



Irrigation

Efficient irrigation has the ability to increase food production in areas that lack consistent rainfall or have regular rainfall shortages.

Droughts have become a regular event in the New Zealand climate, particularly along the East Coast of the country. With more intensive farming and horticultural practices taking place, irrigation is a key component in increasing or maintaining production.

Expertise

Tonkin & Taylor has extensive experience in the study and development of headworks for irrigation in New Zealand, the Pacific and South East Asia.

Typical services include:

- Concept and Scoping studies
 - Increased production potential
 - Groundwater and surface water yields
 - Conjunctive uses, e.g. water supply, hydro
 - Project definition and value engineering
 - Headworks engineering, e.g. intakes, dams, canals
 - Cost estimating and economic modelling
 - Environmental scoping and assessments.
- Feasibility Studies and Design
 - Hydrological modelling for yield and security of supply
 - Flood hazard studies
 - Geotechnical investigations and assessments including seismic risk
 - Hydraulic and civil engineering design
 - Contract documentation
 - Costing and programming
 - Design review during construction.

- Consents
 - Compliance with environmental legislation
 - Resource and building consent applications
 - Consultation with potentially affected parties
 - Assessment of environmental effects
 - Consent renewals.
- Construction Management
 - Site supervision and management
 - Cost and timeline programming
 - Commissioning.
- Scheme Management
 - Preparation of operating, maintenance and surveillance manuals
 - Emergency action planning
 - Surveillance, monitoring and evaluation
 - Risk analysis
 - Safety reviews
 - Asset valuation
 - Instrumentation and calibration
 - Peer review and expert witness
 - Rehabilitation and upgrading.

Experience

The headworks (dams, intakes, canals) associated with irrigation schemes are a fundamental area of T&T's experience with 17 large dams designed and constructed in addition to numerous intakes and canals built for irrigation, hydro and water supply.

Recent project examples include:

- The 50 m high Opuha multi-purpose dam built in South Canterbury
- Options studies and a full feasibility study for large multi purpose schemes in Mid Canterbury





Tonkin & Taylor

- Inspection, remedial works design and asset valuation of the 67 km long Rangitata Diversion Race carrying 30 m³/s
- The Waingaro and Manuwai irrigation storage dams in North Auckland
- Resource consents for the Mangakahia Irrigation Scheme in Northland.



ENVIRONMENTAL AND ENGINEERING CONSULTANTS