



**Environment,
Climate Change
& Water**

Regulatory Impact Statement

Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

Submissions

The Department of Environment, Climate Change and Water NSW (DECCW) invites written submissions on this Regulatory Impact Statement and on the draft Catchment Management Authorities (Hunter Central Rivers) Regulation 2010.

Submissions on this Regulatory Impact Statement and the Regulation should be made in writing and sent to:

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Sydney South NSW 1232

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The closing date for comments is 9 June 2010.

This publication is available at
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Summary

Statutory information

Title of regulatory proposal: Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

Enabling Act: *Catchment Management Authorities Act 2003*

Proponent: Department of Environment, Climate Change and Water

Responsible Minister: Minister for Climate Change and the Environment

The Hunter–Central Rivers Catchment Management Authority Regulation 2005 contains provisions regarding the generation of revenue from a levy on rateable land in the Hunter Valley catchment. The revenue generated from this levy enables the Hunter–Central Rivers Catchment Management Authority (HCR CMA) to meet its legislative obligations under the *Water Management Act 2000*, as well as meeting resource condition and management targets in the Hunter–Central Rivers Catchment Action Plan (CAP), by undertaking or supplementing funding to the following programs:

- flood mitigation and riparian management
- community education, capacity building and engagement
- Hunter Waterwatch
- Hunter community support and facilitation
- wetland and threatened species protection and enhancement
- priority subcatchment projects
- on-ground works incentives
- vegetation management
- HCR CMA technical staff (working on these and other programs in the catchment).

Under the *Subordinate Legislation Act 1989*, the Hunter–Central Rivers Catchment Management Authority Regulation 2005 will be automatically repealed in 2010. Prior to the remaking of the same or a different Regulation, a Regulatory Impact Statement (RIS) must be prepared and publicly exhibited. The RIS must identify its objectives, identify options for achieving these objectives including non-regulatory options, assess the economic and social costs and benefits of each option, including any proposed new Regulation, and identify the option that results in the greatest net benefit or the least cost to the community.

The objective to be achieved by government intervention is the meeting of resource condition and management targets in the Hunter–Central Rivers CAP and legislative requirements under the *Water Management Act 2000* in a manner that promotes and coordinates the sustainable use and management of land, water, native vegetation and other natural resources in the Hunter Valley catchment.

There is a prima facie case for government intervention in catchment management on the grounds of market failure associated with environmental goods and services. However, intervention is only justified on economic grounds if the benefits to the community from intervention exceed the costs. With no intervention the Regulation would not be remade and the contribution that levy funds make to each of the catchment programs would cease. HCR CMA would be unable to meet its legislative requirements under the *Water Management Act 2000* to contribute one-quarter of costs towards flood mitigation works to protect towns and villages from flood damage in the Hunter Valley catchment. The anticipated additional environmental outcomes that deliver against the CAP each year from the catchment contributions would not occur.

A benefit–cost analysis of three intervention options (remake the existing Regulation, remake the existing Regulation with a more limited purpose, or make a new Regulation that specifies a different means of raising money) found that remaking the existing Regulation would provide the greatest net benefits to the community and would be more equitable than alternative approaches to implementing a levy.

Some support for remaking the existing Regulation is provided in the results of a community attitudes survey undertaken in 2007 (Hunter Valley Research Foundation 2007). This study gauged what Hunter Valley households would be willing to pay each year to maintain the natural resource management programs coordinated by HCR CMA. The results of this study indicated that the 235,000 households in the Hunter Statistical Division were willing to pay \$10.3m per annum to maintain catchment management activities in the Hunter Valley. This is in excess of the estimated \$3.3m per annum to continue HCR CMA activities if the existing Regulation were remade.

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Abbreviations

BCA	benefit–cost analysis
CAP	catchment action plan
CCA	catchment contribution area
CMA	catchment management authority
DECCW	Department of Environment, Climate Change and Water NSW
HCR CMA	Hunter–Central Rivers Catchment Management Authority
HVCT	Hunter Valley Conservation Trust
NPV	net present value
NRM	natural resource management
RIS	Regulatory Impact Statement
WTP	willingness to pay

1 Introduction

The Hunter Valley Conservation Trust (HVCT) was constituted in section 4(1) of the *Hunter Valley Conservation Trust Act 1950* to provide a coordinated approach to the extensive problems of natural resource conservation and flood mitigation in the Hunter Valley catchment. The Trust District was described in the Schedule to that Act.

The *Catchment Management Act 1989* was enacted with the intention that it would facilitate implementation of 'total catchment management of the State's natural resources, namely, the coordination and sustainable use and management of land, water, vegetation and other natural resources on a water catchment basis so as to balance resource utilisation and conservation' (from the Explanatory Note accompanying the Bill).

The *Catchment Management Act 1989* provided for, amongst other things, the creation and operation of Catchment Management Trusts to raise revenue for specified total catchment management purposes. With the passing of the *Catchment Management Act 1989*, the existing HVCT was reconstituted as a Management Trust. In 1991, the Trust's name changed from HVCT to the Hunter Catchment Management Trust (the Trust).

Section 27 of the *Catchment Management Act 1989* empowered the Trust to undertake many activities designed to achieve the purpose for which the Trust was established, including to:

- provide, construct, operate, manage and maintain works for the purpose of soil conservation, afforestation, reforestation, flood mitigation, water conservation, irrigation and river improvement (section 27(1)(a))
- enter into cost-sharing arrangements for the carrying out of works (section 27(1)(d))
- generate revenue by levying and recovering catchment contributions (section 27(1)(e))
- provide assistance to mitigate the effects of flood (section 27(1)(f)).

Under the *Catchment Management Act 1989* a 'catchment contribution area' and a 'charging year' could be declared in respect of which catchment contributions could be levied on the properties situated in that area.

The *Catchment Management Act 1989* envisaged that a Regulation would be made to prescribe:

- the total catchment management purpose of the Trust (required by section 26)
- the basis on which catchment contributions could be levied (required by section 41)
- other matters relating to liability to pay and the recovery of contributions
- the interest payable on overdue catchment contributions (required by section 48).

The Hunter Catchment Management Trust Regulation 1997 and Hunter–Central Rivers Catchment Management Authority Regulation 2005 were made for this purpose.

The *Catchment Management Authorities Act 2003* (the Act) established catchment management authorities (CMAs) across NSW for the purpose of devolving operational, investment and decision-making natural resource functions to catchment levels. Under the Act a CMA may, with Ministerial approval, levy a catchment contribution to fund any shortfall in available funding for its catchment activities, but this must be specifically authorised by regulation. These provisions of the Act continue the revenue raising provisions under the *Catchment Management Act 1989* relating to catchment management trusts (which are replaced by CMAs under the Act).

The Hunter–Central Rivers Catchment Management Authority Regulation 2005 contains provisions regarding the generation of revenue from a levy on rateable land in the Hunter Valley catchment. However, the general and specific functions of CMAs are now part of the Act itself, rather than being specified in the Regulation.

Under the *Subordinate Legislation Act 1989*, the Hunter–Central Rivers Catchment Management Authority Regulation 2005 will be automatically repealed in 2010. However, in accordance with the *Subordinate Legislation Act 1989*, prior to the remaking of the same or the making of a different Regulation, a RIS must be prepared and publicly exhibited.

