

# Certainty in uncertainty: navigating environmental impact assessment regulatory processes

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*There is increased pressure from stakeholders for projects to include evaluation of emerging broader development issues within the environmental assessment process. These emerging issues are not well documented or understood and at the forefront of untested preliminary government policy positions. Agencies expect proponents to invest in evaluating these matters outside of typical assessment practices. Requests are made late in the evaluation and approval process. Assessment involves matters not directly related to the project or within the proponent's control and occurs late in the project development cycle.*

*The Lower Fitzroy River Infrastructure Project (LFRIP) was identified through the Central Queensland Regional Water Supply Study in 2006, as a solution to secure future water supplies for the Rockhampton, Capricorn Coast and Gladstone regions. The Gladstone Area Water Board and SunWater Limited, as proponents, propose to raise the existing Eden Bann Weir and construct a new weir at Rookwood on the Fitzroy River in Central Queensland.*

*The LFRIP environmental impact statement (EIS) was approved, subject to conditions, by the Queensland Coordinator-General in December 2016 and the Commonwealth Minister for the Environment and Energy in February 2017. Achieving conditions that will realise positive environmental outcomes while simultaneously achieving project objectives, particularly with regard to timeframes and costs, was not without its challenges.*

*The EIS was developed in accordance with the requirements of the State Development Public Works Organisation Act 1971 (Qld) and the Commonwealth's Environment Protection and Biodiversity Conservation Act 1999, including an extensive stakeholder consultation programme. These regulatory requirements are well understood and applied to projects as normal accepted practice. They ensured that potential project impacts and benefits were identified, that appropriate levels of effort were applied to investigations to establish baseline conditions and that risks to and impacts on environmental (including social and cultural) matters were adequately mitigated and managed.*

*The environment is not static. Emerging issues and perceptions results in regulation and policy changes in response to political and social drivers. During the development of the EIS both new legislation and new policies were imposed on the project.*

*New legislation resulted in additional assessment around matters previously considered mitigated and managed (fish passage). New legislation introduced new matters for assessment (connectivity). Collaboration and engagement with stakeholders were key to understanding the applicability of these elements to the project and for developing an approach to address the legislative requirements late in the project's development and assessment process.*

*In Queensland, policy is emerging to mitigate and manage impacts of development on the Great Barrier Reef World Heritage Area's universal values. The EIS was required to address the direct project impacts on water quality and the impacts arising because of the LFRIP (facilitated development). Water secured by the LFRIP is for urban, industrial and agricultural purposes. Urban and industrial developments are well regulated and subject to specific environmental approvals processes. Use of water for agricultural purposes, intensive irrigated agriculture in particular, is less regulated. Policies developed are reactive and require individual projects to address these impacts.*

*In the absence of regulatory guidelines for assessment of consequential impacts, the project adopted a collaborative approach. The proponents established a working group, including State and Commonwealth technical agencies. This allowed for robust and scientifically defensible methodologies to be developed and agreed upfront. Streamlining the approach by including key decision makers assisted in managing expectations and focused the assessment on realistic and achievable outcomes relative to the project. The result was defensible outcomes allowing timely decision making and avoided rework as much as possible.*

*This paper describes developments in environmental assessment relating to new and augmented weirs.*

**Keywords:** environmental impact assessment, environmental impact statement, regulation, legislation, risk.

## Introduction

Using the environmental impact statement (EIS) for the proposed Lower Fitzroy River Infrastructure Project (LFRIP) as a reference this paper explores the author's experiences with the environmental impact assessment (EIA) process as applied in Queensland under the *State Development Public Works Organisation Act 1971* (Qld) (SDPWO Act) for large-scale water infrastructure development. The LFRIP EIS is available at [www.fitzroyweirs.com.au](http://www.fitzroyweirs.com.au).

## Objectives

Through examples, the objectives are to:

- Provide an overview and understanding of the regulatory process for water infrastructure projects in Queensland
- Provide an understanding of timeframes associated with environmental assessment and approvals processes
- Highlight key project risks and opportunities associated with the environmental approvals process to inform planning and development.

