



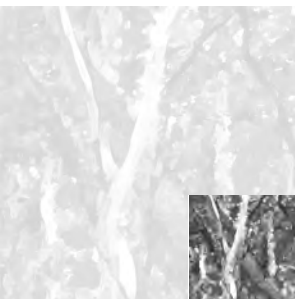
Sustaining Regions

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Editorial



Regional Issues and Sustaining Regions: Moving On and Moving Forward

In 2001 when Sustaining Regions was launched John Howard had been in power in Australia for five years and regional development issues were dominated by the apparent disenfranchisement of the rural and regional population - the Pauline Hanson/One Nation effect. In 2006 a different set of issues dominate the agenda. The drought has bitten hard in many regions and public debate is dominated by issues such as global warming, the impact of the resources boom, escalating housing markets in some regions, decline in manufacturing and the need for energy security. While the precise content of public debate has changed, there is a very real constant: a recognition that economy, society and the environment in Australia and New Zealand is changing and that change has differential impacts across regions. There is therefore an on-going need for solid evidence around the nature and impacts of change, as well as forums where ideas about the impacts and causes of change can be debated. Over the last five years *Sustaining Regions* has, in a modest way, contributed to this broadening of the information base within the community. To give but two examples, the special issue on regional labour markets edited by Fiona McKenzie was the first time the issue of regional labour force shortages was discussed in either an academic or public forum. Now such arguments are commonplace. Second, the publication of competing views on the role of enterprise zones gave practitioners around

Australia a chance to weigh up the pros and cons of this commonly cited, but infrequently applied, economic development strategy.

Australia and New Zealand may well face a rate of change over the next five years that exceeds that experienced since 2001. In Australia the Work Choices reforms will have substantial impacts, as will the demand for minerals and other resources from China and India. If the drought continues into the second half of 2007 the impact on many agricultural communities will be profound. Even without a drought the pace of change is likely to be considerable. One of my current research projects is examining the impacts on communities of the loss of employment in the automotive industry in South Australia. Since April 2004 the two major car manufacturers in South Australia have shed approximately 3,500 staff, with probably an equivalent number of jobs lost in first and second tier suppliers. Ford Australia has also shed staff, with 670 lost from the Broadmeadows factory in November 2006. Significantly, as Diannah Lowry, one of my colleagues on the automotive research project has pointed out, the automotive sector recorded strong employment growth in the period 2001 to 2004. Since then the industry appears to have passed a tipping point, which may reflect a strengthening Australian dollar and wage inflation, but is more likely an outcome of investment decisions that are favouring China as a place for new production. When Mitsubishi Motors in Japan was confronted by economic crisis in 2004, Daimler Chrysler (which owns about one third of Mitsubishi Motors) chose not to participate in the bail out, but

instead invested in new plants in China. Some 80 per cent of the world's shoes are now made in China, and we should ask whether 80 per cent of the world's cars will come from the same source in the near future.

This is the last issue of *Sustaining Regions* that will be produced under my editorship. After five years of editing this journal and two years of editing *Regional Policy and Practice*, it is time to move on. I believe that a new Editor will re-energise the journal, give it a new direction and hopefully win it a wider audience. I can't emphasise too much that the production of *Sustaining Regions* over the last five years has been a team effort with my colleague Mrs Cecile Cutler doing a lot of the 'heavy lifting'. Cecile is one of the few people I know who happily describes themselves as a pedant and her high standards and eye for detail has ensured a quality product, both in the print versions of the journal and the more recent web-based publication. Cecile has, sometimes cheerfully, sometimes not, ensured the quality of the written expression, ensured that figures and tables match the text (and believe me they often don't), kept the typesetters to schedule and overseen the distribution process. On behalf of that Association I thank her for her considerable efforts. It is important also to acknowledge the work of my other colleague Mrs Louise O'Loughlin who has reformatted papers, retyped manuscripts and undertaken many of the small, but essential tasks, central to the production of a journal.

We need to recognise that changes are taking place in the practice of publishing, the discipline of economic development and the world of economic development. To start with the first, increasingly academic outlets rely upon web-based publishing to distribute their material in a cost-effective and widely accessible fashion. In part this is the reason why *Sustaining Regions* went down this route. My 13 year old son has recently introduced me to a song with the provocative title 'Download this Song' which largely decries traditional music publishing and welcomes the inevitable demise of CDs, videos, compact disks etc in a world dominated by MP3 and MP4 players. The song reminds me that in a world of global access to information, where search engines and key words have replaced conventional forms of information query, and where persons seeking information can choose between competing products - that is, which of the 300 articles identified in an on-line bibliographic search on the topic multi scalar

governance - will you download, the ANZRSAI needs to ensure the material published in *Sustaining Regions* is both prominent and accessible. For this reason, I personally believe the journal needs to be made available as an open access publication. The second key change we need to recognise is that economic development in Australia and New Zealand has become a more mature industry. The 1990s were a period of establishment for regional development organisations in many parts of Australia and New Zealand but these organisations have now evolved and have different information needs and different corporate identities from their early years. In New Zealand we have witnessed the rise of the Economic Development Association of New Zealand (EDANZ) but no similar body has arisen in Australia. I believe there is a growing challenge for the economic development profession in Australia, and the Australian and New Zealand Regional Science Association International to comprehend this process of maturation and develop strategies to ensure economic development goes forward rather than stagnates. There is a real risk of stagnation and weakening political support for economic development unless those working in the field can develop a professional identity and a robust evidence base that informs practice. Publications such as *Sustaining Regions* are crucial in that task.

Change in the academic sector is likely to have a profound impact on practice-oriented journals such as *Sustaining Regions*. This piece is being written just after the release of the Research Quality Framework and no doubt there will be increasing pressure on academics to publish in only the best journals - which *Sustaining Regions* is not and should not aspire to be. Academics need to maintain a professional commitment to regional development and continue to publish in journals such as *Sustaining Regions* not because it will help their impact scores for future RQF rounds, but because it is the right thing to do. In many ways authors can achieve more real good within the community by publishing a practice-oriented piece that helps a local government or regional development board somewhere improve their practice than by publishing in the top journals in their field. This last point leads us to the contents of this issue, with authors both senior and junior contributing to this joint project on regional development in Australia and New Zealand.


The first paper is by Mary-Louise Conway of the University of New England and sheds some wonderful insights into the operations of the boards of regional development agencies in two jurisdictions - Western Australia and New South Wales. Her paper makes a valuable contribution to our understanding of the motivations and thoughts of board members. I think one of the real contributions *Sustaining Regions* has made over the last five years has been in providing an avenue for publication for researchers early in their career. Mary-Louise is a PhD scholar and I hope that the publication of this paper is a step toward success for her. The second paper comes from Frank Stilwell and Stephen Paillas and examines the processes leading to the re-establishment of a train line in New South Wales. The paper reminds us all of the complexity of government decision making and the often complex routes - and outcomes - of development initiatives. The third paper comes from Stephen Hill and Dianne O'Sullivan from the University of Glamorgan in Wales. Their paper addresses the challenge of placing a value on environmental goods and hopefully their insights will assist Australian researchers and policy makers confronted by a similar task.

Otto Wirgau then provides a piece on the use of information in regional development, while Khorshed Alam, John Rolfe and Peter Donaghy discuss issues concerned with some of the economic aspects of improved water quality objectives. The issue then continues with the usual combination of conference announcements, reviews and summary documents. Finally, we finish with an index for the first five years of *Sustaining Regions* by author and by article. I trust that all readers will find this index of value in searching for topics of interest.

Professor Andrew Beer

Editor

November 2006



Boardroom Revelations - board members making meaning of regional development governance

Mary-Louise Conway



Introduction

Regional Development Agencies (RDAs), governed by ministerially appointed boards operate within a complex public policy and governance environment. Goodwin and Painter (1996, p. 637) liken it to a 'palimpsest', yet knowing that their metaphor fails 'to capture the dynamic character to the relationships between specialities of different social processes and institutions'. With the rise of neo-liberalism a number of shifts have occurred in the way that regional policy has been re-written and regional development activities redefined. It is argued that the 'regions' have been artificially constructed and expected to be a unitary force for development purposes and yet the governing politics and economics prevail beyond the reach of those within the region (Pritchard and McManus 2000; Beer et al. 2003; Pritchard 2005). Beer et al. (2005) reflect that 'these regions, it is assumed, will grow as the state economy grows and this policy setting is adhered to regardless of evidence to the contrary'. RDAs, as a regional entity created by state Governments and delegated to take up responsibility for place-based development are immersed in a language which now describes regional development as building innovation, knowledge, clusters, local leadership in partnership with government and the private sector (Tonts and McKenzie 2005) using self-help development strategies (Herbert-Cheshire and Higgins 2004). The effectiveness of the RDAs or 'institutional architecture' nationally has been critically described by Beer et al. (2003) as lagging behind

'comparable agencies in other countries in their implementation of new approaches to regional development' (Beer and Maude 2002). This study presents the opportunity to hear the voices of those who seek involvement in the governance of the RDAs in NSW and WA. This paper will present a description of board members of three Regional Development Boards in NSW and three Regional Development Commissions in WA, reflecting on their motivations for involvement and the meanings they give to regional development. The 'voices' of board members are used to reflect their views on how they see their role in regional development governance.

These stories demonstrate significant disconnect between what is being espoused in policy and what exists in reality. It is evident that what is being heralded as the New Regionalism and regional development policy is in fact problematic for those expected to enact it. It is evident that the notion of the region as a solid identity with which people of the region identify and unite is far from being the case and RDA board members find themselves trying to create a common language in their activities. It becomes apparent in the interviews that the region is far from being considered the 'crucible' of economic development but rather within regions there are vast variations in income, resource bases and opportunity (Lovering 1999; Herbert-Cheshire and Higgins 2004; Pritchard 2005; Rainnie and Grobbelaar 2005). In contrast the stories told by board members are more paradoxical. On the one hand there is confusion about how to describe regional development to

match the public policy priorities. This tension between priorities is what Lovering (2001, p. 350) calls 'de facto subordination of regional policy making to the priorities of the central state and large scale capital'. On the other hand, board members acknowledge that being on the board has been a boost to their personal knowledge and connectedness (especially to other government funding programs). An attempt is made in this paper to capture the complexity of competing realities. It is in this context that the voices of the study need to be considered. The voices call for more meaningful debate of regional identities in the face of the complexities of regional development. The remaining message is that those in these governance roles are generally not content with either the 'hands off' approach of current governments or the government setting priorities for development of the regions and yet they are loathe to bite the hand that appears to feed their communities.