2 Need for government action

In a competitive market where property rights are fully specified, goods and services are allocated in an economically efficient manner. In an environmental context, this is complicated by the nature of the goods and services involved. Environmental goods and services tend to have public-good characteristics of non-excludability (nobody can be excluded from consuming the goods) and non-rivalness (one person's consumption of goods does not reduce the availability of the goods to others). The consumption of such goods and services can create externalities (additional benefits or costs not directly accounted for by the market). Under these circumstances, markets fail to allocate environmental resources efficiently. Market failure is one of the fundamental arguments for government intervention.

The environmental resources within the Hunter Valley catchment provide a range of goods and services to both producers and consumers, but these are not allocated in an economically efficient manner due to market failure. This market failure is the fundamental justification for consideration of some form of intervention in relation to catchment management activities in the Hunter Valley catchment.

However, from an economic perspective, government intervention is only justified if the benefits exceed the costs to the community. Consequently, justification of remaking of the Hunter–Central Rivers Catchment Management Authority Regulation 2005 requires consideration of the costs and benefits of the intervention. This is the subject of this RIS which identifies the objective to be achieved, identifies the options for achieving this objective, assesses the economic and social costs and benefits of each option, and identifies the option that results in the greatest net benefit to the community. This has been undertaken using benefit–cost analysis (BCA). The BCA method and issues in its application are discussed in Section 3.

3 Methodology

3.1 Introduction

BCA is a systematic and objective method of evaluating the incremental costs and benefits of a government intervention over time relative to no intervention. It involves a number of steps including:

- identification of the objective to be achieved
- identification of the 'with' and 'without' regulation options
- physical quantification and valuation of the incremental benefits and costs of government intervention
- consolidation of values using discounting to account for the different timing of costs and benefits
- application of decision-making criteria
- sensitivity testing
- consideration of non-quantified benefits and costs, where applicable.

The established principles and practices of BCA as outlined in NSW Treasury (2002) have been adhered to in this RIS.

The value that people assign to environmental goods and services can be revealed by willingness to pay (WTP) for them. As it is time consuming and expensive to conduct primary studies to estimate WTP, the benefit transfer method has been used in this study. This involves borrowing values from 'study sites' for application to a site that must be evaluated (the 'policy site'). The primary studies used for benefit transfer applied the choice modelling technique to estimate WTP. A more detailed methodology is provided in Appendix 1.

3.2 Economic life of the analysis

The analysis was undertaken over a five-year period. This is contrary to general BCA procedures, which adopt a 20- to 30-year time frame; however, this shorter time frame is consistent with life of the Regulation options under the *Subordinate Legislation Act 1989*.

3.3 Discounting

Discount rates were used to convert costs and benefits over the five-year analysis into present value terms. An intermediate discount rate of 7% was used, with sensitivity testing at 4% and 10% as required by the NSW Treasury (2002).

3.4 Sensitivity testing

Sensitivity testing was undertaken in two ways. First, the discount rate was varied to 4% and 10% as discussed above. Second, to assess uncertainty of environmental values, the estimated catchment outcomes and WTP estimates were varied by $\pm 20\%$.

4 Objective to be achieved

The objective to be achieved by government intervention is the meeting of resource condition and management targets in HCR CMA Catchment Action Plan (CAP) and legislative requirements under the *Water Management Act 2000* in a manner that promotes and coordinates the sustainable use and management of land, water, native vegetation and other natural resources in the Hunter Valley catchment.

5 Identification of options

There are a number of options for achieving the proposed objective, including remaking the current Regulation, variations to the current Regulation, voluntary approaches and education. However, the options for detailed analysis were narrowed down to the four described below.

5.1 Option 1 (base case): Repeal of the Regulation

This option means no Regulation. HCR CMA would continue to operate and implement a range of catchment management programs financed by its other funding sources, namely state and Commonwealth contributions, operating grant funding and other contributions (HCR CMA 2009). The total annual revenue of HCR CMA would therefore reduce from \$18.6m (2009 value) to approximately \$15.3m.

The value of projects delivered in the Hunter Valley catchment from non-Hunter catchment contribution sources is approximately \$2.5m, including staff costs and on-ground project costs. In addition there is a recurrent budget of approximately \$1.5m for the Hunter Valley catchment.

This option does not meet the objective identified in Section 4, but represents the base case, or no Regulation option, against which all other options can be compared.

5.2 Option 2: Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

Under this option, the current and proposed HCR CMA activities could continue on a business-as-usual basis. The Regulation would be remade as the Catchment Management Authorities (Hunter Central Rivers) Regulation 2010. This option achieves the objective in Section 4.

The current Regulation has five parts:

- Part 1 contains the name of the Regulation and definitions
- Part 2 contains provisions regarding levying catchment contributions, the basis of the levy, determinations relating to catchment contributions and the service of notice
- Part 3 contains provisions relating to the liability to pay contributions
- Part 4 contains provisions on the recovery of catchment contributions
- Part 5 contains a savings provision.

Pursuant to the levy provisions of the current Regulation, HCR CMA generates revenue from a levy on rateable land in the catchment. This is in addition to State

and Commonwealth contributions, operating grant funding and other contributions (HCR CMA 2009).

The catchment contribution area (CCA) is declared as the area of the HVCT as described in the *Catchment Management Act 1989*. The CCA lies within the bounds of the Hunter Valley catchment. A copy of the declaration was published in the NSW Government Gazette (GG 2005).

Each year, HCR CMA prepares an investment program which must address all requirements under the Act. HCR CMA undertakes a detailed review and consultation process in order to produce an investment program suitable for Ministerial endorsement. This review may include a community survey, if deemed necessary by the General Manager, to establish community attitudes to natural resource management (NRM) issues and WTP for catchment contributions. Once the draft investment program is finalised and approved by the HCR CMA Board it is submitted with the total catchment contribution to the Minister. Following Ministerial approval, valuations are sought on rateable land from every council within the CCA. A percentage of the catchment contribution rate is then calculated based on the total catchment contribution that has been approved by the Minister. HCR CMA then prepares a catchment contribution rate determination which is forwarded to the Minister for approval and gazettal.

With the remake of the current Regulation, the revenue generated from the levy would enable HCR CMA to specifically undertake or supplement funding to the following programs.

Flood mitigation and riparian management

The aim of this program is to maintain flood protection for people, property and infrastructure in the lower Hunter. This is achieved through the maintenance of flood mitigation infrastructure in partnership with the Department of Environment, Climate Change and Water (DECCW) under the Hunter Valley Flood Mitigation Scheme, as required under the *Water Management Act 2000*.

Community education, capacity building and engagement

HCR CMA supports a range of community education and engagement activities as well as delivery of workshops showcasing NRM best practice case studies and sponsorship of field days. Membership of the Floodplain Management Authorities of NSW, operation of the Hunter Community Reference Group, implementation of the Flood Education and Awareness Project and assistance to the Hunter Region Landcare Network are examples of HCR CMA's continued work in this area.

Hunter Waterwatch

HCR CMA manages the Hunter Waterwatch program in partnership with the NSW Department of Education and Training to deliver school and community water quality monitoring programs within the Hunter.

Hunter community support and facilitation

Catchment contributions are used to provide staff for community engagement and capacity building activities in strategic locations within the Hunter Valley catchment.

