

***Transferring success – an examination of Healthy Waterways
management initiative in South-East Queensland***

A study to identify, and to examine the transferability of, the critical success factors of the “Healthy Waterways” project model - South-East Queensland, Australia

**Summary report
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for
Land & Water Australia

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Executive summary

Does the Healthy Waterways initiative undertaken in South-east Queensland over the decade to 2000 provide a model for similar challenges, for example, in other catchment or natural resource management (NRM) settings? This project's focus was to characterise Healthy Waterways and to examine its potential and its limitations as a transferable model.

While transfer of such a model seems a simple concept to grasp, it refers to a highly complex process of learning and negotiation, a process dependent on a plethora of features and factors some of which have to be regarded as peculiar to each individual setting.

HW as 'change management' process

To the extent that HW conforms with a framework of processes and components commonly classified as 'change management', it can be seen to conform with and provide a 'model' framework and be transferable. HW as a change management processes has:

- a vision for SEQ's waterways which incorporates people's aspirations and can be readily translated into activity programs by a broad range of interested stakeholders
- a clarity of purpose, drawn from its vision and from its multiple programs defined and agreed in numerous forums
- champions, people who have the credibility, power and authority (personally and by virtue of their position) and commitment to see results delivered; these champions are not only in the peak positions. Rather there are 'nestings' of champions at all scales and across the full range of settings in which HW is operating
- a unity of purpose, a sense of shared concern and even shared threat producing a shared imperative to act which attracts key players to be involved in its activities for mutual benefit.
- its messages are uniform, packaged and targeted at multiple audiences – about the crisis of the waterways, about the benefits of being involved – *because we are all in the same boat.*
- messages about savings which Local governments have made on sewage treatment plant upgrades as a result of the scientific findings of HW are well publicised as some of the 'wins' for those involved; another win – of phasing out tidal dredging – is also well publicised
- structures and processes place the emphasis on consultative processes, engaging all stakeholders at the appropriate level for the risks and resources involved in the required changes
- planning and implementation is focused on working through smart alliances – between local governments throughout the region; industries, the networks of community groups, landowners and service providers. Smart alliances of local governments has seen funding drawn to the region from the Commonwealth
- Strategies have targets and a program staged and project managed for their achievement
- There is celebration, reward and recognition built in to all scales of endeavour
- Procedural rules are founded in agreements – about the science, about the funding of the science, about the options for action, about the funding of solutions, about the what is required of people who have a place and voice in the process
- Resourcing is multi-sourced and a mix of contributions from participants and grants from funding bodies; expenditure is target based and performance is to be carefully audited against expenditure and implementation agreements.

HW's critical success factors

Regional processes which produced HW were described and combined with survey and workshop responses to produce a set of definitive characteristics. These were then processed through several comparative studies into a core set of 'critical success factors'. These eleven factors were seen as acting in concert and are not classified into any ranking. The resulting CSFs are identified as:

1. Stakeholder involvement in agreement-based decision making; government, industry and community work is unified under the one umbrella of Healthy Waterways, with consideration of social, cultural, economic impacts of environmental choices and a 'whole of community' approach to monitoring and feedback
2. Inclusiveness – HW's pro-active stance on community involvement and cooperation
3. Local government acting as the champions; taking an advocacy role.
4. Good structures and processes for collaboration and integration; a structure which brings all interested and affected people together, enables presentation of independent advice, the targeting of the issues by agreement, and adoption of an agreement based strategy; driven and backed by strong political patronage. Structure integrates two distinct programs – that of the State-based BRMG and the local government-initiated BRMBWMS (aka SEQWOMS).
5. Adequate financial resources generated through creative alliances of governments, industry and community, sourced externally and matched by an increased level of self-funding over time
6. Quality staff in the two project teams (BRMG and SEQWOMS); in the scientific teams and in the stakeholder organisations. Skilled, independent, with a 'can do' attitude, an entrepreneurial culture and continuity of players.
7. Good quality science extending to consideration of social, cultural, economic impacts of environmental choices and 'whole of community' monitoring and feedback
8. Accountability to 'hard' targets, with open, 'whole-of-community' monitoring and feedback
9. Effective and timely project management
10. Good external links to regional planning, statutory processes, funding sources
11. Quality communications.

Distinguishing HW's unique and universal characteristics

The question of uniqueness or universality of these CSFs was considered in two ways:

- through identifying which characteristics can be considered 'unique' to HW and its context. These are grouped into context-specific or more 'serendipitous' or opportunistic.
- through a comparative review of related initiatives undertaken by researchers.

Context-specific characteristics included the specific stakeholders' dynamics; the particular government particularly local government, structure in SEQ; and existing arrangements for multiple-agency and multiple-objective planning in the region. The significant 'serendipitous' characteristics are described as triggers, timing & sequencing, values, and the people and their personalities.

Establishing 'universality' involved comparing the 11 CSFs with several frameworks for management available in the NRM literature including:

- 16 critical factors put forward by Dovers & Mobbs (1997) for successful NRM generally;
- 14 factors suggested by Born & Genskow (2001) as influencing catchment success; and
- nine CSFs for watershed management (Healthy Rivers Commission of NSW 2000)
- analysis of the management arrangements for Fraser River, Canada (Dorcey 1997).

The project's framework of CSFs was well covered in these four research studies, attesting to its robustness and to a degree of universality which can be concluded about the CSFs.

The study concludes that **replication** of Healthy Waterways – its characteristics and critical success factors, as a unified framework or 'model' - is most unlikely given the role played by these contextual and serendipitous elements. **Adaptation** then is considered a more useful approach to the question of transferability.

Study recommendations

The study's focus was on the CSFs and their validation, in anticipation of the value they represented when communicated to managers and decision-makers in similar situations. The value of the resulting CSFs can be heightened through several initiatives aimed at continued refinement of this framework of CSFs and at communicating them to those target audiences

- applying the CSFs to the next Stage of Healthy Waterways based on the new management arrangements of the Moreton Bay Catchment and Waterways Partnership, (whole of catchment and NRM-focused) of the implementation of HW as part of the evaluation process with stakeholders and with a view to their refinement in action
- applying the CSFs to other settings engaged in coordinated planning and management of NRM for example in association with the implementation of the National Action Plan for Salinity and Water Quality
- developing and implementing an instructional / training / communication package based on the CSFs illustrated by an inventory of ideas, tools and approaches utilised by HW. The package could be structured at both an introductory and a more in-depth training level.

