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# Charting a course by the stars: a review of progress towards a comprehensive management plan for Moreton Bay 20 years on

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## Abstract

Twenty years since a course towards a comprehensive management plan for Moreton Bay and Catchments was charted by Low Choy, what has been achieved and are we heading in the right direction? This paper chronicles the actions taken by a galaxy of diverse stakeholders to enhance the management of the catchments that collect the water that flows into Moreton Bay. The role of community movements such as Landcare and catchment management will be outlined to ascertain the ongoing contribution of these social enterprises to the management of Moreton Bay landscapes. Peak industry groups have also put an increasing focus on the health of the Bay to address catchment issues of priority to the socio-economic fabric of many industries, such as agriculture. The history of the repeated introduction and withdrawal of various strategies and programs by all levels of government will be examined to isolate the successes and shortfalls of these largely short-term commitments to long-term landscape change. The wave of social and scientific collaboration that has been generated by these programs is one of the great success stories in the recent history of natural resource management in the region. The roles played by high profile programs such as the Healthy Waterways Report Card and related planning and implementation initiatives, such as the SEQ Natural Resource Management Plan, in raising awareness and connection to the Bay will also form a central theme of this paper. Significant achievements have been made particularly in raising a broader awareness and understanding of the regional water cycle; however, the necessary social and political capital required to make a transformational change has not reached a critical mass. Progress towards the goal of each principle of the comprehensive management plan for Moreton Bay and Catchments charted by Low Choy is assessed and awarded stars; five stars indicating very significant travel in the right direction.

**Keywords:** integrated catchment management, natural resource management, community, partnership, collaboration, governance, Landcare, planning, Indigenous landscape values.

## Introduction

In 1998 Low Choy identified 10 principles required for a comprehensive management plan for Moreton Bay and Catchments (1) (Table 1). Here we examine the catchments component of the proposed future planning framework, in particular the roles and experience of the community/non-government sector in working to develop and implement a comprehensive SEQ management plan.

**Table 1:** Principles of the management framework proposed for future planning in South East Queensland (Low Choy, 1998).

<b>Principle 1.</b>	It [the planning framework] should embrace a regional setting that allows the inclusion of all elements and issues of regional significance.
<b>Principle 2.</b>	The scope of the study should be comprehensive and multidisciplinary and it should embrace the biophysical and socio-cultural elements of the marine and the terrestrial environments of the Bay.
<b>Principle 3.</b>	Planning considerations need to be based on scientific knowledge.
<b>Principle 4.</b>	The underlying planning philosophy should embrace the environmental planning principles of diversity, sustainable development, environmental carrying capacity, equity and the precautionary principle.
<b>Principle 5.</b>	The planning study area should approximate a natural area, and be delineated on the basis of an ecosystems or biophysical approach, without regard to the existing legislative and administrative arrangements.
<b>Principle 6.</b>	It should be a democratic and participatory process that facilitates the maximum involvement of all stakeholders.
<b>Principle 7.</b>	Future planning should promote a cooperative approach that involves the community at all levels of government in partnership arrangements.
<b>Principle 8.</b>	It must be capable of resolving conflicts but more importantly managing potential conflicts before they arise.
<b>Principle 9.</b>	It should be an open and transparent planning process that achieves and retains the confidence of all participants.
<b>Principle 10.</b>	It should be capable of producing a viable range of alternative options.

In his paper, Low Choy defines planning as the means of deriving and delivering policies and actions as part of a coordinated strategy or plan, to address a range of environmental problems and issues relevant to an agreed planning study area. It should be both transparent and participatory (i.e. provide opportunities for the active participation of all recognised stakeholders) and holistic (ranged across the biophysical and the socio-cultural environments). Transparency and the active participation of the community in catchment management is at the higher end of the collaborative planning spectrum. The 10 principles enshrine equity and collaboration as central themes.

Over the past 20 years, various levels of government, community groups, industry organisations and individuals have all undertaken actions and strategies, either singularly or collectively, to sustainably manage the catchments of the Bay. It is now widely held that these actions have not been fully effective because the condition of natural resources continues to decline (2). Has the lack of lasting improvement been a symptom of the lack of a

comprehensive management plan that effectively involves the community in the planning, implementation and ownership of catchment management activities?

