

Coastal Science for Planners



Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management

An economic approach for water quality management

(Findings of the Coastal CRC's Environmental Planning Project)

Improved management of land and water use in south-east Queensland requires a variety of regulatory, voluntary and economic tools to be effective. Economic tools can be financial incentives or penalties, which are set and administered by government, or market-based incentives, which require government to delineate legal property rights that are then distributed by the market.

A greater number of targeted financial incentives are required to encourage land owners to adopt more science-based natural resource management actions in south-east Queensland. In addition, the range of incentives needs to be tailored to meet the particular needs of each catchment to encourage best management practices and fulfil regional environmental goals.

Key issues – 'The spillover effect'

- The economic problem of environmental degradation is mainly one of 'externalities' or spillover effects that are not accounted for in the market by rewards or penalties.

- Positive spillover effects include the improvement in downstream water quality resulting from the establishment of riparian vegetation.
- Negative spillover effects include the increased turbidity of an entire watercourse resulting from localised erosion of a hill slope.
- The economic tools to address externalities aim to encourage sustainable behaviour by providing incentives to reward those producing positive spillover effects and to penalise those who produce negative spillover effects.

Recommendations – The regulatory tiering framework or '*the right tool for the job*'

The report clarifies the role of traditional regulation, voluntary mechanisms and economic tools, proposing a 'regulatory tiering framework' to achieve environmental objectives (Figure 1, final page).

- Within a regulatory tiering framework, regulation continues to enforce minimum standards for environmental duty of care, while financial incentives (e.g. tax rebates) and market-based incentives (e.g. tradeable emission permits, transferable development rights and ISO 14001 accreditation) further encourage 'best management'.



South-east Queensland is one of Australia's fastest areas for urban growth. A range of economic incentives can be used to assist with the management of water quality in local catchments.

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Example economic tools:

- *Tradeable Emission Permits*: a system of issuing permits that allows the emission of a set quantity of pollutant. Permits can be traded to allow them to be bought by those for whom the cost of abatement is greater than the cost of the permit.
- *Transferable Development Rights*: a program that discourages landholders from developing valuable ecosystems by offering planning concessions that may be sold and exercised elsewhere in exchange for limiting development on their own land.
- *Eco-labelling*: for example ISO 14001 – an international standard that provides a guide for the preparation and implementation of environmental management systems for specific industries.
- *Offsets*: provide for a loss in ecosystem resources in one area to be balanced (or 'offset') by a gain elsewhere but in close proximity and with comparable landscape attributes.

Recommendations – An economic approach to natural resource management

The report identifies suites of complementary planning tools targeted to address four key management themes, namely to:

- Retain and restore riparian areas.
- Promote whole-of-catchment stewardship.

- Improve urban stormwater quality.
- Reduce impacts from extractive industries (sand and gravel).

Riparian areas

To protect the riparian areas of a single catchment, management solutions should include:

- Support by a range of economic tools, especially those that complement voluntary initiatives in rural areas (such as industry codes-of-practice and property management plans). Incentives may include tax rebates for preventing land degradation (e.g. fencing, recycling, waste minimisation, water efficiency measures) and funding for Landcare and National Action Plan projects.
- Voluntary conservation agreements – to allow the landholder to protect and manage conservation areas on their land in exchange for cash grants or rate rebates. These can be supported by conservation covenants that bind title and future owners.
- Land for Wildlife programs – local government programs that offer incentives (e.g. free seedlings) for landholders to protect and rehabilitate important wildlife habitats.
- Leaseback arrangements – the State acquires environmentally sensitive areas and leases them back to landholders subject to conditions of protection and sustainable management.

Voluntary Conservation Agreements

Gold Coast City Council's Voluntary Conservation Agreement Scheme helps landowners protect and manage their bush without interfering with property ownership or enjoyment. Each property owner participating in the Scheme may obtain rate assistance of between 30% – 100% per annum depending on which level of agreement applies to their property.

Other financial support includes an annual cash reimbursement for works undertaken in accordance with the agreed management plan. The council will reimburse landholders up to \$2000 per annum for nature conservation activities undertaken



on their land, such as weed control, fencing and habitat restoration.

A management plan also is prepared in consultation with landowners to record the natural values of the land, and set out practical strategies to protect those values.

"We own a property in Springbrook, 103 acres, which is all rainforest. As the land value of our property increases, our rates go up as well. We are approaching retirement, so it was getting to the stage where we may not have been able to afford to stay. One of our choices was to sub-divide, which we definitely don't want to happen. This Agreement enables us to protect our land, and also receive financial support from Council through rates rebate."

Jeanette O'Shea, land owner



Ron Bartholomew and family, committed to nature conservation on private land



Economic incentives can encourage better performance from industries discharging effluent into waterways.

- Support for smaller local governments by collaborative arrangements, grant programs and income tax concessions (e.g. for fencing).
- Financial rewards for complying with property management plans and industry codes-of-practice.