Background

This research project which commenced in February 2005 is an Australia Research Council Linkage Project based at the University of New England; a three year project to examine the impact of gender diversity on regional development governance. RDAs funded by state Governments have pursued increased representation of women on the boards, resulting in an overall outcome of 27 per cent of the board members being women and 10 per cent of Chairs being women (DOTARS 2005). This paper draws on one of the aspects of the larger project identifying the motivations for involvement and the meaning given to regional development by men and women on the RDAs. This aspect of the study forms the basis for my doctoral studies.

Structurally there are significant differences between the state funded RDAs in WA and NSW. In WA the nine Regional Development Commissions operate under the Regional Development Commissions Act 1993 as statutory authorities with the status of a state government agency, funded by the Department of Local Government and Regional Development (DLGRD). The Board, appointed by the Minister consists of the Chief Executive Officer of the Commission, three appointees nominated by local governments, three appointees who reside in

the region and three members appointed at the Minister's discretion. Board members are appointed for three year terms and a maximum of two terms. The Commissions are operating with budgets in excess of \$1 million and a staff of between 8-12 people. The Chairpersons form what is called a Regional Development Council, meeting quarterly with the Minister to discuss matters of relevance to regional development across the regions. The strengths of the Commissions described by Maude and Beer (2000, p. 16) lie in legitimacy and accountability, direct access to the Minister, the status to enter discussions with other State departmental heads, stable funding, and a broader view of what constitutes regional development. The drawback noted by Maude and Beer (2000) is that the community regards the RDA as being a servant of the government, lacking the independence required to represent the needs of the region.

In contrast in NSW there are thirteen Regional Development Boards with the chairs and board members appointed directly by the Minister of the Department of State and Regional Development (DSRD). These boards have been in place since 1972 and yet are not covered by an Act of Parliament. The NSW Department of State and Regional Development previously staffed the Executive position, however more recently this has changed. The boards are now separately incorporated organisations receiving core funding from DSRD (\$140 000-\$250 000), competing for other funds from state and federal departments. In 2003 the NSW Government established the Regional Development Advisory Council, legislating this entity in the Regional Development Act 2004. This Council is made up of the thirteen Chairs of the boards and has as its aim the promotion of regional development through its network of regional offices and regional development boards across the State, in addition to providing direct access to the Minister. The notable features of this system as identified in the extensive research by Beer and Maude (1996, p. 36) nationally of RDAs is the complexity within the NSW framework with the central role of the state government resulting in 'less 'bottom up' involvement' and a high level of confusion and competition between agencies operating at the regional level.

For both of these RDAs it has been determined that governance should be provided by ministerially appointed members residing within the nominated regions. In NSW, DSRD states that the boards 'provide a framework for economic growth, develop local leadership and ensure input to government on local development issues...they play an important role in promoting their regions to investors and governments' (DSRD 2004, p. 21). In WA, the board 'is the governing body of a commission with authority, in the name of that commission, to perform the functions of that commission' (Regional Development Commissions Act 1993). Both of these boards of management present government departments and ministers with considerable potential to view and enact regional development in a way that is place based, inclusive, engaged and proactive.

Methodological orientation

As there is limited previous research about the experience of being a board member of a RDA, the first stage of the project identified three RDA boards in NSW and three in WA characterised broadly as peri-urban, predominately agricultural and remote, and coastal. Board members were invited to participate in face to face semi-structured interviews. Between October 2005 and March 2006, 53 interviews were conducted with the Chairs and board members. Five interviews were conducted by telephone where face to face interviews were not possible. Interviews were digitally recorded and later transcribed. Transcriptions have been coded for emergent themes, with the language used by the interviewee forming a central part of the analysis for this stage.

This analysis draws on critical management theory in an attempt to reveal the social identities of board members through their narratives (Jessop 1997, p. 30) of who they are, how they came to be involved with the board, what they see as regional development and the role of the RDA. This perspective seeks to make sense of the language used, allowing it to be 'figural, metaphorical and full of contradictions and inconsistencies' (Alvesson and Deetz 2000, p.101). Furthermore, the point of this approach 'is not to produce a new theory of domination as knowledge, but to produce ways of seeing and thinking and contexts for action,

in which groups can express themselves and act' (Alvesson and Deetz 2000, p. 145). As this is the first stage of analysis, it is expected that there will be more ways of understanding the information than can be predicted at this point.

In this interpretation attention is paid to gender, class and race, the patterns as well as the variations. Some accounts by interviewees are ambiguous, vague and contradictory, the vocabulary positioned to reveal multiple truths (Alvesson and Deetz 2000, p. 148). In using a dissensus discourse the interviews are seen through a lens rather than simply mirrored as what has been heard and observed (Alvesson and Deetz 2000, p. 26). In order to do this as the researcher I acknowledge that I am active and positioned within the findings. My attempt is to challenge the assumptions, values, social practices and routines seeking to operate generatively rather than seek representational validity (Alvesson and Deetz 2000, p. 27; Knights and Kerfoot 2004). As personal reflexivity is sought, so too is theoretical reflexivity seeking not to privilege the structural context over that of the local agency with preference given to exploring 'ways in which each helps constitute the other' (Cochrane 1998, p. 2131).

Profiling RDA Board Members

Table 1: Profiles of RDA Board Members

| Characteristics | Women | Men |
|--|-------|-----|
| Total number of interviewees | 21 | 32 |
| Chairs of boards/commissions | 1 | 5 |
| Average age (years) | 55 | 49 |
| Numbers of interviewees by age: | | |
| <40 | 1 | |
| 41-50 | 4 | |
| 51-60 | 11 | 3 |
| >61 | 5 | 0 |
| Highest qualification attained | | |
| High school | 8 | 14 |
| TAFE | 2 | 3 |
| Bachelors | 7 | 9 |
| Post-grad | 4 | 6 |
| Local government experience | 10 | 12 |
| Industry experience | | |
| Health, education & community services | 8 | 5 |
| Self employed | | |
| Corporate | 6 | 8 |
| Agriculture | 3 | 12 |
| | 3 | 5 |
| Nomination Process | | |
| Responded to advertisement in newspaper | 8 | 9 |
| Nominated by Local Government | | |
| Identified by Departmental officers, Minister or Member of Parliament. | 8 | 6 |
| | 5 | 17 |
| Average number of years on RDA | 3.5 | 3.9 |

In aggregate the women and the men on these RDAs are largely homogenous and similar in age and education (the slight variation being that there are more men than women in the over 60 age group). Women are more likely than men to enter a RDA identifying their local government experience as a precursor to their knowing about regional development and RDAs. In terms of industry

background women predominate in health, education and community services in comparison to men's background in corporate organisations. With regards to education, women are more likely to have completed a bachelors or postgraduate degree than the men, with more men than women entering the board with their highest qualification attained being high school education.

Again there is a strong similarity in the aggregated data on the time that Board Members have been on the RDA with women averaging 3.5 years to men's 3.9 years. While not represented in this table, on a state basis, board members in NSW are more likely to have remained on the board for a year longer than their West Australian counterparts (however this can be explained by the 6 year board appointment limit of WA Regional Development Commissions). One of the outstanding features in Table 1 is the appointment process, which is the way board members come to learn about board vacancies within the RDAs. More women than men learned about the vacancies through the newspaper and responded to advertisements calling for nominations. More women than men use their experience in local government to enter the domain of regional development, in WA women are more likely to have this formalised as the local government nominee on the West Australian Regional Development Commissions. Significantly more men than women were approached directly by either Departmental officers, the relevant Minister or the local Member of Parliament canvassing their involvement in the RDA. That is, 52 per cent of the men report being approached in person canvassing their nomination onto the board; by comparison, 25 per cent of the women report being contacted directly. either Departmental officers, the relevant Minister or the local Member of Parliament canvassing their involvement in the RDA. That is, 52 per cent of the men report being approached in person canvassing their nomination onto the board; by comparison, 25 per cent of the women report being contacted directly.

Stories about seeking board positions

Board members were asked how they came to be involved with the RDA. This question was asked in order to understand the motivations and the process by which appointment resulted. The stories told by interviewees about why they sought the position as a board member vary. For the majority of interviewees it is seen as an opportunity to give back to their communities as an act of goodwill and community mindedness. As one interviewee stated 'You don't do it for the money. You do it because you believe the [RDA] is so

effective in our community and it is an opportunity to put something back' (BM24). Another board member of a RDA noted that those who become involved are 'significant' community members noting that 'they're doing it out of love, they're not doing it for any other reason, because I don't believe the [RDA's name] is the usual avenue to fame and fortune or political fame and fortune, not unlike the councils. So people have a different agenda and have a genuine agenda which is to serve their community' (BM29).

For some board members seeking involvement is an expression of their skills and interests. This quote exemplifies this common theme 'I think economic development is something I've done myself in my own businesses and in my work. I wanted to be part of the economic development of this region, encouraging business, encouraging business diversity, encouraging development in any which way...the mine, the tourism, whatever else' (BM47). Many of the interviewees identified a number of other leadership roles that they fulfilled in their regions and involvement in the RDA is considered to be part of a number of interconnecting arenas as this quote describes 'I'd already been really involved in community sorts of issues and community projects and then I was elected to Council and got involved in the ROC and it was really from there that someone suggested that I should nominate when they were calling for nominations for the board' (BM14). Having a community or business interest in the region appears to be an important precursor to seeking involvement.

A number of interviewees sought board involvement as a way of furthering their particular interests as this quote demonstrates 'It was one way that I could continue to contribute as I live locally and secondly, there's unfinished business. There were a number of projects that I view as unfinished business that I wanted to make sure were on the agenda and were really pushed' (BM31). Instrumentality was a strong theme on the boards that operated in higher growth regions, for example, the board can be an avenue to building other involvements or profile within the region 'I applied because I actually want to concentrate my efforts more in the region, and I want to get onto more business boards...I thought that this would be a good way of showing my good faith, because really one is only paid lunch money' (BM46).