This paper does not critique the original principles espoused by Low Choy nor does it propose enhancements based on this high level review. The objectives of this paper are to provide an overview of past and current planning activities undertaken by the community in collaboration with government and review how effectively these initiatives have steered the region in the direction charted by Low Choy in 1996. Progress towards the goal of each principle is assessed and awarded stars; five stars indicating very significant travel in the right direction.

### **Background**

To understand where we have got to since the last Moreton Bay and Catchments Conference in 1996, we must briefly explore changes in the social, economic, political and environmental landscapes as related to the management of the Bay's catchments. These changes (or in some instances a lack of change) have impacted heavily on the availability and continuity of the required capacity, resources and governance to promote Low Choy's 10 principles.

The past 20 years of planning, administration and funding arrangements have had a considerable impact on the capacity of the community, government and industry to sustainably manage the Bay's catchments. In fact, so much has occurred that there is neither time nor space here to chronicle the full history. Thus key initiatives and associated outcomes will be the focus of discussion which inevitably glosses over other laudable initiatives, and the authors apologise for this.

In 1996 there were approximately 30 catchment coordinators, Landcare facilitators and Waterwatch officers operating in the catchments of South East Queensland. By 2005 there were nine regional partnership managers employed by one regional entity called SEQ Catchments Ltd. (SEQC).

The original catchment coordinators and facilitators were employed on an individual basis by a number of incorporated associations overseen by either a board or management committee. These associations were non-government entities with a range of working relationships with local and state governments. During this time the majority of project funding was delivered through the Australian Government's National Landcare Program (NLP). The SEQ Regional Assessment Panel (a committee comprising government and community representatives) recommended the funding of projects that had been submitted by groups to the Australian Government for the investment of approximately \$2.5 million per annum to the SEQ region (3).

Planning was principally on a catchment scale with varying degrees of awareness of the SEQ regional scale water cycle. The principal non-statutory tool to inform land use planning and resource management was the Integrated Catchment Management (ICM) strategy. The Queensland Government instigated a pilot ICM program across three demonstration catchments in Queensland in the early 1990s. The Lockyer Catchment was the focus of one of these pilots on the back of the work done by the Lockyer Watershed Management Association (LWMA) since the early 1980s.



By 2000, ICM strategies existed in various forms across the region. Extension officers from the then Department of Natural Resource Management (NRM) had the task of equipping staff and groups with the capacity to develop and implement these strategies and acquire the funds invested through the NLP.

NRM extension officers organised regional ‘get togethers’ for both coordinators and groups to promote information sharing, professional development and regional coordination. This culminated in the development of the Strategic Guide to Natural Resource Management in South East Queensland: December 2000 (4) (the Strategic Guide), which had two key objectives: (i) to provide information for local government planning schemes; and (ii) to aid community, local and State governments in obtaining information on natural resource management in South East Queensland, and in managing natural resources in an integrated manner.

The Strategic Guide was based on the principle of ecologically sustainable development and key principles from the South East Queensland Regional Water Quality Management Strategy (5) and the South East Queensland Regional Coastal Management Plan (6). It also contained half a page on the links with the Integrated Planning Act 1997 (Qld) and local government planning urging that the range of NRM issues identified be considered in development/statutory land use planning. The Strategic Guide was a major achievement in synthesizing the regional aspirations of the NRM community in support of an agreed collective vision for the region; however, the lack of a comprehensive planning framework that subscribed to Low Choy’s 10 principles made the achievement of the agreed collective vision problematic and well-nigh impossible.

Monitoring and evaluation of the outcomes of the government investment in SEQ during the 1990s occurred as a requirement for project funding. However, in 1997, the Australian National Audit Office (ANAO) concluded that, after some five years since the then Prime Minister's Statement on the Environment and nearly eight years into the Decade of Landcare, the Commonwealth was still unable to indicate in any detail the outcomes that had been achieved from any of the programs examined (7). The challenges of issues of scale, establishing causal links and time scales involved in quantifying progress towards the landscape scale change required to achieve the objectives of land care cannot be underestimated.

The establishment of the Healthy Waters monitoring and report card program in the early 2000s (8) informed by the water quality and ecological health monitoring network, made a positive contribution to capturing the outcomes of land use planning and management, albeit with limited assessment of the causal links to local projects such as those highlighted in the Strategic Guide. Work is ongoing to enhance this understanding (9).

