


CHAPTER 1:

**BACKGROUND TO THE MARY WATER QUALITY
IMPROVEMENT PLAN**



1.1 UNITED NATIONS GLOBAL PROGRAMME OF ACTION

Land-based sources of marine pollution are internationally recognised as a major environmental issue. The United Nations Environment Programme has initiated action through the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (the GPA). One hundred and eight governments, including Australia, have declared their commitment to protect and preserve the marine environment from adverse environmental impacts of land-based activities. As a result, the GPA was adopted in 1995.

In 1999, the 20th Session of the United Nations Environment Program Governing Council resolved to undertake the First Intergovernmental Review (IGR) of the GPA in 2001. Australia's national report presented at this review was coordinated by Environment Australia, in collaboration with State and Territory governments. This report considered national coordination of efforts to address land-based sources of marine pollution, including the application of the following National policies and programs.

1.2 NATIONAL WATER QUALITY MANAGEMENT STRATEGY

Australia meets its GPA obligations through implementing policies, principles and industry guidelines of the National Water Quality Management Strategy (NWQMS). The NWQMS was introduced in 1992 by the Commonwealth, State and Territory Governments, in response to growing community concern about the condition of the nation's water bodies and the need to manage them in an ecologically sustainable way. The NWQMS is comprised of 21 guideline papers, the most significant and recent paper being the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)¹, which outlines a framework for water resource protection and management.

The Council of Australian Governments (COAG) Water Reform Framework incorporated the NWQMS in 1994. The COAG Water Reform Framework applies the NWQMS to coastal waters and wetlands, and the National Principles for the Provision of Water for Ecosystems, through the Framework for Marine and Estuarine Water Quality Protection

¹ <http://eee.ea.gov.au/water/quality/nwqms/index.html#quality>

1.3 FRAMEWORK FOR MARINE AND ESTUARINE WATER QUALITY PROTECTION

The Framework for Marine and Estuarine Water Quality Protection is a nationally consistent approach to protect the marine environment from land based pollution, therefore contributing to Australia's obligations under the GPA. The Framework is based upon identifying and protecting the environmental values of water (detailed under the NWQMS). Key features of the Framework include identifying:

- the environmental values of the coastal water;
- the catchment that discharges to that coastal water;
- the water quality issues and subsequent water quality objectives;
- the maximum pollutant load to attain and maintain water quality objectives;
- the total maximum load of pollutants associated with diffuse and point sources of pollution;
- the river flow objectives needed to protect identified environmental values, having regard for matters such as natural low flows, flow variability, floodplain inundation, interactions with water quality and the maintenance of estuarine processes and habitats;
- management measures, timelines and costs in implementing the plan;
- the grounds for a "reasonable assurance" from jurisdictions;
- security for investments to achieve the specified pollutant load reduction; and
- environmental flow targets.

Priority coastal areas will be targeted for planning and subsequent funding. In the absence of an accredited water quality protection plan, interim water quality targets and pollution reduction strategies may be established to guide Commonwealth funding during plan development.

The Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC, 2000) underpins the application of this Framework. Terms used in the Framework, such as environmental value, water quality objective and monitoring and reporting have the same meaning as those in NWQMS documents. Water Quality Improvement Plans (WQIPs) developed using the Framework will identify management actions that would protect these values.

1.4 THE WATER QUALITY IMPROVEMENT PLANNING PROCESS

The development of WQIPs broadly involves the following process:

- capture current knowledge;
- establish environmental values in consultation with key stakeholders;
- develop water quality targets (concentration and load) that include and integrate management practice, catchment water quality and reef ecosystem targets;
- identify appropriate management strategies to achieve water quality improvement targets (i.e. linking management action targets to resource condition targets);
- develop an implementation plan, which includes modeling, monitoring and adaptive management strategies;
- prepare a reasonable assurance statement that describes how plan implementation will achieve the plan's objectives.

Each WQIP is guided by a steering committee that includes representatives from the relevant regional NRM body, government agencies, industry groups, community groups and science providers. A broad group of representatives from the whole community is also invited to participate in the development process to ensure that local, indigenous, social, economic and scientific knowledge is brought together.

