Developing Sustainable Irrigation Schemes

EIANZ Annual Conference

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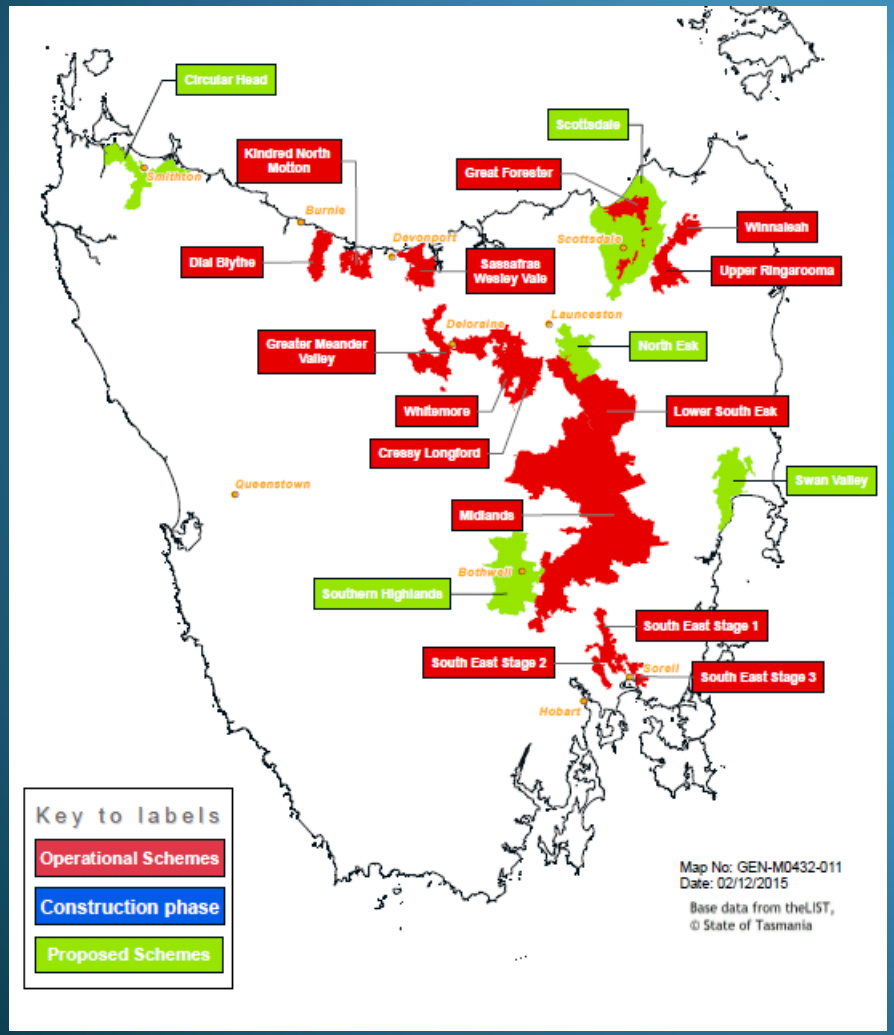
Presentation Overview

- Who is Tasmanian Irrigation?
- The TI Model and its' success
- Environmental aspects
  - Feasibility
  - Design
  - Construction
  - Operation
- Questions

Who is Tasmanian Irrigation?

- The Tasmanian Irrigation Development Board was established in 2008, and merged with Tasmanian Irrigation Schemes and the Rivers and Water Supply Commission in 2011 to form Tasmanian Irrigation
- TI constructs and manages irrigation schemes and seeks and encourages investment into agriculture across the state
- State-owned company with a skills-based board and staff to develop, operate and own irrigation schemes



Managing 8 pre-exiting irrigation schemes and 4 drainage districts

Successfully built 10 irrigation schemes in the last 3 years.