## Regulatory framework

In Queensland, environmental assessments of large scale, greenfield, multi-disciplinary infrastructure projects are commonly undertaken as 'coordinated projects' requiring an EIS against terms of reference developed by the Coordinator-General in accordance with the SDPWO Act<sup>4</sup>. Subject to the assessment outcomes, the Coordinator-General will recommend (or not) that the project proceed, usually subject to imposed and stated conditions and recommendations to avoid, mitigate, manage and/or offset impacts on matters of State environmental significance, including social values and cultural heritage (Indigenous and non-Indigenous).

Where a project has the potential to impact on matters of national environmental significance (defined for nine controlling provisions) the proposed action is referred to the Australian Government for a decision on whether approval is required under the *Environmental Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act). Where approval is required the proposal is deemed to be a 'controlled action' requiring assessment. The EIS process under the SDPWO Act is an accredited process for environmental assessment under a bilateral agreement between the Queensland and Australian governments. The Minister is still required to decide on whether to approve the action, approve the action with conditions or refuse the action. Under the bilateral agreement, the Minister undertakes the evaluation only after the Coordinator-General has provided an evaluation report on the EIS.

Subsequent to the EIS being approved by the State and Australian governments, project activities may also require authorisations, development approvals, permits and/or licences under separate State legislation - for example the *Aboriginal Cultural Heritage Act 2003* (Qld), *Environmental Offsets Act 2014* (Qld), *Environment Protection Act 1994* (Qld), *Fisheries Act 1993* (Qld), *Nature Conservation Act 1992* (Qld), *Planning Act 2016* (Qld), *Vegetation Management Act 1999* (Qld), *Water Act 2000* (Qld), etc.). Where activities are described and impacts assessed in sufficient detail in the EIS, approvals under these Acts can be addressed in the EIS and conditions sought in the first instance. Assessment authorities must consider the assessment, conditions and recommendations made in the Coordinator-General's evaluation report in deciding to grant (or not) these secondary approvals and the information and referral stages are replaced for development approvals under the *Planning Act 2016*.

Extensive regulatory and public consultation are required as part of the process, including adequacy reviews and public notifications.

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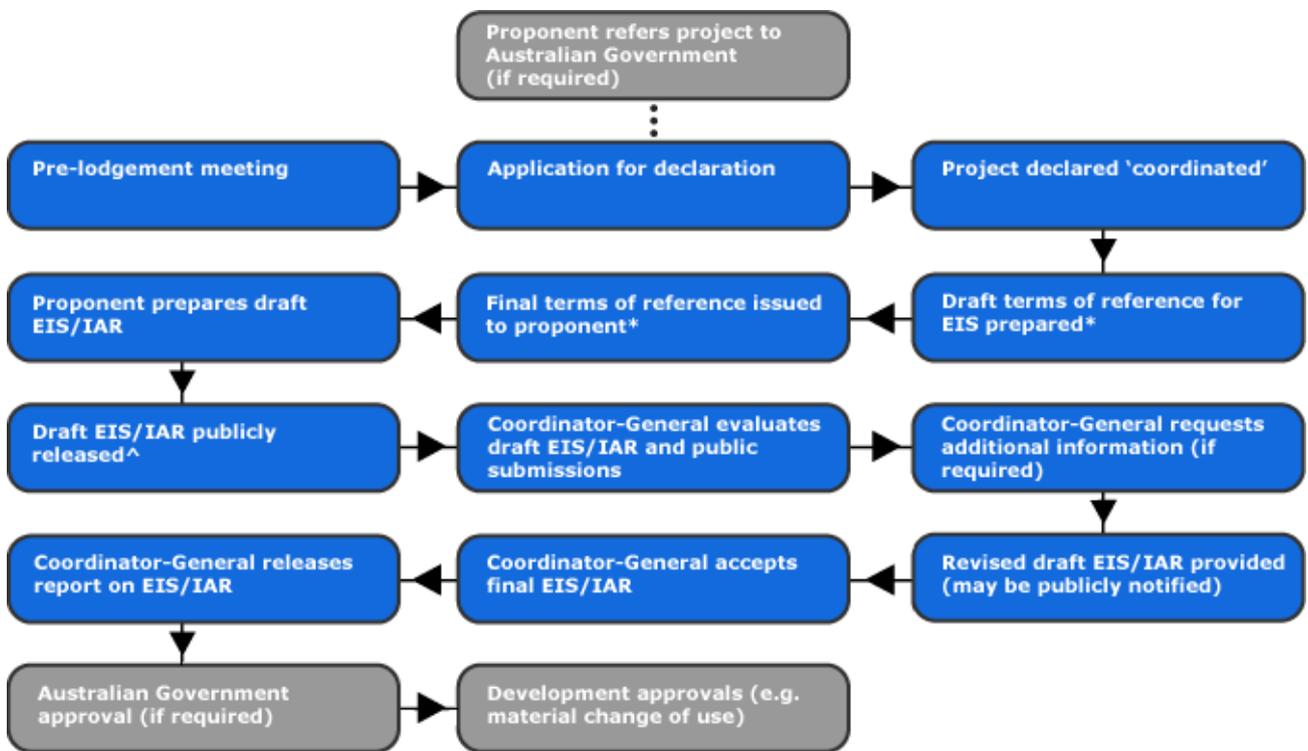
<sup>4</sup> Alternatively, the Coordinator-General may nominate a 'coordinated project' for assessment by impact assessment report (IAR). Terms of reference are not developed for an IAR and public consultation on the IAR may not be necessary. Since the introduction of the IAR pathway in 2014, no projects have been undertaken using this assessment process.