WQIPs are prepared in accordance with:

- Australian Government's Framework for Marine and Estuarine Water Quality Protection ²
- Queensland Government's water quality management framework in the Environmental Protection (Water) Policy 1997 ³
- (where appropriate) National Principles for the Provision of Water for ecosystems ⁴

This water quality improvement plan fits into the context of other plans relevant to the Mary catchment and or water quality. These are:

- The Great Barrier Reef Water Quality Protection Plan;
- The Coastal Catchments Initiative;
- The Great Barrier Reef Partnership;
- National, State, Local Government and NRM Planning;
- The Wide Bay Burnett Coastal Management Plan;
- The Wide Bay Burnett Regional Plan;
- The Great Sandy Region Management Plan; and
- The Burnett Mary Regional Group (BMRG) NRM Plan "Country to Coast – a Healthy Sustainable Future".

² <http://www.environment.gov.au/coasts/pollution/cci/framework/index.html>

³ <http://www.legislation.qld.gov.au/OQPChome.htm>

⁴ <http://www.environment.gov.au/water/publications/index.html#ecosystems>

1.5 THE GREAT BARRIER REEF WATER QUALITY PROTECTION PLAN (REEF PLAN)

In 2001 the Great Barrier Reef Ministerial Council authorised the development of a plan, to over a 10 year period reduce sediment and nutrient loads derived from the 26 catchments contributing to the Great Barrier Reef lagoon. This plan is known as the Reef Water Quality Protection Plan (Reef Plan). It is based on reviews that had identified the extent of water quality deterioration since European settlement, resulting from degradation of grazing landscapes, urban development, vegetation clearing, water use practices, removal of wetlands, and coastal developments on acid sulphate soils. There was evidence that these activities were affecting some inshore reefs, estuaries, and important near-shore areas. At the same time, the Plan was sensitive to the economic importance of industries within the coastal catchments including beef, sugar, horticulture, tourism, mining, and fishing industries.

In prioritising catchments for the RWQPP a risk assessment process that utilised the criteria of **Bio-physical risk, Social risk, Development risk, and Risk to marine industries**. The Reef Water Quality Protection Plan identifies the Mary Catchment as low in priority.

Reef Plan has 2 objectives:

- **reduce pollutant loads that enter the Great Barrier Reef Lagoon from diffuse sources,**
- **rehabilitate and conserve areas of Reef Catchments that play a role in reducing/removing water borne pollutants.**

Pollutant loads were selected as the targets for the plan because they measure the rate of pollutant delivery to receiving waters. Pollutant concentrations were also used for river health targets because they measure the pollutant available to aquatic organisms. These pollutant targets are to be incorporated into management plans being drawn up for the three large catchments that are part of the National Action Plan for Salinity and Water Quality (the Burdekin, Fitzroy and Burnett catchments). The Queensland government will draw up catchment management plans for the other 23 catchments.

A large component of Coastal Catchments Initiative, in terms of funding support towards the preparation of water quality improvement plans, is focused on priority catchments adjacent to the Great Barrier Reef.

1.6 THE COASTAL CATCHMENTS INITIATIVE

The Australian Government, through the Coastal Catchments Initiative (CCI), is committed to improving the condition of Australia's coastal waters through joint action with state and local governments. As a first step this will be achieved through the **Water Quality Improvement Plans**.

The Water Quality Improvement Plans will be consistent with existing government strategies, as described in sections 1.3 and 1.4. It will be necessary to take an adaptive management approach, drawing on the monitoring data and uptake of improved land management practices, whereby the WQIPs are regularly reviewed and modified.

Some of the parameters governing the development of WQIPs include:

- Local ownership and leadership;
- Cooperative action between the three levels of government;
- Use of best available scientific knowledge;
- Community involvement, including sectoral groups;
- Contributions to regional objectives.

BMRG sought CCI funding to develop WQIPs for the Burnett and Mary. Because the Mary is a low priority catchment, it was not allocated CCI funding.