Some of the chairs and board members in WA commented on being attracted to Regional Development Commissions in WA because the role is clearly advisory (this clarity about the role of the board was not apparent in NSW). One interviewee commented that 'the board met once every second month, with minimal duties in between, preparing and knowing what was going on, which I was doing through my work anyway - and to be truthful it was useful as a listening post for my employer' (BM32). This theme of using the RDA as a way of learning about regional development, other agencies, regional needs and government processes is expressed consistently throughout the interviews. For example, 'I have far more to learn from this board than they have to learn from me, because you do learn from listening to other people and your views do change' (BM25). It appears that in this boardroom based social interaction, there is potential for shared meaning and knowledge of regional development to emerge. This issue will be considered in the following section.

In view of over 50 per cent of the men appointed to the board being approached directly by departmental officers, the Minister or the Member of Parliament compared with 25 per cent of the women it is not surprising that over a third of interviewees openly identified the political nature of appointments, particularly the appointment of the chairperson. A long serving chair of a RDA described the process of appointment as 'a list of names is put forward and then I think the local Member of Parliament (is asked if) he or she have any comments on these people...you get a tick against your name, its as simple as that...it's a political appointment, let's be quite honest' (BM7). Another board member openly described being approached by the Minister, 'The first time I was offered, I mean it was flattering to be approached' (BM16). Another board member described being approached by the Minister to be 'eyes and ears on the board' and frankly stated that 'I was sort of seen as the Minister's boy and that was indeed the case, that's why I was there' (BM19).

In both states the position of chair is a direct Ministerial appointment. It is a pivotal role as the chairs meet quarterly with the Minister and departmental staff to discuss the needs of the region. This position is regarded as prestigious, sought after and critical to the operation of the board. One board member said 'I've been a

member for all these years, and I've been deputy (because it's appointed by the board), and I'm not in the Labor Party, so I'll never be chair' (BM44). Another person commented that on being approached by the Minister to be chair, he remarked to the Minister that it looked like 'a job for the boys', on reflection the interviewee noted that it more resembled "community service" as the role required up to two days a week work for a payment of \$6500 per annum' (BM31). Regardless, this person took up the position as chair commenting that the board was 'essentially advisory so the Minister really doesn't have to interfere because if the Minister doesn't agree, he just ignores the board's advice' (BM31).

The stories told by board members about their motivations for involvement describe a group of people strongly drawn to involvement by a sense of goodwill and commitment to enhancing prospects for development within their regional sights. In the following section a number of common issues for regional development governance emerge.



Stories about the meaning of Regional Development

Interviewees were asked to describe their background and involvements within their communities. The key questions that followed asked the interviewee to describe what they think regional development means and how this translates to the work of the board. This paper will report four key issues to arise out of this inquiry. These four issues were common across RDAs in NSW and WA despite the structural differences identified previously. The first issue is the difficulty in defining the meaning of regional development and creating shared meaning of regional development between board members. Second, when meaning is difficult to construct within the boardroom and rather delivered by government which may have restricted relevance, the difficulty is in determining what difference the RDA can make in the region. Third, interviewees identify that in the work of the board the construction of a 'regional identity' is problematic. Finally, and in contrast to these three issues, board members express the benefits of their involvement despite their frustrations.

In response to the question 'what do you think regional development is?' it was surprising to hear so many interviewees answer in the following ways 'Sometimes I think I don't know honestly' (BM21); 'It is difficult to get your head around' (B311); 'That's a ticklish one, I hadn't thought about it' (BM22); 'It is a very loose term, you know you can never quantify it' (BM19); 'People have different views, I don't think they've really been able to get their head around it' (BM34); 'I don't even know...whether anybody really knows what regional development is all about' (BM3); one chair responded 'I am not sure I understand a lot about regional development. I go to those (council) meetings and people from the Pilbara and the Kimberley's and the Goldfields and you hear about their issues about transportation, fly in fly out, telecommunications, digital divide, health services, schools and you think gee, that's regional development' (BM33). The paradox here was that in listening to interviewees then describe their community, their involvements, expressing needs, difficulties and challenges in their communities; it was obvious that these board members are constantly thinking about the development of their region. Then why is it that these talented individuals are so reluctant to identify the meaning of regional development and link it to the enactment of regional development occurring in the RDAs?

More in-depth analysis of the interviews reveals a different picture. The interviewees are skilled community and business leaders, who are knowledgeable about their communities and the majority, are formally well educated. One explanation is that the level of difficulty they had with framing regional development lies not with the individual's lack of understanding rather it appears to lie in the knowledge of the restraints of the public policy within which the RDAs operate. First, within the neoliberalism policy framework regions are experiencing the 'hands off' approach, they are being expected to come up with their own solutions to depopulation, diminishing business activity, social dislocation, lack of health services and environmental degradation (Pritchard and McManus 2000; Alston 2004; Alston and Kent 2004; McKenzie and Tonts 2005). At the same time government priorities prescribe the nature of funded projects, resulting in RDAs 'undertaking the projects and programs they can be funded for, rather than the tasks that would best promote the growth of their

region' (Beer 2000, p.185). The words 'regional community' have become imbued with notions of self help. So that while board members have knowledge about their community and its needs, they are constrained within the policy and priorities set by Government departments. As one board member stated 'I still see governments withdrawing and major providers still withdrawing. You know I tried but the whole machinery of that regional board process is not designed to produce any outcomes, it's just designed to have meetings' (BM34). These concerns are described by another board member 'I've got a cynical view of what state level politics is delivering and that is that they are not going to pay too much attention to the regions...there's no vote...how can we make a difference...well almost we can't. We have a very limited budget we've got to try and reconcile that with some of the fundamental or underlying issues, which are seemingly insurmountable and significant like health delivery and education and depopulation' (BM18).

It appears that the disconnect between the reality of regional needs, Governments 'one size fits all approach'(BM20), the infrequency of board meetings and the under-resourcing of RDA activities, contributes to an absence of shared meaning of regional development within the boardroom. Time and commitment is required to develop a shared language between board members and to create meaning that is relevant to a particular region. An interviewee in WA describes this as a priority 'using our strategic planning framework... and using people's frustration of not knowing where we are going... became actually a really, really important platform to actually develop that shared language and understanding' (BM20). This interviewee did not see this as an achieved state rather as an ongoing process 'you actually have to continually go back and create the common language in the framework... this is a really abstract language. I have just come from a meeting with local government people and it's all about budgets and money and the people stuff just isn't talked about' (BM20). The task taken up by this board member was then to see meaning of regional development created and shared within the region.

While the majority of interviewees expressed concerns about regional development governance in the RDAs across NSW and WA, there was equally a reluctance to critique the government policy that

constructs the entity of which they are a part. To bring into question the policy framework may create cognitive dissonance for a board member, an experience of discomfort resulting from the inconsistency between attitudes and behaviour. One board member pointed out that in his experience 'if the government had policies that I was strongly opposed to then you couldn't, in all conscience, do this job' (BM33). However what is apparent in the interviews is the contradictory nature of the board experience. So that while board members express their frustrations with the outcomes of the board, involvement does enable them to be 'in the know'. In other instances, when this dissonance escalates it has resulted in board members opting not to renew their term. An issue here requires further analysis and that is that cognitive dissonance is less apparent when the interviewees live in a region that is growing in population and development is seen to be occurring compared with a region which appears to be in decline. However the second major issue arising here is that when meaning of regional development is not constructed within the board and rather delivered by government which then lacks relevance, the concern becomes that the board is a token board. This difficulty in determining the role of the RDA was of concern to both WA and NSW interviewees, however the language used to express this as 'tokenism' was expressed more strongly in NSW.

Boards members in both states expressed concerns about the limited resources available to RDAs, the lack of power to effect change, and the limits to being seen as a 'facilitator' within the region. However in NSW there was scepticism of the government's intention to create regional development through the RDA with the word 'token' being used frequently by interviewees. The meaning given to regional development by Departmental staff was described by one interviewee as 'showcasing the region, marketing aspects, trying to identify areas working with some stakeholders to be able to put up the united front for the region' (BM50). As one board member stated 'This was a quango, definitely a quango, and they [the Department] were willing for each of them to have a quarter of a million dollars funding to go and play, but if there was any real action it was to come back to the Department' (BM34). Another board member commented 'It made me wonder whether [the Department's name] were genuine,

whether they want to deliver real things to the community' (BM36).

Board members clearly need to see that their efforts are of value to their community and to government. For example one board member in NSW stated 'they wanted a board that could concur with the government and make it look as if a region agreed with whatever the government wanted to do. They needed it coming from a body of locals, sort of like the smart colonists would use a similar sort of approach in Indochina or elsewhere' (BM50). This sense of government top down approach versus a bottom up approach is also evidenced in this quote from an interviewee in NSW 'Economic development to me isn't just jobs, jobs, jobs even though the [Department's name] rep keeps saying that. I think it's bigger than that, it's about enhancing community wellbeing in a whole range of ways. One of the downsides of the board is that I find myself inhibited, sometimes even talked down to by the [Department's name] representatives that come along and propound the world according to [Department's name]. There are other perspectives that we can look at' (BM11). Frustrations among board members also arise around the capacity of the board to take action; again this was openly expressed in NSW. One interviewee commented 'I find it restricted because the board can only be a facilitator. We can't work with a single business even though their issues may be similar to other businesses' (BM35).

The perceived misfit between state government policy and priorities, and the region itself is of major consequence in the minds of the interviewees. Another element of this is the level of perceived political interference which contributes to the perceived tokenism 'we have been asked by the Minister to abandon one area of interest and pursue another area of interest which is more aligned to things that he is interested in' (BM18). A board member summed it up in the following way 'regional development is really difficult and a lot of it tends to be political...a lot of it to my mind is restricted because of the bureaucracy, its got to fit a certain set of criteria and those criteria don't always necessarily fit the area you're working in' (BM4). Finally '[the Department's name] have restrained the role of the board so much that board members feel that the board has no role in networking' (BM11). The word 'waste' was used in NSW to describe this situation, 'I'd taken a decision not to

renew but I'd equally taken the decision not to rock the boat too much. Not to write to the Minister and tell him that I thought it was a joke and that it was a waste of taxpayers' money and I guess something of a cynical exercise is probably how I would describe the whole thing' (BM34). It is beyond the scope of this paper to explore this issue further, however these are significant concerns which need further investigation.