Figure 108 shows the EIA process under the SDPWO Act, including as a bilateral with the Australian Government.

### Project context

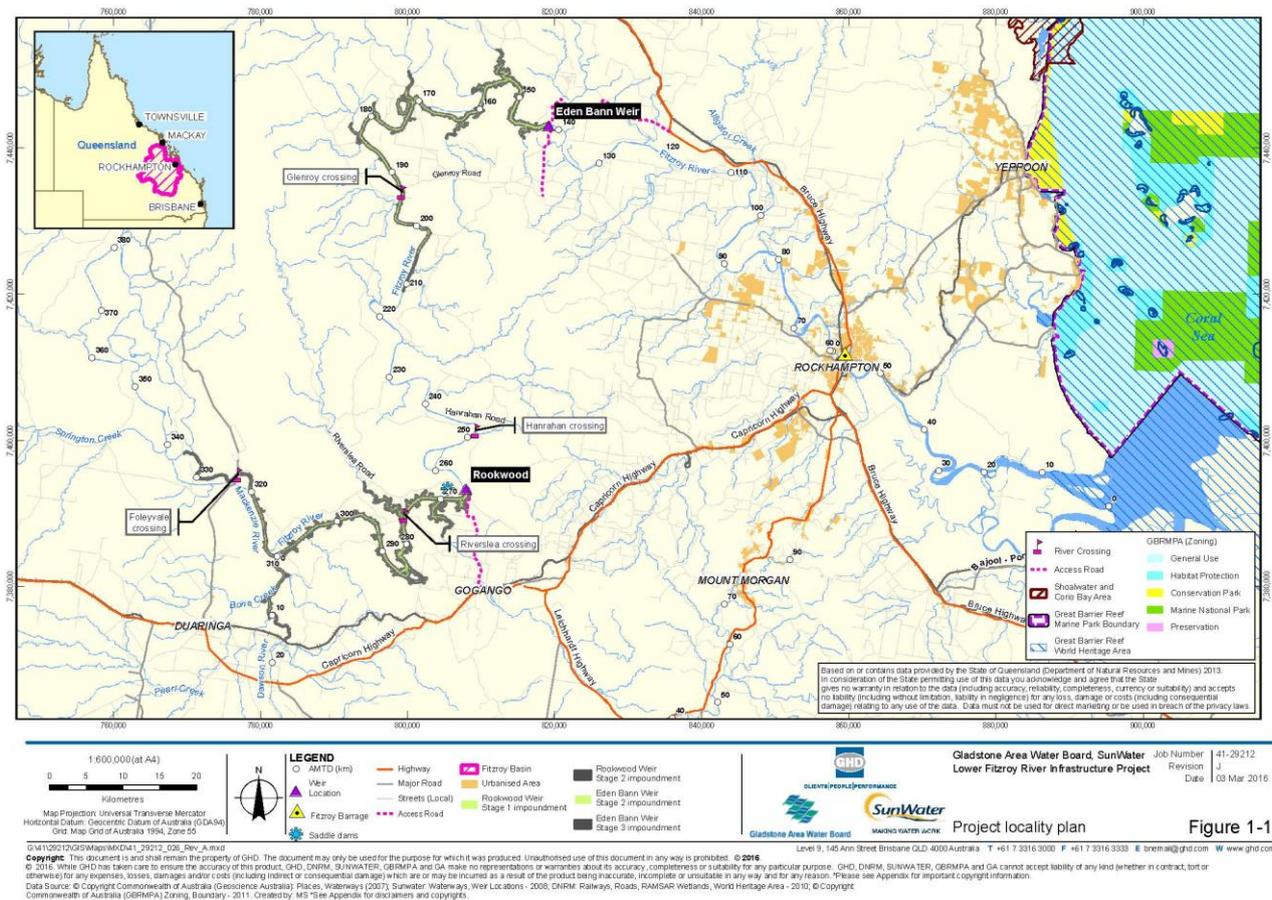
The Gladstone Area Water Board and SunWater Limited, as proponents, propose to raise the existing Eden Bann Weir and construct a new weir at Rookwood on the Fitzroy River in Central Queensland. Figure 109 shows the project location.