1.7 THE REEF WATER QUALITY PARTNERSHIPS PROGRAMME

The Reef Water Quality Partnership was established to enhance coordination and collaboration between Australian and Queensland Government departments, and regional natural resource management (NRM) bodies. The Reef Water Quality Partnership supported the implementation of the Reef Plan and regional Water Quality Improvement Plans by providing a science foundation for setting targets, modelling, monitoring, and reporting.

A critical step in the Reef Plan was coordinating existing and planned water quality monitoring to inform targets. To support the Reef Plan, the Reef Water Quality Partnership:

- coordinated and evaluated water quality monitoring activities;
- implemented work plans and programs to deliver priority water quality activities;
- supported improved land use planning and the adoption of sustainable production systems;
- facilitated the development of water quality targets that link catchment management with the health of the Great Barrier Reef.

Organisations involved in the Reef Partnerships initiative

Australian Government departments involved include:

- [Department of the Environment and Water](#) (DEW)
- [Department of Agriculture, Fisheries and Forestry](#) (DAFF)
- [Great Barrier Reef Marine Park Authority](#) (GBRMPA)

State Government departments include:

- [Department of the Premier and Cabinet](#) (DPC)
- [Department of Natural Resources and Water](#) (NR&W)
- [Department of Primary Industry and Fisheries](#) (DPI&F)
- [Environmental Protection Agency](#) (EPA)

Regional natural resource management bodies include:

- [Burdekin Dry Tropics Board](#)
- [Burnett Mary Regional Group](#)
- [Far North Queensland NRM](#)
- [Fitzroy Basin Association](#)
- Mackay Whitsunday NRM

Framework for integration

The framework for integration (Table 1.1) represents the breadth of activities of reef water quality stakeholders and how they may support delivery of the Reef Plan. This framework uses spatial

and process linkages between catchment management, water quality and the health of the Reef to guide target setting, monitoring changes and reporting outcomes.

Table 1.1. How activities of reef water quality stakeholders may support delivery of the Reef Plan.

The Reef Water Quality Partnership integration framework to support management of water quality.	Spatial linkages across environments			
		Catchment management for water quality	Water quality (sediments, nutrients & contaminants)	Reef health
Adaptive management	Targets	Setting targets for catchment management e.g. best management practice adoption rates in high risk areas to improve water quality entering the Reef.	Setting targets for water quality parameters across scales from tributaries, sub-catchments and end-of-catchments and in the receiving waters.	Setting targets for reef health that relate to water quality e.g. seagrass cover, coral recruitment.
	Modelling & Monitoring	Monitoring and modelling catchment management practices and impacts eg best management practice impacts on water quality	Monitoring and modelling catchment water quality processes from the paddock to rivers and the marine environment.	Monitoring and modelling the dynamics of the health of the Reef lagoon in response to water quality.
	Evaluation & reporting	Evaluating and reporting change in catchment management.	Evaluating and reporting change in management practice across scales and environments	Evaluating and reporting change in the health of the Reef and its component ecosystems and its drivers.

1.8 NATIONAL, STATE, LOCAL GOVERNMENT AND NRM BODY PLANNING

Queensland's river systems are governed by many National, State, Local Government and NRM Body planning processes. These processes include:

- Water Resource Planning (WRP) under the *Water Act 2000*. Lead agency – Department of Natural Resources and Water [NRW]
- Riverine Management Planning (RMP). Lead agency – Department of Natural Resources and Water [NRW]
- Water Quality Management (WQM). Lead agencies – Environmental Protection Agency (EPA) under the *Environmental Protection Act 1994* and the *Environmental Protection (Water) Policy 1997 and Amendment 2006 [EPP(W)]* and Department of Natural Resources and Water [NRW] through Integrated Catchment Management [ICM]
- Integrated Catchment Management (ICM) including Regional Natural Resource Management Strategies. Lead agency – Department of Natural Resources and Water [NRW] in association with Natural Resource Management Bodies e.g. Burnett Mary Regional Group [BMRG]
- Regional Planning. Lead agency - Department of Local Government and Planning [DLGP]
- State Coastal Management Plan and Regional Coastal Management Strategies. Lead agency - Environmental Protection Agency [EPA]
- Wide Bay Burnett Coastal Management Plan. Lead agency - Environmental Protection Agency (EPA). ***“Plan presently in draft form and being considered by Queensland Government prior to release as a draft”***
- Council planning schemes under the *Integrated Planning Act 1997*. Lead agencies Department of Local Government and Planning [DLGP] and Councils
- National Action Plan for Salinity and Water Quality (NAPSWQ). Lead agency – Department of Natural Resources and Water [NRW] along with Natural Resource Management Bodies such as BMRG
- Regional Vegetation Management Plans. Lead agency – Department of Natural Resources and Water [NRW]
- Fisheries Management Strategies. Lead agency – Department of Primary Industries and Fisheries [DPIF]
- Water Use Plans. Lead agency – Department of Natural Resources and Water [NRW] and Interim Resource Operating Licences [IROLs]
- Wide Bay-Burnett Regional Water Supply Strategy (announced by Hon Minister for Natural Resources 07.06.2007)
- Land and Water Management Plans
- Forestry Management Plans
- Stormwater Management plans. Lead agency – Local Government and Environmental Protection Authority

- Marine and Estuarine Water Quality Protection Plans. Lead agency - Department of Environment and Water [DEW]
- Marine Park Plans
- Global Plan of Action (GPA) for the protection of the marine environment from Land-based Activities
- Framework for Marine and Estuarine Protection
- National Water Quality Management Strategy (NWQMS). Lead agency - Council of Australian Governments (COAG) as part of their water reform framework
- Great Barrier Reef Water Quality Protection Plan. Lead agencies - Queensland and Australian Governments
- Coastal Catchments Initiative (CCI). Lead agency - Department of Environment and Water [DEW]
- **Water Quality Improvement Plans (WQIPs)**. Lead agencies - Regional NRM bodies and Local Governments consistent with the Framework for Marine and Estuarine Protection

Closer integration of the planning processes regarding water quality improvement planning is essential from two viewpoints:

- processes need to address common goals, because effective outcomes are unlikely if planning processes work towards opposing goals; and
- potential gains are to be made by reducing the duplication of effort between processes.

As part of the process of preparing a Water Resource Plan for the Mary Basin the Department of Natural Resources and Water and Environmental Protection Agency were seeking to develop a planning framework which more closely integrated the Water Resource Plan (WRP), Riverine Management Planning (RMP) and Water Quality Management (WQM).

1.8.1 The Wide Bay Burnett Coastal Management Plan

In 2007 the draft Wide Bay Burnett Coastal Management Plan stage was awaiting release by the Queensland Government. It considered water quality in detail, defined coastal districts, and the conservation and sustainability measures needed to protect these districts. However, the Queensland Government also reviewed and made public the Queensland State Coastal Management Plan in 2007. Following this process the Queensland Government decided not to release or develop further coastal management plans, but rather develop on overall process to manage coastal districts as defined in specific coastal management plans.

1.8.2 The Wide Bay Burnett Regional Plan

The Wide Bay Burnett Regional Plan 2007-2026 is the principal regional strategy for guiding growth and sustainability in the Wide Bay Burnett region. This plan has the following objective regarding water quality:

“to maintain water quality standards across the region which provide for maintenance of aquatic systems and services”

and 2 policy principles:

- **Regional water quality planning that is underpinned by reliable local knowledge**
- **Improved community understanding of the interaction between human activities and water quality is fostered, and actions which contribute to improved local water quality are supported.**

The Wide Bay Burnett Regional Plan 2007-2026 also gives following **policy actions** and assigns them to **lead** and collaboration **agencies** as follows:

- **Regional water quality planning that is underpinned by reliable local knowledge**
 - a Establish locally relevant environmental values and water quality objectives for regional waters in line with relevant water quality planning frameworks (EPA and BMRG associated with Industry Groups).
 - b Implement actions which:
 - broaden the spatial and temporal scope of regional water quality monitoring;
 - ensure the integrity of water quality data through standardised sampling, storage and analysis methods;
 - centralise data storage to develop a regional information asset;
 - review and refine water quality objectives for the catchments of the region (EPA and BMRG associated with NRW).
- **Improved community understanding of the interaction between human activities and water quality is fostered and actions which contribute to improved local water quality are supported.**
 - a Broaden community understanding of the importance of water quality protection and collective responsibility for improving water quality (BMRG associated with Local Government, EPA, NRW).
 - b Incorporate local water quality objectives into water resource planning, regional NRM planning, licensing of point discharges to water and review of water quality monitoring data (NRW, EPA, BMRG).
 - c Ensure water resource plans provide for adequate environmental flows of water to maintain in-stream and off-stream (overland flow and wetland) ecosystem processes (NRW associated with EPA, DPI & F).
 - d Implement and support programs that address identified threats to water quality, particularly:
 - diffuse (non-point) pollutant sources
 - inadequate water treatment infrastructure
 - 'waste' urban and industrial water
 - urban stormwater runoff

- weeds such as cat's claw creeper that threaten the integrity of riparian vegetation and thus bank stability during flooding events
 - dredge spoil (**Local Government** associated with BMRG, EPA, NRW, DPI&F).
- e Ensure that new residential and industrial developments incorporate measures to reduce water demand, and sustainability manage waste and stormwater runoff, through policies in local government planning schemes (Local Government associated with EPA, NRW).

1.8.3. The Great Sandy Region Management Plan

The Great Sandy Region is composed of Fraser Island, the Coolooloa Sandmass, Noosa North Shore and the waters of Hervey Bay and Great Sandy Strait. It covers about 840,000 hectares. The Great Sandy Region Management Plan 1994-2010 was prepared to protect natural, cultural and economic values of the Great Sandy Region. The plan envisages only a limited range of future, environmentally responsible tourist developments on Fraser Island.

Queensland Parks and Wildlife Service released a review of this plan in 2005. Between 1994 and 2005 the national park estate increased from 140,000ha to 220,000ha through the creation of the Great Sandy National Park that includes most of Coolooloa and Fraser Island. Also in 1999 the Great Sandy Strait Ramsar Area was declared, because of its international importance for migratory shore birds.

In September 2006 two existing marine parks, Woongarra and Hervey Bay, were amalgamated with all other appropriate tidal areas (land and water) within the Great Sandy Region to form the Great Sandy Marine Park.

The Great Sandy Region Management Plan has a series of Management Strategies. Strategy 1 is concerned with Natural and Cultural Resource Development and considers water quality, integrated catchment management and scientific research all of interest to a Water Quality Improvement Plan. These strategies are:

- Water Quality will be monitored and action taken to ensure water quality is maintained throughout the region, including marine areas
- Integrated Catchment Management will be encouraged for river systems affecting the Great Sandy Region
- Scientific Research focussing on species, sites and natural processes will be conducted to support management of natural and cultural resources within the Great Sandy Region.

Water quality has the desired outcome of:

“by 2010, to have water quality of all water bodies within the Great Sandy Region within limits necessary for maintenance of natural processes, biodiversity and ecological integrity”.

Designated proposed guidelines and actions are:

1. Water quality should meet minimum ANZECC (2001) guidelines for protecting aquatic ecosystems. All lakes and creeks where swimming occurs should meet ANZECC water

quality guidelines for primary contact. Where water is extracted for drinking, it will meet ANZECC water quality guidelines for potable water (ANZECC guidelines for remote areas).