Establishment of the National Action Plan for Salinity and Water Quality (NAPSWQ) in 2000 and Natural Heritage Trust (NHT) program in 2001 saw the move to a more regional focus for planning, delivery and monitoring via the “Regional Arrangements” (10). This significant change saw the unravelling of the catchment coordinator network and many of the community networks they supported. At the core of these new arrangements was the signing of the Trust Bilateral Agreement between the Commonwealth and State Governments (10).

The first component of these regional arrangements was a focus on salinity and water quality under the NAPSWQ. The Lockyer was identified as a catchment of national significance due largely to the saline nature of large parts of its ancient marine sandstone-derived landscapes. There was also a heightened awareness of the impacts of sediment on water quality in the Bay, as a culmination of work led by Healthy Waterways and local governments including the Brisbane River and Moreton Bay Wastewater Management Study (11) and the subsequent SEQ Regional Water Quality Management Strategy.

The NHT program covered the whole of SEQ and saw the creation of a separate regional body for the eastern coastal catchments. In many instances this was accompanied by the gradual removal of financial support for local Catchment and Landcare officers, particularly in the less populated western catchment areas, and a move to centrally funded staff. A number of high profile groups with a sustainable business model, under-written by support and funding from a larger more affluent urban population, were still operating in 2016.

Separate regional NRM Plans were developed for the eastern and western catchments of SEQ by the two regional groups. The SEQ Western Catchments Group (SEQWCG) oversaw NRM planning and investment for the Lockyer, Bremer and Brisbane Catchments. Natural Resource Management SEQ (NRMSEQ) operated in the Noosa, Maroochydore, Mooloolaba, Pine and Pumicestone, Lower Brisbane, Redlands, Logan Albert and the Gold Coast catchments. These two NRM Plans underpinned the regional investment strategy for the region and formed the funding agreement with governments. A sum of money similar to that received by the region under the NLP program (\$2.5 M) was made available to the regional body in what was termed bulk funding. This funding was tied to regional priorities identified and agreed upon by the community. These priorities, actions and targets reflected national priorities set by the Commonwealth Government. SEQWCG and NRMSEQ merged in 2006 and the strategies were combined in 2009. The SEQ Healthy Waterways Strategy 2007-2012 (12) provided targets for inclusion in the subsequent SEQ NRM Plan 2009-2031 (13).

Nine sub-regional Community Partnership Managers supported by project and administration staff were employed by the regional body South East Queensland Catchments Ltd. (SEQC) by 2006. Further changes to the regional mode of delivery have occurred since 2009 with funding, and therefore capacity to address water quality issues, declining in real terms. The ability to coordinate activity to address key issues is further exacerbated by the competitive nature of the funding process, which does not subscribe to the road map promulgated by the regional NRM plan.

The most recent and significant event has been the merging of Healthy Waterways and SEQC to form Healthy Land and Water (HLW) in 2017. To many observers this was an obvious development too long in the making. For those more nuanced in the history of NRM in SEQ and the complicated nature of power and regulation in one of the fastest growing and biodiverse regions in the world (14), this was never a foregone conclusion. This amalgamation can be seen as a positive step towards more coordinated monitoring and evaluation of water quality in the Bay and on ground action in the catchments. This new non-government entity continues to be a critical link between land managers and the pursuit of a comprehensive management plan for the Bay.

### **Review of progress**

The comprehensive planning framework envisioned by Low Choy in 1998 had not materialised by the time of the second Moreton Bay and Catchment Forum in 2016, at least not as a cohesive framework promulgated at a single point in time. The 10 principles were not adopted as a collective response when first described 20 years ago. The reason for this lack of uptake has many dimensions; some will be discussed in this paper. A more forensic investigation is required to adjudicate on the lack of commitment to a comprehensive framework. Suffice to say the complicated nature of the planning, development and governance framework in the region creates unpredictable currents which are hard to navigate.

Distinct and important components of the framework have existed in a disparate temporal and spatial fashion, generating hope and expectations of opportunity, only for potential elements of a comprehensive framework to either suffer from their own success or be starved of the necessary resources to grow and prosper. It is now timely to identify these components and explore the role they have played in achieving the principles identified by Low Choy (Table 1). Progress towards the goal of each principle is assessed and awarded stars, with five stars indicating very significant developments in the right direction.