Summary report

The essential task was to analyse the projects, functions, structures and processes which characterised and played defining roles in the successful delivery of this multi-sectoral, regional program and to group these into the primary or critical success factors (CSFs) which underpinned HW. background research looked at the range of projects which the two teams - of the Brisbane River and Moreton Bay Wastewater Study and the Brisbane River Management Group - managed to amalgamate, synthesise and operationalise into the Healthy Waterways (HW) initiative in South-east Queensland 1994 – 2000. The aim was not to produce an evaluation of the programs' 'success'. This report sets out the study team's conclusions about the critical success factors (CSFs) and processes of the Healthy Waterways (HW) project in South East Queensland (SEQ) until the end of 2000; i. e. until the end of HW's Stage 2.

The CSFs factors were then to be analysed in terms of their potential for transfer, or transferability, to other settings facing similar challenges. This analysis will seek some agreement on what can be considered fundamental aspects or principles of HW. These are then to be what constitutes the concept of a 'model', something which can be considered and potentially 'adopted' or espoused in projects of waterways and catchment management elsewhere. The project's rationale is not intended to imply that HW is not without its critics, sceptics, resisters and disillusioned, nor people who believe that it is early days yet and that the challenges for HW are just beginning.

Defining critical success factors

This study addresses watershed management in its most recent modus operandi based more on management by means of inclusive, co-operative partnerships. This form represents a shift away from the generally large, protective "River Commission" style of river and catchment management. 'Success' in watershed management is not just about the environmental outcomes which may take generations before there is evidence of any change in trends or condition of a complex environmental problem. Rather, success can be gauged from progress on a number of fronts:

Table 1: Elements of a multi-dimensional evaluation framework for watershed initiatives (Born & Genskow (2001))

Dimension	Measures of 'Success'
1. Social capacity-development and generally less-tangible accomplishments	Process measures; trust-building, educational efforts and awareness-building, enhanced coordination, dispute resolution and strengthened local problem-solving networks
2. Institutional changes	Changes in existing institutions (eg. in budgets, regulations, permit review processes, consistency provisions) and/or creation of new organisations (eg. land trusts)
3. Economic outputs	Economic gains related to hydropower; flood protection; riparian property values (including valuation increases from urban riverside development); recreation; fisheries; water supply, and wastewater treatment
4. Intermediate environmental outputs	Resource-level biophysical changes such as measurable changes in land management practices, habitat rehabilitation, land acquisition, and improvements to wastewater treatment
5. Environmental outcomes	Measurable and attributable resource improvements. Depending on the environmental goals, these could include land conservation, water conservation, improvements in water quality, and other measures of ecological health

HW is a watershed management initiative with particular characteristics operating in the SEQ setting. While it undoubtedly offers lessons pertinent to watershed management, defining the essential elements adequately enough to encapsulate them as the 'model' which has delivered HW's success is not possible. The emphasis in this project has been to use a variety of perspectives to define the critical success factors which characterise HW. This then forms a framework which describes HW. Such

a framework falls short of being a model in the sense an 'off the shelf' fully functioning, stand-alone model for similar change management elsewhere.

However as with any change process, there is a process and context in which these factors are located. Features of the process are considered to contribute to the qualities within and surrounding the critical success factors. These context-specific and more 'serendipitous' characteristics are identified for HW. The results provide valuable insights and lessons about watershed management while minimising the recipe- or 'one size fits all'- approach to one of those 'wicked problems'.

Defining transferability

This challenge of transferability is similar to the challenge of defining a model of HW. In considering transferability and its definition, the study team concluded that it comes in three forms:

- replication – cloning, or an exact copy;
- adaption – or using the original with modifications to suit the perceived local situation ; and
- reference – using the original as a guide.

Further, these three types of transfer could each apply to the whole set of success factors; to most, or only to one or a few. Where the factors are internal to the original situation, replication is likely to be difficult at best.

The study team worked to characterise the essential factors which, in combination and within the particular time and place of SEQ in the 1990s, describe HW and go some of the way towards defining its success to date (Part Two). These factors were then compared with factors identified for watershed management success in other settings to determine the robustness or of identify other insights about the HW characterisation (Part Three). The task then was to consider the challenge of 'transferability' of these factors, and the framework of them, to other contexts of watershed management – within and across jurisdictions (Part Four).

The setting for Healthy Waterways

The HW campaign is the collaborative response of government, industry and community stakeholders to address regional water quality issues – in themselves, and resulting from their collective impact on Moreton Bay and Pumicestone Passage, the receiving waters of the South-east Queensland region (SEQ). The SEQ region has about 60% of Queensland's population - with 1.4 million people in the Brisbane Statistical Division in 1991, predicted to grow by 70% by 2011; and projected to grow equally fast thereafter to 2051 (ABS, July 1998).

In overview, Moreton Bay is a semi-enclosed tidal basin bounded on its eastern side by three of the largest sand islands in the world. Moreton Bay is one of only three extensive intertidal areas of seagrass, mangroves and saltmarsh on the eastern coast of Australia that provide habitat for water birds. It has high species diversity recorded, with 27 species to date being recorded only from Moreton Bay (Davies *et al* 1998). More than 715 species of fish, 40 species of hard coral and more than 3,000 species of free-living marine invertebrates have been estimated in the Bay and the immediate surroundings (including Flinders Reef) (Davies *et al* 1998).

Internationally significant wetlands are located in the Bay's western margins. The area is recognised under the RAMSAR agreement as an important migratory bird habitat, and the Bay supports populations of large marine mammals including sea turtles and dugong. Collection and identification of species is an ongoing process, with new species still being discovered. Moreton Bay became a gazetted Marine Park in 1993.