2. Water quality management strategies will be prepared for all key areas in the region. They are to include standards, indicators and a monitoring plan for estuarine areas, surface bodies and ground water supplies in each area. Standards can be set for specific sites or areas to meet ecological objectives that protect internationally and nationally environmentally significant values (e.g. World Heritage Areas) in the region where appropriate.
3. Studies aimed at understanding processes occurring in lakes will be undertaken and appropriate management strategies developed and implemented to maintain water quality within predetermined acceptable levels.
4. All water bodies and ambient water quality data will be monitored regularly and analysed to determine long-term water quality trends as a basis for adjusting monitoring guidelines (e.g. frequency and level) and determining standards. Management strategies will be reviewed and adapted to ensure long-term water quality is maintained as determined by the Australian Water Resources Council.
5. Water quality studies will be done in co-operation with the statewide ambient water quality monitoring program being undertaken by EPA and DPI&F. The monitoring program needs to have flexibility to target new areas of concern, or areas of potential impact and attributes. Sites used for water quality monitoring will remain constant to the greatest possible extent to allow for long-term comparison of data with information stored on the statewide EPA database.
6. Nutrient inputs to lakes, streams and ground water will be minimised. Camping areas, toilets, waste disposal facilities and other facilities will be sited to minimise impact on water quality.

1.8.4 The Burnett Mary Regional Group for Natural Resource Management NRM Plan: Country to Coast – A Healthy Sustainable Future.

The Burnett Mary Regional Group for Natural Resource Management (BMRG) was established to achieve natural resource management arrangements in the Burnett and Mary Catchments, which have been identified by Federal and State Governments as catchments of concern. BMRG is responsible for developing and gaining collective agreement from relevant stakeholders on a NRM plan for the Burnett Mary Region. BMRGs NRM Plan “Country to Coast – a Healthy Sustainable Future” is divided into 6 action programs. One of these programs is the Water Quality and Equitable Use Program.

The aim of the BMRG Water Quality and Equitable Use Program is:

“to ensure water resources and associated ecosystems are managed, protected and harvested in an efficient, equitable and sustainable way for social and economic benefits whilst maintaining optimal environmental flows and ground water health now and for the future.”

The primary matters for target this action program addresses are:

- **M4 Nutrients in aquatic environments;**
- **M5 Turbidity/suspended particulate matters in aquatic environments;**

- **M6 Surface water salinity in freshwater aquatic environments;**
- **M11 Critical assets identified and protected;**
- **M12 Water allocation plans development and implication;**
- **M13 Improved land and water management practices adopted.**

The Water Quality and Equitable Use program has substantial links with matters for targets in other action programs:

- **M1 Land salinity;**
- **M2 Soil condition;**
- **M3 Inland aquatic ecosystem integrity;**
- **M7 Estuarine coastal and marine habitats.**

BMRG's Water Resource Management Actions (**WRIA-O**) are concerned with setting end of catchment targets and developing Water Quality Improvement Plans to achieve long-term water quality improvements. This supports Reef Water Quality Protection Plan objectives to halt and reverse the long term decline of water quality in the Great Barrier Reef lagoon, and provides a framework for a more collaborative approach between the Australian Government, Queensland Government, Local Government and community organisations.


Setting end of catchment targets is to be achieved through both an assessment of baseline condition and trend, and modelling (e.g. Sednet). These actions support and/or implement a program for the development of environmental values (EVs) and water quality objectives (WQOs) to underpin WQIPs.

Activities include programs of on-ground support and incentives to involve regional stakeholders (Waterwatch, Rivercare, Coastcare, the Coastal Water Quality Alliance or similar) to identify and mitigate impact in water quality 'hot spots' and participate in both freshwater and marine monitoring. Activities also provide for a centralised data collection and reporting service and community awareness programs relating to offsite influences of land management practices on water quality.

Achieving optimal environmental flows through the development of Water Resource Plans (WRPs) and implementation of Resource Operation Plans (ROPs) throughout the Burnett/Mary region is the aim of BMRG management action (**WR3H-J**). The two main components of a healthy aquatic ecosystem are water quality and flow or quantity. Under the *Water Act 2000* and water reform program, the water resource planning process is designed to plan for the allocation and sustainable management of water to meet Queensland's future water needs, including the protection of natural ecosystems and security of supply to water users.

