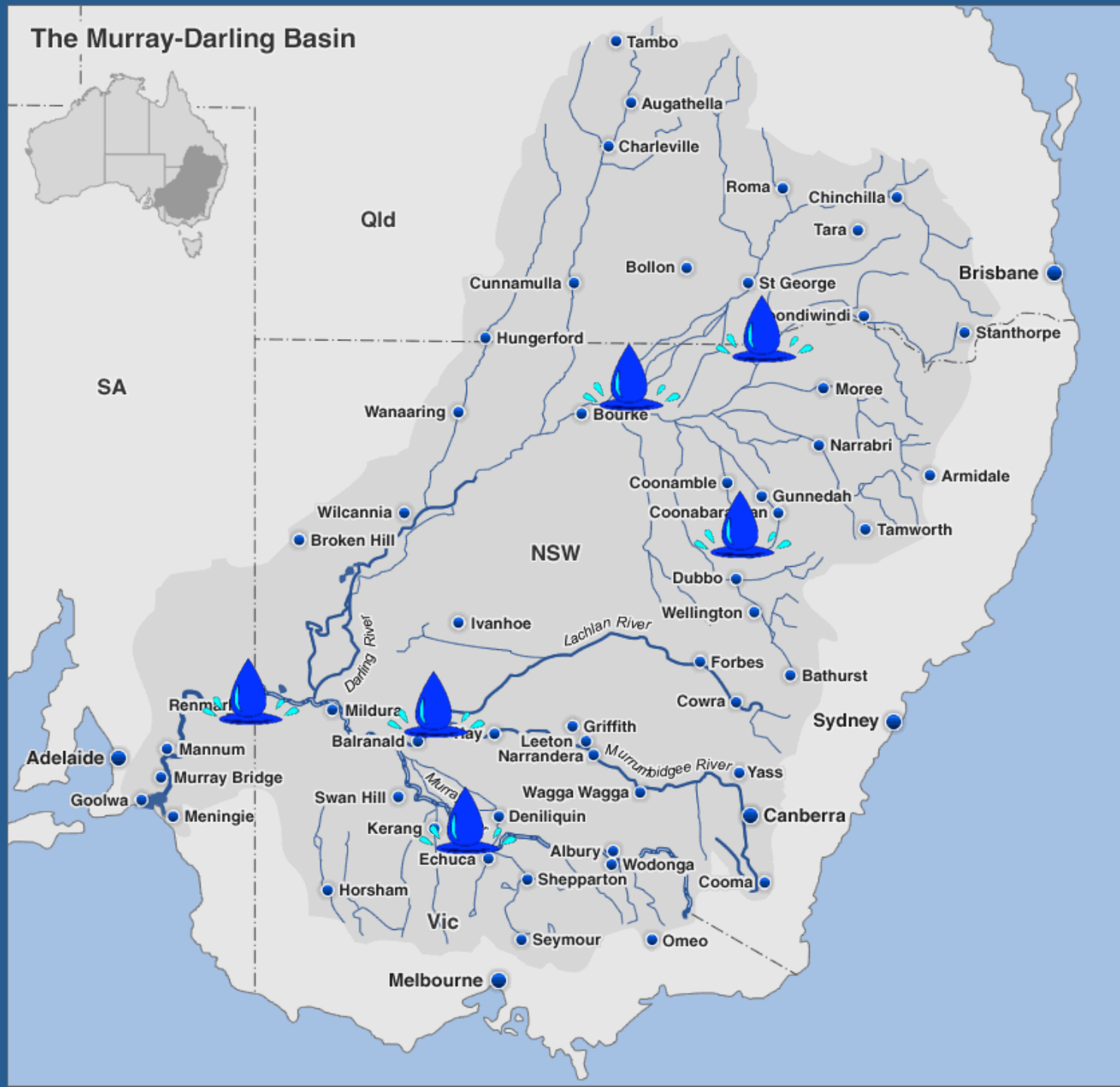 - Delivery: Manage rivers and storages

Management Context - Regional

- Regional NRM
  - Collaborators in water management
  - Interface with community
  - Complementary management
    - Restoration including revegetation
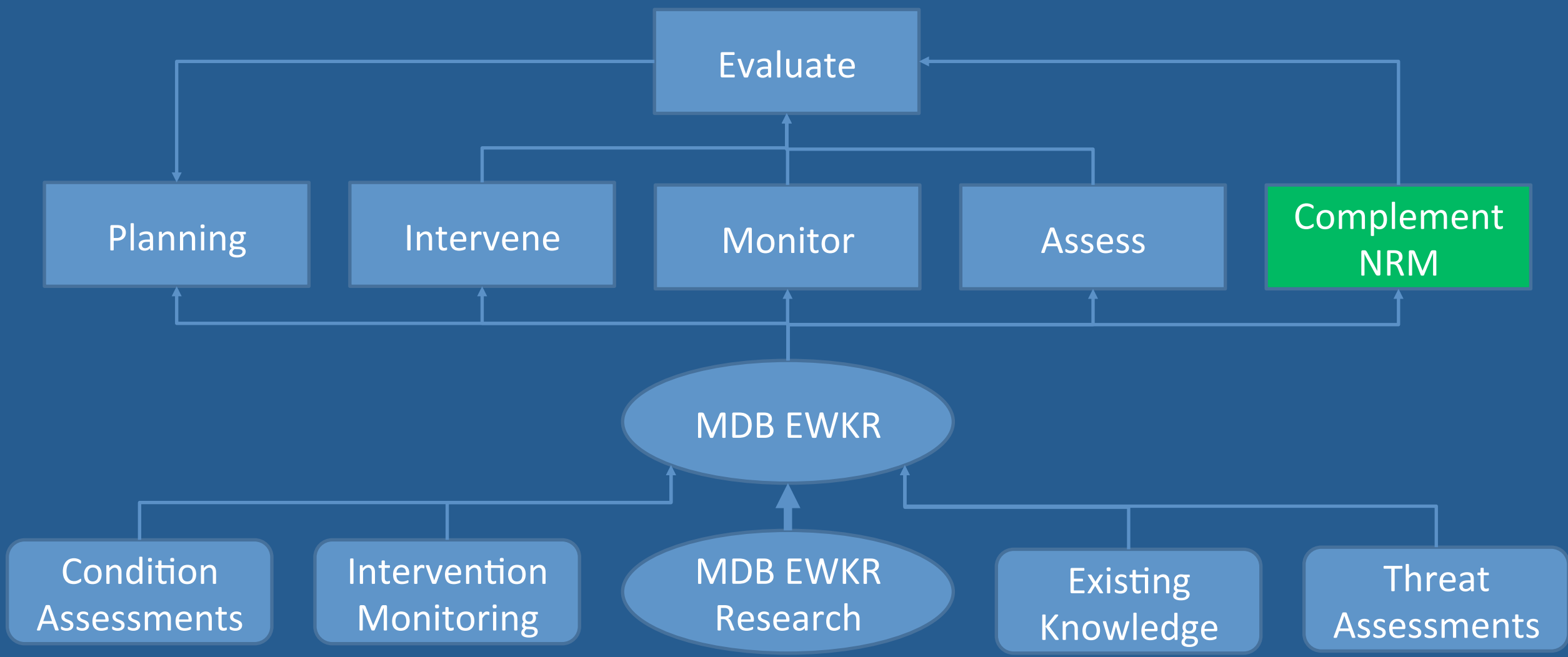   - Weed and Pest control

Planning

Basin

10yr Basin Plan
•BWS
•Priorities

5yr Portfolio Management Strategy

Annual Water Use Options Documents

Local

Watering actions developed in partnership

Decisions

Decisions on use made by the Commonwealth Environmental Water Holder (water use minute)

Delivery

Water delivered and operational monitoring

Monitoring

Monitoring for local and Basin evaluation

Evaluation

Basin evaluation

Local evaluation

Acquittal Report (every action)

Annual Watering Action Review (every catchment)

Key:

MDBA | CEWO | Delivery partner | M&E provider | M&E Adviser

The Murray-Darling Basin

The Murray-Darling Basin

Qld
SA
NSW
Vic

Tambo
Augathella
Charleville
Roma
Chinchilla
Tara
Bollon
St George
Goondiwindi
Brisbane
Stanthorpe
Cunnamulla
Hungerford
Moree
Wanaaring
Bourke
Narrabri
Armidale
Coonamble
Gunnedah
Coonabarabran
Tamworth
Wilcannia
Broken Hill
Dubbo
Wellington
Ivanhoe
Lachlan River
Forbes
Bathurst
Cowra
Renmark
Mildura
Sydney
Mannum
Hay
Griffith
Murray Bridge
Balranald
Leeton
Narrandera
Murrumbidgee River
Yass
Goolwa
Adelaide
Meningie
Swan Hill
Wagga Wagga
Canberra
Kerang
Deniliquin
Echuca
Albury
Horsham
Shepparton
Wodonga
Cooma
Seymour
Omeo
Melbourne
Darling River
Murray River