Whole-of-catchment stewardship

Whole-of-catchment stewardship can be promoted by:

- Encouraging compliance with property planning and agricultural industry codes-of-practice.
- Providing a range of financial and market incentives packages, including rebates and tax concessions together with eco-labelling supported by ISO 14001.
- Integrating Property Management Planning and Environmental Management Systems with audits.

Urban stormwater

To improve the quality of urban stormwater, potential economic tools include:

- *Infrastructure charges* – levied on developers by local government, in accordance with Infrastructure Charges Plans included in planning schemes, to fund provision of infrastructure.
- *Marketing of green or water sensitive suburbs* – for example, by publishing water quality monitoring results to promote better household practices and a positive marketing image.

- *Transferable development rights*.
- *Offsets* – where any loss of beneficial habitat (such as wetlands) due to development must be offset by investment in the protection and restoration of equivalent habitat elsewhere.

Extractive industries

To reduce the impact on waterways from extractive industries, appropriate tools include:

- *Performance bonds* – require the operator to set money aside as a contingency to fund future rehabilitation.
- *Load-based emission licence fees* – require the operator to pay a licence fee that reflects the environmental damage done by the activity and encourages industry to minimise potential impacts.
- *Offsets* – provide for a loss in ecosystem resources in one area to be balanced (or 'offset') by a gain elsewhere but in close proximity and with comparable landscape attributes.
- *Eco-labelling and market education* – involve 'branding' of products to indicate environmentally responsible practices in its production.
- *Tradeable discharge permits*.

To enhance the efficiency of currently available economic tools, the report also recommends:

- Establishing an advisory body to broker financing incentives, particularly for the promotion of catchment-scale stewardship.
- Extending the use of the insurance market in the setting of premiums to cover performance bonds.



Organic certification guarantees business methods comply with set guidelines on organic farming and processing.



- Adopting a load-based licence regime for 'Environmentally Relevant Activities' licensed by the EPA under the *Environmental Protection Act 1994*.
- Furthering research into the development of a 'no net loss' policy for Queensland. For example, under such a policy the provision of habitat offsets would ensure that there is no net loss of habitat areas resulting from development pressure.

For more information, visit the Coastal CRC online and download the Environmental Planning Project report Volume III Section 9 at:
www.coastal.crc.org.au/environmental-planning/

Other topics in the south-east Queensland Environmental Planning Report series:

- Managing impacts on waterways from rural areas
- Statutory planning for riparian vegetation
- Environmental planning for urban stormwater

Available to download at:
www.coastal.crc.org.au/environmental_planning

Tool	Liabilities	Delegations	Increasingly voluntary initiatives		
Local government rates & charges	Levies, high rates and charges	Land for Wildlife support + free trees	VCA without covenant or rezoning: limited rate rebates	VCA with rezoning and/or covenant: High rate rebate	Outright Acquisition or lease back: Additional incentives
TDRs	TDR required			Voluntary reduction in rights by rezoning and covenant generates TDRs	
Offsets	Offset credit required			Restoration activities with covenant and rezoning generates offset credits	
Bonds	Forfeiture of bond	Bond covers full cost of rehabilitation	Bond is reduced corresponding to reduced risk (preferably determined by market)		
EMS Property Plans	Plans req'd for regulatory approval, e.g. LWMPs		Approved Plans required for tax concessions	Approved Plans required to bid for Gov't funds at auction	Certified Plans Required for eco-labelling (e.g. Organic)
BMPs COPs ISO 14001	No defence to breach of EP Act	Implementation of BMP achieves duty Implementation of code achieves duty Implementation of EMS achieves duty	Internally audited	Gov approved implementation attracts financial incentives and tax concession	External Accreditation allows eco-labelling
Licences	Breach of conditions attracts penalty	High load based licence fee			No emissions, no emission fee
EP Act VM Act IP Act	Env. Harm Prohib. clearing Planning Prohibition		Acceptable Solutions		Environmental Values DEOs

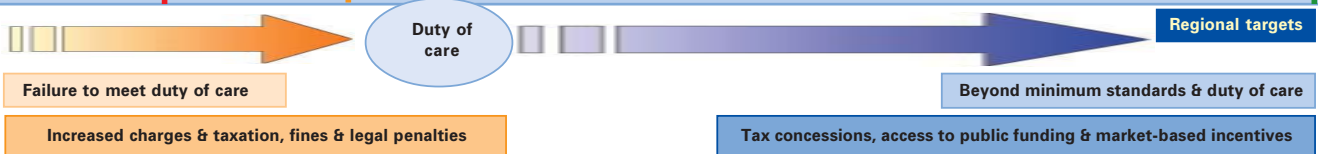


Figure 1. Within a 'regulatory tiering framework', regulation continues to enforce baseline standards. Financial incentives and market-based incentives are applied to further encourage best management practice beyond minimum duty of care to achieve regional environmental targets.



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