Wetland and threatened species protection and enhancement

HCR CMA undertakes activities including the revegetation of floodplain, rainforest, riparian and wetland areas, reintroduction of tidal flows to restore fish passage and estuarine wetlands, the control of weeds to protect endangered flora, and the management of wetland and pasture areas for climate change retreat corridors. Pest control programs are also implemented to protect migratory shorebirds.

Priority subcatchment projects

HCR CMA works in partnership with Newcastle, Maitland and Lake Macquarie councils to develop and implement programs that contribute to the delivery of targets under its CAP. Other activities include the monitoring of ground- and surface-water salinity levels at priority sites and engaging with landholders to undertake salinity and soil erosion control works.

On-ground works incentives

HCR CMA runs the Hunter NRM On-Ground Incentives and the Small Grants scheme to assist landholders via competitive tender and partnership processes to address CAP priorities. These priorities cover soil and salinity management, native and riparian vegetation under Property Vegetation Plans, weed control, and threatened species and wetland protection and enhancement. Community members of the Hunter Community Reference Group assist HCR CMA in assessing the Small Grants scheme. HCR CMA also provides suitably qualified and experienced staff to provide technical advice to landholders in the development of projects funded by HCR CMA and external sources.

Vegetation management

HCR CMA is continuing to implement the recommendations of the Hunter Remnant Vegetation Project. Other activities include the extension of weed control in the Cessnock Local Government Area and the initiation of new activities with Hunter councils and other local government authorities targeting priority weeds that affect biodiversity.

Collection of catchment contributions

As provided for in the Act, local government authorities within the CCA collect the catchment contributions on behalf of HCR CMA and receive a 5% commission for this service.

Expenditure for specific activities under each program area in 2008–09 is provided in Table 1.

Table 1: Expenditure by program from levy funds

Activity	2008–09 Actual budget (x \$1000)		
	Direct operating component	Staff costs	Total
Hunter technical staff	0.0	345.0	345.0
Commission on catchment contributions	162.3	20.9	183.2
Hunter River works	350.0	59.5	409.5
Hunter Valley flood mitigation maintenance	250.0	9.0	259.0
Hunter Valley flood mitigation construction	180.0	9.0	189.0
Hunter asset management system	10.0	2.6	12.6
Flood awareness	10.0	1.4	11.4
Hunter education activities	75.0	98.3	173.3
Kooragang Wetland Rehabilitation Project	120.0	156.4	276.4
Hexham Swamp Rehabilitation Project	110.0	17.0	127.0
Hunter Waterwatch	0.0	101.9	101.9
Hunter community support and facilitation	0.0	257.0	257.0
Support Hunter Landcare and on-ground actions	38.0	3.5	41.5
Champions of the Catchments awards	5.0	1.4	6.4
Newcastle CM Forum and activities	90.0	32.2	122.2
Hunter Small Grants Scheme	200.0	72.6	272.6
River rehabilitation projects (includes UHRR)	26.0	5.8	31.8
Community salinity monitoring project	40.0	5.8	45.8
Hunter vegetation project	50.0	5.8	55.8
Total Field Days sponsorship	6.0	0.7	6.7
Hunter climate change project	20.0	0.0	20.0
Hunter NRM On-ground Initiative (HOGI)	250.0	42.3	292.3
Hunter CRG operation	5.0	3.5	8.5
Coordinated weeds management	76.0	5.8	81.8
<i>Subtotal</i>	2,073	1,257	3,330
Hunter Catchment Contributions (HCC)			3,246
HCC Reserves			84
Total expenditure			3,330

Biophysical outputs and outcomes across these program areas for 2008–09 are provided in Table 2 and, for the purpose of the analysis, similar levels of outputs and outcomes are assumed to be achieved over the next five years of the Regulation.

5.3 Option 3: A new Regulation with a more limited purpose

This option involves creating a Regulation similar to Option 2 but specifying a more limited purpose for the use of levy funds. Therefore, works undertaken by HCR CMA may be limited to a single program area, such as flood mitigation works which have a statutory requirement under the *Water Management Act 2000*.

This option achieves the objective in Section 4 but to a limited extent as only one CAP target would be met.

Table 2: Physical outcomes from levy funding 2008–09

CAP management targets		Outputs purchased in 2008–09
MT 01	Protect native vegetation	45 ha
MT 02	Regenerate native vegetation	66 ha
MT 03	Treat weeds	53 ha
MT 04	Threatened species work	13 ha
MT 05	Protect culturally significant landscapes	3 ha
MT 06	Protect wetlands	31 ha
MT 07	Rehabilitate wetlands	54 ha
MT 08	Treat animal pests	307 ha
MT 09	Erosion and sediment control – roads	1 km
MT 10	Revegetate highly erodible soils	53 ha
MT 11	Stabilise actively eroding soils	11 ha
MT 12	Salinity revegetation	41 ha
MT 13	Manage nutrient runoff	4 ha
MT 14	Stabilise salt affected areas	1 ha
MT 15	Sustainable grazing management	101 ha
MT 16	Property planning	172 ha
MT 17	Protect native riparian vegetation	23 km
MT 18	Regenerate native riparian vegetation	40 km
MT 19	Restore fish passage	2 structures
MT 20	Instream and foreshore stabilisation	4 km
MT 21	Restore instream habitat	6 km
MT 22	Manage flood mitigation structures	105 structures*
MT 23	Urban stormwater management	2 ha
MT 24	Effluent management	0
MT 25	Floodgate management	2 structures
MT 26	Rehabilitate acid sulfate soils	21 ha
MT 27	Dune stabilisation	0
MT 28	Protect marine habitat	3 ha
MT 29	Environment management systems (EMS)	0
MT 30	Enhance foreshore vegetation	0
MT 31	Enhance marine shorelines	3 km

* All of the structures (approximately 420) are maintained and HCR CMA contributes 25% of maintenance costs. On this basis there are around 105 structures per year maintained from levy funding, with the remaining structures maintained by funding from other sources.

Note: It is assumed in this analysis that the same level of outputs is achieved each year.

Some outputs may overlap such as areas of native riparian vegetation protected and areas of native riparian vegetation regenerated.

5.4 Option 4: A new Regulation that specifies a different means of raising money

This option would involve a Regulation where the procedure for levying contributions to the CMA differs from the current land-based rating system.

Two options were considered:

- a levy based on a flat rate of contribution per property
- a levy based on the catchment benefits received per property.

This option achieves the objective in Section 4.

6 Identification and valuation of benefits and costs

6.1 Option 1 (base case): Repeal of the Regulation

6.1.1 Identification of costs and benefits

To analyse the incremental costs and benefits of Options 2, 3 and 4, it is necessary to fully identify the 'with' and 'without' Regulation scenario. The without Regulation scenario, Option 1, becomes the benchmark against which all alternatives are compared.

Under the without Regulation scenario (or 'do nothing' option) the Regulation would not be remade. HCR CMA would continue to operate and implement a range of catchment management programs financed by its other funding sources, namely state and Commonwealth contributions, operating grant funding and other contributions (HCR CMA 2009). The annual revenue of HCR CMA would therefore reduce from \$18.6m (2009 value) to approximately \$15.3m.

