

# Challenges in water resource planning and allocation

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# Outline of Presentation

- Drivers for responsible Water Planning
- Overview of water planning in Queensland
- Planning process eg. Burdekin surface water
- The staged approach for Burdekin surface and groundwater
- Groundwater management objectives, Lower Burdekin
- Information requirements, Lower Burdekin
- Current activities, Lower Burdekin

# What we deal with



# Demand initiatives to use our water more efficiently

## Essential



## Industry Commerce



## Non-essential



## Leakage

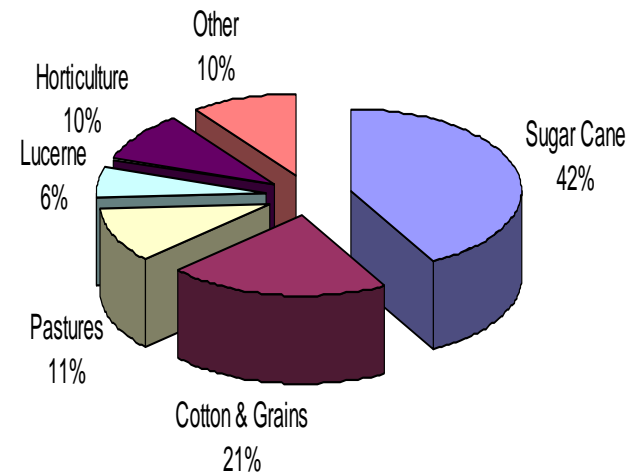


# Water Use in Queensland

- Total annual water consumption in Qld is estimated to be around 4.7 million ML/a (2000/01), consisting of:

- Agriculture: 73%;
- Urban: 16%;
- Industry: 4%;
- Mining: 2%;
- Other: 5%.

## Agricultural Water Use



# Supply of Water – What is involved?

## WRPs & ROPs

- reservations for priority water supplies
- water allocations
- water trading
- rules for access
- environmental flow

## Regional Water Supply Strategies

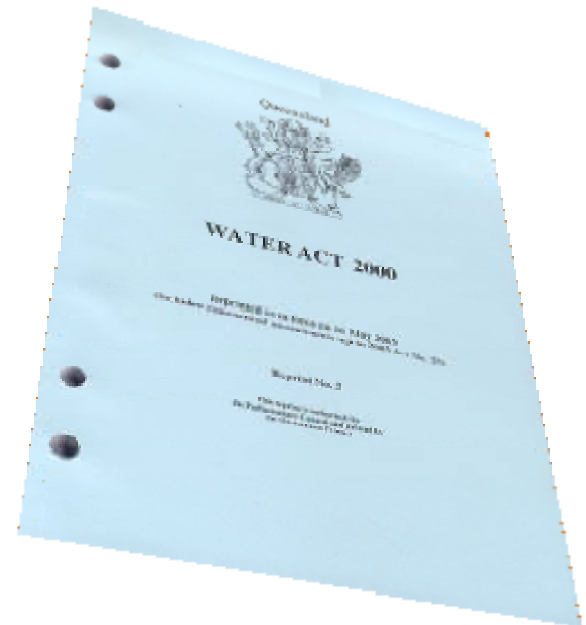
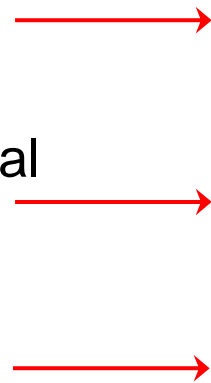
- future water needs (location and timing)
- regional water sharing
- major water infrastructure

## Water supply plans

- water infrastructure
- levels of service
- security of supply
- efficient water use and reuse

# Water Planning in Queensland

- Water Resource Plans
  - Prescribed under the *Water Act 2000*
  - Consistent with the National Water Initiative (2004 agreement)
  - Subordinate legislation = 10 - year life
  - Complements other planning initiatives