The third issue apparent in the interviews is how interviewees see the construction of a 'regional identity' as a site for regional development. Some interviewees described the enormity of the task 'our client base is so diverse, it's huge' (BM21) and related this to the construction of the region 'its complicated by the fact that the regions are pretty artificially formed and not always logic, you have to make a logic, create a logic out of it' (BM29). Likewise, this interviewee links the notion of the region to accountability when saying 'I still feel accountable to the community, the regional community, which is strange because it is an artificial region, there is no community of spirit' (BM17). Some interviewees use other language to make sense of the region; like seeing the region as a large consortium made up of smaller businesses or communities, working together to try and attract investment, growth and jobs. The word parochialism was frequently used negatively to describe 'others' who advocated specific place based issues. One interviewee noted 'It is very, very difficult to get a regional focus...it is a very parochial - parochial is good in that there is passion and community pride, it is bad in that "this is ours - it is not negotiable" - and you hold onto it to the death and it is literally in too many cases the death' (BM20). How the notion of the region translates to strategic planning is also identified in the interviews as being enigmatic when other agencies, such as local government, the Commonwealth funded Area Consultative Committees, Catchment Management Authorities and state Government Planning Departments are operating independently with limited communication and co-operation.

The final issue for discussion in this analysis is board members expression of the benefits of their involvement in the boards and commissions despite the frustrations identified in the previous issues. The quotes here were in response to questioning about why board members continue their involvement on the board, what do they gain from

their involvement? What is most commonly identified is that board members build their knowledge of the region, by visiting other centres, meeting with community, government and business leaders; they develop a greater level of awareness about the region. The gains here are personal as these quotes demonstrate 'I think anybody that's on the Commission is a much better, much broader person as a result of their involvement with the Commission' (BM30): 'I have learnt so much from the people on the board...in terms of understanding how government and funding works. It's made me more aware of what is out there and what can be done.' (BM2); and 'there are people on the board if I have got an issue then I can ring up and pick their brains so to speak' (BM4). The question arising here is, in view of the literature on community capacity building, networking and activism, to what extent do board members convert their involvement into actions in their communities? This interviewee offered how he goes about this 'I'll try to sow a few seeds in my own community about what was on offer, what could be done, perhaps how other people perceived us, those sorts of things, without trying to be pushy' (BM6). What is identifiable here is that the involvement on the boards for some is an opportunity to meet with likeminded people, the words 'like-mindedness' being frequently used by board members as evidenced in the following quote. One interviewee liked 'dealing with intelligent people. I enjoyed the time and thought it really worthwhile, its one of those things in life that you feel that you are actually achieving something, together as a team you are' (BM26). Another interviewee in reflecting on living in a regional location said 'It can become very lonely. Being involved has meant that the range of intellects and the level of intellects that are available... they are far more accommodating of different views and respectful of different views' (BM18).

It does seem that there is a social connectedness that interviewees appreciate in being on the boards. There is a reported low level of conflict on these boards (some interviewees however suggest that this is because there is no power and no resources to challenge decision making), that many board members knew each other prior to coming onto the board and that there are a number of interlocking memberships of other community groups, agencies and local councils.

Conclusion

This paper brings to the surface a number of issues about the experience of being a board member of a RDA in NSW and WA. It seems that board members are drawn to this involvement as an act of goodwill and in the effort to make positive contributions to their communities. Involvement is often a reflection of their own personal and work based identities. For some board members the boardroom experience enables them to make connections which are often of a political nature. The majority of board members report that the experience of being on the board of a RDA has benefited their understanding of the region and the existence of funding programs, and how the 'system' works. The structural differences between the RDAs in NSW and WA result in some variation in the way in which the board role is experienced in each of these states. However there are a number of issues arising from this analysis of interviews of board members that are common to both state based RDAs. One of the most significant issues in this analysis is that board members are reticent to define their understanding of regional development and that there does not appear to be a shared understanding of what is regional development amongst board members. This raises the question as to how board members can establish shared meaning. It seems that when board members come with disparate views of regional development, into a policy framework and set government priorities that may conflict with how the regional needs are perceived, board members often experience a sense of disorientation about the work of the board. Different expectations results in uncertainty about what difference the board and the agency can make in a region. When this is coupled with what is perceived to be political interference, board members are likely to report the boardroom experience as tokenistic. It seems that unless this reality of competing interests and political and administrative constraints is voiced, skilled and committed board members will continue to feel under-utilised in board roles. For these boards to deliver good governance the creation of in-depth and shared understanding of regional development and the work of the board seems fundamental.

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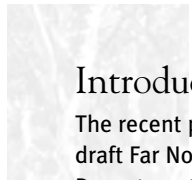
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A Region Back on the Rails? Passenger Rail and Regional Development on the NSW Far North Coast


Frank Stilwell and Stephen Paillas



Introduction

The recent publication of the NSW Government's draft Far North Coast Regional Strategy (NSW Department of Planning 2006) provides a timely and interesting context in which to examine the NSW Far North Coast region. At stake are issues of regional governance and planning, spatial economic growth, environmental sustainability and social development. Public infrastructures, though apparently beyond the scope of the Government's current report, warrant particular consideration because they play such a central role in regional development. The Casino to Murwillumbah railway, which was closed in May 2004 because of its apparent lack of commercial viability, makes for an interesting case study. Was the closure of the train service necessary, even though the region is experiencing rapid population and economic growth? Are there other options whereby public rail transport could serve the needs of balanced regional development?

This article examines the region and the rail closure from a political economic perspective. It examines the Regional Strategy, explains the railway line closure, looks at the campaign for its reopening, and situates these concerns in a broader analysis of the forces impacting on regional development.



The Region and the Regional Strategy

The FNC Regional Strategy (NSW Department of Planning 2006) is largely a response to the

pressures that rapid population growth has placed on the region during the last two decades, and is expected to exert in the future. The Government's figures project a 26 per cent population increase by 2031 - an additional 60,400 people, bringing the regional total to 289,000. Contained within this growth will be a large proportional increase in the number of people older than 65, and a relative decline in both the number of young residents, and in the level of workforce participation - estimated to fall to 54 per cent. This population growth, combined with the tourist growth which is expected to continue, will be focused in the coastal Shires of Ballina, Byron and The Tweed. By concentrating growth in the main centres, the strategy purports to safeguard the scenic and cultural value of the region - restricting urban sprawl and preserving the Far North Coast as a 'region of villages' (NSW Dept of Planning 2006).

With regard to the region's main rail corridor - that between Casino and Murwillumbah - the Strategy has interesting aims. The ambition to retain the area as a 'region of villages' throughout its coming expansion reflects the character and scenic and cultural value of the regional settlements. The railway happens to pass through a large number of these villages, e.g. Bangalow, Billinudgel, Binna Burra and Byron Bay. Figure 1 shows its route and relationship to the region.

There is little doubt that economic growth resulting from population and tourist increases will continue to be focused in the coastal shires, and in the service industries of health, aged care, construction and tourism, as has been the case in recent years. The decline of traditional industries such as timber, sugar and dairy production has been partly offset by an expansion in modern horticulture, but the dominance of the quite narrowly focused service sector, and the coastal orientation of the Northern Rivers economy is clear. These developments have caused a significant change in the economic base (Beer et al. 2003, pp. 77-78). The economy has become less stable, more volatile, and more heavily dependent on a constellation of topographical, climatic and 'lifestyle' growth factors. As circular and cumulative causation theory (Stilwell 1992, Ch.6) would suggest, there is a self-sustaining cycle of growth occurring on the NSW Far North Coast. The questions are whether it is in all respects beneficial and how to cater for it most effectively.

The particular economic character of the region, as described above, generates some of its problems. Despite overall population and economic growth, the pressures of high unemployment, social dislocation and environmental strain continue to be felt. According to data from the Australian Taxation Office and the 2001 Census, collated by the Commonwealth Department of Transport and Regional Services (2003), the level of unemployment in the region is almost double the NSW average, annual personal income is around \$10,000 below the State average, and the dependence of households on income support payments is accordingly high. Table 1 presents this evidence. The social stresses that these economic hardships place on individuals and households are significant, including poverty, poor health, physical isolation and social exclusion.

Table 1: Key Indicators of Socio-economic Disadvantage in the NSW Far North Coast Region

| | Far North Coast | NSW Average |
|--|------------------------|--------------------|
| Average annual personal income (\$) | 29,007 | 38,954 |
| Unemployment rate (%) | 10.3 | 6.0 |
| Proportion of residents 15 years and older receiving income support (%) | 41.1 | 27.2 |
| Single parent families as a proportion of households (%) | 19.1 | 14.1 |
| Proportion of people older than 65 (%) | 17.2 | 13.0 |

Source: Commonwealth Department of Transport and Regional Services 2003

Note: The FNC region refers to the Local Government Areas of Ballina, Byron, Kyogle, Lismore and Tweed.

The relationship between socio-economic disadvantage and 'transport disadvantage' is also significant. The latter refers to people who suffer a lack of geographical mobility. Elderly people, youth, those with disabilities, single parents, Aboriginal communities, households without cars and the unemployed typically suffer the most from transport disadvantage. As has been found in past

investigations (Northern Rivers Regional Strategy 2002), the FNC region has a high proportion of people who are particularly liable to suffer from transport disadvantage. Physical isolation prevents access to important social, health and educational services, and entrenches the spatial social and economic marginalisation of those who suffer from it.

The plight of these people is not improved through the simple expansion of road networks, as it makes them increasingly dependent on community transport services - themselves inherently stretched. Expanded public transport networks do not necessarily solve the problem of regional socio-economic disadvantage either but, to the extent that they facilitate the mobility of these people, they can function as a core element of social and economic infrastructure with social equity effects.

The NSW Government's Far North Coast Regional Strategy fails to account thoroughly for these public transport needs of the region. Moreover, the Strategy has not given priority to improving the socio-economic predicament of marginalised residents in the region, seeking only to 'inform' future government decisions on infrastructure investment. Its more active intervention concerns the future zoning of residential development. The bulk of the population growth, according to the plan, will be absorbed by Ballina, Lismore and Tweed Heads, so as to prevent over-development in coastal areas, and to preserve the culture and character of the 'region of villages'. The most obvious message from the report relating to transport is that the Pacific Highway will continue to be the funding priority (NSW Dept of Planning 2006, p. 34); and remain the dominant land transport artery of the region. This will generate increased freight and passenger movements on local roads, and will tend to entrench existing patterns of transport and socio-economic disadvantage.