Under this situation it is assumed that the contribution that levy funds make to each of the programs would cease. HCR CMA would also be unable to meet its legislative requirements under the *Water Management Act 2000* to contribute one-quarter of costs towards flood mitigation works to protect towns and villages. Consequently, the additional biophysical outcomes expected to be achieved each year from the catchment contributions (Table 2) would not occur. The technical staff funded from the levy contribution would also be lost, reducing the ability of HCR CMA to provide services to landholders. The capacity to secure funding from other grant sources may also be reduced, as there would be no funds available to match grant contributions.

It is assumed that the proportion of the flood mitigation works currently funded by the state would continue.

6.2 Option 2: Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

6.2.1 Identification of costs and benefits

Under the existing Regulation scenario, the activities of HCR CMA would continue and the catchment and environmental outcomes identified in Section 4 would continue for the next five years.

The incremental costs and benefit categories of Option 2 can therefore be identified as shown in Table 3.

Table 3: Incremental costs and benefits of Option 2: Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

Economic costs	
Flood mitigation and riparian management	
Community education, capacity building and engagement	
Hunter Waterwatch	
Hunter community support and facilitation	
Wetland and threatened species protection and enhancement	
Priority subcatchment projects	
On-ground works incentives *	
Vegetation management	
Commission on the collection of catchment contribution	
Hunter technical staff	
Economic benefits	Physical dimension
Protect native vegetation	45 ha
Regenerate native vegetation	66 ha
Treat weeds	53 ha
Threatened species work	13 ha
Protect culturally significant landscapes	3 ha
Protect wetlands	31 ha
Rehabilitate wetlands	54 ha
Treat animal pests	307 ha
Erosion and sediment control – roads	1 km
Revegetate highly erodible soils	53 ha
Stabilise actively eroding soils	11 ha
Salinity revegetation	41 ha
Manage nutrient runoff	4 ha
Stabilise salt affected areas	1 ha
Sustainable grazing management	101 ha
Property planning	172 ha
Protect native riparian vegetation	23 km
Regenerate native riparian vegetation	40 km
Restore fish passage	2 structures
Instream and foreshore stabilisation	4 km
Restore instream habitat	6 km
Manage flood mitigation structures	105 structures
Urban stormwater management	2 ha
Floodgate management	2 structures
Rehabilitate acid sulfate soils	21 ha
Protect marine habitat	3 ha
Enhance marine shorelines	3 km

Note: The analysis takes into account that some outputs may overlap, for example, areas of native riparian vegetation protected and areas of native riparian vegetation regenerated.

* Under the On-Ground Works Incentives Program, funds allocated to landholders require financial or in-kind contributions from the landholder. It is tempting to conclude that these costs incurred by landholders should be added to the costs of the CMA and be included in the BCA. However, the funds being distributed by the CMA are not resource costs to society, but are essentially incentives paid to

landholders to undertake certain conservation works on their property, for example to revegetate land and riparian areas, protect riparian corridors, or rehabilitate eroded or saline land. The costs of relevance to a BCA are the net costs to landholders of undertaking the works, that is, opportunity costs of foregone production plus direct costs such as time, fencing or planting, less any private benefits that the landholders receive, such as productivity increases of the land or adjoining land. Estimation of these costs requires a case-by-case landholder assessment which is beyond the scope of this analysis. However, incentive payments made to landholders provide a proxy for the net total costs to the landholder of undertaking the works since a rational landholder would not undertake the conservation works unless the benefits to the landholder – incentive payments plus private benefits – at least equals the cost to the landholder, that is, opportunity costs plus direct costs. To add the estimated contribution of the landholder to the payments made by the CMA would result in double counting.

The benefits identified in Table 3 are the biophysical outcomes identified by HCR CMA as arising each year from expenditure of levy monies. Additional outcomes arise from program areas that are less amenable to quantification. These include outcomes from community education, capacity building and engagement, Hunter Waterwatch and Hunter community support and facilitation.

6.2.2 Valuation of costs and benefits

With this option, the implementation costs of the various programs are assumed to continue at 2008–09 levels in real values – \$3.3m.

Identified biophysical benefits of implementation of the various programs can be broadly grouped into a number of categories:

- protection of native vegetation
- restoration of land from degradation
- riverbank protection
- wetland protection
- flood mitigation.

These benefits are non-market in nature and therefore require non-market valuation methods for their estimation. This study uses benefit transfer, which involves borrowing community value estimates from the literature.

There are a number of studies that identify community values for protection of native vegetation. A study by Lockwood and Carberry (1998) found a one-off WTP of \$3.80 per NSW household for every 10,000 ha of native vegetation conserved in the Riverina region of NSW with an extra one-off WTP of \$1.69 per household for every extra native plant and animal species conserved in the region. (Note that this is a regional focus so that if the conservation does not add to a regional number of species conserved in the region then a zero additional benefit is assumed.)

More recently Mazur and Bennett (2009), in the context of NRM investment by CMAs, found a WTP of Sydney residents of \$0.02 per annum for five years for every square kilometre (100 ha) of native vegetation in good quality condition in the Lachlan catchment in 20 years' time. The study also found that Hawkesbury–Nepean households (which, like those in the Hunter Valley catchment, are a mixture of outer suburban and rural households) had a WTP of zero (that is, not willing to pay) for an

increase in the area of native vegetation in good quality condition. The results have been used in this analysis.

The National Land and Water Resources Audit (van Bueren and Bennett 2000) examined community values for, among other things, land degradation. The study revealed a community of \$0.07 per household per year for 20 years per 10,000 ha of land restored or protected from degradation.

van Bueren and Bennett (2000) also examined community values for the length of waterways restored for fishing or swimming. They found a value of \$0.08 per year for 20 years per 10 kilometres of waterways restored or protected. Bennett and Mazur (2009) found that Sydney households had a WTP of \$0.35 per household per annum for five years per kilometre of riverbank protected in the Lachlan catchment and that Hawkesbury–Nepean households had a WTP of \$0.90 per household per annum for five years per kilometre of riverbank protected in their own catchment. This study has been used in the analysis as it is the most contemporary analysis available and was designed specifically for application to catchment management activities.

A choice modelling study undertaken by Morrison et al. (1999) examined the non-use environmental values provided by the Macquarie Marshes, a major wetland in NSW. The study revealed a one-off WTP of \$0.04 per household per hectare of wetland protected. Whitten and Bennett (2002) found a one-off WTP of \$0.011 per household per hectare of wetland protected. This latter result has been used in the analysis as it is the most contemporary analysis of wetlands.

Wetland conservation and improvement may also result in additional use benefits associated with their contribution to tourism, for example migratory bird-watching, as well as their contribution to commercial and recreational fisheries. However, no attempt has been made in this report to measure these additional benefits of wetland conservation and improvement.

A number of programs have the potential to improve water quality in the Hunter Valley catchment. The economic benefits of water quality improvement relate to the physical water improvements and the associated community WTP for the use and non-use values. There was no data available on the likely physical water quality outcomes associated with the programs and few useful studies on water quality improvements were available. This benefit to water quality improvement therefore remains unquantified.

A number of programs also have the potential to have benefits for fauna. Choice modelling studies have indicated that the community obtains benefits from actions that contribute to fauna conservation. For instance, Mazur and Bennett (2009) found that Sydney households had a WTP of \$5.25 each per year for five years for every additional native species protected in the Hawkesbury–Nepean catchment in 20 years' time. However, it is difficult to determine the contribution that catchment actions have for benefit of the number of species in the Hunter region and hence this benefit remains unquantified.