**Principle 1.** It (the planning framework) should **embrace a regional setting** that allows the inclusion of all elements and issues of **regional significance**.

Issues of regional significance have been identified and described (15); however, the complex nature of the water quality and other pressures on landscapes, ecosystems and the people of SEQ requires a genuine commitment to a regional governance framework. This must allow for a dynamic approach to planning and management that has the clear support of the dominant institutional frameworks of the region.

Many forums have contributed to this process including the Regional Landscape and Open Space Advisory Committee (RLOSAC) whose members worked to identify and raise the profile of regional landscape issues in the regional planning process over the last twenty years. RLOSAC championed the fact that the catchments provide the majority of greenspace and recreational opportunities for the urban population, along with scenic amenity and the fundamentals of life such as food, water and air (16).

The SEQ NRM planning process (2004) was instigated to prepare a regional plan for natural resource management, an important component of a comprehensive plan for the catchments. Subsequent iterations of the SEQ NRM Plan (2009 and 2014) pursued a joined up planning approach to the delivery of regional natural resource management. This was achieved through the alignment of non-statutory NRM targets and the desired regional outcomes in the statutory SEQ Regional Plan (2009-2031). This regional planning architecture provided a ‘line of sight’ for the community, especially those undertaking on ground works, to the achievement of regional goals that was in tune with a range of other approaches including land use regulations and policies. This also facilitated the coordination of effort and conversely the weeding out of duplication which maximised the impact of available resources including funding.

The catchments of SEQ are first and foremost Indigenous cultural heritage landscapes that have provided the physical and spiritual connection to Country for Traditional Owners for thousands

of years. These values have a history of not adequately being included in regional planning processes particularly given the cultural significance of waterways and their connections to the Bay through creation stories (17). The SEQ Traditional Owners Alliance (SEQTOA) formed and mobilised to produce a Cultural Resource Management Plan that identified regional issues that could be broken down into sub regional issues of importance for individual groups (18). Indeed, Traditional Owners have continued to play an active role in regional planning, most recently in the development of ShapingSEQ – SEQ Regional Plan 2017 (19). This involvement was informed by the Native Title process which, since the last Moreton Bay and Catchment Conference in 1996, has facilitated the recognition of continuous connection to Country by groups across most of the region. ShapingSEQ commits the government to at least two Aboriginal and Torres Strait Islander Planning forums per year to progress the recognition of indigenous values in planning.

Progress towards Principle 1 receives three stars.

**Principle 2.** The scope of the study should be **comprehensive and multidisciplinary** and it should embrace the biophysical and socio-cultural elements of the marine and the terrestrial environments of the Bay.

Disparate biophysical and socio-cultural studies have occurred in the history of catchment management in SEQ but have never become a solid fixture on which an ongoing cohesive research contribution could be built. The NRM regional body process of the 2000s, as described earlier, included a large number of both biophysical and socio-cultural studies. A major impediment to a comprehensive and multidisciplinary approach was the way in which funding was made available for research largely along single disciplinary lines. This was further compounded by institutional barriers between state agencies and the challenges of a consolidated approach to research and implementation.

The Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management (the Coastal CRC) created new tools and processes to enhance knowledge-sharing, knowledge-brokering and effective and democratic communication (20). The Coastal CRC sought to improve cooperation and communication amongst the scientists and involve the community in the development, sharing and implementation of tools for enhanced NRM. The CRC operated from 1999 to 2006 when funding was withdrawn.

Progress towards Principle 2 receives 3 stars.

**Principle 3.** Planning considerations need to be based on **scientific knowledge**.

The one fixture in this discussion has been the Healthy Land and Water science expert panels for water quality; however, the cross fertilisation of planning with this information has been haphazard. The Healthy Waterways program has provided the bulk of scientific knowledge that links the catchments to the Bay. This knowledge, informed by the annual monitoring of waterways, is used to produce the Healthy Waterways Report Card (now the Healthy Land and Water Report Card), which successfully engages the community to recognise their connection to the Bay and the role they can play in enhancing water quality on a regional stage.