Water quality has declined in the Brisbane River - nitrate has increased 22-fold and phosphate 11-fold since 1950; sediment has increased 4-fold since 1918 (SEQ RWQMS 2000, p. 32). Report cards on SEQ's current water quality and ecological health have been determined systematically for many tidal waterways in the last three years. Report Cards prepared under Healthy Waterways in 2000 concluded

that out of 24 waterways, only seven waterways rated higher than a C+ in 2000. Most SEQ waterways are in a modified to highly modified condition.

What is 'Healthy Waterways'?

The term *Healthy Waterways* has a variety of meanings for stakeholders:

- it is a '**badge**' worn by all waterways initiatives in the Moreton Bay catchment / SEQ region, a promotional **campaign** for water and catchment management
- it is a **framework** for voluntary integration of programs, plans and structures for water quality and catchment management
- it is a set or network of **management arrangements** for catchment management in SEQ.

Healthy Waterways is a vision....

South East Queensland's catchments and waterways will, by 2020, be healthy living ecosystems supporting the livelihoods and lifestyles of people in South East Queensland and will be managed through collaboration between community, government and industry.

This Vision, together with the colloquialism '*We're all in the same boat*', communicates clear and simple messages about HW and the workings of catchment management.

... initiated by the Policy Council of the Brisbane River Management Group (BRMG), in response to emerging objectives and strategies formulated from the scientific work of the Brisbane River and Moreton Bay Wastewater Management Study (BRMBWMS) and planning work by BRMG.

...in response to mounting community concerns about the degrading condition of the River and the Bay; impending environmental licensing of sewerage treatment plants (STPs) under the more stringent provisions of the *Environment Protection Act 1994*; a proposal for an Environmental Protection (Brisbane River) Policy under that Act; the 1998 *Moreton Bay Catchment Water Quality Management Strategy* and the 1998 *Waterways Management Plan* which provided blue-prints for developing a management framework for water quality in the region.

...and founded upon work undertaken in the scientific program and the water quality strategy by BRMBWMS, institutional arrangements made under the BRMG, management planning undertaken by BRMG and a coordination framework for catchment management initiatives by specific State agencies, local governments and community-based structures and the business sector.

Origins of Healthy Waterways

HW is the result of an evolutionary process involving a variety of players acting individually and in unison to deliver improved responses to the condition of the SEQ's waterways.

Community champions era 1980s – 1992

This era was characterised by mounting concerns about the state of the River and the Bay and recognition of the disparate nature of government responses to these concerns; numerous government projects involving major planning exercises; Brisbane City Council increasing its profile on river management, and government evaluation of options for more structured river management.

Scientific information about the river's condition increased from mid 1980s and this information received considerable attention from specific interest groups, especially riverside communities and environmental groups. This heightened concern was communicated to State Government and Brisbane City Council by leading environmental groups – people with scientific standing who were deemed knowledgeable, convincing and committed. They commanded a good deal of respect for their views about the problems and about the need for government intervention.

Political champions era 1992 - 95

This era was characterised by the voicing of commitment to the river by political leaders notably Jim Soorley, elected Lord Mayor of BCC in 1991 and Lord Mayor Nugent of ICC; by new pollution control legislation in the State; by a government proposal for greater regulatory effort to be directed at water quality of the river and Bay; by declaration of the Moreton Bay Marine Park and its Ramsar status in 1993; and by government commitment to preparing a plan for the River.

Charting the waters era 1995-7

Key features of this era are the heightened scientific research activity focused on water quality of the River and the Bay, the increased level of joint activity by the two primary yet basically parallel programs - the BRMBWMS operating out of BCC, and the BRMG operating out of the Environment agency; initial work to engage stakeholders in the Study's scientific investigations and in BRMG's River management plan; Policy Council directs project work in both these primary programs, as well as increasing its direct involvement in regulatory activities especially on dredging in tidal reaches.

Building the HW partnerships era 1997-2000

This era was characterised by release of the strategies based on investigations and consultations to date by the two primary programs; by expansion of both programs – their geographic areas of interest from the catchments of the Brisbane River to that of Moreton Bay and then the SEQ region as a whole, to cover marine –estuarine and freshwaters and consequently more western areas of the catchment; substantial results from the previous three years of intense scientific inquiry; high profile discontinuation of dredging in tidal reaches of the Brisbane River; concerted consultation and information strategies around the joint public involvement program under the banner of 'Healthy Waterways'; debate about the role of legislation and considerable interest in options for structures for long term 'whole of government' collaborative management of the waterways of SEQ and the initial review of actions and their achievements under the WQMS.

The success of the HW's independent scientific program is underlined by Lloyd *et al* (2000):

Scientific investigations have learnt more about South-east Queensland waterways in one year than had been learnt in the previous decade. (Lloyd et al, 2000 p 5).

In 1998, the Study and BRMG combined their efforts to prepare the:

- Strategy to manage water quality in the catchments of Moreton Bay (and subsequently in the whole SEQ region), including water quality management for the Brisbane River catchment in the Waterways Management Plan;
- Waterways Management Plan to manage recreation, cultural activities, water entitlements, environmental flows, catchment land use, transport, tourism, noise and water quality of the Brisbane River catchment;
- Moreton Bay Catchment Scientific Report, Crew Members Guide and HW campaign to support the Strategy and Plan; and
- Implementation Programs to support the Strategy and Plan by providing management details for the aspects of the Plan (SEQ RWQMS, 2000).

Consolidating the gains era 2000>

The two core initiatives under HW are the SEQ WQMS, which started out as the Brisbane River and Moreton Bay Wastewater Management Study, and the BRMG. While the activities of these two programs have at times run in parallel and been readily distinguished from each other, their achievements have overlapped considerably.

In 1996, BRMG covered the whole geographic extent of the Brisbane River catchment. The BRMBWMS covered all estuarine reaches of the streams draining into Moreton Bay from Redcliffe south to Redland Bay including the estuarine reaches of the Brisbane River itself. By 2000, the work of the BRMG covered a smaller geographic area than the Study which had expanded to cover water quality management across all catchment areas draining into Moreton Bay.