Environmental water management in MDB

Diagram courtesy of the MDBA

Basin Plan Adaptive Management

The Murray-Darling Basin

- The Commonwealth Environmental Waterholders Long-Term Intervention Monitoring Program
- The Basin Plan Monitoring and Evaluation Program
- The Monitoring of Regional Water-sharing Plans

Basin Plan Monitoring and Evaluation
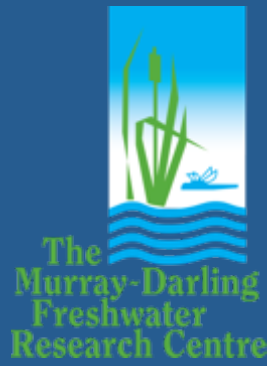
Monitoring and evaluating the effectiveness of the Basin Plan

- Based around expected outcomes at Basin scale
  - Hydrology and Hydrological connectivity
  - Native vegetation
  - Waterbirds
  - Native fish

CEWO Long-Term Intervention Monitoring

Evaluate the contribution of Commonwealth environmental watering to the objectives of the Murray-Darling Basin Authority's Environmental Watering Plan

- Basin-scale evaluation of outcomes of environmental flows
  - Hydrology and hydrological connectivity
  - Ecosystem diversity
  - River metabolism
  - Vegetation
  - Native Fish

States' Monitoring and Evaluation Programs

For each area, States need to develop:

- Water Sharing Plans

- Long-Term Environmental Water Plan Monitoring

- Condition of key environmental assets against Plan targets

Monitoring

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          │      Basin Plan          │
          │ Monitoring & Evaluation  │
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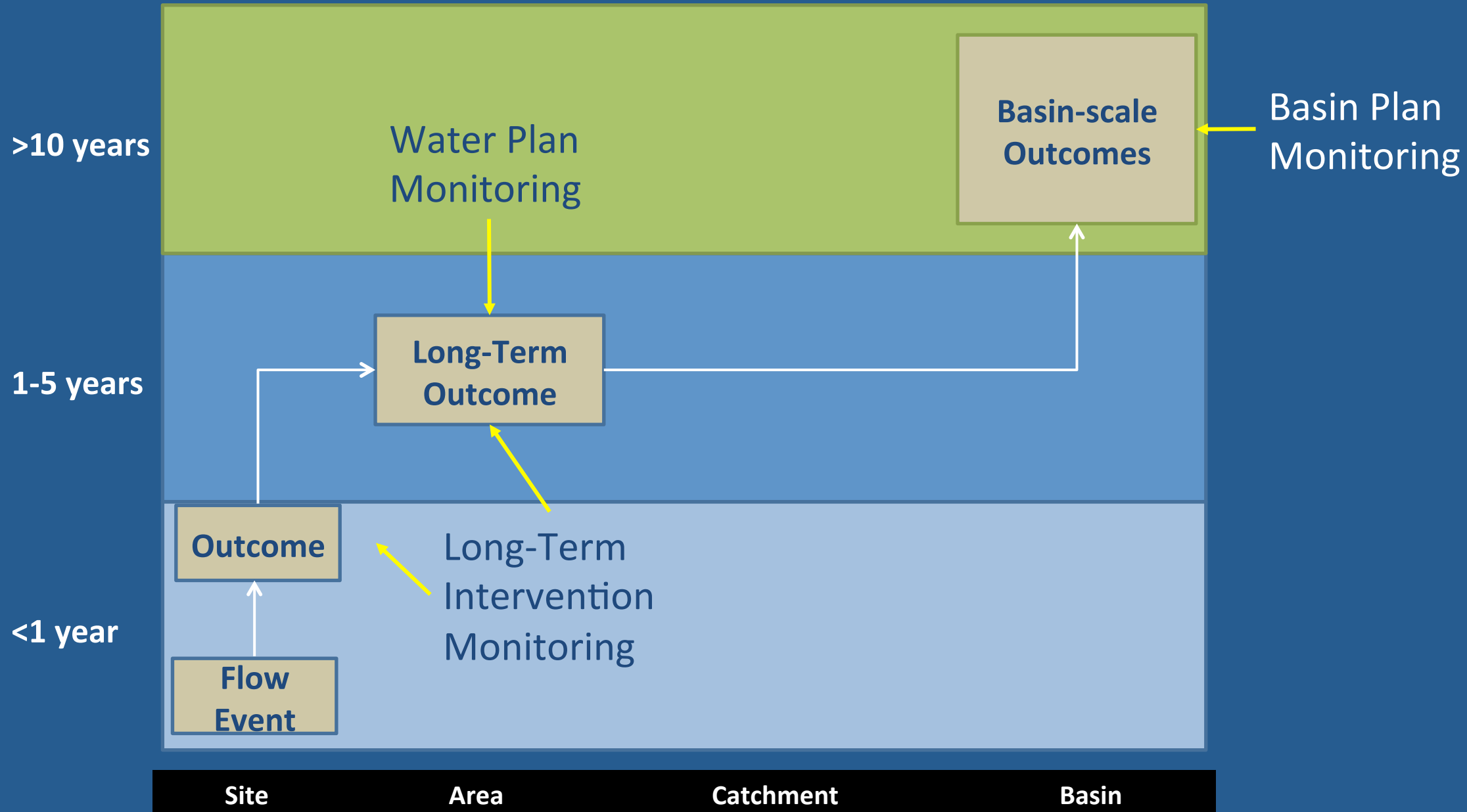| Long-Term Intervention Monitoring	Long-Term Environmental Water Plan Monitoring	Joint Venture Monitoring
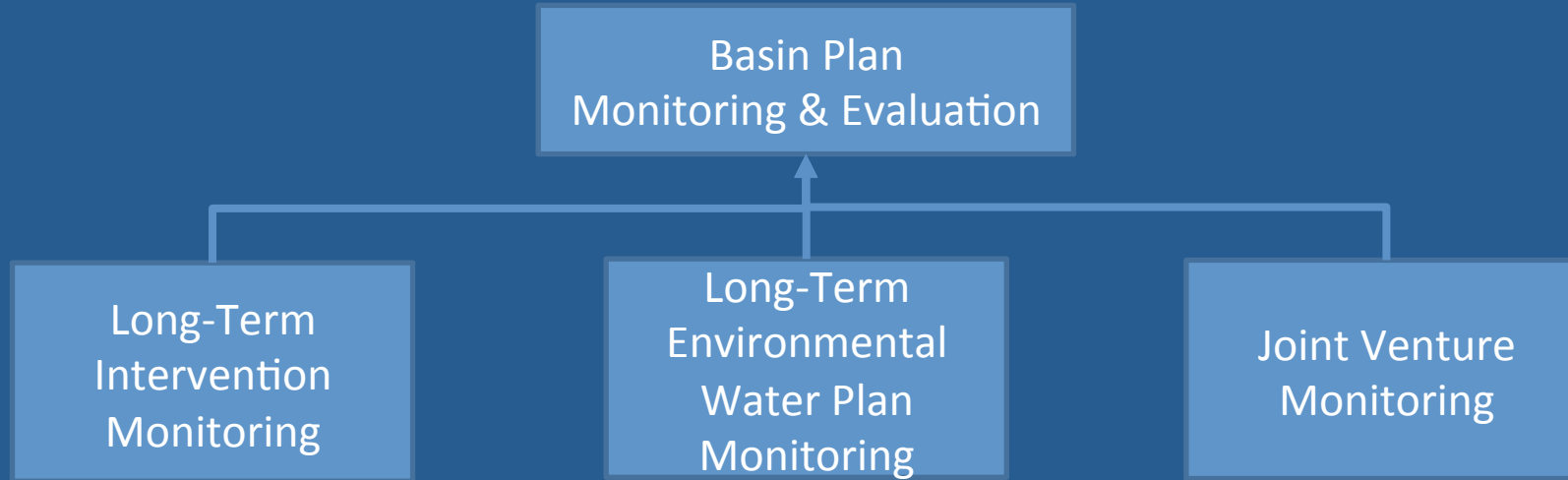
What is the contribution of CEW to achievement of BP objectives?