**Figure 108** Environmental impact assessment process



Source: Coordinated projects impact assessment process factsheet (State of Queensland 2015).

**Figure 109** Project location



Source: LFRIP EIS (Gladstone Area Water Board and SunWater 2015)

Key components of the project include:

### Eden Bann Weir

- Eden Bann Weir is located approximately 62 km north-west of Rockhampton in central Queensland on the Fitzroy River at 141.2 km adopted middle thread distance (AMTD) from the coast. Eden Bann Weir Stage 1 is an existing weir owned and operated by SunWater Limited.
- Eden Bann Weir Stage 2 – a raising of the existing Eden Bann Weir, Stage 1 full supply level (FSL) 14.5 m Australian Height Datum (AHD) to a FSL 18.2 m AHD and associated impoundment of the Fitzroy River extending to 205 km AMTD.
- Eden Bann Weir Stage 3 – the addition of 2 m high flap gates to achieve FSL 20.2 m AHD and associated impoundment of the Fitzroy River. The upstream extent of the Eden Bann Weir impoundment at Stage 3 is 211 km AMTD.
- Aquatic fauna passage infrastructure, namely high and low-level fish locks and a turtle bypass.

### Rookwood Weir

- The proposed Rookwood Weir site is located on the Fitzroy River at 265.3 km AMTD.
- Rookwood Weir Stage 1 – a new build to FSL 45.5 m AHD, a saddle dam and associated impoundment of the Fitzroy, lower Mackenzie (322 km AMTD) and lower Dawson (10 km AMTD) rivers.
- Rookwood Weir Stage 2 – the addition of 3.5 m high flap gates to achieve FSL 49.0 m AHD and associated impoundment of the Fitzroy, lower Mackenzie (335 km AMTD) and lower Dawson (16 km AMTD) rivers
- Aquatic fauna passage infrastructure, namely high and low-level fish locks and a turtle bypass.

### Other infrastructure components associated with the LFRIP include

- Augmentation to and construction of access roads (public and private) to and from the weir sites for construction and operations, and upgrades to intersections.
- Construction of low level bridges in areas upstream of weir infrastructure that will be impacted by the impoundments, specifically at Glenroy, Riverslea and Foleyvale crossings.

- Installation of culverts at Hanrahan Crossing downstream of Rookwood Weir to facilitate access during operation releases.
- Relocation of existing and/or installation of new gauging stations.
- Removal and decommissioning of existing low-level causeways and culverts at river crossings described above.