Non-market benefits of protection of marine habitat and enhanced marine shorelines also remain unquantified.

The benefits of flood mitigation works relate to the WTP of the community to avoid flooding (alternatively measured by avoided flood damage costs¹). In June 1975 Unisearch Ltd undertook a detailed economic study for the Department of Commerce of the economic benefits of flood mitigation works in the lower Hunter Valley. The study area was limited to the reach between Oakhampton and Goulburn Grove and examined avoided loss of agricultural production, avoided residential damage and avoided commercial and industrial damage. Sinclair Knight and Partners (1981) reported these results in 1978–79 values at \$800,000 per annum in avoided damage costs comprising:

- \$500,000 in avoided agricultural losses
- \$300,000 in avoided damage costs associated with residential, commercial and industrial and public utilities.

The former Department of Infrastructure, Planning and Natural Resources advised in 2003 that there has been little or no intensification of use within the areas being protected by the Lower Hunter Flood Mitigation Scheme since these estimates.

In current values this is equivalent to \$3.4m per annum in avoided flood damage costs. Annual maintenance ensures that these benefits of the scheme (avoided damage costs) continue to be achieved, with maintenance works assumed to have a 20-year life. For the purpose of this analysis it is assumed that the benefits of maintenance relate to the proportion that maintenance works are of total asset value of the scheme (\$507m).

This means that maintenance levels under Option 2, \$466,600 pa, contribute 0.09% towards avoided flood damage costs (for 20 years). These benefits of flood mitigation works could be considered to be underestimates since they focus on direct damage costs and do not incorporate indirect costs such as the psychological impacts of flooding or disruption to transportation.

Flood mitigation and riparian management have the potential in some cases to disturb acid sulfate soils, which can impact on the value of rivers. However, DECCW advises that considerable planning is undertaken in the course of implementing the programs in order to minimise the risk of disturbing acid sulfate soils. Consequently, these impacts are assumed to be negligible.

Based on the above assumptions, Table 4 summarises the incremental net benefits of Option 2, relative to the base case. Net incremental benefits are expressed in net present value (NPV) terms using an intermediate discount rate of 7%, and sensitivity testing at 4% and 10% as required by NSW Treasury.

¹ Avoided flooding damage costs are considered a minimum estimate of benefits of flood mitigation works.

6.3 Option 3: A new Regulation with a more limited purpose

6.3.1 Identification of costs and benefits

Option 3 involves creating a Regulation similar to that for Option 2, but with a more limited purpose. Hence, works undertaken by HCR CMA may be limited to a single activity such as flood mitigation works.

Under this situation only sufficient levies to undertake Hunter Valley flood mitigation maintenance and construction would be collected. Annual expenditure would be limited to \$467,000. The contribution that levy funds currently make to each of the other programs would cease. Consequently, the additional biophysical outcomes expected to be achieved each year from the catchment contributions would not occur.

Table 4: Incremental net benefits of Option 2 (x 1000)

	NPV @ 4%	NPV @ 7%	NPV @ 10%
Costs			
Program costs	\$14,691	\$13,531	\$12,510
<i>Subtotal</i>	\$14,691	\$13,531	\$12,510
Benefits			
Protection of native vegetation	\$66	\$61	\$57
Restoration of land from degradation	\$439	\$405	\$374
Riverbank protection	\$74,930	\$69,011	\$63,803
Wetland protection	\$2,324	\$2,140	\$1,979
Flood mitigation	\$429	\$387	\$351
<i>Subtotal</i>	\$78,188	\$72,005	\$66,564
Net benefit	\$63,497	\$58,474	\$54,054

It is assumed that the proportion of the flood mitigation works currently funded by the state would continue.

The incremental economic costs and benefits of Option 3, relative to the base case, can therefore be identified as shown in Table 5.

Table 5: Incremental economic costs and benefits of Option 3

Economic costs
Additional administration costs
Additional investment in flood mitigation works
Economic benefits
Additional 0.09% contribution to avoided flood damage costs (Lower Hunter Flood Mitigation Scheme)

Note: Environmental degradation costs are as for the base case.

6.3.2 Valuation of costs and benefits

Additional administration costs to the base case are assumed to be in the order of \$20,000 pa and relate to collection and administration of a small levy.

An additional \$467,000 is assumed to be spent on Hunter flood mitigation works, an additional 0.09% contribution to avoidance of flood damage.

The benefits of these flood mitigation works relate to the WTP of the community to avoid flooding (alternatively measured by avoided flood damage cost).

Avoided flood damage cost has been valued as for Option 2.

Based on these assumptions, Table 6 summarises the incremental net benefits associated with Option 3.

Table 6: Incremental net benefits of Option 3 (x 1000)

	NPV @ 4%	NPV @ 7%	NPV @ 10%
Costs			
Additional administration cost	\$89	\$82	\$76
Flood mitigation costs	\$2,077	\$1,913	\$1,769
<i>Subtotal</i>	\$2,166	\$1,995	\$1,845
Benefits			
Flood mitigation	\$429	\$387	\$351
<i>Subtotal</i>	\$429	\$387	\$351
Net benefit	-\$1,737	-\$1,608	-\$1,493

6.4 Option 4: A new Regulation that specifies a different means of raising money

6.4.1 Identification and valuation of costs and benefits

Option 4 relates to different ways of raising the catchment contribution:

- a levy based on a flat rate of contribution per property
- a levy based on catchment benefits received per property.

It is assumed that Option 4 would result in the same level of funds being raised and the same investment programs and outcomes as Option 2 (assuming that administration costs are the same). The economic costs and benefits and net benefits of this option are therefore the same as for Option 2.

6.4.2 Distribution of costs and benefits

The key difference between Option 4 and Option 2 relates to the distribution of costs within the catchment. The benefits to households in the catchment would be the same as for Option 2 and the households in the catchment would bear the same total costs as currently. However, program costs would be distributed differently between households within the catchment.

The existing levy, and that proposed in Option 2, is based on the existing approach of a fixed rate per dollar of rateable land value in excess of \$300. The rationale underpinning such an approach is that, all other things being equal, WTP for environmental and catchment outcomes will be positively influenced by wealth (or

income). With property value being a proxy for wealth, under the existing levy method those with greater wealth pay more than others, reflecting perhaps their WTP and their ability to pay.

The alternative of a flat rate contribution means that those of more limited wealth would pay the same as those of greater wealth. While property value is only a crude proxy for wealth, a flat rate would appear to be less equitable than one based on property value.

A levy based on catchment benefits received per property could potentially be more equitable than one based on property values, since those that benefit the most from works would pay the most while those that benefit least would pay the least. This approach follows the ‘use (or beneficiary) pays principle’. However, while in principle such an approach may yield the same net benefits as the preferred option, in practice it is likely to be a less practical approach leading to two additional costs:

- cost of developing an allocation system to determine relative benefits per property
- additional compliance costs in defending the determination of relative benefits.

Option 2 could therefore be considered preferable to Option 4 on the grounds of both economic efficiency and equity.

7 Analysis results

The spreadsheets for each option are provided in Appendix 2. A summary of results at various discount rates is provided in Table 7.