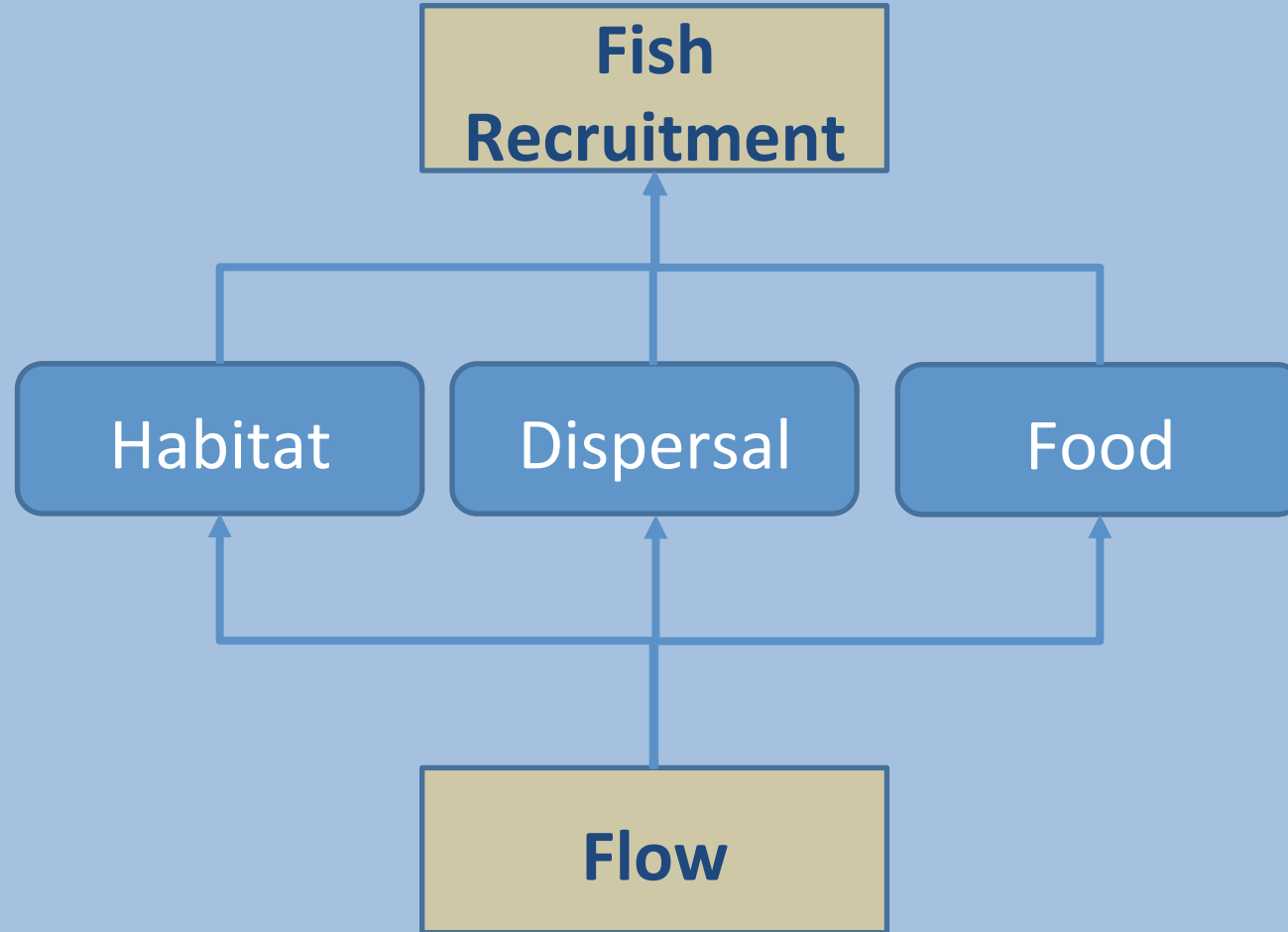What is the condition of area's assets in comparison to the LT EWP Targets?