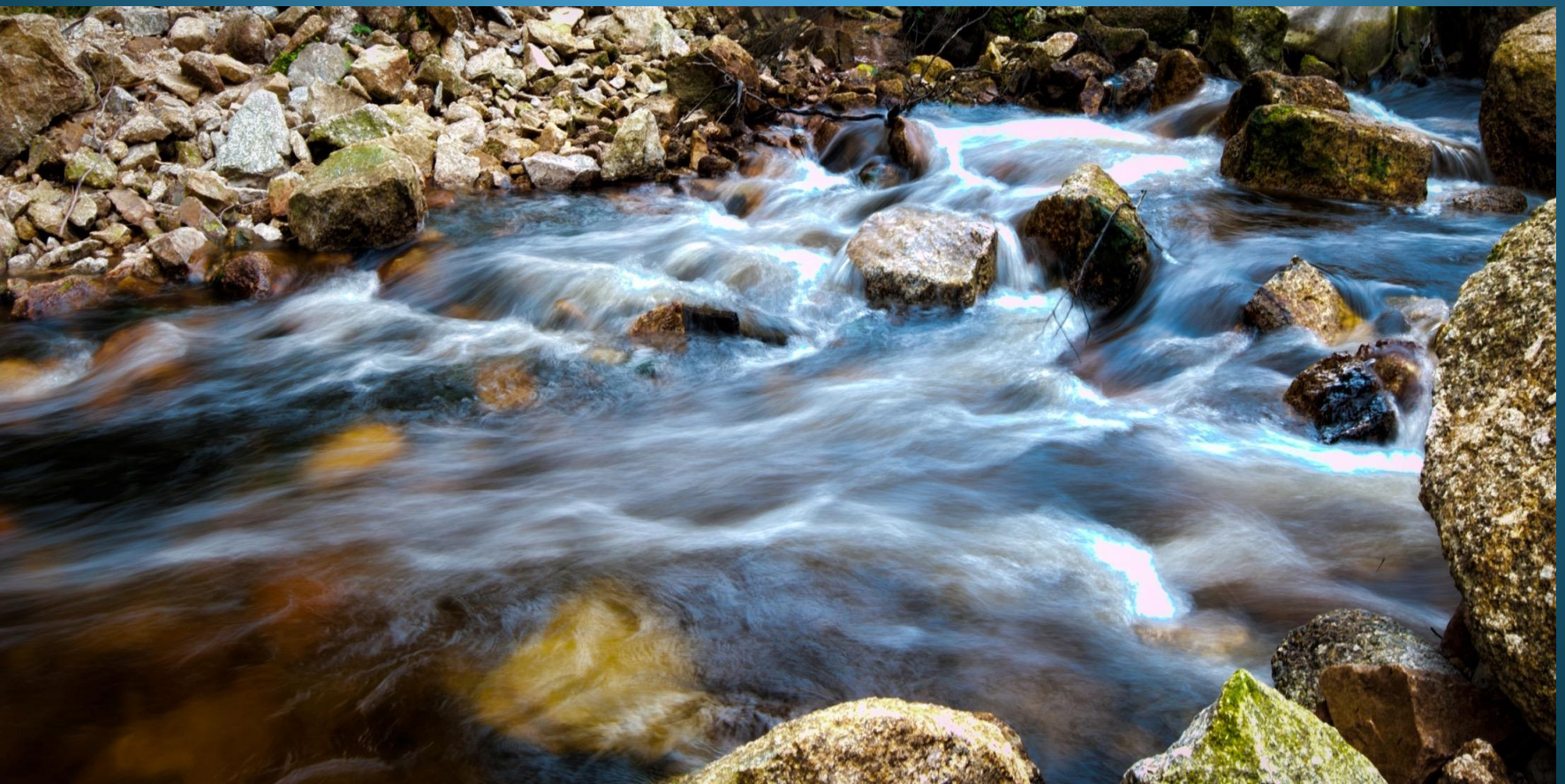
Developing a further 5 schemes (Tranche 2)

The Tasmanian Irrigation Model

The TI Model

- Demand driven, true private-public partnership model of irrigation infrastructure development.
- Strong social license
- 5 phase approach
  - pre-feasibility, feasibility, design, construction, operation
- Sustainable
- Modern design and technology

Environmental Aspects



Environmental Management Program

- Developed to ensure that all TI irrigation schemes have minimal environmental impact
- Establishes processes for assessing and managing the environmental impacts of irrigation schemes
- Applied as standard practice and is informed by engineering design and economic factors

Irrigation Scheme Design

- Scheme size
- Location of scheme infrastructure
- Hydrological reliability
- Securing the water
- Design optimisation

Concept Questions

Fatal flaws analysis

- Showstoppers
- Can the scheme be re-designed?

Securing a water source

- Within catchment
- Winter take vs summer takes
- Is a water management plan in place?

