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Cumulative Impact Assessments (CIA)

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Great state. Great opportunity.
And a plan for the future.



Cumulative Impacts

May be considered as being:

- The effect of a specific action or activity when added to past present and proposed actions
- Those impacts that result from the combination of multiple incremental activities, each of which may have a relatively 'minor' effect when viewed alone – but which become significant when considered in aggregate
- Raises the issue of 'assimilative capacity.'
- Decisions in an information deficit zone.

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Consideration of Cumulative Impacts in QLD

- Code assessments – assumes cumulative impacts no problem
- Site-specific assessments:
 - Can model conditions apply and can be met (if so, OK)?
 - Do site-specific assessments show environmental values can be met
- EIS assessments only for large-scale projects having the potential for substantial:
 - Social impacts
 - Environmental impacts
 - Economic impacts
- Criteria for EIS:
 - EP Act Guideline 'triggers' under the EP Act
 - 'Coordinated project criteria under SDPWO Act
- EPBC Act controlling provisions – Bilateral

Cumulative Impacts – challenges for regulators

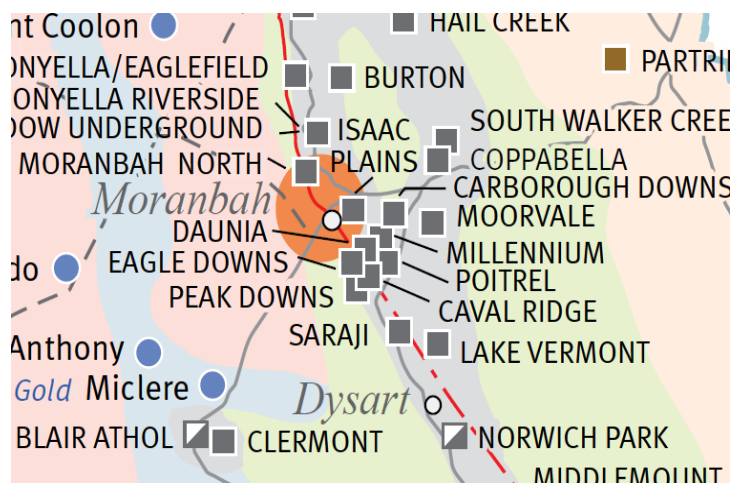
- **Setting ambient standards** to protect against unacceptable cumulative impacts – at a statewide, regional and local scale.
- In terms of 'brown' issues and the release of contaminants the logical framework relatively straight-forward on the surface:
 - Water quality objectives (ANZECC, regional, locally derived)
 - Air quality objectives (e.g. ground level concentrations)
 - Noise objectives to protect 'sensitive receptors' throughout the day
 - Contaminated Land ('notifiable activities' –EMR; polluting – CLR); NEPM
 - Waste containment structures (DSA etc.)
- Often more difficult for green, social and economic impacts.
- **Considering cumulative impacts at a landscape scale**
- **Assessing individual projects in the context of cumulative impacts**
- **Monitoring cumulative impacts on receiving environments**

TOR for EIS under EP Act

- EIS should predict the **cumulative impacts** on environmental values over time and in combination with impacts created by other adjacent and upstream and downstream developments and landholders—as detected by baseline monitoring.
- Lack of a comprehensive cumulative impacts analysis need not be fatal to the project.
- The EIS should outline ways in which cumulative impact assessment and management could be progressed on a collective basis.

Moranbah Township & adjacent mines





Fine Dust and Public Health in Moranbah

- EA conditions following on from the EIS process and EPP (Air) sets 24 hour PM10 limits at 50 micrograms per cubic metre.
- Coordinated monitoring of air-borne particulates (PM10)
- EA sets contingency requirements once 'triggers' met