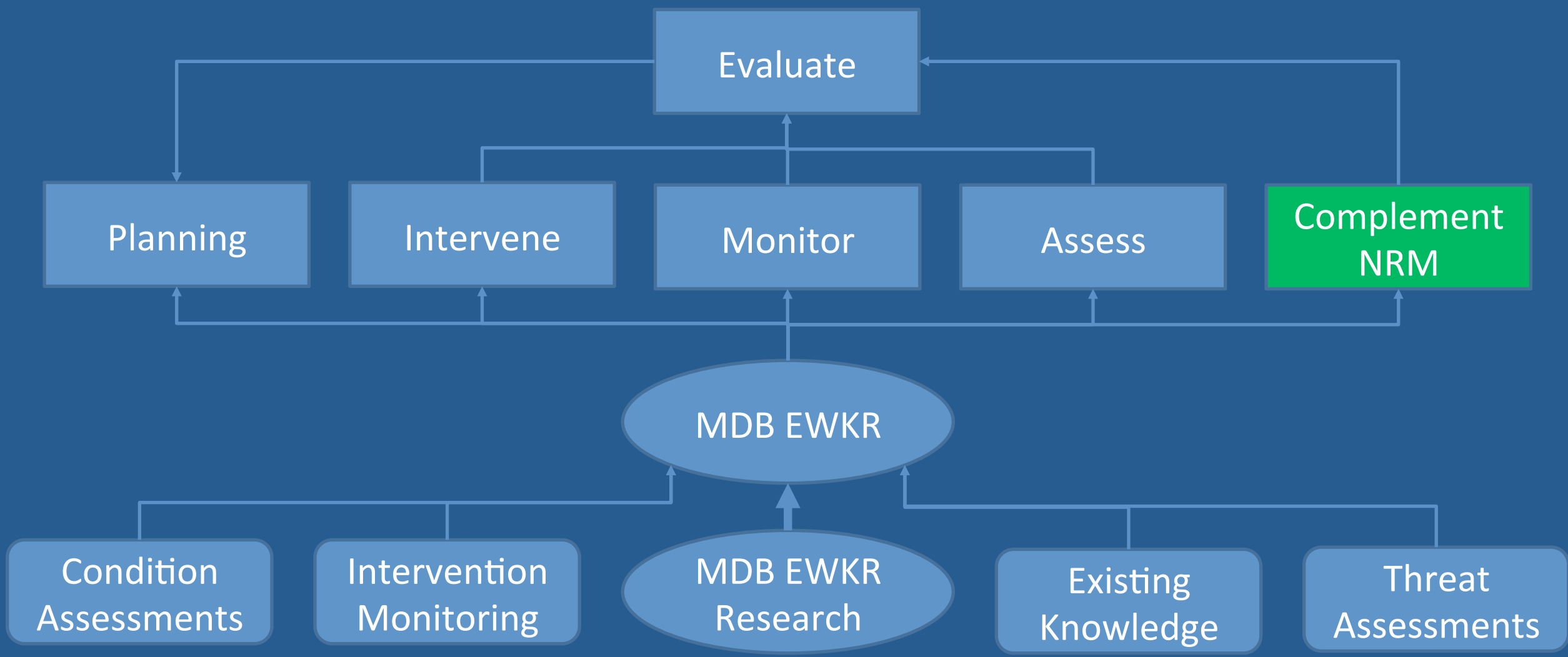What is the condition of the Basin in comparison to the Basin Watering Strategy Targets?

MDB EWKR

Improving the understanding of:

- Long-term ecological responses to flow

- The impacts of threats that affect flow responses

- Undertaking research at 4 sites across the Basin on;
  - Vegetation diversity
  - Fish recruitment
  - Waterbird recruitment
  - Food webs

Summary

Complex Institutional Environment

- Diverse audiences with different needs
  - Different decisions to support
  - Operating at different scales
- Lots of opportunities to link with other programs

Challenges

- Significant costs
  - Cost of collaboration – relationships and communication
  - Challenges associated with data integration
- Ensuring value returned to all parties
- Cultural change
  - Data sharing
  - Thinking outside one's silo

Project Response

View project as a collaboration, in which case success factors include;

- Good governance

- Project Management

- Client awareness
  - Outputs to inform specific decisions
  - Information communicated according to managers' preferences