Table 7: Incremental net benefits of policy options (x 1000)

Options	NPV @ 4%	NPV @ 7%	NPV @ 10%
Option 2: Remake the existing Regulation	\$63,497	\$58,474	\$54,054
Option 3: A new Regulation with a more limited purpose	-\$1,737	-\$1,608	-\$1,493
Option 4: A new Regulation that specifies a different means of raising money	\$63,497	\$58,474	\$54,054

It can be seen that Option 2: Remake the existing Regulation and Option 4: A new Regulation that specifies a different means of raising money have the greatest net benefits to the community. However, as discussed in Section 6.4, Option 2 can be considered to be superior to Option 4 on a number of grounds.

If the alternative means of raising the catchment contribution were based on a flat rate then Option 2 could be considered to be superior to Option 4 because a flat rate levy would appear to be less equitable than one based on property value. If the alternative means of raising the catchment contribution were based on the benefits received per property then in practice this is likely to lead to two additional costs for Option 4, compared to Option 2, that have not been included in the analysis:

- cost of developing an allocation system to determine relative benefits per property
- additional compliance costs in defending the determination of relative benefits.

The current means of determining the catchment contribution per household is a pragmatic proxy for the benefits properties receive from HCR CMA activities.

Option 3 that focused on a more limited purpose for HCR CMA, such as flood mitigation works, did not generate greater net benefits for the community.

Consequently, on the basis of the assumptions made, Option 2 provides the greatest net benefits to the community and has the most pragmatic and equitable means of raising catchment funds.

8 Sensitivity testing

There is considerable uncertainty surrounding the WTP estimates included in this analysis for valuing specific catchment outcomes. The reason for this is primarily because the particular studies from which per unit WTP estimates were obtained were not undertaken in relation to the Hunter Valley catchment but for other regions. Therefore they should be considered to be indicative only.

The benefit results are dominated by the estimate of the community value for riverbank protection. As part of the sensitivity testing an alternative value from the van Bueren and Bennett (2000) study was used. Under this assumption the NPV of Option 2 was \$102m.

Catchment outcomes and WTP estimates were also changed by $\pm 20\%$, but the overall results and ranking of options were not sensitive to any of these changes.

Some supportive information in relation to Option 2: Remake of the existing Regulation, comes from the results of a recent community attitudes survey (Hunter Valley Research Foundation 2007). This study, conducted by telephone as part of the September quarter Hunter Region Domestic Omnibus Survey, asked respondents the following question:

‘The Catchment Management Authority coordinates a wide range of programs and activities aimed at better managing the Hunter catchment’s natural resources. These programs aim to improve river water quality, reduce the impacts of flooding, prevent erosion, protect native vegetation and rehabilitate wetlands.

‘Thinking about this, how much per year would your entire household be willing to contribute to maintain these activities (catchment management) in the Hunter?’

Analysis of the results indicated an average WTP per household per annum of \$252, up from \$84 in 2003. However, the average is distorted by a very high amount nominated by a respondent in the 25–34 years of age group. Extrapolating the median value of \$42 across the 235,000 households in the Hunter Statistical Division gave a total annual WTP of \$10.3m for maintaining catchment management activities in the Hunter Valley catchment.

This is in excess of the estimated \$3.3m per annum cost associated with continuing HCR CMA activities in accordance with Option 2, without including WTP from households located outside the region.

9 Conclusion

There is a prima facie case for government intervention in catchment management on the grounds of market failure associated with environmental goods and services. However, intervention is only justified if the benefits to society from intervention exceed the costs. With no intervention, the Regulation would not be remade and the contribution that levy funds make to each of the catchment programs would cease. HCR CMA would be unable to meet its legislative requirements under the *Water Management Act 2000* to contribute one-quarter of costs towards flood mitigation works to protect towns and villages in the Hunter Valley catchment. The additional environmental outcomes expected to be achieved each year from the catchment contributions would not occur.

A BCA of intervention options found that Option 2: Catchment Management Authorities (Hunter Central Rivers) Regulation 2010 would provide the greatest net benefits to the community and would be more equitable than alternative approaches to implementing a levy.

10 Consultation

This RIS was prepared in consultation with staff of:

- HCR CMA
- DECCW.

Community comments on the RIS and draft Catchment Management Authorities (Hunter Central Rivers) Regulation 2010 will also be sought through:

- advertising the exhibition of the draft Regulation and RIS in the *Sydney Morning Herald* and *The Herald* (Newcastle)
- exhibiting the draft Regulation and RIS on the DECCW website and at DECCW offices
- providing copies of the draft Regulation and RIS to the following groups for their comments:
 - all local government councils within the CMA area and the regional organisation of councils (Hunter Councils)
 - all natural resource and environment agencies
 - Hunter Community Reference Group
 - the Hunter and Singleton Landcare networks.

Appendix 1: Detailed methodology

Identification of the 'with' and 'without' government intervention

The analysis compared the incremental costs and benefits of options for government intervention relative to a base case of no government intervention. It was therefore necessary to specify a without Regulation scenario and compare other policy options to this base case.

Identification of incremental costs and benefits

Each policy option was tabled and the incremental economic costs and benefits were identified and quantified in physical terms (for example, 10 kilometres of additional riverbanks protected). 'Economic' costs and benefits capture impacts on all aspects of the community including producers and consumers, and hence encompass social and environmental impacts. HCR CMA provided information on the biophysical outcomes that would be achieved if the current Regulation were remade.

Valuation of incremental costs and benefits

In BCA, any action that increases community welfare is a 'benefit' and any action which decreases welfare is a 'cost'. A benefit is the value that people assign to goods and services, including those goods and services provided by the environment. Such benefit values can be revealed by an individual's WTP to obtain those goods and services. A cost is the value foregone from not using resources in the next best alternative. This opportunity cost includes financial costs as well as foregone WTP values.

Where costs and benefits relate to goods and services that are traded in competitive markets, market prices can be used to place dollar values on these impacts. The direct program expenditures of HCR CMA, as listed in Table 1, have been valued using market prices.

Where costs and benefits relate to goods and services that are not traded in competitive markets, a range of non-market valuation techniques can be used to estimate the community's WTP for different outcomes, including:

- market-based techniques such as the productivity change method, replacement or repair cost method and defensive expenditure approach
- surrogate market techniques including the travel cost method and hedonic price method
- stated preference techniques including contingent valuation and choice modelling.

Choice modelling is becoming one of the main techniques for valuing environmental impacts. Choice modelling studies typically use questionnaires that describe a hypothetical policy scenario that will cause environmental, cultural and social changes. In a survey of the affected population, respondents are presented with a series of questions (choice sets), where each question shows the outcome of two or more alternative policy scenarios including a 'status quo' or 'no policy change' scenario. These outcomes are described in terms of different levels of a monetary attribute (cost) to be borne by the respondent and several non-marketed attributes.

Respondents are asked to choose their preferred option from the array of alternatives. By observing people's choices between alternatives with differing levels of each attribute it is possible to determine the trade-offs respondents make between attributes (Bennett and Blamey 2001).

For this study, there was insufficient time and resources to enable primary valuation of environmental costs and benefits using these techniques. Instead, the benefit transfer method was used. The focus was benefit transfer from choice modelling studies as these are more amenable to benefit transfer because the method values specific attributes whose levels can then be varied rather than being limited to a particular combination of attributes at fixed levels.

The benefit transfer method borrows the values from 'study sites' for application to a site that must be evaluated (the 'policy site'). There are a number of ways to transfer values (CQU 2010) including:

- single point transfer
- marginal point transfer
- benefit function transfer
- meta value analysis.