EIS Responses on Cumulative Impacts

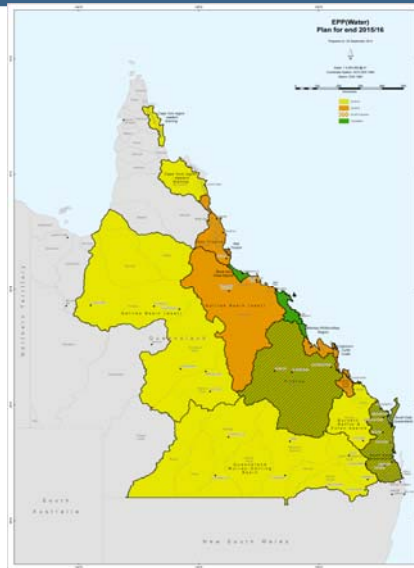
- Commonly find – ‘Negligible impacts’.
- Commercial confidentiality issues.
- Project impacts do not spatially intersect with other projects.
- Limited information – commercial confidentiality issues.
- Key cumulative impacts often those associated with increased road and shipping traffic, increased demand for housing, local workers and social services, terrestrial clearing.

EPP Water

- Identifying environmental values and management goals for Queensland waters.
- EVs to be protected from impacts of habitat alteration, waste releases, contaminated runoff and changed flows to ensure healthy aquatic ecosystems and water safe for community use.
- Setting EVs for local or regional waters is the first step in managing water quality on a **cumulative** impacts basis.
- The EVs are matched with scientifically based water quality criteria to provide water quality objectives.

EVs in Queensland

- FN Fitzroy, SEQ done, being updated
- Galilee current
 - Western catchments next



Water Resource Planning

- Based on catchments/basins
- Applies to rivers, lakes, dams, springs underground water and overland flow.
- Sets the management framework for water resources.
- Outcomes, objectives and strategies for a sustainable total balance between consumptive use and the environment.
- Based on technical and scientific assessment as well as extensive community consultation.
- Performance indicators—ensuring supply security and a sustainable amount of flows for environmental purposes

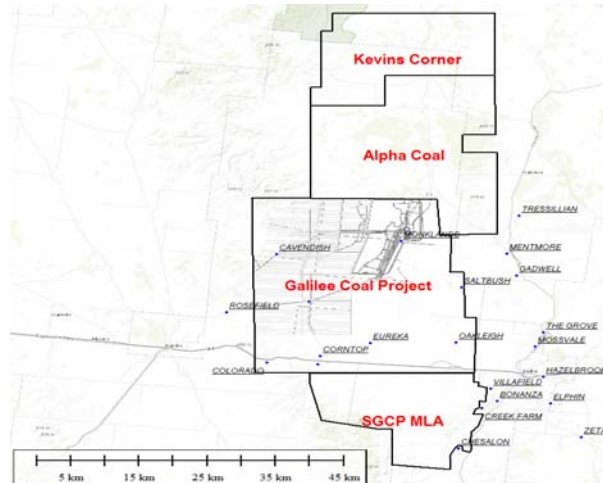
Water Act – Cumulative Management CSG

- An area with multiple operators can be declared a 'cumulative management area' (CMA) for groundwater.
- OGIA carries out cumulative assessment and prepares an 'underground water impact report' (UWIR) containing:
 - predictions of impacts
 - regional water monitoring strategy
 - regional spring impact management strategy
 - assignment of responsibilities to individual tenure holders
 - research directions to build new knowledge
- UWIR becomes part of the regulatory framework

CSG Water Regulatory Framework

- Water supplies – supply bores are maintained
- Potential impact on groundwater-fed springs is managed
- Does not contaminate groundwater – banned use of certain chemicals 'fracking' process
- 'Environmental Authorities' for P&G activities
- Water Act 2000 (Chapter 3) CSG operators must:
 - collect baseline data
 - 'make good' impairment of bore supplies
 - for low intensity areas, tenure holder assessment and monitoring
- Regulations deal with CSG water management and use – disposed of, re-injected into aquifers or used for supplies.