The LFRIP's objective is to secure future water supplies for the Rockhampton, Capricorn Coast and Gladstone regions. Future demand for water is difficult to predict with any degree of certainty; it can arise slowly over time, typically associated with urban growth requiring lower, steady volumes, or as an immediate larger demand, typically associated with industrial development. A further consideration is drought or contingency supply needs that occur with little warning. The LFRIP is a staged development to enable proponents to respond to potentially smaller demands in the short-term and progressively respond to increasing and/or larger demand requirements over time through intermediate infrastructure builds until full development is reached. The LFRIP design and approvals regime aims to facilitate staging to respond quickly and efficiently to deliver water to meet anticipated future demands.

The LFRIP is a 'controlled action' approved (with conditions, including offsets) under the EPBC Act (EPBC 2009/5173) for impacts on matters of national environmental significance, including the Great Barrier World Heritage Area and listed threatened species (*Rheodytes leukops* (Fitzroy River turtle) and *Erythrorchis radiatus* (red goshawk)), amongst others. The LFRIP is a 'coordinated project' that the Coordinator-General has recommended proceed subject to imposed and stated conditions, recommendations made and offsets defined in the Coordinator-General's evaluation report, including for regulated vegetation and connectivity, listed threatened species (*Elseya albagula* (white-throated snapping turtle) and *Ninox strenua* (powerful owl)) and waterways providing for fish passage, amongst others. The LFRIP EIS supporting the development of a business case being prepared by Building Queensland. The Coordinator-General's evaluation report for the LFRIP lapses within three years and under the EPBC Act approval the LFRIP must have substantially commenced within five years. Periods can be extended by written agreement.

## Identifying risks and opportunities

### Timeframes

Prescribed statutory timeframes for environmental assessment through preparation of an EIS under the SDPWO Act are unlimited. Public notification periods apply to the draft EIS and additional information prepared in response to submissions received on the draft EIS. The public notification periods are determined at the discretion of the Coordinator-General but must be at least 28 days (State Development Public Works Regulation 2010 s35A). Notification periods range between four weeks and eight weeks across projects. Evaluation, assessment and decision periods for regulatory agencies are based on departmental client service standard targets, which are not guaranteed and are subject to departmental workloads and resourcing. Information response periods for proponents are not defined. The declaration of a project requiring an EIS lapses within 18 months of the terms of reference being finalised if the Coordinator-General has not accepted a draft EIS (and additional information if relevant) as the final EIS (SDPWO Act s27A). This period can be extended by written agreement. The period was extended twice for the LFRIP with the second extension being deemed a final extension after which no further extensions would be granted.

Under the EPBC Act statutory periods for an EIS are nominated only for:

- The comment period for the draft EIS - a period of not less than 20 business days, and as such can be a longer period at the Minister's discretion (EPBC Act s103 (3))
- The Minister must within 40 business days of receiving the final EIS decide whether or not to approve the action (EPBC Act s130 (1B))

An EPBC Act 'controlled action' declaration does not lapse.

Unclear and discretionary timeframes make planning for project development and delivery difficult. Importantly it is not only statutory processes and timeframes that influence the overall time taken for EIS

assessment and approval. There is also no statutory period within which proponents are required to respond to requests for information on the assumption that proponents have a vested interest in responding in the shortest timeframes possible. This is not always the case and economic drivers, market demand fluctuations, clarity around project description or public policy objectives, for example, can sometimes result in projects slowing down at the proponent's discretion. Defined periods for both regulators and proponents (such as under the *Planning Act 2017*) would improve confidence in the process and aid planning and make the project assessment process more consistent.

The LFRIP EIS process and timing are shown in Figure 110. The LFRIP commenced in late 2009 and was approved in early 2017. To provide a comparison, EIS approval timeframes for other water-related projects being undertaken by the Gladstone Area Water Board and SunWater Limited, the subject of EISs around the same time as the LFRIP were reviewed, namely:

- The Gladstone-Fitzroy Pipeline Project
- The Connors River Dam and Pipeline Project
- The Nathan Dam and Pipeline Project.