These approaches all have advantages and disadvantages. Marginal point transfer was used following the available information from the published references. While this means that adjustment to unit values has not been made for different socio-demographics, any differences are likely to be within the value range identified for sensitivity testing.

The robustness of benefit transfer depends largely on the quality of results for the study sites and the presence of similar conditions at both the study site and the policy site. The main study used for benefit transfer was specifically undertaken to obtain community values for catchment management outcomes with benefit transfer as an objective. The catchment subject of the study (Hawkesbury–Nepean) is located in reasonable proximity to the Hunter Valley catchment. Other studies used are contemporary choice modelling studies that are considered of high quality. Key valuation studies used in this analysis are outlined below.

A choice modelling study undertaken by Mazur and Bennett (2009) examined the values of Sydney households for environmental outcomes in the Lachlan catchment. The study found a WTP of Sydney residents of \$0.02 per annum for five years for every square kilometre (100 ha) of native vegetation in good condition in the Lachlan catchment in 20 years' time and \$0.35 per household per annum for five years per one kilometre of riverbank protected in the Lachlan catchment. The study also found that Hawkesbury–Nepean households (which like Hunter Valley catchment households are a mix of outer suburban and rural households) had a WTP of \$0.90 per household per annum for five years per kilometre of riverbank protected in their catchment but nothing for an increase in the area of native vegetation in good condition (Mazur and Bennett 2009).

A choice modelling study commissioned by the National Land and Water Resources Audit (van Bueren and Bennett 2000) examined community values for land and water degradation. Impacts were described in terms of the number of species protected,

hectares of land restored or protected from degradation and the kilometres of waterways restored or protected from degradation. The study revealed an Australian community WTP of \$0.07 per household per year for 20 years per 10,000 ha of land restored or protected from degradation.

A choice modelling study undertaken by Whitten and Bennett (2002) examined the environmental values of the Griffith, Wagga Wagga, Canberra and Adelaide community for increased area of healthy wetlands protected on the Murrumbidgee River Floodplain. The study revealed a WTP of a \$11.39 per household one-off payment per 1,000 ha of wetland protected.

The results of the choice modelling studies have been used in a variety of ways. Where program outcomes are one-off, that is, an area is conserved essentially for the long term from a one-off expenditure by the CMA, for example the protection of native vegetation, restoration of land from degradation and riverbank protection, then lump sum WTP estimates were used. Where program outcomes rely on continuing operation of the CMA, WTP estimates were converted to payments in perpetuity and only applied to the years that expenditure on them occurs.

The population to which WTP estimates were aggregated depended on the survey extent of the original study. Where the study sampled the national population of households, aggregation was to national households. Where the study was based on a survey of Sydney households, aggregation was to Sydney households. It is not considered appropriate to aggregate WTP values to a greater population or different scale of population than was originally surveyed. In all cases, aggregation was limited to the percentage of households indicated by the original survey response rate. This is conservative as some studies (Morrison 2000; van Bueren and Bennett 2001) found that a proportion of non-respondents (about one-third) may have similar values to respondents.

Non-market valuation studies indicate that the community may value the contribution that programs make to species protection. However, in the absence of specific data on the changes in levels of species conservation under the various options, a conservative valuation approach that ignores these impacts has been undertaken. Similarly, water quality outcomes associated with the various programs have also not been valued.

The benefits of some of HCR CMA's program areas relate mainly to increased education of the community and contributing to improved planning of the catchment. It has not been possible to place a monetary valuation on these outcomes and hence the benefits of HCR CMA activities could be understated.

The use of benefit transfer necessarily involves the aggregation of benefit values from different studies. This is somewhat problematic given that WTP values from choice modelling and other studies are context-specific and hence the addition or omission of relevant attributes would result in different WTP values. Consequently, adding values from separate studies may result in some overstatement of community values, all other things being equal. However, in the absence a primary valuation study specific to the RIS this cannot be avoided. Sensitivity testing can be used to determine the sensitivity of results to changes in WTP assumptions.

References

- Bennett, J. and Blamey, R. (2001) *The choice modelling approach to environmental valuation*, Edward Elgar, Cheltenham, UK
- CQU (2010) A systematic database for benefit transfer of NRM values in Queensland, Central Queensland University, <http://resourceeconomics.cqu.edu.au/FCWViewer/view.do?page=2598#link1>
- GG (2005) NSW Government Gazette No. 54, 13 May 2005, p.1696, www.gazette.nsw.gov.au/pdfs/2005/13th_May.pdf
- HCR CMA (2009) *2008-09 Annual report*, Hunter–Central Rivers Catchment Management Authority
- Hunter Valley Research Foundation (2007) *Community concern for catchment management issues in the Hunter region*, report from the September 2007 Hunter Region Domestic Omnibus Survey
- Lockwood, M. and Carberry, D. (1998) *State preference surveys of remnant native vegetation conservation*, Johnstone Centre Report No.104, Charles Sturt University, Albury
- Mazur, K. and Bennett, J. (2009) *Location differences in communities' preferences for environmental improvements in selected NSW catchments: A choice modelling approach*, Environmental Economics Research Hub Research Reports, Research Report No. 21
- Morrison, M. (2000) Aggregation biases in stated preference studies, *Australian Economic Papers* 39(2), 215–230
- Morrison, M., Bennett, J. and Blamey, R. (1999) Valuing improved wetland quality using choice modelling, *Water Resources Research* 35(9), 2805–2814.
- NSW Treasury (2002) *NSW Government guidelines for economic appraisal*, NSW Treasury, www.treasury.nsw.gov.au/Publications/treasury_policy_papers/tpp_1999/prin_pro
- Sinclair Knight and Partners (1981) *NSW coastal rivers flood plain management studies: Hunter Valley*, prepared for the NSW and Commonwealth governments
- van Bueren, M. and J. Bennett (2000) *Estimating community values for land and water degradation impacts*, report to the National Land and Water Resource Audit, Unisearch Pty Ltd, Canberra
- Whitten, S. and Bennett, J. (2002) *The private and social values of wetlands: An overview*, Land and Water Australia, ACT



New South Wales

Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

under the

Catchment Management Authorities Act 2003

[The following enacting formula will be included if the Regulation is made:]

Her Excellency the Governor, with the advice of the Executive Council, has made the following Regulation under the *Catchment Management Authorities Act 2003*.

Minister for Climate Change and the Environment

Explanatory note

The object of this Regulation is to remake, with minor amendments, the provisions of the *Hunter-Central Rivers Catchment Management Authority Regulation 2005*, which is repealed on 1 September 2010 by section 10 (2) of the *Subordinate Legislation Act 1989*.

This Regulation makes provision with respect to the following:

- (a) the levying of catchment contributions within the catchment contribution area of the Hunter-Central Rivers Catchment Management Authority,
- (b) the liability of owners of land within the catchment contribution area to pay contributions so levied,
- (c) the recovery of contributions so levied from the owners of such land,
- (d) savings and formal matters.

This Regulation is made under the *Catchment Management Authorities Act 2003*, including section 40 (the general regulation-making power) and clauses 2 (2) (b), 4 (1), 6 (1), 7 (2), 11 (1) and 14 (1) of Schedule 4.