The current era is characterised by a whole of region, multi-sectoral stakeholder engagement in delivering a high profile policy commitment to waterways management to achieve measurable outcomes. Consolidation in this stage (Stage 3 of the SEQ RWQMS) will focus on specific scientific investigations, the new management arrangements under the Moreton Bay Waterways and Catchment Partnership (combining the Study and BRMG) will be integrated with formal regional planning processes under the Regional Organisation of Councils and Ministerial-mayoral arrangements for SEQ. The focus for implementation will move upstream and address non-point source catchment management issues. The achievements of all programs will be independently audited.

Stage 3 is beyond the scope of this project and will therefore only be referred to where relevant.

Management arrangements

Brisbane River Management Group (BRMG 1993- 2001)

In 1993, the BRMG was formed as a coordinating mechanism for community, government and industry representatives drawn into the Bay and River improvement program. The Group's committees are serviced by a Secretariat within the State Environment Protection Agency.

The BRMG's primary goals are to:

- Develop and administer a management plan for the waterways that will achieve the vision for healthy waterways and associated environmental, social, economic, and cultural outcomes;
- Provide a framework to coordinate the management of resources and uses based on integrated catchment management principles
- Provide a focus for government leadership and community aspirations in relation to the use of the waterways, and
- Provide for the participation of the wider community in the planning and management of the waterways.

BRMG's structure comprises:

- a Policy Council of State Government Ministers, the Lord Mayor of Brisbane, other local government mayors, and representatives from industry and environment groups
- a Standing Committee of the Chief Executive Officers (CEOs) of State and local governments and, more recently, the Port of Brisbane Corporation
- a Reference Group of stakeholders, including government, community, indigenous and industry interests.

In recent years, its public involvement program as well as its Management Plan has meant stronger links for BRMG with catchment management processes throughout SEQ.

Brisbane River and Moreton Bay Wastewater Management Study / SEQ Regional Water Quality Management Strategy (1994-2001)

The SEQ RWQMS became a joint initiative of Commonwealth, State and local governments, industry and community to deal in a coordinated fashion with water quality and ecological health issues for coastal, estuarine and fresh waters throughout SEQ. From 1994, the SEQ RWQMS (then known as the Brisbane River and Moreton Bay Wastewater Management Study) increasingly took the lead role in coordinating water quality management throughout the estuarine areas of the main waterways of SEQ. In 1997, the BRMBWMS changed its focus to address water quality management in Brisbane River and Moreton Bay. In 1998, it published the Moreton Bay Catchments Water Quality Management Strategy and subsequently changed its name to the SEQ Regional Water Quality Management Study. In 2001, it published the South-east Queensland Regional Water Quality Management Strategy under the Regional Framework for Growth Management (RFGM).

The SEQ RWQMS is a joint Federal, State and local Government initiative, a technical handbook providing a framework for managing water quality. It is designed for use by Government and council officers, industry, catchment and Landcare groups and interested community members to achieve.

- greater understanding the waterways and catchments; and
- development of specific management actions with agreed funding and timelines, to address water quality maintenance and ecological health needs in the context of ecologically sustainable development.

Key components of the structure for the Study are a:

- Steering Committee of elected officials from the sponsoring councils and senior officers from the sponsoring State Government departments;
- Technical Advisory Group of technical officers from State Government departments and local governments; and
- Key Sector Advisory Group of non-government representatives from industry, fishing, conservation and indigenous groups.

Stage 1 commenced under a joint funding arrangement between BCC and EPA. Stage 2 was funded equally by the Federal, State and local governments, under the previous National Landcare Partnerships Program. The local government funding component was provided by the six initial participating councils on a population basis. At the end of Stage 2, the project came under the (then) new Natural Heritage Trust (NHT) Landcare Program. Total project funding to the end of Stage 2 (1998) was \$5.25 million; total project funding to the end of Stage 3 (2001) was \$15 million.

The councils share funding on a population basis. Research funding obtained by the University of Queensland and Griffith University through the Australian Research Council Strategic Partnerships in Research and Technology Program has also been incorporated into the Strategy.

The Scientific Advisory Group is the executive scientific group charged with overseeing and integrating the scientific work. Stage 2 of the Study had 17 tasks aimed at quantifying and verifying the relative importance of various process in the conceptual model for water quality and the waterways in general. In 1999 the results of scientific investigations underpinning the Strategy were published as *The Moreton Bay Study: A Scientific Basis for the Healthy Waterways Campaign*.

Figure 1 (Appendix A) shows the two major projects, their evolutionary stages and the resulting Healthy Waterways program.

Some HW achievements by 2000

The following program outputs are examples of the products from the joint operation of the two programs. Note this listing does not address all criteria for success outlined by Born and Genskow in Table 1.

- With the assistance of the Commonwealth NHT program, a network of integrated catchment management plans is being developed and implemented, largely through community volunteers and through employed catchment coordinators.
- Industry partners such as Incitec, BP Refineries (Bulwer Island), Caltex Refineries and Australian Meat Holdings have all made significant advances with waste prevention, cleaner production and wastewater management and reuse.
- Commercial dredging for sand and gravel extraction ceased from the lower reaches of the Brisbane River and from the Rous Channel in eastern Moreton Bay.
- Through the EPA, BRMG and SEQRWQMS coordinated an integrated mitigation and investigation program for *Lyngbya* blooms in Moreton Bay coastal waters.
- The BRMG and SEQRWQMS planning processes have been integrated with the SEQ2001 RFGM planning process, ensuring the roles and responsibilities of state and local government agencies were managed cooperatively across SEQ.
- Whole of region coverage of all waterways management initiatives under the HW umbrella
- Annual report cards using monitoring indicators for ensuring management actions are effective in improving waterway ecological health
- increased community understanding and involvement with waterways and catchment management

- In excess of \$270 million has been committed from State and local government and major industries towards reducing discharge to waterways, upgrading STPs and waste water recycling projects, to be undertaken across the region between 1997 – 2005
- Significant funding has been provided for riparian vegetation projects,
- The establishment of waterways celebration activities

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- Procedural rules are founded in agreements – about the science, about the funding of the science, about the options for action, about the funding of solutions, about the what is required of people who have a place and voice in the process
- Resourcing is multi-sourced and a mix of contributions from participants and grants from funding bodies; expenditure is target based and performance is to be carefully audited against expenditure and implementation agreements.