The Casino to Murwillumbah Railway Closure

It is in this context of rapid population growth, population ageing, coastal strain and continuing socio-economic inequalities that the decision of the NSW Government to close the coastal railway between Casino and Murwillumbah was so significant. Historically used to move sugar and dairy produce between the Tweed and Richmond Rivers, the line had become progressively less freight and more passenger-oriented when the standard gauge rail connection to Queensland was constructed further inland (rather than extended north from Murwillumbah), and as these industries

increasingly came to prefer road freight. Indeed, by the time the line was closed in 2004, the daily Sydney-Murwillumbah XPT passenger service was its sole remaining patron. The relatively small proportion of local passenger movements on that service was a major contributor to the line's image within NSW RailCorp and the Ministry of Transport as a liability rather than an asset.

The official justification for the closure, as given by then NSW Government Transport Minister Michael Costa, focused on the line's lack of commercial viability. Specifically, it was seen that a lack of cost recovery, relative to high operational and maintenance costs, rendered it an unjustifiable drain on public funds. The Minister estimated that the closure would produce an annual operational saving for CountryLink of \$5 million, and line maintenance savings for RailCorp of \$188 million over the next 20 years (Press release, 07/04/04). RailCorp had reported a 36 per cent drop in patronage between 1998 and 2004, with 92 per cent of the passengers still using the service being (mostly pensioner) concession card holders (PricewaterhouseCoopers 2004, p. 11). It also stated that, despite the overall good condition of the line, many of its almost 200 bridges needed significant repair or replacement - hence the estimated funding requirement of \$188 million over the next two decades for its continued maintenance.

As the NSW Parliamentary Committee investigating the closure late in 2004 found, maintenance funds had been systematically funnelled away from the line by the Rail Infrastructure Corporation, allowing its deterioration and increasing its subsequent maintenance requirements (NSW Standing Committee #4 2004, p. 45). More generally across the State, capital investment in CountryLink has also been in steady decline since the early 1990s, while rail policy decisions remain notably Sydney-centric. (Gray 2004, p. 9; Laird et al. 2001).

The NSW Transport Minister's figures for the required maintenance costs of the line are not consistent with the results of the feasibility study, funded by the Commonwealth Government and conducted by PricewaterhouseCoopers (PwC), which estimated a far more modest figure of \$28.8 million over seven years in order to reinstate operations on the line (PwC 2004, pp. 52-53). Table 2 contrasts these and other cost estimates. The NSW Parliamentary Inquiry found that the great

discrepancy was largely due to the use by RailCorp of a generic bridge replacement formula of \$20,000 per metre that did not consider cheaper alternatives relevant to parts of the line. The operational savings are also likely to have been overstated by the NSW Government because it did not foresee the immediate drop in patronage that followed the replacement of the rail service by a road coach service. It also appears not to have included the complete cost of the road coaches, line maintenance

and the Casino interchange.

Furthermore, it made overly optimistic assumptions regarding savings on train crew working hours (NSW Standing Committee #4 2004). The Standing Committee's final report, like the earlier PwC (2004) findings, indicated to the Government both the desirability and feasibility of expanding passenger services on the Casino to Murwillumbah line. However, it seems that the Transport Minister had made a final decision and would not be moved by

Table 2: Competing Estimates of the Costs of Reopening the Casino to Murwillumbah Railway

| | NSW Government 2004 | NSW Government 2006 | Pricewaterhouse Coopers | Northern Rivers 'Trains for the Future' |
|------------------------------------|--------------------------------|------------------------------------|------------------------------------|--|
| Cost to reopen the line | \$188m over 20 years | \$150m over 5 years | \$28.8m over 7 years | \$28.8m over 7 years |

Would a continuing subsidy of any sort be justified? Set in a broader context, it is important not to lose sight of the fact that the subsidisation of country rail services in NSW is commonly accepted, as it is also for rail in the Sydney metropolitan system. One reason for subsidy is the high rate of concession-based travel which, in the case of the Casino-Murwillumbah service, suggests that the social value provided to residents and visitors in the region is greater than the analyses of the RailCorp and the Ministry of Transport acknowledged. A general case for subsidy can also be made on environmental and energy policy grounds, to the extent that rail travel is less fuel-using per passenger kilometre than private car transport. Yet the Transport Ministry, particularly following the Parry Inquiry into sustainable transport (Parry 2003), has subordinated considerations of social and environmental impact to commercial imperatives. Parry's final report effectively gave licence to the Minister to cut back CountryLink rail services which were 'not viable on economic or commercial grounds' (Parry 2003, p. x). According to this reasoning, historical attachments to rail should not obscure rational economic decision-making.

Despite initially granting a 12-month reprieve to all CountryLink services, Minister Costa took Parry's words to heart, closing the Casino-Murwillumbah service only months later. The dismissal in 2005 of

Parry's country rail recommendations by incoming Transport Minister John Watkins (Press release, 27/10/05), and his assurance that all other services would continue, did not include any apparent interest in reversing the decision to close the Casino-Murwillumbah line.

Of course, politics as well as economics is always relevant in an issue such as this. The political circumstances of the closure, and the community reaction to it, illustrate that the political stakes of regional rail are high in this case. Minister Costa met strong opposition from all opposing political parties and independents, from within the government (in the form of Country Labor), and from the local community in the form of large rallies held in the region. Both major parties in the run up to the October 2004 federal election offered financial support for the reopening of the line, and the more generous commitment promised by the ALP under Mark Latham's leadership may well have played a part in the unseating of National Party incumbent Larry Anthony in the seat of Richmond - although the ALP was comprehensively beaten in the federal election. The NSW Government under the leadership of Bob Carr had always claimed that the railway closure was a direct result of a 'Commonwealth rip-off' whereby NSW was unfairly treated in the inter-state distribution of GST revenues.

the presentation of this evidence.

State Minister Costa rode out the storm (and was eventually promoted to the State Treasurer's role), and the line remained closed.

The resoluteness of the NSW Government on this issue is notable, given the amount of community opposition that emerged, and the political threat that this constituted. The affected State electorates were mostly held by the National Party, and so in that sense the Labor government had little to lose. However, the anger generated among many people in the region, and the leverage the issue gave to the opposition parties in the Parliament was significant. Such was the backlash that the fights for other lines in NSW, such as those to Armidale and to Newcastle - also targeted by the Parry Report - were won, and sitting members are no doubt thankful for the NSW Government's change of heart in those cases.

The Campaign for Reopening the Railway

The future of many CountryLink rail services in New South Wales was placed under a cloud by the Parry Report. Regional communities were filled with fear as Minister Costa toured the state inspecting railways, and many mobilised rapidly in opposition to the threat of closures. The successful defence of the Northern Railway to Armidale, and later the dropping of Parry's CountryLink recommendations, were largely attributable to the campaigns that arose to fight against country rail closures. These were not industrial, union-led campaigns, because not a great number of jobs were directly at stake. They were community campaigns, coordinated and led by local community members and local media, and generating widespread support by local people. This influenced the actions of the NSW Government, whose subsequent withdrawal from pushing ahead with other line closures reflects the potency of grassroots regional pressure.

The campaign for the Casino-Murwillumbah railway continues to receive substantial local support, even more than two years after the closure of the line. The community organisation Northern Rivers Trains for the Future (NRTF) was established in 2003 to advocate for the expansion of rail services in the region. Since the closure it has continuously

campaigning at the local level, and has petitioned the NSW Government for the reopening of the branch line. The ongoing enthusiasm with which the campaign has been run and received is notable. NRTF's ongoing presence at local community events, regular media interest and an ever-growing petition, are keeping alive an issue which the NSW Government presumably hoped would be accepted as a fait accompli. The recent commitment by NSW Opposition Transport spokesman Barry O'Farrell to immediately reopen the line in the event of a Coalition election victory in 2007 adds further weight to the cause (Goodwin 2006).

The NSW Government's Infrastructure Strategy (NSW Treasury 2006), released in May 2006, contained little to suggest it had reconsidered its position on the Casino-Murwillumbah line. However, in late June 2006 Transport Minister John Watkins announced that the NSW Government would commit \$75 million towards the reopening of the line and the reinstatement of the XPT, providing the Commonwealth contribute another \$75 million (Press release, 26/06/06). Whether or not this was a calculated political bluff ought to be considered. The announcement came in the State electorate of Tweed (the most marginal ALP-held seat in the State). The Federal Government is currently unlikely to match this bid, so there is no immediate prospect of a change in policy regarding reopening the line. However, whatever Watkins' motivations, the merit of simply returning to the old XPT service is questionable. For the \$75 million which is apparently available, NRTF argues that the Government could reopen the line for a service that provides a better utilisation of the infrastructure, and a greater benefit to the community - a local commuter service.

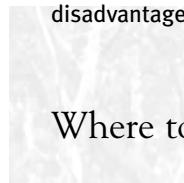
Those campaigning for the reopening of the Casino-Murwillumbah railway do not seek a return to service of the Murwillumbah XPT, as it operated prior to May 2004. Rather, they advocate a light rail commuter service, which could satisfy demand for intra-regional travel in a way that the former single-service, night-time XPT never could. This option was recommended initially by the PwC study and reaffirmed in NRTF's recent 'TOOT (Trains on our Tracks) NOW' plan. It would operate independently on the line, continuing to meet with the XPT at Casino, as the road coaches currently do, but would also run up to eight daily services each way. PwC (2004) and the subsequent NSW Parliamentary

Inquiry (2004) found that the current, and growing, potential patronage of such a service warranted that sufficient funding be made available for its establishment. These recommendations implied that both the Parry Report and the NSW Government had failed to acknowledge the social and environmental benefits of public passenger rail in the Northern Rivers region. A reduction in road accidents and injuries, and fewer negative environmental impacts of the local transport system, combined with the improved mobility of many transport disadvantaged residents, are the core concerns justifying a regular rail service for the region.