Path to Impact

- Engagement with stakeholders over life of project
- Build relationships
- Customise outputs;
  - Appropriate to decisions
  - Appropriate to managers knowledge seeking preferences
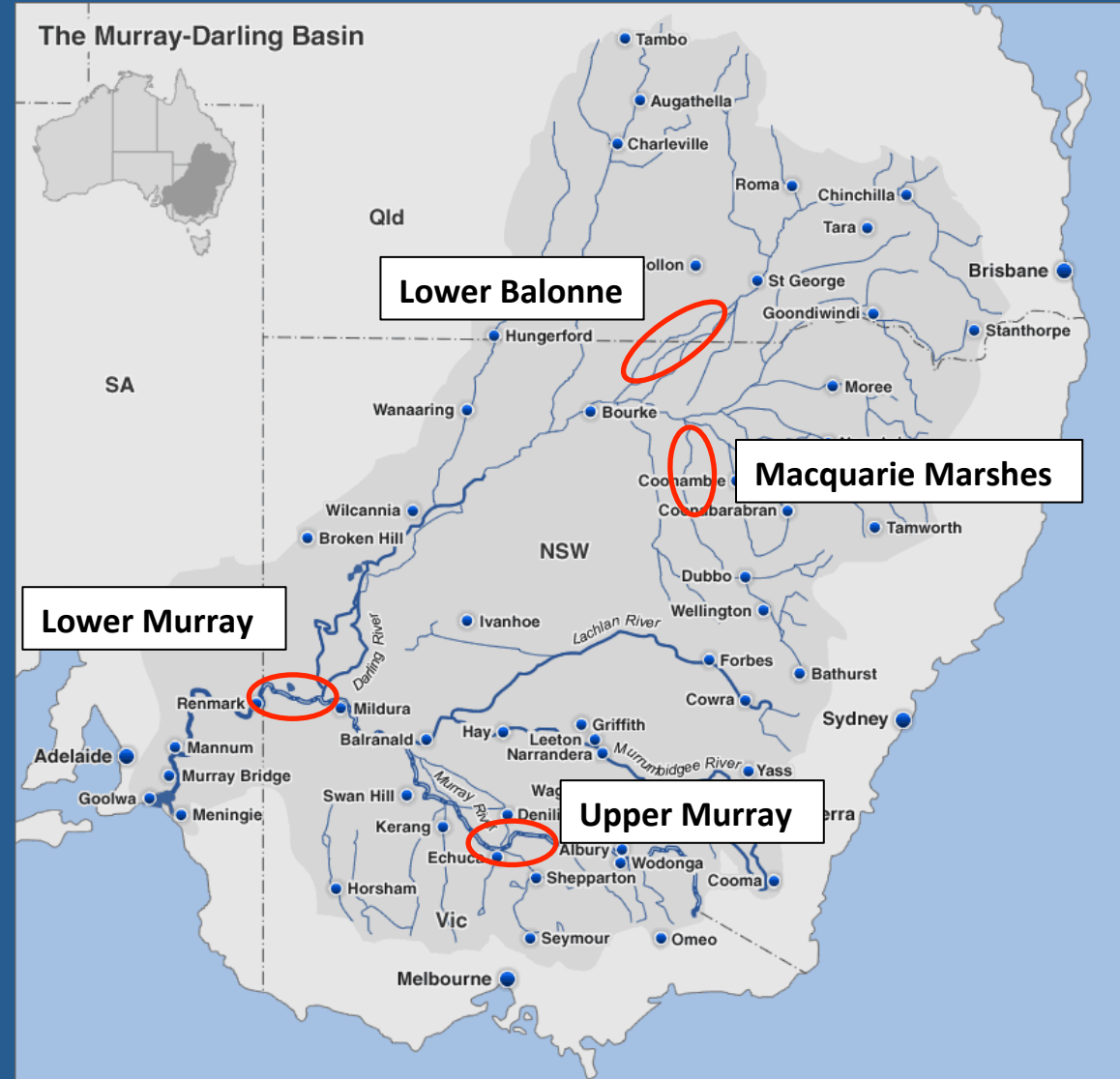 - See to generate value for collaborators

Thank-You

Research sites

Research themes and priorities

- Vegetation

- Fish

- Waterbirds

- Foodwebs

- Decision Support

Vegetation

What flow regimes best support the diversity of understorey and wetland plant communities?

- Integration and analysis of existing data sets
- Field sampling
  - Assess existing diversity at multiple scales
  - Gradients of flow and key stressors

Fish

What flow regimes best support the recruitment of native fish populations?

- Conceptualisation
- Analysis of existing data
- Field sampling
  - Dispersal, retention and connectivity
  - Food-web interactions

Waterbirds

What flow regimes best support the recruitment of waterbird populations?

- Conceptualisation
- Analysis of existing data
- Field sampling
  - Dispersal, retention and connectivity
  - Food-web interactions

Food Webs

What flow regimes best support food-webs that contribute to positive outcomes for native fish and waterbirds?

- Conceptualisation

- Modelling

- Data generation
  - Field observations
  - Experimentation