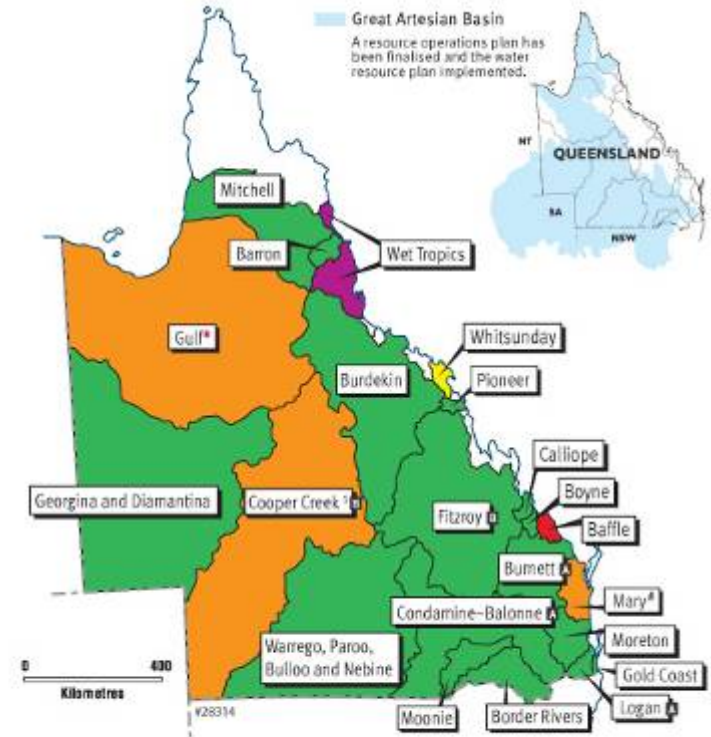
# Water Planning in Queensland

- Purpose of water resource plans
  - To define the availability of water in the plan area
  - To provide a framework for sustainably managing water and the taking of water
  - To identify priorities and mechanisms for dealing with future water requirements
  - To provide a framework for establishing water entitlements
  - To provide a framework for reversing, where practicable, degradation that has occurred in natural ecosystems
  - To regulate the taking of overland flow
- Identify and maintain
  - water allocation security objectives
  - environmental objectives

# Water Planning in Queensland

- WRPs are part of Queensland’s commitment to the NWI

- Future planning activities proposed
- Draft water resource plan in preparation
- Draft water resource plan released; draft resource operations plan in preparation
- Water resource plan finalised  
Draft resource operations plan in preparation#  
Draft resource operations plan released\*
- Resource operations plan finalised—Water resource plan implemented
- A** Water resource plan or resource operations plan amendment under way
- B** Water resource plan review under way



Note: <sup>1</sup> A resources operations plan is not required for Cooper Creek.