Water storage

- Instream vs offstream

Water delivery

- Run of river vs fully piped

Securing the water source

- Is a WMP in place?
- Yes – is the allocation available for the scheme?
- No
  - Complete sustainable yield modeling (dry scenario)
  - Review existing takes
  - Establish aquatic values for the scheme area
  - Establish eflows for aquatic values
  - Is the water available at a time that it can be harvested?
  - 95% surety
  - Operational rules

Investigations

- Flora and fauna surveys for dam site and known infrastructure
- Aquatic habitat surveys
- Desktop assessment of scheme footprint
- Water quality monitoring established
- Hydrological modeling

Design

- Informed by water sales and engineering design
- Rigorous 2 year process
- Flora and fauna surveys for pipelines including spring surveys for grasslands and flora species
- Environmental Impact Assessment
- Standard controls applied to impacts
- Avoidance main mitigative control

Permits and Approvals

- Dam Permit
- Water licence
- EPBC Approval
- Development Application
- Watercourse authority
- Threatened species permits / FPP
- Reserve activity assessment

Tasmanian Irrigation

Water Quality

- Watercourse crossings approved by TI
- Contractor training
- Erosion and sediment controls plans
- Water quality monitoring
- Turbidity Management Framework

Turbidity Management Framework

- Turbidity triggers set using local baseline data
- Clear response pathway if triggers exceeded

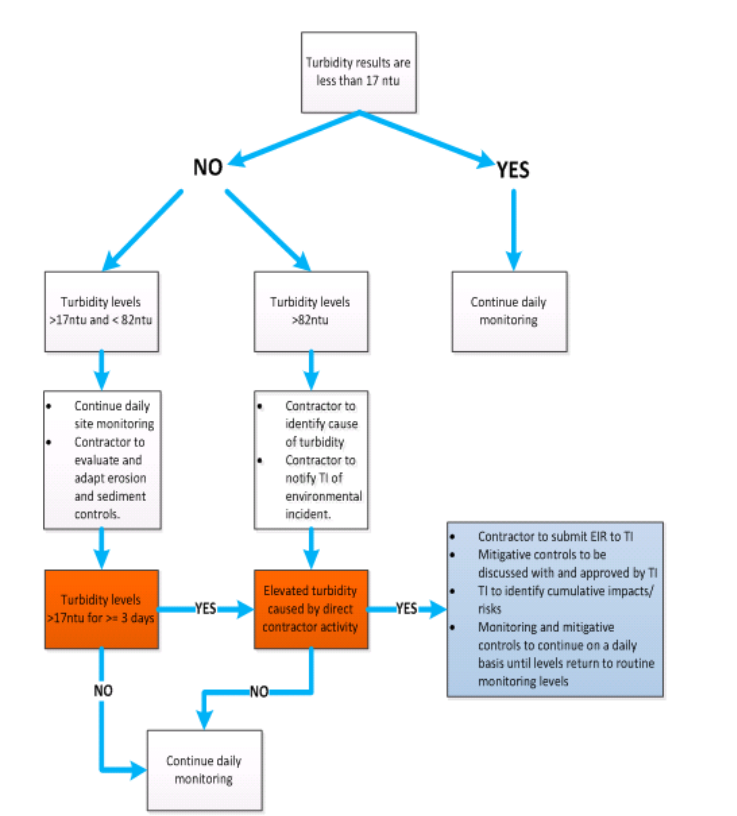


Figure 1: Turbidity Management Framework.
(Source: SHIS Construction Water Quality Management Framework, TI 2015)

Construction Compliance

- Daily diaries
- Weekly checklists
- Environmental audits
- Incident reporting and management
- Impact Assessment

Operations Compliance

- Farm Water Access Planning Framework
- Water quality monitoring
- Aquatic habitat monitoring
- Eflows, watercourse authorities, water licences

Farm Water Access Plans

- All land to which TI water is applied must have a Farm Water Access Plan in place
- Completed according to endorsed framework
- Annual Auditing
- Compliance Framework
- Linked to landscape monitoring

Aquatic Habitat Monitoring

- Pest fish
- Threatened species
- AusRivAS river health assessments
- Aquatic weed surveys

“Live” Scheme Management

- Adaptive transmission losses
- Maintaining environmental flows
- Live shared data and delivery tracking
- Joint management with DPIPWE

NWI Outcomes

- Effective water planning
- Secure water entitlements
- Future water availability
- Open water markets
- Effective water resource accounting
- Policy setting that facilitates water use efficiency and innovation
- Sustainable irrigation schemes for the future


Thank You