Each project was assessed by EIS as a 'coordinated project' and 'controlled action' under the SDPWO Act and EPBC Act, respectively. The Gladstone-Fitzroy Pipeline Project was approved in just under five years. Connors River Dam and Pipeline Project received approval in about four and a half years. The Nathan Dam and Pipeline Project's approval process commenced in 2008 and an approval decision from the Australian Government was made in July 2017. From the second round of terms of reference preparation and approval the LFRIP timeframe was comparable to that of other water-related projects at approximately three years.

Analysis of 67 completed 'coordinated projects' revealed that the average approval period across all sectors and projects is just over three years (Figure 111).

## **Environmental legislation and policy**

During the preparation, assessment and evaluation of the LFRIP, EIS changes in Government and emerging issues in response to political and social drivers led to the introduction of new legislation, policy and plans not previously considered or identified in the terms of reference. The introduction of a new environmental offsets framework and the Reef 2050 Long-term Sustainability Plan (Commonwealth of Australia 2015) (Reef Plan 2050) are discussed with relevance to the implications for the LFRIP.

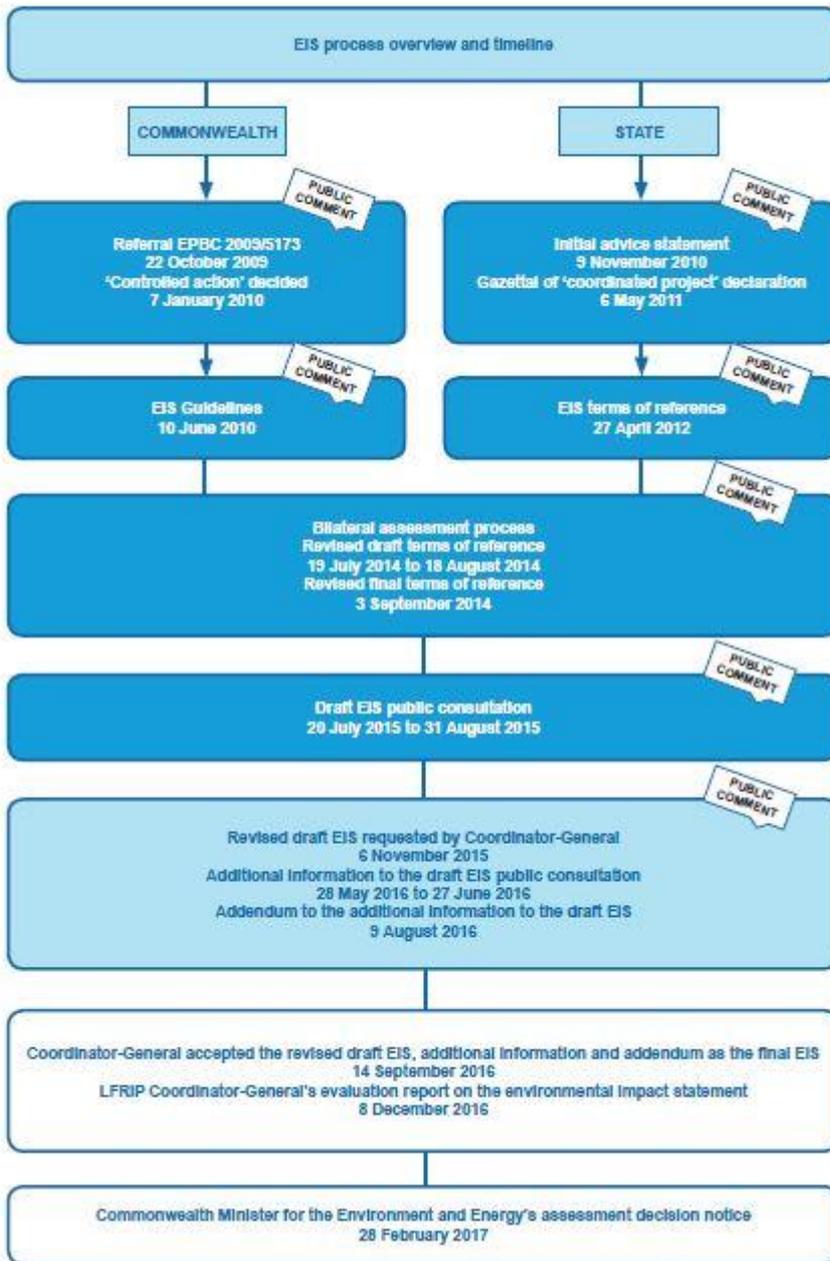
## **Environmental offsets**

The design of the weirs for the LFRIP includes for the provision of high and low-level fish locks. The basis of design for the fish locks was developed with technical and policy input from Fisheries Queensland as part of a Fishway Design Working Group. The basis of design relative to the mitigation of impacts was agreed for assessment in the EIS in 2010/2011. The assessment of impacts at the time concluded that the provision of high and low-level fish locks adequately mitigated the risk to fish movement upstream and downstream and that residual impacts were not significant – that is passage is provided for between 95 per cent and 98 per cent of the time.