Public consultation draft

Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

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Public consultation draft

Catchment Management Authorities (Hunter Central Rivers) Regulation
2010

Clause 1

Preliminary

Part 1

Catchment Management Authorities (Hunter Central Rivers) Regulation 2010

under the

Catchment Management Authorities Act 2003

Part 1 Preliminary

1 Name of Regulation

This Regulation is the *Catchment Management Authorities (Hunter Central Rivers) Regulation 2010*.

2 Commencement

This Regulation commences on 1 September 2010 and is required to be published on the NSW legislation website.

Note. This Regulation replaces the *Hunter-Central Rivers Catchment Management Authority Regulation 2005* which is repealed on 1 September 2010 by section 10 (2) of the *Subordinate Legislation Act 1989*.

3 Definitions

(1) In this Regulation:

catchment contribution and *catchment contribution area* have the same meanings as they have in Schedule 4 to the Act.

the Act means the *Catchment Management Authorities Act 2003*.

the Authority means the Hunter-Central Rivers Catchment Management Authority.

the Board means the Hunter-Central Rivers Catchment Management Authority Board.

(2) Notes included in this Regulation do not form part of this Regulation.

Public consultation draft

Clause 4	Catchment Management Authorities (Hunter Central Rivers) Regulation 2010
Part 2	Levying of catchment contributions

Part 2 Levying of catchment contributions

4 Authority may levy catchment contributions

- (1) For the purposes of clause 2 (2) (b) of Schedule 4 to the Act, the Authority is authorised to levy a catchment contribution on any land within its area of operations that is within a catchment contribution area.
- (2) The Authority is to maintain a map that depicts all land within its area of operations that is within a catchment contribution area.
- (3) The map is to be available in the office of the Authority and may be inspected by any person free of charge at any time the office is open.

5 Basis of levying catchment contributions

For the purposes of clause 4 (1) of Schedule 4 to the Act, a contribution is to be levied according to the land value (within the meaning of the *Valuation of Land Act 1916*) of all land within the catchment contribution area that has a land value greater than \$300 and that is ratable for the time being under the *Local Government Act 1993*.

6 Determinations relating to catchment contributions

For the purposes of clause 6 (1) of Schedule 4 to the Act, the Authority must not make a determination under that subclause unless a draft of the proposed determination has been made available to each of the members of the Board.

7 Service of notice

For the purposes of clause 7 (2) of Schedule 4 to the Act, the notice under that subclause:

- (a) may be served personally or by post, and
- (b) may be served separately or, if the Authority so decides, together with or so as to form part of a council rate notice or other statutory notice served on the owner of the parcel of land in respect of which a catchment contribution has been levied.

Public consultation draft

Catchment Management Authorities (Hunter Central Rivers) Regulation
2010

Clause 8

Liability to pay catchment contributions

Part 3

Part 3 Liability to pay catchment contributions

8 Expenses of tracing persons

- (1) The Authority may add to the amount of catchment contribution any reasonable expenses incurred in tracing the person liable to pay the catchment contribution.
- (2) Those expenses may be recovered as catchment contributions at the same time as any catchment contributions and without the need to give notice concerning them.

9 Liability of joint owners

- (1) If land within the catchment contribution area is owned or held jointly by 2 or more persons:
 - (a) they are jointly and severally liable for payment of the catchment contribution in respect of the land, and
 - (b) as between themselves, each is liable only for such part of the contribution as is proportionate to the interest owned or held by the person in the land.
- (2) If one of those persons pays more than that person's proportionate part of a catchment contribution, he or she may recover the excess by way of contribution from the other persons.

10 Liability on disposing of land

- (1) The liability of a person to pay a catchment contribution in respect of any land does not cease on disposal of the land if notice of the contribution, in a form approved by the Authority:
 - (a) was given before disposal of the land, or
 - (b) is given after the disposal of the land, but before notice of the disposal is given to the Authority.
- (2) If a person:
 - (a) disposes of any land, and
 - (b) pays a contribution levied on the land that became payable to the Authority after disposal of the land and before the notice of the disposal is given to the Authority,the person may recover the amount of the catchment contribution from the person who acquired the land.
- (3) Without limiting subclause (1), a person is taken to have given notice of the disposal of the land if notice of the disposal is lodged with the Registrar-General in accordance with the *Conveyancing Act 1919* or the *Real Property Act 1900* (as the case may be).

Public consultation draft

Clause 11 Catchment Management Authorities (Hunter Central Rivers) Regulation
2010

Part 3 Liability to pay catchment contributions

11 Daily basis of apportionment of catchment contribution

As between a person liable to pay a catchment contribution in respect of land, and:

- (a) a person who acquires the land, or
 - (b) the persons from whom the land was acquired,
- the catchment contribution is to be apportioned on a daily basis.

12 Liability of new owner

- (1) A person who, by becoming the owner of land, becomes liable to pay a catchment contribution levied on the land is liable for payment of all current catchment contributions, and all arrears of contributions, levied on the land even if notice of them was not given to the person until after the person became the owner of the land.
- (2) A person who:
 - (a) becomes the owner of land, and
 - (b) pays to the Authority a catchment contribution in respect of the land that was payable before the person became the owner,may recover the whole or a proper proportion of the catchment contribution from the persons liable for the payment at the time the notice was served.

13 Proportionate liability for catchment contributions

- (1) A catchment contribution is proportionate to the portion of the year for which the land is leviable and to the portion of the land that is leviable.
- (2) If an amount of catchment contribution is paid in excess of the liability for a catchment contribution because of the operation of this clause, the Authority:
 - (a) must refund the amount of the excess, or
 - (b) must credit it towards payment of any amount then payable to the Authority by the person who would otherwise be entitled to a refund.

Public consultation draft

Catchment Management Authorities (Hunter Central Rivers) Regulation
2010

Clause 14

Recovery of catchment contributions

Part 4

Part 4 Recovery of catchment contributions

14 Collection of catchment contributions

An appropriate local agency with which the Authority has entered into an agreement for the collection of contributions on behalf of the Authority under clause 9 of Schedule 4 to the Act must remit to the Authority, as soon as practicable after the expiration of each calendar month (but in all cases within 30 days after the collection of such contributions), the money collected by it in payment of the contribution during that month, less any amount the local agency is entitled to retain as a commission in accordance with the agreement.

15 Interest on overdue contributions

For the purpose of clause 11 (1) of Schedule 4 to the Act, the prescribed rate of interest payable on overdue catchment contributions in respect of land is the rate of interest set under section 566 (3) of the *Local Government Act 1993* by the local council for the local government area in which the land is located.

16 Waiver or deferral of payment

The Authority may, in the case of hardship:

- (a) defer payment of a catchment contribution, or
- (b) waive payment of a catchment contribution or any part of it.

17 Fee for certificate as to amount payable on land

For the purposes of clause 14 (1) of Schedule 4 to the Act, the prescribed fee for a certificate in respect of land is an amount equal to the approved fee charged for a certificate under section 603 of the *Local Government Act 1993* by the local council for the local government area in which the land is located.

Public consultation draft

Clause 18	Catchment Management Authorities (Hunter Central Rivers) Regulation 2010
Part 5	Miscellaneous

Part 5 Miscellaneous

18 Savings

Any act, matter or thing that, immediately before the repeal of the *Hunter-Central Rivers Catchment Management Authority Regulation 2005*, had effect under that Regulation continues to have effect under this Regulation.