Coal Mining in the Galilee Basin



Galilee Basin Water Management

- State/Commonwealth require Alpha Coal Mine, Kevin's Corner, and Carmichael Coal to develop a basin-wide water monitoring and reporting framework.
- CG's reports require proponents to contribute \$ to site monitoring data and modelling.
- DNRM to develop and maintain regional water balance model.
- EHP to develop EVs and WQOs for water quality
- EHP to develop model water conditions for resource projects – to inform future EA conditions re. cumulative impacts.
- Regional groundwater and surface water monitoring and assessment program imposed on all players -DNRM

Galilee Basin - Black Throated Finch (BTF)

- BTF endangered. Galilee Basin most significant habitat.
- BTF protection will have collateral benefit for squatter pigeon (E), koala (V), yakka skink (V).
- Need adaptive Bioregional Management Plan for BTF and its habitat within the Desert Uplands bioregion.
- CG's Reports for the projects imposed conditions requiring pro rata proponent contributions.
- In-kind contribution from proponents to bioregional management plans to address cumulative impacts on BTF.

Bioregional Assessments (IESC)

- To improve understanding of potential impacts of CSG/ large coal mining on water resources.
- Science-based studies - methodology to develop multi-layered records of the natural environment in bioregions.
- Analyse ecology, hydrology, geology and hydrogeology of bioregions – assessment of potential direct, indirect and cumulative impacts on water resources
- **Conceptual models** – diagrams of water balances, outputs of numerical and analytical models, lists of possible risks and their likelihoods, and descriptions of the possible impacts

Gladstone Healthy Harbour Partnership (GHHP)

- 23 partners – community, government, industry, research and statutory bodies to maintain, and where necessary, improve the health of Gladstone Harbour.
- Open and accountable management, annual reporting of the health of Gladstone Harbour
- Management recommendations and action based on rigorous science and strong stakeholder engagement.
- Independent Science Panel to take a strategic approach towards integrated research and monitoring program for the Gladstone Healthy Harbour Report Card – due 2015.

Gladstone Air Quality

- Cumulative impact of heavy industry assessed by air monitoring.
- Gaseous emissions considered rather than dust - SOX and NOX from power generation, alumina refining, aluminium smelting, shale oil refining, chemical and cement manufacture.
- Individual industry operators have management and monitoring requirements to protect air quality values.
- Over many years the government has implemented comprehensive air quality monitoring to inform the community
- Most recently, the cumulative impacts of SOX and NOX from the new LNG plants on Curtis Island were also assessed to determine any adverse impacts. None were identified.

Queensland - cumulative impacts treated seriously

- Developing & setting environmental standards.
- Challenges in dealing with cumulative impacts
- Regulatory Strategy – onus on the operator(s) to show impacts OK.
- Future focus.

The Fitzroy River turtle - cumulative impacts

Approximately 30 mining projects, Isaac River, Mackenzie River, upper Dawson

A number of CSG projects propose to discharge treated water

Connors River Dam and Pipelines Project, Nathan Dam and Pipelines Project, Lower Fitzroy River Infrastructure Project

Approximately 36 per cent of the Fitzroy, Dawson and Mackenzie sub-catchments have been impounded

The Lower Fitzroy River Infrastructure Project would inundate an additional 113 km, incomplete knowledge of the extent of the population within the catchment, location of nesting habitat within the known range of the species

uncertain extent of loss of feeding habitat in impoundments (suitable habitat in shallower sections)

current dominant threat to the species is nest predation

current population trend is down due to lack of recruitment

cumulative loss of suitable feeding and nesting habitat (impoundments and altered flow regime) could be very significant but implications for the population unknown

offset requirements need to try to address both known and uncertain impacts

It is concluded that the collective impacts from building Rookwood Weir and raising Eden Bann Weir are expected to have a high probability to "interfere substantially with the recovery of *Rheodytes leukops*, a vulnerable species under the EPBC Act.

Although not currently listed as a threatened species, *E. albagula* will be exposed to a similar increased risk of extinction and impediments to recovery of the depleted population as result of these weirs being built/raised in the Fitzroy River.

While the creation of these two new impoundments by themselves are expected to have negative impacts on the recovery prospects for *R. leukops* and *E. albagula*, it is possible through a comprehensively planned and implemented, catchment-wide management plan to put in place actions that will lead to the recovery of these species.