Given the population growth and ageing which the NSW Government forecasts suggest, the passenger market for public transport in the region looks set to expand further. Combined with the growing costs of car dependency, these factors would enhance the commercial viability of a commuter rail service to the extent that they encourage public transport patronage. Even on a narrower financial 'bottom line' the case for the reopening can be persuasive. That the costs of line maintenance and upgrading given by government at the time of the closure (\$188m over 20 years) were inflated is commonly accepted. The RailCorp executives stood by their original estimates during questioning by the Parliamentary Inquiry (2004) which followed the release of the much lower PricewaterhouseCoopers estimates (PwC 2004, p. 53). It was found that, whilst some initial repairs were urgent, a seven-year outlook of line repairs (sufficient for the removal of speed restrictions) would require only \$4m per annum (PwC 2004) - much less than the RailCorp annual estimate of \$9.4m. NRTF (2006) also challenges the government's infrastructure cost estimates, arguing that complete bridge replacements would have a lifespan of closer to fifty years than twenty years, essentially halving the projected long-term cost of the line to \$5m per annum. It also suggests, as the PwC report did, that the use of a lighter train could reduce these costs further.

The ability of a passenger railway to operate as a central, non-road artery for the Far North Coast's transport system, and to improve the affordability and sustainability of passenger movements throughout the region, are its key attractions. The current, coordinated push from the Northern Rivers Regional Organisation of Councils (NOROC), the

Northern Rivers Social Development Council (NRSDC) and the Northern Rivers Regional Development Board (NRRDB) for a comprehensive, inter-modal transport plan shows the local concern to improve the regional transport system. A better public transport system could strengthen the fragile economic base of the region, could encourage a redistribution of residential and tourist growth, and could help to reduce socio-economic inequality by reducing the physical isolation of the transport disadvantaged.



Where to From Here?

The economic fragility of the Far North Coast region has been emphasised. Improved infrastructure aiding the mobility of people and goods could help to strengthen its economic and social base. Yet the transport and regional planners in NSW have yet to act effectively on this link, tending instead to replicate the policies which have led to mass car dependency and urban sprawl in Sydney. The NSW Government's metropolitan strategy of late 2005 (NSW Dept of Planning 2005), espousing Sydney as a 'city of cities', makes for an uncomfortable parallel with the 'region of villages' in the Far North Coast Strategy. However, unlike in the case of Sydney, where potential transport corridors are prohibitively expensive and planning options highly constrained, alternative futures are more evidently feasible for the FNC region. The 'hard' economic properties of public transport can contribute to more stability in the regional economy, whilst its 'soft' social character can act as an effective method of community welfare.

The political and institutional barriers to more effective transport and regional planning remain the greatest forces working against the realisation of this improved economic, social and environmental outcome for the region. To this point in time, the NSW Government has felt insufficient pressure to reopen the railway. The political gains available through spending large amounts of money in a region which is dominated by the National Party are evidently seen to be less than those in more marginal metropolitan seats. Neither the unified political opposition of Liberals, Nationals, Greens and others, nor the ongoing community campaign on the Far North Coast represent a potent enough

political threat to force the Government to change its position. Equally, the centralised institutional structures which provide the basis for decisions on transport and regional planning continue to work against a more sensitive analysis and policy prescription for specific regions. They have long prevented a more effective policy for public transport in Northern NSW (Mees 2000, p. 283).

The NSW Government's Far North Coast Regional Strategy engages with the rhetoric of regional stability, social and cultural development, and environmental sustainability, yet it offers little policy commitment to upholding these ideals. A government that is prepared to invest strategically in order to influence regional economic change has a greater chance of achieving spatial equity and sustainability. The Casino-Murwillumbah railway might form the backbone of a dynamic public transport system in this growing region. It is in the eventual interests of the community and the polity alike to invest in this infrastructure, so that the social, economic and environmental benefits flowing from it can be felt in the future.

More general implications can be drawn from this case study too. As previous analyses of regional development have shown, orthodox economic prescriptions for the facilitation of competitive regionalism and natural spatial growth and decline have offered little benefit to non-metropolitan regions in Australia (Beer et al. 2003; Gray and Lawrence 2001). The NSW Far North Coast Regional Strategy shows that current policy makers have not learned the lesson about the inability of market mechanisms to deliver sustainable regions - particularly in social and ecological terms - in the absence of more long-term transport policy and infrastructure investment. To achieve regions of greater economic stability and social equity requires consideration of redistributive government intervention, and recognition of the role of public transport in achieving better regional outcomes.

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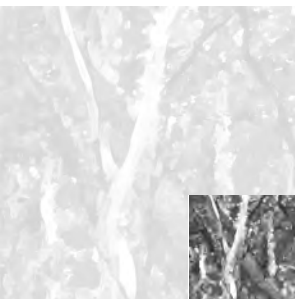
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Valuing the Coast and Marine Environment: Lessons from Wales¹

Stephen Hill and Diane O'Sullivan

Introduction

Explaining the spatial distribution of economy activity is the central quest of regional science, and the necessary framework for regional policy. Contemporary analysis tends to view economic development and environmental sustainability as competing objectives, with sustainability constraining economic development (Papers in Regional Science 2003). Not least because of the Welsh Assembly Governments sustainability remit, there is now a developing body of knowledge on the relationship between economy and environment, using Wales as the context. This work is not only specific in estimating levels of economic activity in relation to the environment; it is also realistic in pointing to both competition and complementarities between economic and environmental priorities. The overarching theme was established by the Valuing Our Environment (VoE) project in Wales (Bilsborough and Hill 2003), which provided an evaluative framework for the estimation of various economic dimensions of the wider environment. Examples of work to extend and develop this framework include Hill and O'Sullivan, 2002 and 2004. These works reflect an intention to go beyond debates about the nature and meaning of sustainable development by giving real

substance to the economic significance of the environment and vice-versa.

The purpose of the current work is to assess the economic contribution of the Marine and Coastal environment within this broad framework. The motivation for this study rests with increasing awareness of the significance of the marine and coastal environment, both to the economy and to the policy context. In England there has been much discussion about the decline of the traditional seaside town, including the need to diversify into areas such as gambling. Meanwhile small island economies, by definition coastal in nature, have come under the regional analysis microscope (Armstrong et al. 2006). In Wales this interest is reflected in emerging embryonic coastal and marine policies and strategies. The Welsh Assembly Government's (WAG) vision for the marine environment of Wales is that

it will be valued by all, understood and respected for what it contains and provides. Our seas will be clean, support vibrant economies and healthy and functioning ecosystems that are biologically diverse, productive and resilient, while being sensitively used and responsibly managed.

¹This paper is based on work sponsored by the Countryside Council for Wales and its partners. Earlier versions of this paper were presented at regional science conferences in Jersey and Beechworth. The authors are grateful for the constructive comments received and to Gabor Horvath and Rob Griffiths for their inputs.

The WAG Environment Strategy (WAG 2006) recognises that

the land and sea provide us with key resources and support a variety of industries and economic activities. Landscapes and seascapes are also used for enjoyment and provide the scenic backdrop that attracts tourism and enhances the quality of life of the people of Wales.

In England, the Office of Deputy Prime Minister recently sought evidence on the condition of seaside towns. Within this evidence the Regional Development Agencies summarised common social and economic challenges as:

- Social isolation due to rurality and peripherality.
- Low wage, low skill economy and seasonality of employment.
- High dependence on a single industry.
- Out-migration of young people.
- Higher than average residents aged over 65 years.
- Poor transport infrastructure.

(Memorandum: English Regional Development Agencies, ODPM, March 2006)

This paper sets out estimates of jobs (employment plus self-employment) in Wales that are appropriate to a specific definition of the Marine and Coastal environment. In the original VoE study three categories of contribution of the environment to economy were defined and assessed:

- Activities concerned with protecting and enhancing the environment.
- Activities making intensive use of one or more elements of environment as a primary resource.
- Activities dependent on the quality of the environment.

None of these fit neatly into standard disaggregations of the economy. The adopted solution was to map, as closely as possible, the definition of the marine and coastal environment onto standard industrial classifications, using

appropriate adjustment where necessary. The task was to derive estimates of direct employment for the marine and coastal environment that can provide the basis for the subsequent assessment of the outputs and incomes associated with these jobs, as well as a framework for the estimation of indirect outputs, jobs and incomes.

Studies of the coastal and marine economy are rare, but not entirely absent. One study of the economic significance of the UK marine environment estimated a Gross Domestic Product (GDP) contribution of £38.9bn in 2000, or almost 5 per cent of UK GDP. This figure provides a benchmark for the current study, although differing definitions make direct comparison difficult. The composition of this previous estimate is set out in Table 1

Table 1: Turnover and Value Added by UK Marine Sector

| £m | 1999-2000 | |
|--------------------|-----------|-------------|
| Sector | Turnover | Value Added |
| Oil and Gas | 20,597 | 14,810 |
| Leisure | 19,290 | 11,770 |
| Defence | 6,660 | 2,531 |
| Business Services | 4,535 | 1,080 |
| Shipping | 5,200 | 2,400 |
| Ship building | 3,172 | 1,574 |
| Equipment | 2,326 | 1,358 |
| Fisheries | 2,447 | 825 |
| Environment | 1,050 | 435 |
| Ports | 1,690 | 1,183 |
| Construction | 500 | 190 |
| Research | 609 | 292 |
| Telecommunications | 500 | 190 |
| Safety | 316 | 129 |
| Crossings | 155 | 87 |
| Aggregates | 131 | 69 |
| Education | 49 | 25 |
| Total | 69,227 | 38,948 |

Source: Pugh and Skinner 2002

In 2002 the Scottish Executive sponsored a study of the socio-economic condition of Scotland's coastal areas. Its main findings were that:

The coast is an important economic area of Scotland that is not usually investigated as a discrete area. Coastal regions face a series of significant socio-economic pressures, such as unemployment, social instability, deprivation and economic competition.

In order to better inform the developing national coastal strategy, this research sought to provide a more detailed understanding of the social and economic make-up of Scotland's coastal areas, how the coastal population in different regions of Scotland is changing and possible future directions for coastal communities. (Scottish Executive 2002)

Each of these studies had very different objectives to the current work. The first sought to assess the economic contribution of marine-related activities to the UK economy, enabling access to UK-wide data that is not always available at a Wales level, still less within coastal areas. More particularly, defining activities as marine-related allowed a Standard Industrial Classification (SIC) based approach that is impossible to replicate at a regional level - for example, maritime insurance is a definable and measurable activity at a UK level, but not separately assessable at a regional level. Moreover, given its spatial concentration in the South East of England, distributing such employment across UK regions on the basis of population or workforce shares would be seriously misleading.