Again there have been flashes of hope where the significant body of scientific knowledge available has connected with planning, management and investment in catchment management. However, the lack of direction, clarity of roles, the nurturing of effective relationships with stakeholders at the local level, and a lack of long term commitment to maintaining and investing in on ground activities, has dulled the effectiveness of these initiatives. The Healthy Land and Water scientific and community engagement programs continue to play a pivotal role in enhancing this situation. Furthermore, many other scientific studies have greatly advanced our knowledge of ecological processes in SEQ catchments (see Chapter on Freshwater wetlands (Arthington et al. this volume (21).

Progress towards Principle 3 receives three stars.

**Principle 4.** The underlying planning philosophy should embrace the **environmental planning principles** of diversity, sustainable development, environmental carrying capacity, equity and the precautionary principle.

Managing predicted population growth is the starting point for regional planning in SEQ. The regional planning framework is dedicated to providing the required number of dwellings and the hard infrastructure to accommodate this accepted growth. The fact that there is a regulatory planning approach to land use in the region as part of a legislative planning framework that subscribes to ecologically sustainable development, is a tick in the box. However, the philosophical discourse promoted by Principle 4 finds no legitimate space within the dominant political and socio-economic construct of the region, despite the urgency of the need for this debate and resultant action.

The Local Government Association of Queensland (LGAQ) has played a pivotal role in promoting the integration of NRM into planning schemes including the production of generic code provisions for local governments and the pilot training course for integrating NRM into planning schemes (22). Both were produced with funding from the National Landcare Program and Caring for Our Country. With the changing nature of the planning system and funding priorities, these initiatives have lost their currency or been starved of resources.

Consequently there continues to be a chasm between rigid statutory process and the need for dynamic land use planning that involves true partnerships between agencies and collaborative engagement with catchment communities.

Progress towards Principle 4 receives two stars.

**Principle 5.** The planning study area should approximate a **natural area**, and be delineated on the basis of an ecosystems or biophysical approach, without regard to the existing legislative and administrative arrangements.

The SEQ planning area is a patchwork of jurisdictions with the resultant legislative and administrative arrangements frustrating any chance of planning on the basis of an ecosystems or biophysical approach. The two major regional land use planning approaches, i.e. ShapingSEQ and the SEQ NRM Plan have been linked in writing, but not since the regional arrangements broke down has there been any tangible framework to bring out the best of this recognised nexus.

The SEQ Ecosystem Services framework engaged over 100 academic and citizen experts to gauge and map the level of goods and services provided by the landscapes of SEQ.(23, 24) Many of the ecosystems of Moreton Bay were identified as the highest producers of ecosystem services for the growing population of SEQ (25). The framework was supported by the SEQ Regional Plan with the desired outcome to manage the region as an organic entity cognisant of where life giving services were being generated.

Progress towards Principle 5 receives two stars.

**Principle 6.** It should be a **democratic and participatory** process that facilitates the maximum involvement of all stakeholders.

The lack of meaningful engagement and capacity building as part of a truly collaborative planning approach by those that hold the planning power in the region continues to disconnect the community from the planning process. The SEQ Citizen Senates, the formation of Healthy Land and Water and the ongoing commitment from key stakeholder groups has shown promise for this principle and creates a precedent and an opportunity to progress this ingredient.

The conduct of the SEQ Citizen Senates for NRM in 2004 and 2005 provided the opportunity for the community to interact with scientists and regulators to prioritise action and investment in the catchments. This alternative approach to planning and investment was borne from the more independent context rich regional arrangements for NRM which allowed such innovation to flourish. Support for this democratic jury process was withdrawn as the NRM funding program abruptly changed from a bespoke regional funding model to a Canberra driven competitive grants program.

Native title was recognised in the region in 2011 for the Quandamooka People of Moreton Bay. The issues and opportunities this creates are not truly understood by governments and land managers at this point in time. However, there are encouraging signs that this fundamental recognition will enhance the involvement of Traditional Owners in land use planning and management and progress towards improved relationships.