# Water Resource Planning

Two part water planning process - *Water Act 2000*

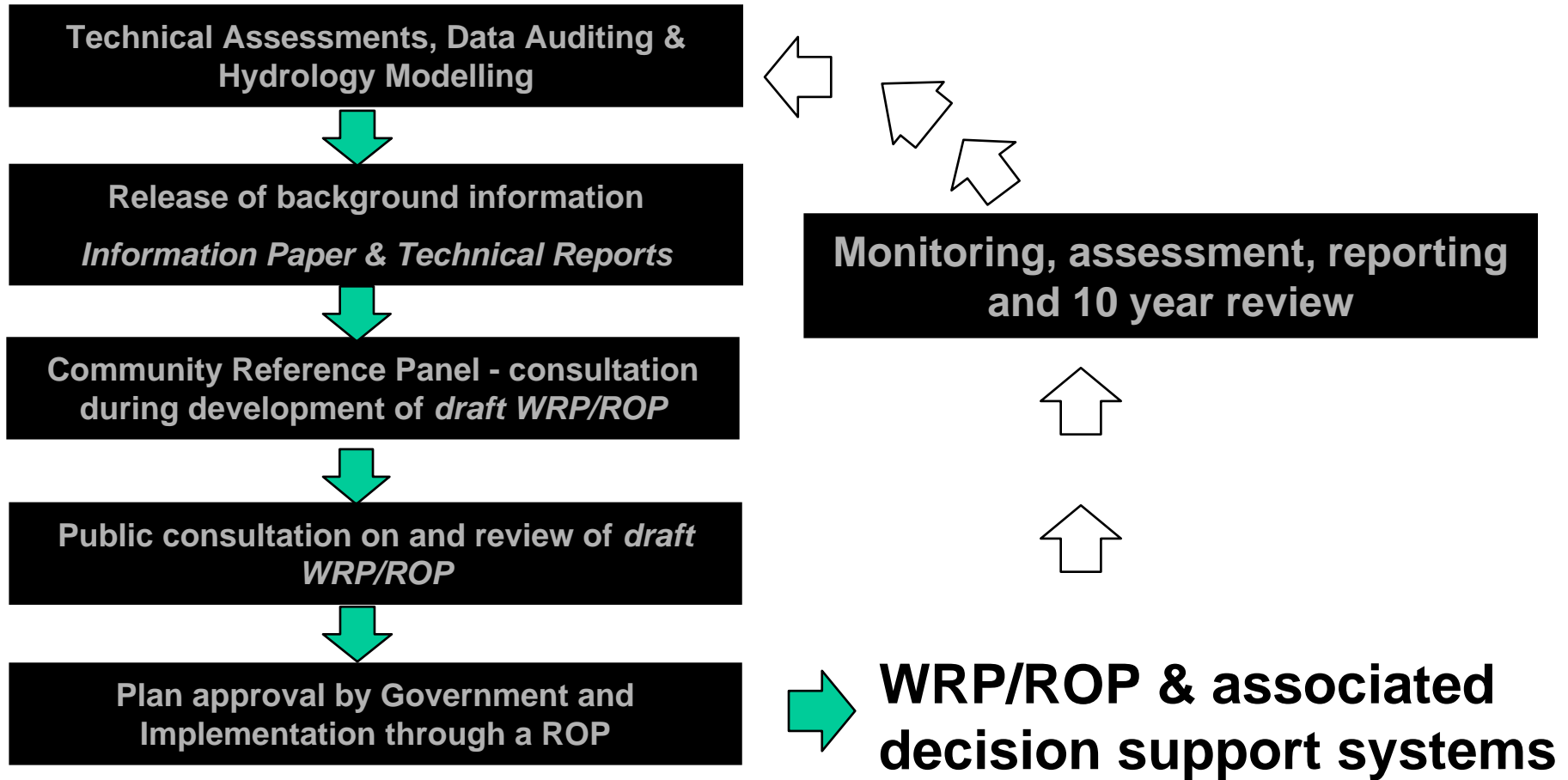
- Part (1) - Water Resource Plan
  - strategic framework for allocating and managing water
  - prepared by the Minister for Natural Resources, Mines and Energy and Minister for Trade
- Part (2) - Resource Operations Plan
  - implements the framework and details day-to-day rules for managing a water resource in the Plan area
  - prepared by the Chief Executive of the Department of Environment and Resource Management

# General Challenges – Water Resource Planning

- Reaching a common understanding of the scope of a water resource plan and about complex water management and scientific issues
- Dealing with complex and diverse water systems
- Managing stakeholder expectations and appreciating the bounds of the decision making framework
- Getting the degree of stakeholder consultation right
- Ensuring the best science is used, incorporating local knowledge, and deciding how much information is enough
- Making tough decisions - determining acceptable levels of risk – social, economic and environmental



# Water Resource Planning Process



# Staged Water Resource Plan Development

## Burdekin

- **Stage 1:** Surface Water (completed Dec 2009):
  - Whole catchment for the Burdekin and Haughton Rivers
  - Water in watercourses, lakes and springs
  - Overland flow
- **Stage 2:** Groundwater :
  - Subartesian water (groundwater)

# Surface water (Stage 1)

## Burdekin

- Water allocation security objectives for existing water users – including the Burdekin Haughton Water Supply Scheme
- Rules for granting water allocations
- Water allocation change rules (provisions for water trading)
- Arrangements for managing the ‘take’ of overland flow
- Water to meet future urban, industrial and agricultural requirements