The Significant Residual Impact Guideline released in December 2014 in support of the *Environmental Offsets Act 2014* however required reconsideration of the significance of the impact. The matter of state environmental significance defined under the *Environmental Offsets Act 2014* included not only the weir as a barrier to fish passage but the impacts on the waterway itself providing for fish passage. Interpretation of the significance impacts guidelines is subjective and guidelines for the determination of the impact footprint are limited. It was argued that not all the impoundment is a barrier to fish passage. A methodology was derived that appropriately identified the waterway with value to fisheries that could be described as the impact footprint. Negotiating flexible conditions of approval (in particular with regard to offset requirements) was important to avoid further time delays and enable good environmental outcomes without prescribing the action required.

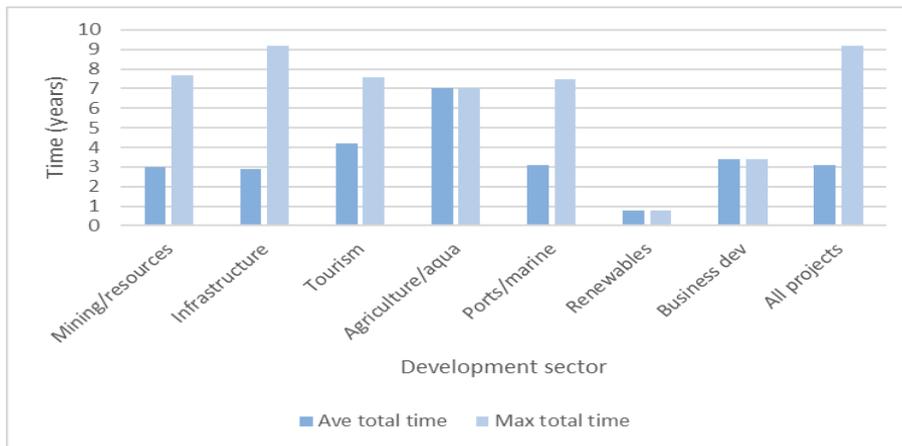
Figure 110

LFRIP EIS process and timing



**Figure 111**

**Approval periods for completed ‘coordinated projects’**



The inclusion of connectivity as a matter of State environmental significance in 2014 required additional assessment to be undertaken against defined levels of fragmentation of remnant vegetation. Having interrogated the assessment tool and data, it is considered likely that most linear developments in areas of remnant vegetation (including along watercourses and in riparian areas) will result in a significant residual impact when assessed against the criteria. Offsets for connectivity are applied with a multiplier of one and apply to all remnant vegetation, including least concern regional ecosystems. Consideration of connectivity as part of an overall offsets package is necessary to minimise cost exposure.

### **Reef 2050 targets**

At the time of referral in 2009, the LFRIP’s impacts on matters of national environmental significance under the following controlling provisions were identified and subsequently included within the terms of reference:

- World Heritage properties, namely the Great Barrier Reef World Heritage Area
- National Heritage places, namely the Great Barrier Reef World Heritage Area
- Listed threatened species and communities – Fitzroy River turtle, amongst others
- Listed migratory species.