Identifying the CSFs

Defining the reasons why HW is successful was approached in six steps in this study, by:

1. a survey of HW respondents selected by the HW project team;
2. responses were collated and qualitatively analysed;
3. the analysis was presented as a discussion paper to respondents
4. following distribution of the discussion paper, a workshop was held with respondents to finalise the critical success factors
5. a literature review was undertaken to collate views others held about Healthy Waterways, specifically the views of the HW project team
6. comparison between these CSFs and key attributes for natural resource management / watershed management available in relevant literature.

Characterising the HW process involved consideration of several issues - what is meant by ‘critical’, how best to group the characteristics into the CSFs and how to gauge the levels of interdependence between them. Factors with maximum agreement between respondents’, workshop and HW project team listings of CSFs are shaded darkest. Eleven factors achieved highest endorsement.

The core CSFs were then identified as follows, with all of them seen as acting in concert and not classified into any ranking.

- Stakeholder involvement in agreement-based decision making; government, industry and community work unified under the one umbrella of Healthy Waterways, with consideration of social, cultural, economic impacts of environmental choices and a ‘whole of community’ approach to monitoring and feedback
 - Inclusiveness – HW’s pro-active stance on community involvement and cooperation
 - Local government acting as the champions; taking an advocacy role.
 - Good structures and processes for collaboration and integration; a structure which brings all interested and affected people together, enables presentation of independent advice, the targeting of the issues by agreement, and adoption of an agreement based strategy; driven and backed by strong political patronage. Structure integrates two distinct programs – that of the State-based BRMG and the local government-initiated BRMBWMS (aka SEQWQMS).
 - Adequate financial resources generated through creative alliances of governments, industry and community, sourced externally and matched by an increased level of self-funding over time
 - Quality staff in the two project teams (BRMG and SEQWQMS); in the scientific teams and in the stakeholder organisations. Skilled, independent, with a ‘can do’ attitude, a private sector culture and continuity of players.
 - Good quality science extending to consideration of social, cultural, economic impacts of environmental choices and ‘whole of community’ monitoring and feedback
 - Accountability to ‘hard’ targets, with open, ‘whole-of-community’ monitoring and feedback
 - Effective and timely project management
 - Good external links to regional planning, statutory processes, funding sources
- Quality communications.

Respondents original comments about contributing factors to the success of HW are outlined for each of these eleven.

1. **Stakeholder involvement in agreement-based decision making; government, industry and community work** unified under the one umbrella of Healthy Waterways, with consideration of social, cultural, economic impacts of environmental choices and a ‘whole of community’ approach to monitoring and feedback

Stakeholder involvement is an all-encompassing reference to many features of HW. One important feature is its strong emphasis on agreement-based decisions particularly about the crucial matters of:

- the science to be carried out,
- the appropriate responses the scientific findings – evaluating these in terms of economic, social, cultural as well as biophysical impacts,
- the desired / feasible implementation regime (targets, tasks, timeframes and resources) to achieve change.

Some specific relevant comments by respondents (by sector)

Local government	<i>Strong independent advocacy for the Bay by a number of champions in different forums</i> <i>Inclusive of community, indigenous groups, Local Authorities and State Government</i> <i>Good consultative structure</i> <i>Scientific research, management and government cooperatively driving the campaign and the partnership model</i> <i>Those who had to fund the (management) actions drove the science</i> <i>A defined stakeholder commitment to action over a long term program is essential</i>
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Industry	<i>Successful identification of stakeholders and gaining their enthusiastic participation</i>
Community	<i>Ability to engage local government</i>
State government	<i>Robust looking alliance that taps into Local, State governments, academia / science world experts and grass roots community groups, to get ongoing dollars from the Commonwealth Genuine State and Local government partnership Continuing effort to maintain meaningful involvement of all stakeholders</i>
Academia	<i>Agreement between State agencies and local government without a legislative framework Agreement levels between non-government organisations and catchment groups</i>
Consultancy	<i>State Government, 19 Local governments (forming four regional organisations of Councils), statutory organisations, industry, community and R&D organisations are all involved Agreement and commitment to one unifying strategy A management framework which sits behind the strategy which ensures that commitments are acted on (viz. co-regulation) Agreement on sets of information needed</i>

2. Inclusiveness – pro-active stance on community involvement and cooperation

Many of the comments made above (in stakeholder involvement) are relevant here. Other relevant comments are given below.

Some specific relevant comments by respondents (by sector)

Local government	<i>Across the community support Everyone has at last recognised that we are all part of the problem</i>
Community	<i>People appeal – we are Australian, we all love our water HW is a vehicle we farmers can use to prove to urban communities we are acting sustainably Community focused issue identification Community participation in institution building and process setting Community has time to view and comment on project plans</i>
State government	<i>Indigenous involvement organised in a culturally appropriate way Targeting the HW initiative at community's ownership of waterways – 'ownership process'</i>
Consultancy	<i>Community involvement and education</i>

3. Local government acting as the champions; taking an advocacy role.

Comments here overlap with many of those noted above in stakeholder involvement.

Some specific relevant comments by respondents (by sector)

Local government	<i>Very strong leadership by Lord Mayor of Brisbane Strong independent advocacy by a number of champions in different forums especially Soorley (LM) and Welford (Minister) HW is following local government and community advocacy Mayors' support – two very vocal and key local governments</i>
Industry	<i>Major common item – Brisbane City Council administered the Water Quality Management Study and maintains a strong voice in politics of BRMG</i>
State government / Commonwealth Govt.	<i>Local political leadership and advocacy Soorley's champion role – a few people driving hard issues Regional approach and leadership commitment exemplified by 18 SEQ Councils supporting just one Council to access grants because it brought most regional benefit</i>
Academia	<i>Political leadership – someone who would bring both Councils and State together – Soorley & Nugent Willingness of 6 Councils to pool resources – gutsy decision</i>
Industry	<i>Local government focus of SEQ WQMS resulted in enthusiastic stakeholder participation</i>
Consultancy	<i>Political commitment</i>

4. **Good structures and processes for collaboration and integration;** a structure which brings all interested and affected people together, enables presentation of independent advice, the targeting of the issues by agreement and adoption of an agreement based strategy; driven and backed by strong political patronage. Structure integrates two distinct programs – that of the State-based BRMG and the local government initiated BRMBWMS (aka SEQWOMS).