Definitions

Many of the activities set out in Table 1 are less relevant on a regional scale - as noted above, much of the UK's marine-related financial and business-services are based in the South East of England, and have little relevance to a marine and coastal environment-based study for Wales. Rather, this current study focuses on marine and coastal activities that can be attributed to the three categorisations set out earlier.

In order to operationalise these categories, it is necessary to first define the marine and coastal environments. The definitions used by this study are set out in Table 2.

Both definitions are functional, seeking to provide a rationale to distinguish between activities, particularly in relation to the coastal environment,

and keeping in mind the overall objective of assessing economic impact. A major part of the work reported here involves translating these definitions into measurable entities.

Table 2: Defining the Marine and Coastal Environment

Marine – ‘those activities which involve working in or on the sea’, and
Coastal – ‘those activities involved in the production of goods or services that take place on land but depend on proximity to the sea’.

Table 3: Marine Environment Sectors

| Marine Sectors | |
|--------------------------|---|
| Oil and Gas | Ports/Marinas |
| Leisure and recreation | Fisheries |
| -holiday tourism | -sea fishing |
| -cruising | -fish farming |
| -leisure craft | -fish landings |
| -services | |
| Royal Navy | Marine environment research and development |
| Marine business services | Aggregates |
| Shipping | Safety and salvage |
| Shipbuilding/repairs | Marine education/training |
| Marine equipment | |

Tables 3 and 4 set out some implications of these definitions in the context of available information. Essentially data for Wales have been sought on all of these activities in relation to the marine environment, and for specified activities in Welsh coastal local authorities in relation to the coastal environment. In the latter case it is dependence on proximity to the sea that determines inclusion. Merely being beside the sea is itself not sufficient.

Note however job information for these categories is not available directly and must be inferred from other data. Moreover whilst coast and marine are separately identified in these tables, some activities may fit into both.

Table 4: Coastal Environment and Sectors

| Coastal Sectors | |
|---|---|
| Protect/enhance: -National Parks -coastal defence -water quality Quality: -leisure/tourism -education/ courses -maritime -heritage | Intensive users: -steelworks -oil refining -power stations/ renewables -ports -fish processing -dredging |

The next step was to limit definition of the coastal environment to those parts of Wales with significant amounts of coastline: that is, all those Welsh local authorities with a shoreline. Powys, with several hundred metres of tidal river, was excluded on this definition. As a result fifteen coastal local authorities were identified around Wales, from Monmouthshire to Flintshire.²

Operationalising these definitions

The common categorisation for industry sectors is the Standard Industrial Classification, regularly re-defined and agreed internationally to ensure cross-country comparability. The latest UK version is for 2003 and is referred to as SIC 2003. The operationalisation task is then to map the sector definitions onto the categorisations of SIC 2003. For some of the categories identified, the whole of that activity can be attributed to the coast or marine environment, such as the extraction of gas or oil, wholly offshore activities. For other activities, that

part attributable to the coast and marine environment may be a small component of the whole. An example is Higher Education (SIC 80.30) where only a small amount of teaching, research and commercial activity can be attributed to the coast and marine environment. Hence a proportion of total activity had to be allocated, based where possible on the best available information. In this case, a search of teaching, research and consultancy activities across universities in Wales revealed relatively few courses connected with the defined coast and marine environment, although with some significant research activity at one university (Bangor). Hence the allocated proportion of Higher Education employment in Wales was low.

There are similar problems in the estimation of coast and marine environment tourism related employment. In terms of 2003 SIC, coast and marine environment tourism-related activity includes some (but by no means all) of hotels and restaurants employment, some library or heritage activities etc. Fortunately the UK Annual Business Inquiry (ABI), the standard source of activity information, now includes a tourism-related category, incorporating hotels, restaurants, bars, travel agents and some leisure activities. However a large part of these activities are resident or business-related, rather than dependent on the quality of the coast and marine environment. The issue of defining and measuring tourism-related activity will re-emerge later. Tourism, of course, is a demand activity, rather than a production activity of the sort normally captured in SICs.

Estimating coast and marine environment-related direct employment

For each of the identified activities, data were collected from the Annual Business Enquiry (ABI) on employment levels in 2004 in each of the fifteen identified coastal local authorities in Wales, with aggregate results shown in Table 5. Note that for some categories total sector employment is shown in Table 5, whilst for others only a proportion of sector employment is included. In the case of tourism-related jobs, Wales Tourist Board (now Visit Wales) advised that around 37 per cent of tourism-related economic activity in Wales could be

²Anglesey, Bridgend, Cardiff, Carmarthenshire, Ceredigion, Conwy, Denbighshire, Flintshire, Gwynedd, Monmouthshire, Neath Port Talbot, Newport, Pembrokeshire, Swansea and Vale of Glamorgan.

attributed to the seaside - hence this proportion was used to scale down the employment estimates. Similar scaling affected the Construction, Technical Business Services, Higher Education and Public Security and Defence sectors. Note that the sum total of these allocations is just a small proportion of total estimated sector employment.

For the metal manufacturing sectors, local authority level data allowed one large steelworks (Llanwern) to be excluded on the grounds that it was not dependent on proximity to the sea, whereas another, (Port Talbot) with its deep harbour, clearly was. Note that Table 5 is itself derived from more detailed information at both local authority and sector levels, and that it refers exclusively to employees in employment. Then specific sectors such as Fishing and Related, with high proportions of self-employment, are seriously under-represented in Table 5. This issue is considered more fully below.

According to Table 5, the coast and marine environment in Wales provided over 52,000 employee jobs in 2004, of which over 41,000 were full-time and nearly 11,000 part-time. Of these total jobs, over half were from the tourism-related sector, although many of these were part-time. Indeed tourism provided nearly nine out of ten of all part-time employee jobs directly associated with the coast and marine environment, but well under a half of all full-time jobs. Other significant employers included metal manufacturing, followed by construction and energy.

However Table 5 does not yet reveal the estimated full direct employment effects of the defined marine and coastal environments. Table 5, sourced via an annual survey of employers, only includes employees in employment and hence fails to capture the numbers of self-employed, which are certainly significant in some of the defined sectors. Direct data on self-employment by the defined sectors across local authorities in Wales was not available and had to be estimated.

The level of self-employment varies considerably by sector - hence the level by local authority will depend largely on the industrial structure of the economy in that authority. Data are available on levels of employment and self-employment in each

Table 5: Number of Coast and Marine Employee Jobs by Sector in Wales 2004

| Sector by SIC | P/T | F/T | Total |
|--|--------|--------|--------|
| Fishing and related | 15 | 86 | 101 |
| Extraction of oil and gas | 0 | 28 | 28 |
| Sand dredging and salt production | 26 | 592 | 618 |
| Oil refining/treatment of petroleum | 11 | 844 | 855 |
| Metal manufacturing ex Newport | 39 | 6,920 | 6,959 |
| Building/repairing of ships and pleasure boats | 62 | 493 | 555 |
| Electricity gas and water | 152 | 2,832 | 2,984 |
| Construction | 335 | 5,488 | 5,823 |
| Tourism related activity | 9,350 | 17,107 | 26,457 |
| Coast and marine related transport | 357 | 2,509 | 2,866 |
| Technical business services | 151 | 662 | 813 |
| Public security | 157 | 2,776 | 2,933 |
| Marine/coast related higher education | 20 | 30 | 50 |
| Water/sewage treatment | 83 | 1,008 | 1,091 |
| | 10,758 | 41,375 | 52,133 |

Source: ABI/NOMIS

local authority from the annual labour force survey. Self-employment is typically higher in sectors such as fishing and some tourism-related sectors such as retail, hotels and catering. These data were used to estimate the proportion of the workforce (defined simply as employment plus self-employment) that was self-employed, ranging from a low of 6.4 per cent to a high of 24.2 per cent. The assumption was then made that self-employment in coast and marine-related sectors would match the average rate for that local authority as a whole, allowing the estimation of scaling factors to convert employment into workforce (i.e. including self-employed). A similar process allowed tourism employment estimates for each coastal area to be translated into that part attributable to the coastal economy, adjusted for self-employment and then converted into full-time equivalents.

Direct Jobs in the Coast and Marine Sector

The final stage in this part of the estimation process was to bring all this information together in order to

provide estimates of employment and self-employment by sector and area in Wales in 2004. This is reflected in the tables below, expressed in terms of full-time equivalent jobs, through the simple assumption that two part-time jobs are equivalent to one full-time job. Note the addition of self-employment figures for each local authority, estimated in proportion to the share of coast and marine employment in total employment in that local authority. Hence estimated self-employment reflects both industrial structure and the relative importance of coast and marine employment.

The total number of estimated direct jobs (employment plus self-employment) sum to over 52,000 full-time equivalents, or some 6 per cent of total jobs in Wales. Table 6 summarises estimated Coast and Marine jobs across the three coastal areas of Wales, each defined as an aggregate of relevant local authorities. Collectively the sectors directly provide over 40,000 full-time employee jobs and nearly 7,000 self-employed jobs as well as almost 11,000 part-time jobs. The West has the highest number of total sector jobs, largely because of the high number of self-employed.

Table 6: Coast and Marine Jobs by Region of Wales

| | Part-time | Full-time | P/T + F/T | Self-employment | Total No. | Total Per cent |
|------------|-----------|-----------|-----------|-----------------|-----------|----------------|
| North | 3,270 | 11,178 | 12,813 | 2,271 | 15,084 | 29.0 |
| West | 3,684 | 14,529 | 16,371 | 2,693 | 19,064 | 36.0 |
| South East | 3,998 | 14,459 | 16,458 | 1,803 | 18,261 | 35.0 |
| Total | 10,952 | 40,166 | 45,642 | 6,767 | 52,409 | 100.0 |

The relative employment position of the coastal and marine economy is shown in Table 7. The relative importance of marine and coastal employment ranged from under 4 per cent in Bridgend to 11 per cent in Anglesey, around a Welsh average of just under 6 per cent.

Relatively high proportion counties included Neath Port Talbot (because of the steelworks) and Pembrokeshire, while low proportion counties included Carmarthenshire, Ceredigion, Denbighshire and Monmouthshire.