During this period the catchments of SEQ also experienced rapid peri-urbanisation. Peri-urban regions are those areas on the urban periphery into which cities expand or which cities influence. SEQ has experienced closer subdivision and fragmentation of lot sizes that has resulted in a large number of new land managers on a wide range of rural residential lot sizes. The diverse nature of these peri-urban areas presented numerous challenges of both a socio-economic and landscape management nature. Landscape management challenges include loss of biodiversity, pest animal and weed infestation, loss of scenic amenity, water quality decline, changes to hydrological regime, impacts to groundwater resources, increased prevalence of bushfire and landscape management capacity (26). The players in this very significant change to the demographic of the catchment can be typified based on their available skills, time and other resources. This new management context has made enhancing the capacity of new land managers to respond to the challenge of enhancing water quality a difficult task for Landcare groups, councils and others. Despite clear recommendations from a number of studies to address this situation, only small areas of success have eventuated (27).

Progress towards Principle 6 receives two and a half stars.

**Principle 7.** Future planning should promote a cooperative approach that involves the community at all levels of government in **partnership** arrangements.

As Hardy et al. (2003) (28) posit, a partnership requires: (i) recognition and acceptance of the need for a partnership; (ii) highly developed clarity and realism of purpose; (iii) commitment and ownership; (iv) trust; (v) clear and robust partnership arrangements; and (vi) a process to monitor, measure and learn. However, the rigid nature of bureaucracies with their many rules and regulations means that a partnership with community or between departments that meets these requirements is hard to achieve. This is not unique to the SEQ Region. The required devolution of power to local communities has occurred from time to time, but there has been no degree of permanence and longevity to these arrangements. The development of the SEQ NRM Plan 2009-2031 under the guidance of the SEQ Regional Coordination Group (SEQRCG) chaired by the then Department of Environment and Resource Management (DERM) ushered in a new era of governance. The Chief Executive Officers Committee for NRM, which reported to the Regional Coordination Committee, oversaw the operations of various technical and science panels that worked with the SEQRCG to support implementation, reporting and evaluation. The implementation of the SEQ NRM Plan was identified as a key activity towards achieving a number of desired regional outcomes in the SEQ Regional Plan.

A change of state government in 2012 saw the end of these arrangements and a far less proactive focus on ecologically sustainable development overall. An evaluation of the SEQ Healthy Country Partnership concluded that a strategic management group with an independent chair was required to undertake strategic and long range planning and program management of river restoration (29). The group requires adequate resourcing with a program director and operational staff and enhanced Indigenous engagement and inclusion in implementation.

Progress towards Principle 7 receives two stars.

**Principle 8.** It must be capable of resolving conflicts but more importantly **managing potential conflicts** before they arise.

Statutory land use planning across the region and within the catchments is embedded in the legal system, hence land use conflicts tend to be resolved through the legal system with varying opportunities for mediation before such matters reach the courts. Whilst scientific evidence has been injected into this process to varying degrees, there is clearly room to improve the employment of a science-based and participatory approach to land use planning in order to assist in managing conflicts before they arise.

In many respects this principle also calls for a move towards a proactive planning process as opposed to the reactionary processes that currently dominate most planning practices. Improved planning practices that embrace higher levels of citizen engagement and collaboration can serve to assist in identifying and managing potential conflicts before they arise. These levels of engagement also enhance the community's capacity to understand the planning process and the trade-offs that sometimes need to be made to achieve regional outcomes such as enhanced water quality in Moreton Bay. Whilst statutory land use planning has some way to go towards these standards of engagement, recent NRM planning practices

are designed to manage potential conflicts before they arise and have achieved improved levels of community engagement.

Progress towards Principle 8 receives two and a half stars.

**Principle 9.** It should be an open and **transparent** planning process that achieves and retains the confidence of all participants.

The sheer weight of consultation processes and change that occurs in a heavily populated and dynamic region such as SEQ not only exhausts the community but contributes to vision fatigue. This can stem from the lack of a clear understanding of what a consultation process can actually achieve given that those in power are often driven by an outcome that meets the objectives of legislation or departmental strategic goals. The community's trust in consultation and planning processes has been eroded as a result of the perceived lack of ownership and transparency.

The development of progressive versions of the SEQ NRM Plan over time employed a variety of engagement tool kits depending on the available funding and governance arrangements. As communities became more comfortable with the knowledge of the role their communities and sub-catchments played in the regional water cycle, input became more informed. The SEQ NRM Plan process conducted community and industry roundtables in each sub-catchment, which provided a vehicle to recognise local issues in the context of the regional jigsaw puzzle. Citizen science and local knowledge were actively sought and valued as an input to the evidence that drove planning and investment through this process.