Some specific relevant comments by respondents (by sector)

Local government	<i>Bottom up community consensus approach rather than top down prescriptive legislative approach; cooperative not coercive model; clearly identified stakeholder needs prior to scoping the science; good consultative structure Strong project management team – independence, management skills and drive – without being hampered by bureaucratic employment Ability to link scientific community into an implementation framework</i>
Industry	<i>Integration of two distinct processes operating in parallel yet synergistically, sharing a vision; BRMG is a strong political process using resources of EPA, community and Local Government while SEQ WOMS is a successful interaction between staged scientific studies and the water quality management strategy Out of EPA's hands BCC has been the cement holding the two processes together Project based administrative structure with governments / stakeholders management committees and advisory committees</i>
Community	<i>Participatory agenda setting from the outset</i>
State government	<i>An arrangement than can call in some 'heavy' political patronage but also be seen in both a real and practical sense to be a little separate from government Right people, right time, right place – for political patronage Robust looking alliance</i>
Academia	<i>Interactive process (sometimes exhaustingly); means sign off on time, dollars and priorities Structure itself helps</i>
Consultancy	<i>Agreement and commitment to one unifying strategy A management framework that sits behind the strategy, which ensure commitments are acted upon</i>

5. **Adequate financial resources** generated through creative alliances of governments, industry and community, **sourced externally and matched by an increased level of self-funding over time**

Some specific relevant comments by respondents (by sector)

Local government	<i>Ability to attract funding as a group Adequate fundng of high quality science Success mainly because of funding and the help HW has been able to give Sponsorship</i>
Industry	<i>Well funded project</i>
State government	<i>Significant funding from National Landcare Program and Natural Heritage Trust</i>
Academia	<i>Sufficient dollars</i>
Consultancy	<i>Capacity to act and sustain the required capital is fundamental One unifying strategy</i>

6. **Quality staff in the two project teams (BRMG and SEQWOMS); in the scientific teams and in the stakeholder organisations. Skilled, independent, with a 'can do' attitude a entrepreneurial culture and continuity of players.**

Some specific relevant comments by respondents (by sector)

Local government	<i>Very good project manager and science coordinator Project management team had more of a private sector model / culture Excellent scientific providers Excellent peer review processes Key scientists are also good communicators High standards of quality so that all parties want to be associated with it, not run from it Strong project management team – independence, management skills and drive – without being hampered by bureaucratic</i>
Industry	<i>Efficient secretariat Successful in relating to the public</i>
State government	<i>A contract consultancy with key personnel drawn from the public / private sector who have a 'can do' attitude An administratively- and politically- competent SEQWQMS Good oral and written communication Full time as opposed to part-time management team</i>

7. Good quality science extending to consideration of social, cultural, economic impacts of environmental choices and 'whole of community' monitoring and feedback

Some specific relevant comments by respondents (by sector)

Local government	<i>Success of particular individuals to talk sense about science to a lot of different people Adequate funding of high quality science and scientists ... to underpin the public advocacy for reforms, with a high level of independence</i>
Industry	<i>Excellent science and project arrangements for WQ Strategy reported separately from the implementation processes</i>
Community	<i>Rigorous scientific basis</i>
State government	<i>A collaborative and coordinated approach to the scoping, gathering and communication of scientific information Providing stakeholders with information as it comes to hand</i>
Academia	<i>Ensuring the scientists were aware of the management demands of the studies Not science for science's sake - appreciating the need to deliver to a strategy; within a limited set of resources, best to focus on doing a smaller number of things well versus a lot badly</i>

8. Accountability to 'hard' targets, with open, 'whole-of-community' monitoring and feedback

Some specific relevant comments by respondents (by sector)

State government	<i>"Whole-of-community" monitoring & feedback Strategy set clear, tangible targets which people / local government could commit to</i>
Academia	<i>Rigour of tasks balanced with objectives; use of peer reviews means networking with similar and previous work</i>
Consultancy	<i>An ongoing plan of action embedded in the arrangements with hard and measurable targets</i>

9. Effective and timely project management

Some specific relevant comments by respondents (by sector)

Local government	<i>Excellent project management (science, formulation of Plan and Strategy); Very good Project Manager and Science Coordinator Project management team had more of a private sector model / culture Strong project management team – independence, management skills and drive - without being hampered by bureaucratic employment</i>
Industry	<i>Excellent science and project management arrangements for WQ strategy separated from the implementation processes</i>

State government	<i>Full-time as opposed to part-time management team</i>
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10. Good external links to regional planning, statutory processes, funding sources

Some specific relevant comments by respondents (by sector)

Local government	<i>All levels of government involved and committed All-governments commitment has enabled good scientific research Inclusive of community / indigenous groups, local authority and state government departments Good links to the media and academia leading to their involvement and support</i>
State government	<i>Integration with regional planning and statutory processes Robust looking alliance that taps into local and state govts., Academic/science world expertise & grass roots community groups, to get ongoing \$ from Cth</i>
Academia	<i>Agreement between State agencies and local governments without a legislative framework</i>
Consultancy	<i>The State government, 19 local governments (forming four rocs), statutory Organisations, industry, community and R&D organisations are all involved</i>

11. Quality communications

Some specific relevant comments by respondents (by sector)

Local government	<i>Use of excellent graphics to illustrate Clear and concise explanations of operations and programs Approach is easy to understand whether at child or adult level Modelling diagrams are clear & easy to comprehend Excellent, forthright and world class communications materials eg. Crewmembers' guide, science 1 report of Moreton bay study, science updates Very good communication mechanisms / tools</i>
Community	<i>Engaging TV for regional promotion.</i>
State government	<i>Good oral and written communication with all stakeholders</i>
Commonwealth government	<i>Excellent documentation of the model, delivery strategies and implementation Communications efforts between key stakeholders and to community are outstanding</i>

Distinguishing HW's unique and its universal characteristics

The question of uniqueness or universality of these CSFs was considered in two ways:

- through identifying which characteristics can be considered 'unique' to HW and its context. These are grouped into context-specific or more 'serendipitous' or opportunistic.
- through a comparative review of related initiatives undertaken by researchers.