The LFRIP was assessed against the Matters of National Environmental Significance Significant impact guidelines 1.1 (Commonwealth of Australia 2013), for direct impacts on the outstanding values of the Great Barrier Reef World Heritage Area and considered the requirements of the Reef Water Quality Protection Plan 2009 (The State of Queensland (Department of the Premier and Cabinet) 2009). Cumulative and consequential impacts were addressed qualitatively relative to publically available information and consideration that activities are subject to their own separate environmental approvals processes. The introduction of Reef Plan 2050 water quality targets however required the LFRIP to predict quantitatively direct impacts associated with the LFRIP and indirect impacts of development facilitated by or consequential to the LFRIP. This level of assessment was introduced to the LFRIP after the draft EIS had been notified and additional information prepared - very late in the assessment process.

In the absence of regulatory guidelines for the assessment of significance of consequential impacts, and to avoid further delays in assessment, collaboration with State and Commonwealth technical agencies to establish a working group was considered the best approach. This allowed robust and scientifically defensible methodologies to be developed and agreed upfront. Streamlining the approach by including key decision makers assisted in managing expectations and focused the assessment on realistic and achievable outcomes relative to the project. The result was defensible outcomes allowing timely decision making and avoided rework and further notifications.

## **Project description and project design**

The project concept for the LFRIP was well defined early in the assessment process. Design of the project infrastructure progressed in line with the environmental assessment process. This provided opportunities for the outcomes of the environmental assessment to influence the final concept and incorporate environmental requirements into the design.

Fish passage and turtle bypass infrastructure in particular were designed in collaboration with environmental teams enabling impacts to be avoided and mitigated to reduce the significance of the residual impacts. Clear design parameters provided confidence to the regulatory authorities that impacts had been correctly identified and proposed mitigation and management measures could be demonstrated to be achievable.

The well-defined project concept provided confidence that the extent of the baseline environmental, including social and cultural, investigations and assessments were of sufficient scope to accommodate changes in the design and predicted impacts without the need for additional or new surveys. Baseline investigations themselves took in the more than 12 months to allow for seasonal variations in ecology and surface water flows in particular. Access to and discussion with landholders and other stakeholders requires adequate time and opportunity.

## **Concluding remarks**

In conclusion:

- The environmental assessment process is complex, requires iterative investigation and assessment, has an uncertain timeframe and is subject to unknown external influences.
- It is clear that completing an EIS within the 18-month period is unlikely to be achieved for significant infrastructure development with the potential to impact on a range of matters of State and national environmental significance. Proponents need to set realistic timeframes (and associated budget and resource inputs) for assessment when planning development proposals.
- There will always be unknown, uncontrollable, external influences on decision makers when dealing with a major environmental approval. The environment is not static and EIA is an iterative process, with many stakeholders, and opportunities for comment or engagement which more often than not will add to the risk/impacts that need investigation and assessment. This often results in further assessments. The last assessment often becomes the benchmark for subsequent projects in the absence of a robust justification.
- Collaborating and engaging with regulatory agencies in an open and transparent manner aids the assessment timeframes and provides more opportunity to effectively manage environmental outcomes. This was achieved when working groups were established and approaches and methodologies agreed upfront with feedback from all stakeholders provided during the assessment rather than at the end of the process.
- Develop a good project description and stick with it. A well-defined design will result in more targeted conditions, but it is also important to consider that design changes and reassessment add time to the process. Any, and all time delays create opportunities for external pressures on the project to be realised, such as new legislation and changes to policy. Design changes through the environmental assessment process will occur. Decisions on whether changes should be re-assessed should consider the materiality of the change and whether the change can be addressed through future appropriate processes, acknowledging timeframes and assessment requirements.

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- Landholders for access to their land to enable baseline surveys and investigations
- Office of the Coordinator-General for project coordination and facilitation
- State and Commonwealth regulatory agencies for technical adequacy reviews and engagement

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