Progress towards Principle 9 receives two stars.

**Principle 10.** It should be capable of producing a viable range of **alternative options**.

Traditional approaches to NRM and catchment management should not be the only pathway to achieving our vision for the Bay. Viable alternatives consistent with the vision should be nurtured and allowed to take shape. Despite a framework as mapped by Low Choy (1) not materialising in the past 20 years, there have been a number of significant routes charted to get us back on course. Many including the SEQ Citizen Senates have been described in this paper.

A number of recent business cases for "saving" the Bay have focussed on economic analysis to substantiate the viability of investment in catchment management (30-32). The quantification of the benefits to community and industry lends support to a payment for ecosystems services approach to amassing the investment required to address water quality issues in the Bay. A number of pilot nutrient offset projects that recognise the services ecosystems provide are now underway involving water utilities and will require further planning and regulatory support to maximise the commensurate reduction in nutrient and sediment loads in the Bay. The recently launched Building Catchment Resilience project aims to showcase how to tackle the problems at their source in the upper catchment where the greatest enhancements can be achieved (31). Scenario planning and systems thinking have also been trialled and are tools that could be employed to identify alternative approaches to planning and implementation (32, 33). Systems planning and adaptive management should be the hallmarks of alternative approaches because, as we have seen in this paper, the route to a comprehensive plan for the Bay is by no means a linear one.



Progress towards Principle 10 receives three stars.

### **Conclusions**

This paper has sought to show that the comprehensive management of the catchments of the Bay has proven to be difficult to resolve because of the complex social, economic and environmental interdependencies that characterise the SEQ region. A single focus on one issue has often revealed a multitude of others and exposed the lack of knowledge or contradictions in our understanding of the social and environmental landscape. These awkward relationships are aggravated by sharp, unpredictable changes such as extreme weather events, changes in the political landscape and global economic shocks.

Many stakeholders are involved and it is becoming increasingly obvious that resolution will depend, not so much on more or better governance but on new forms and systems of governance for catchment management. It is widely recognised that past ways of operating will not necessarily assist in solving new challenges, as the new challenges overlain with climate change present issues very different from the past (34, 35) It is important to reinforce the central role of Traditional Owners and their knowledge in managing Country in such a comprehensive planning framework.

A solution to a “wicked problem” such as this can only be found in a truly collaborative planning approach. This immutable fact must provide the foundation on which to analyse progress in the region towards a comprehensive management plan. True collaboration requires recognition of the power structure and a framework to rebalance this power to provide equity in participation, decision making and an equitable sharing of the responsibilities for implementation, monitoring and improvement. It also needs resources and appropriate funding that is ongoing and not subject to short-term investment and policy programs so often promulgated by the election cycle.

For Low Choy’s 10 principles to exist as the constituents of a comprehensive planning framework, we must first acknowledge the fact that there is a serious problem on our doorstep. From there we must actively create a true partnership approach that is based on highly developed clarity and realism of purpose, commitment and ownership, particularly to implementation and a process to fill important knowledge gaps, monitor, measure, learn and adapt. A successful partnership can build trust leading to a collaborative approach to a comprehensive management plan for Moreton Bay and its catchments.

The need for application of Low Choy’s 10 principles still resonates in the catchments of Moreton Bay. The large body of work and effort described in this paper are testament to the passion, commitment and vision of individuals and organisations in the quest to activate a comprehensive framework. For this journey to continue this commitment must be matched by a coordinated, adequately resourced and uninterrupted program of science, community engagement and implementation. This paper’s analysis suggests that despite some peaks in achievements we are only halfway along on the journey. Given the scale of landscape and community change required to rebuild catchment resilience this should not be seen as pessimistic but rather a solid springboard (not plank) in support of the community’s unwavering commitment to the cause. The underlying planning philosophy must embrace the

environmental planning principles of diversity, sustainable development, environmental carrying capacity, equity and the precautionary principle as key ingredients for collaborative catchment planning, research, implementation, monitoring and evaluation.

Acknowledging and understanding these challenges allows us to remain positive about pursuing a number of suggested pathways to enhance the health of Moreton Bay. It is now a matter of boarding the same boat and all rowing in the same direction guided by what the stars in this review have told us.

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