The setting of end of catchment targets, developing WQIPs to achieve long term improvements to water quality, optimal flows through development of water resource plans, and implementing resource operation plans are **critical priorities** in BMRGs NRM Plan "Country to Coast – a Healthy Sustainable Future"

High priority is also given in the BMRG plan to management actions (**WRIP-S**) that focuses on reducing diffuse and point source loads, and encouraging region-wide standards and adoption of Best Management Practice in Environmental Resource Assessment licence reviews. Diffuse and point sources of pollution are a major issue for receiving waters. They impact on local values such



as fisheries and estuaries, and on a wider scale on sites of international significance such as Ramsar listed Great Sandy Straits and World Heritage Area Great Barrier Reef and Fraser Island. Work includes developing and implementing programs to encourage Best Management Practice by industry. This supports the Reef Water Quality Partnerships Program by reducing nutrients, sediments and agrochemicals entering the GBR lagoon.

Water Use Efficiency (WUE) initiatives are the focus of high priority management actions (**WR3A-G**). These activities promote and support water use efficiency across irrigation, urban, industrial and other users in partnership with industry and Local Government Authorities. Activities include a review of the efficiency of current water use systems, increasing public awareness of potential gains that can be made, and providing local industry contacts that can support these improvements.

A high priority management action (**WR5A-D**) addresses the effect of riparian condition on water quality, because riparian vegetation is essential for healthy waterways. Work has focussed on identifying sites and land management factors responsible for riparian zone instability, then prioritising devolved grants to landholders on the basis of returns for investment in environmental lift.

Important management action (**WR2A-D**) addresses current impacts of Acid Sulphate Soils (ASS) using community water quality networks. This management action is also is relevance to the Sustainable Use and the Coastal Marine Management Action Programs.

Priority issues influencing water quality in the Mary Catchment are listed in table 1.

Table 1.2: Main Issues associated with the Mary Catchment.

Issue	Relevant RCT/MAT	BMRG
Weed and animal pests: environmental and noxious weeds (eg giant rats tail, parthenium, cats claw creeper, Chinese elm, spread of Condamine couch) aquatic weeds (<i>Cabomba</i> sp, water hyacinth and <i>Hygrophila</i> sp) in particular. Support for co-operation between LGAs required	LR3.1, LR3.2	
Habitat restoration, removal of migration barriers, and other requirements to address needs of endangered Mary River cod, Mary River turtle and lung fish	FB1.2, FB1.3	
Significant issues related to water resources need to be addressed: <ul style="list-style-type: none"> • environmental flows • out of basin transfers • urban use, efficiency and demand • unregulated use of sub-artesian water • rural/industrial water demand, efficiency and reuse • ensuring adequate environmental flows over barrages (Mary River, Tinana Ck) to allow for spawning requirements of estuarine fish 	WR3.2, WR3.1, FB1.3, WR4.1	
Implementation of the Mary River and Tributaries Rehabilitation Plan (MRCCC,2001) to address riparian habitat and streambank instability issues	FR3.2, WR5.1	
An overall poor water quality status in the channel zone of the estuary as documented by estuarine water quality monitoring and declining water quality in freshwater areas, particularly the upper Mary. Concerns re impacts of road run-off	WR1.2, WR5.1,FB3.2	
The estimated sediment, nitrogen and phosphorus inputs from the Mary catchment is significantly high. This is an issue for this catchment given the environmental, social and commercial values of the receiving waters (Hervey Bay and Great Sandy Straits) and its instream values.	WR1.2	
Predicted 60% increase of the population in the next 20 years with associated issues of environmental carrying capacity and social change		
The Mary catchment is most 'at risk' within the Burnett Mary region according to the RWQPP due to moderate to high risk for biophysical and economic impacts on marine industries and high risk for future development increasing pollution	WR1.2	
Need for extension services/assistance to implement actions (eg Property Management Plans, Environmental Management Systems, Best Management Practices)		
Important vegetation corridor linkages throughout the catchment need to be maintained	TB1H	
Promotion of sustainable farm practices	LR1, LR1.2	
Documentation of biodiversity values	TB2.1	
Impacts of sand and gravel extraction on instream and downstream values	LR2.2, FB2B	
Flood plain mapping and management		
Ecosystem simplification	TB1.2	

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