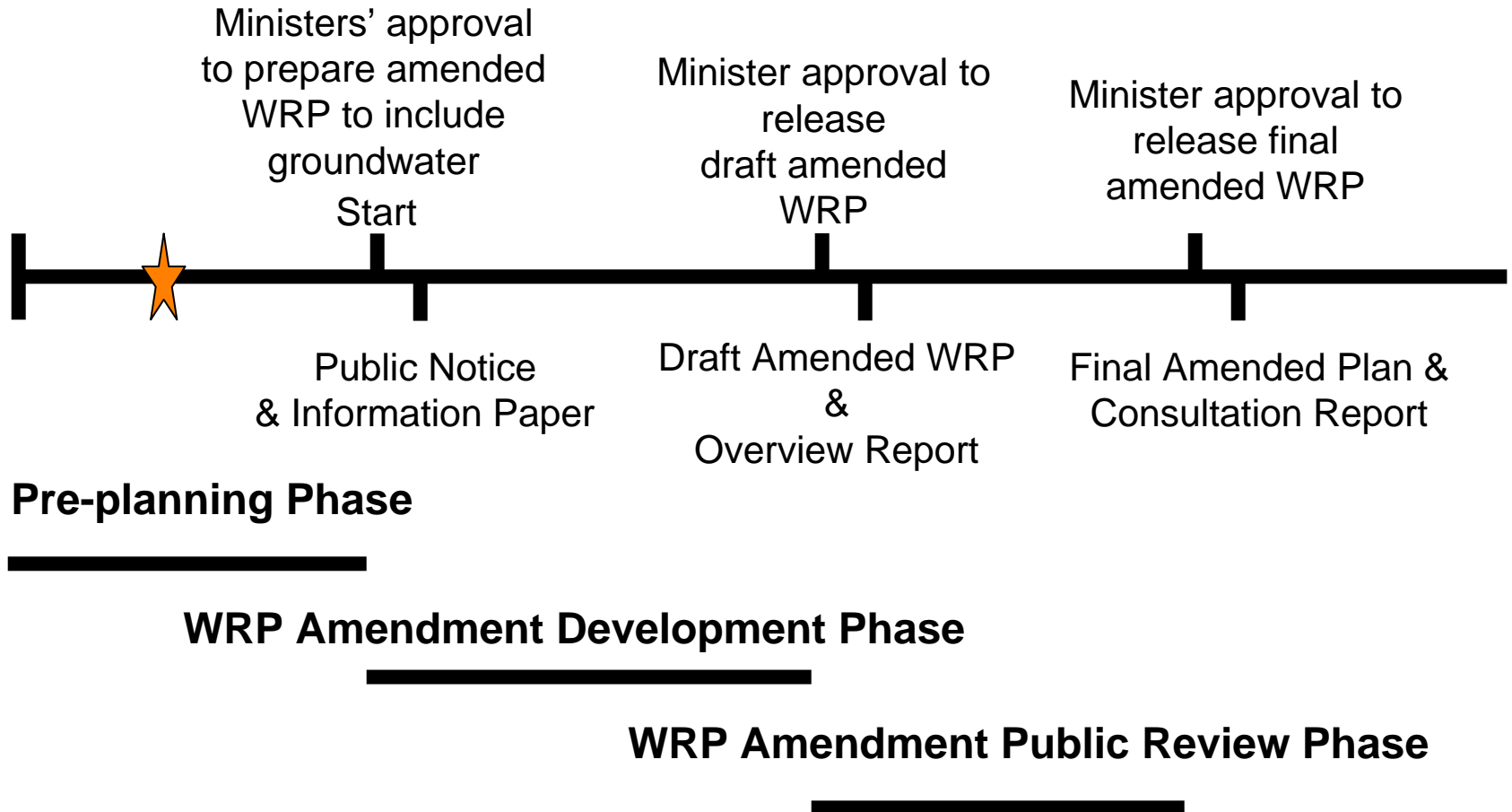


## Surface water (Stage 1) – continued...

- Environmental flow requirements
  - RAMSAR listed coastal wetland ecosystems
  - Water Quality issues (sediment, nutrient and salinity)
  - World Heritage listed Great Barrier Reef Marine Park
- Resource Operations Licence to SunWater
- Distribution Operations Licence to North and South Burdekin Water Boards
- Monitoring and reporting requirements (SunWater, Boards and Chief Executive)