Context-specific characteristics included:

- the particular government structure in SEQ
The administrative unit of Brisbane City Council of some 0.95m people (30% Queensland's population) and covering the majority of the Brisbane metropolis, is unmatched in any other state. There, the metropolitan local government structure is one of substantial fragmentation (up to 40 units). The only Australian jurisdiction which offers a capital city council of similar relative status and power is the Northern Territory, where the Darwin City Council also covers most of that metropolitan area, with a similar proportion (c. 33%) of the Northern Territory's population.
- the specific stakeholders dynamics,
The Lord Mayor of Brisbane personally attended and "drove" the agendas and meetings of the early Brisbane River forums. Thus, State ministers also attended because they needed to be in touch and able to have influence immediately. Those forums were immediate decision-making;

and without the referral-back and slower processes frequently found in settings where only bureaucrats of various levels actually attend the meetings.

- existing arrangements for multiple-agency and multiple-objective planning.
There were few prior (before 1993) inter- and intra-governmental arrangements, although the SEQ Regional Framework for Growth Management (RFGM) arrangement commenced the previous year and was gaining influence and attendance. Also there was no ICM legislation applying to HW. ICM was adopted as policy by the Queensland Government in 1991, but its on-ground implementation was negligible throughout most of HW's formative period, especially in the urban and suburban areas.
- the local culture and paradigms at community and political levels,
As the Brisbane Lord Mayor's position is a party political one, this position can exercise commensurate power where the other governments are political parties of the same political flavour. In the establishment period of the Brisbane River management forums; from 1993 – 1995, both Queensland and Australia had Labor governments.

More 'serendipitous' characteristics were identified as:

- the triggers for action
Examples of triggers for Healthy Waterways include the threat of legislation for protecting water quality in the River, concerted and persistent lobbying by a powerful and authoritative environmental group and ongoing frustration within BCC about the fragmented management of River issues.
- timing & sequencing
Examples of the contribution made by timing and sequencing is evident in aspects such as changes and continuity in terms of political leadership in all three spheres of government have played their part in the evolution of HW. The proclamation of new pollution legislation and Commonwealth funds becoming available for major NRM-related projects with a regional emphasis under the NLP combined to provide the right circumstances for local governments' re-orientation on water matters and its motivation to take a lead role in strategies to manage these. The simultaneous formation of the two primary programs for water / waterways in the region was the result of both timing and triggers.
- Values were regarded as vital to HW's 'culture' or climate and key values were identified as:
 - Commitment by all players
 - Transparency of decisions and operations
 - Credibility of the science and of the projects
 - Accountability
 - Optimism or a sense of a positive future
 - Quality of work and of relationships
 - Clean water.
- Peoples' expertise and their personalities across all sectors.

Comparing CSFs – the question of transferability

Does HW, or this analytical framework for HW, provide a model for similar challenges for example in other catchment or natural resource management (NRM) settings? The study addressed this question of transferability through comparing the nature of the HW success against selected literature. The comparisons with the HW CSFs were with the:

- 16 critical factors put forward by Dovers & Mobbs (1997) for successful NRM generally;
- 14 factors suggested by Born & Genskow (2001) as influencing catchment success; and
- nine CSFs for watershed management (Healthy Rivers Commission of NSW 2000).
- Factors identified in the evolutionary process Fraser River, Canada (Dorcey 1997).

One example of this comparative work is that with the Healthy Rivers Commission of New South Wales (HRCNSW). The Commission concludes in the case of the Georges River, as in previous river and catchment studies, that "fragmentation of responsibilities and lack of clear strong accountability for results is at the heart of many of the problems identified for the state's rivers and coastal areas" (p. 4).

The Commission puts forward nine Critical Success Factors (CSFs) for achieving integrated management:

- HRC1 attainment of sign-off on strategic direction and commitment to management outcomes;
- HRC2 establishment of defined leadership and champion roles;
- HRC3 integration of powers and interests across government agencies, councils, industry and community interests;
- HRC4 maintenance of rigorous scientific input, inter alia, to aid key decision making;
- HRC5 attraction of significant funding from private and public sectors directed to implementation of highest priority programmes;
- HRC6 integration of environmental outcomes with economic/social/cultural requirements;
- HRC7 development of strong links between bay outcomes and waterway and catchment management processes;
- HRC8 public definition of accountability for implementation; and
- HRC9 establishment of inclusive community and stakeholder information and participation programs.

The eleven HW CSFs group into eight of HRC's nine (78%). The 'unused' HRC CSF is an operational one which could be incorporated into stakeholder involvement (CSF 1), namely HRC6.

In an overview on learning to collaborate for sustainability, Dorcey identified some key process components in his analysis of the Fraser River's management arrangements:

- D1 collaboration in the Start-Up Committee
- D2 open member selection for the subsequent Management Board
- D3 differing knowledge of the members
- D4 understanding and commitment to the Agreement
- D5 new relations and empowerment
- D6 consensus process
- D7 staff, budget and resources
- D8 use of multi-stakeholder processes and
- D9 reporting and accountability.

The eleven HW CSFs group into eight of Dorcey's nine (88%). In concluding, Dorcey mentions "politics, power relationships, history, organisational inertia, human dynamics, time, resources and uncertainty are just some..." of the challenges of large NRM initiatives. He noted the uncertain future facing the Board, particularly with financial constraints including the expiry of a large (\$100m.) Federal program. As a second Agreement was required, he conclude that three highly interdependent ingredients were required for that Agreement:

- an influential board --- influence is drawn from the seniority and diversity of the multi-stakeholder membership and the mandate to audit progress towards sustainability. There should be no separation of representation into a government board and a multi-sector advisory panel. The present seniority of public sector representation should not be further watered down;
- an independent institutional base --- the first Agreement did not give adequate accountability of members, nor enough independence to escape the undue influence of government bureaucracies. He critically highlighted the makeshift arrangements for financial administration and the inefficient budget processes between levels of government; and
- adequate resources --- Dorcey describes giving a broad mandate with inadequate resources as "Catch-22"; and considers the funding provided as about half of what was necessary.

Conclusions from the study's comparative analysis was that the HW CSF framework was well covered in these frameworks, attesting to its robustness and to a degree of universality which can be concluded about the CSFs.

While transfer may be a simple concept to grasp, the term essentially describes a complex process of learning and negotiation within a particular setting. As mentioned in the Introduction, in considering transferability and its definition, the study team concluded that it comes in three forms:

- replication – cloning, or an exact copy;
- adaption – or using the original with modifications to suit the perceived local situation ; and
- reference – using the other as a guide.

Some caveats are to be noted. If CSFs are expressed in generic terms, then their transferability is likely to be assessed as greater than if they were expressed in more confined, case-specific terms. If they are expressed merely at the level of general principles of change management, then they should be transferable anywhere change management is involved. Further, these three types of transfer could each apply to the whole set of success factors; to most or only to one or a few. Where the factors are internal or specific to the original situation – the 'serendipitous' factors above --- replication is likely to be difficult at best.

Transferability of HW's eleven CSFs

The nature of HW's success, both its eleven summarised CSFs (from Part 3.6 above) and its process (from Part 2.8 above), is now considered under those two components for transferability within Queensland, and interstate. It should be stated that the study team has recent experience in assessing the river and catchment legislative frameworks in all eight Australian jurisdictions, and in the operational framework of at least four major jurisdictions through questionnaires, workshops and interviews in 2001 (Maher *et al* (1999), Maher *et al* (in preparation)).

1. Stakeholder involvement in agreement-based decision making

There is no reason apparent to the study team why river and catchment practices elsewhere in Queensland or in any other Australian jurisdiction cannot apply this CSF, if they wish. Some jurisdictions have legislation specifying certain catchment management structures and processes, but none are considered to preclude this CSF. In fact, several are applying this CSF within legislative frameworks which do not specifically require it, and some of them see legislation as an obstacle (Maher *et al* (in preparation)).

2. Inclusiveness

Again, and as this second HW CSF has some overlap with the first, there is no reason apparent to the study team why river and catchment practices elsewhere in Queensland or in any other Australian jurisdiction cannot apply this CSF, if they wish. Some jurisdictions have legislation specifying certain catchment management structures and processes, but none are considered to preclude this CSF. In fact, several are applying this CSF within legislative frameworks which do not specifically require it, and some of them see legislation as an obstacle (Maher *et al* (in preparation)).

3. Local government as champions and advocates

The particular strengths of the proportionately and spatially large local government areas of Brisbane and Ipswich have been mentioned above as relevant characteristics of the HW area. While this, coupled with the strong, public and tenacious support of those two Lord Mayors, were a contributor to HW success, there is no intrinsic reason why this cannot apply intra- and inter-state – it may well require better co-ordination and co-operation between the local governments concerned to achieve the cohesive "bulk" which applied under this HW CSF in SEQ. The study team has proposed elsewhere [Maher *et al* (1999); Nevill *et al* (2001a); Nevill *et al* (2001b); Maher *et al* (in preparation) and previously] that local governments may find long-term benefit and even survival in adapting their boundaries to catchment-derived ones.

4. Good structures and processes for collaboration

Given adequate political will which is often created in response to community pressures and concerns, there is no reason apparent to the study team why river and catchment practices elsewhere in Queensland or in any other Australian jurisdiction cannot apply this CSF, if they wish. Some jurisdictions have legislation specifying certain catchment management structures and processes, but none appear to preclude the application of this CSF.

5. Adequate funding generated through creative alliances of governments, industry and community

Whilst the national and international examples mentioned in this report and known to the study team do not usually display this characteristic, there is no intrinsic reason in other jurisdictions why this CSF cannot be provided. Again, it is mainly a matter of political will, created by community pressure.

As mentioned, the HW model is about to be transferred to some other Queensland catchments; the size of its annual funding has been mentioned by some as an obstacle to its application there.

6. Quality staff

There is no intrinsic reason in other jurisdictions why this CSF cannot be provided. Again, it is mainly a matter of quality management processes.

7. Good quality science

While this depends on personnel, management and resourcing, again there appears to be no intrinsic reason in other jurisdictions why this CSF cannot be provided.

8. Accountability to 'hard' targets

A standard management practice, regrettably rare in actual occurrence. Once again, there is no intrinsic reason in other jurisdictions why this CSF cannot be provided. Some legislation either does not require appropriate independent and regular auditing against measurable parameters (Maher *et al* (in preparation)); or worse still, requires only subjective reporting at politically-determined intervals – and sometimes without adequate public input and disclosure. Again, it is mainly a matter of political will, created by community pressure.

9. Effective and timely project management

As with the previous CSF, a standard management practice. Once again, there is no intrinsic reason in other jurisdictions why this CSF cannot be provided, given suitable political will, which is often created by community pressure.

10. Good external links to regional planning & funding

As with CSF 7, while this depends to some extent on personnel, leadership and management, there appears to be no intrinsic reason in other jurisdictions why this CSF cannot be provided.

11. Quality communications

As with CSFs 7 and 10, while this CSF depends to some extent on management, resourcing and personnel, there appears to be no intrinsic reason in other jurisdictions why this CSF cannot be provided.

Study recommendations

The study's focus was on the CSFs and their validation, in anticipation of the value they represented when communicated to managers and decision-makers in similar situations. The value of the resulting CSFs can be heightened through several initiatives aimed at continued refinement of this framework of CSFs and at communicating them to those target audiences

- applying the CSFs to the next Stage of Healthy Waterways based on the new management arrangements of the Moreton Bay Catchment and Waterways Partnership, (whole of catchment and NRM-focused) of the implementation of HW as part of the evaluation process with stakeholders and with a view to their refinement in action
- applying the CSFs to other settings engaged in coordinated planning and management of NRM for example in association with the implementation of the National Action Plan for Salinity and Water Quality
- developing and implementing an instructional / training / communication package based on the CSFs illustrated by an inventory of ideas, tools and approaches utilised by HW. The package could be structured at both an introductory and a more in-depth training level.

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Appendix A

Figure 1: HW in SEQ - two parallel projects unified under one banner