**Stage 1 completed Dec 2009**

# Stage 2 of the WRP Process - Groundwater



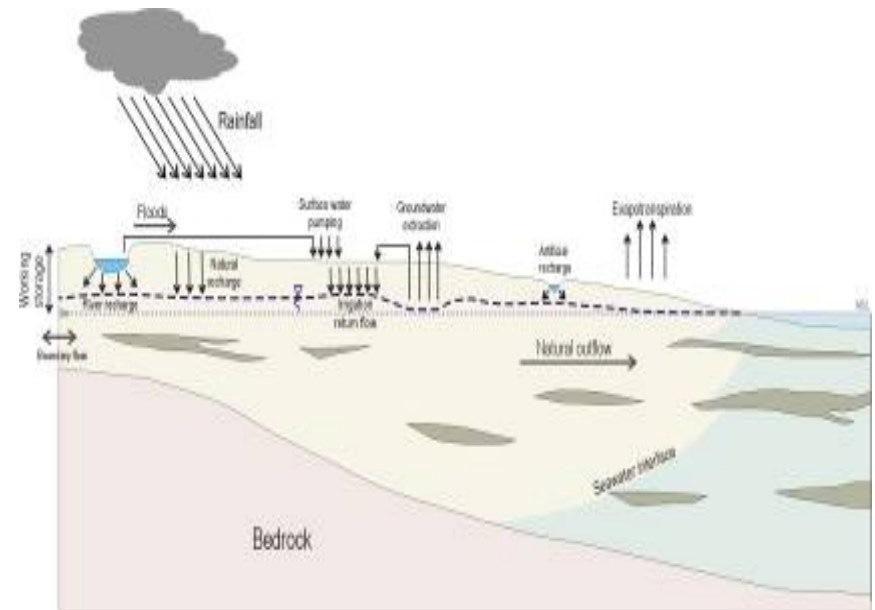
# Groundwater WRP – Opportunities



- Assessment of social and economic issues
- Identification of Aboriginal / Traditional Owner / cultural issues
- Effective Stakeholder consultation and 'buy in' Community Reference Panel / Burdekin Dry Tropics Board / Water Boards / extended stakeholder groups
- Upscaling modelling from paddock to regional scale

# Challenges in planning and allocating groundwater - Lower Burdekin

- Understanding and modelling a complex and diverse system and including the affects of climate variability
- Maintaining the groundwater balance
- Understanding variable natural and enhanced recharge
- Understanding interactions with surface water (Burdekin River, artificial recharge, delivery system losses)



# Challenges in planning and allocating groundwater - Lower Burdekin

Continued:

- Dealing with emerging development opportunities
- Best options for water use scheduling, crops and irrigation methods
- Variable water quality
- Defining entitlements to the natural resource
- Defining access to enhanced groundwater that is a product of deep drainage
- Other.....

## The amended plan will:

- Define the availability of groundwater in the plan area including for cultural, environmental and future development
- Provide a framework for sustainable management of groundwater, recognising the role of others involved in water management
- Identify groundwater entitlement security objectives and environmental considerations.
- Be consistent with other policy and planning processes

# The amended plan will not:

- Address on farm irrigation practices and cropping methods
- Decide water pricing
- Decide conjunctive use arrangements on farm



# Groundwater WRP (Stage 2) – Burdekin

## Pre-planning phase

- Developing a conceptual model (supported by NWC)
- Recharge, groundwater flow and solute transport models are currently being developed (supported by NWC)
- Clarification of groundwater resource management and water service provider functions
- Specification for groundwater entitlements in North and South Burdekin Water Board areas
- Improved understanding of environmental dependencies on groundwater

**The end.....**