Table 7: Coast and Marine as Share of Total Jobs

| ooo's | Total | | Coast & Marine | |
|-------------------|-------|----------|----------------|-----------------|
| Local Authority | Jobs | Jobs fte | Sector fte | Sector per cent |
| Anglesey | 27.9 | 23.0 | 3.1 | 11.1 |
| Bridgend | 57.6 | 50.1 | 2.0 | 3.5 |
| Cardiff | 137.4 | 115.9 | 8.7 | 6.3 |
| Carmarthenshire | 68.6 | 55.7 | 3.7 | 5.3 |
| Ceredigion | 33.1 | 26.1 | 1.4 | 4.2 |
| Conwy | 46 | 36.4 | 2.8 | 6.0 |
| Denbighshire | 41.4 | 33.8 | 1.9 | 4.7 |
| Flintshire | 72.1 | 62.3 | 3.8 | 5.3 |
| Gwynedd | 50 | 40.0 | 3.4 | 6.9 |
| Monmouthshire | 38.9 | 31.6 | 1.7 | 4.5 |
| Neath Port Talbot | 50.1 | 43.0 | 5.0 | 10.0 |
| Newport | 53.5 | 44.6 | 3.0 | 5.5 |
| Pembrokeshire | 46 | 36.3 | 4.4 | 9.5 |
| Swansea | 95.7 | 77.6 | 4.7 | 4.9 |
| Vale of Glam | 53.2 | 44.4 | 2.8 | 5.3 |
| Total | 871.5 | 720.7 | 52.4 | 6.0 |

Multiplier Effects ³

This section takes the job estimates above and uses these figures to estimate the direct and indirect output and value added supported by these jobs in the regional economy. The first issue to address was the distribution of the self-employment by coast and marine sector (rather than by local authority, addressed above). Here use was made of information contained within the Welsh Input-Output Tables (see Jones et al. 2003), which include an estimate of employment and self-employment by 74 defined Welsh industries. This was then used to distribute estimated self employment (totalling nearly 6,800 self-employment full-time equivalents [Table 7]) across the coast and marine sectors. Given total jobs by sector, the Welsh Input-Output Tables were then used to estimate gross output and value-added on the assumption of constant labour productivity by Input-Output sector, with the results shown in Table 8.

Table 8 highlights vast differences in the gross output supported per full time job. For example, the 892 jobs in oil processing and related support just under £450m of gross output, and £62m of value added. This reflects the very high levels of capital intensity in the industry.

³ We are grateful to WERU in Cardiff for conducting the analysis for this section.

Table 8: Employment and Estimated Output and GVA (£m 2004)

| Sector | FT Jobs | Gross output | Gross value added |
|---|---------|--------------|-------------------|
| Fishing and related | 207 | 5.6 | 2.4 |
| Fish processing | 49 | 6.1 | 2.0 |
| Extraction of oil and gas | 5 | 0.4 | 0.2 |
| Sand dredging | 558 | 84.5 | 29.0 |
| Oil refining/treatment of petroleum | 892 | 449.6 | 62.0 |
| Metals (ferrous) | 4,437 | 894.2 | 190.3 |
| Metals (other) | 1,855 | 503.8 | 114.8 |
| Building/repairing ships and pleasure boats | 538 | 91.0 | 30.6 |
| Electricity | 1,634 | 987.8 | 252.1 |
| Gas | 300 | 95.2 | 26.2 |
| Water | 690 | 149.8 | 90.6 |
| Construction | 9,570 | 457.9 | 172.6 |
| Tourism related activity | 25,113 | 626.3 | 351.5 |
| Coast and marine related transport | 2,662 | 163.4 | 67.9 |
| Technical business services | 859 | 43.4 | 27.8 |
| Public security | 1,899 | 126.2 | 62.4 |
| Marine/coast related higher education | 152 | 5.8 | 4.1 |
| Water/sewage treatment | 945 | 88.0 | 45.4 |
| Totals | 52,365 | 4779.0 | 1531.9 |

More labour intensive sectors including tourism have far lower levels of gross output per head (i.e. the estimated 25,000 jobs in the tourism sector in the coastal local authorities are associated with an estimated £626m of gross output and £352m of value added). Whilst tourism accounts for nearly half of the jobs in Table 8, it represents just 13 per cent of the gross output. The largest contributions to gross output are from oil refining (9.4 per cent of the total), ferrous and non ferrous metals (together 29.3 per cent), and electricity (20.7 per cent). In

total the coastal and marine-related employment is associated with an estimated £4.8bn of gross output and a little over £1.5bn of gross value-added, the latter being around 5 per cent of the Welsh total.

The information in Table 8 only provides a partial view of the significance of the employment and output in these sectors to the Welsh economy. Each of the defined sectors, through its input purchases and wage spending, has indirect consequences on

other parts of the economy which will depend on how that money is spent.

To estimate these indirect or multiplier consequences it is necessary to have a local economy framework that shows how the various industry sectors 'fit together' in terms of their trading relationships. This then allows the effects of activity in one sector to be traced through the entire local economy. The most comprehensive picture available of the Welsh economy is the Input-Output table,

essentially a spreadsheet detailing transactions between different sectors of the local economy and beyond. The methodological approach adopted here was to place the estimated direct effects of the industries (Table 8) into the context of the Wales Input-Output tables to estimate the indirect effects in the local and regional economy.

The results of this process are set out in Table 9.

Table 9: Direct and Indirect Effects of Coast and Marine Sectors

| | Output (£m) | Value-added (£m) | Employment (ftes) |
|---|-------------|------------------|-------------------|
| Direct Coast and Marine | 4,779.3 | 1,531.7 | 52,365 |
| Indirect and induced activity supported | 1996.7 | 925.3 | 40,267 |
| Total activity supported | 6,776.0 | 2,457.0 | 92,632 |
| Multiplier | 1.42 | 1.60 | 1.77 |

Table 9 shows that output in the defined coastal and marine sector indirectly supports an additional £2bn of output in the regional economy. Then, on average, each £1m of output in the coastal and marine sector supports an additional £0.42m of output indirectly in the regional economy (i.e. a multiplier of 1.42). This is clearly an averaging effect with some sectors having larger multiplier effects than others. For example, the output multiplier for oil refining/processing is just 1.23, partially reflecting the low local purchasing propensities of this sector. However, the fish processing sector has an output multiplier of 1.68 reflecting the greater use made of local inputs and services.

The £1.53bn of direct gross value added from the defined coast and marine sector supports an estimated further £925m in the regional economy.

In other words each £1m of coast and marine gross value added indirectly supports a further £0.60m.

Employment multipliers can also be estimated, and give the ratio of total employment (direct plus indirect) to direct employment. In overall terms the estimated 52,365 direct jobs in coastal and marine supported an estimated additional 40,267 fte jobs. In other words every 100 direct job in the coastal and marine sector supported an additional 77 jobs in the regional economy. Employment multipliers partly reflect the capital intensity of various coast and marine sectors. For example, oil refining has an employment multiplier of 3.26 - it is a small employment sector, but through its purchasing it supports employment in sectors which are more labour intensive. It is useful to examine the direct and indirect employment creation in terms of initial

coast and marine outputs. Then Table 9 suggests that each £1m of coast and marine output supports directly around 11 fte jobs, and indirectly a further 8 fte jobs, such that overall each £1m of coast and marine output can be associated with around 19 fte jobs in Wales.

Review of Selected Coast and Marine Activities

The analysis so far offers plenty of data in terms of jobs, outputs and value-added, but little appreciation of the specific context of coast and marine-related economic activity in Wales. This section draws on published reports, strategies and analyses to reflect the richness of the coast and marine environment in Wales, as well as identifying some challenges and opportunities.

Fishing

Fishing is an intensive user of environmental resources, with recreational fishing being subsumed into the overall tourism and leisure sector. In Wales the inshore sector has much higher economic significance than the offshore sector. The sector could contribute positively to 'the management and upkeep of the coastal environment, stimulating additional employment in processing and distribution, and adding the attraction of the Welsh coastline as a tourist destination' (Nautilus 2000).

Sea angling is an increasingly popular activity (including both boat and shore fishing), with three different activity periods - spring, summer and winter - of which spring represents the low season. A wide range of fish species is available, providing competitive fishing for anglers. The Welsh coasts are easily accessible and have high natural beauty. Sea angling attracts little official support and there is only limited information available on the fishing opportunities. Launching and landing facilities are generally poor, travel agencies have little interest in the sector and accommodation is often poorly tailored to the special requirements of anglers. There is relatively little marine aquaculture or

fish/seafood processing, although there are opportunities in niche markets

Wind power

The UK contains 40 per cent of the European Union's wind resource and Wales has some of the best wind speeds in Europe. In addition there are significant port and marine facilities, expertise and resources in Wales which could be utilised for the construction, operation and maintenance of offshore wind power (OWP) projects. There is also an industrial base to supply components for the wind industry based in North Wales. Developing OWP projects could result in growth of industry and local employment. However the Welsh coastline is environmentally sensitive, with Heritage Coast, National Parks and Areas of Outstanding Natural Beauty. Preserving the visual amenity is important for both residents and visitors. Further limiting factors include significant tidal ranges and wave heights, and water depths which can increase rapidly with distance from the shore. In addition, there is a limited opportunity to build onshore wind farms, because they impact upon areas valued for their natural beauty or biodiversity. Finally, the relatively sheltered waters of the Irish Sea mean that Wales has only 7 per cent of the UK total wave resources (Davies 1999).

Tourism

Tourism and recreation are generally dependent on a high quality environment to underpin their activities. The initial VoE report recognised this sector as one with considerable potential for growth in Wales, with the proviso that it should be accompanied by careful management to protect the very assets that people come to enjoy (VoE 2002). 2003 saw Wales host an estimated 4.4m seaside tourism trips (excluding day trips) with an average stay of 4.9 nights and an average spend per trip of £160, summing to over £700m. Over one-third of stays were in caravans, with one in six using hotels. One in five visitors stayed with family or friends, whilst camping and bed and breakfast accommodation together accounted for one in eight of all visitors (WTB 2003).

Wales has some of the finest natural resources for adventure sports of anywhere in the UK. Yet the market for water-sport adventure is underdeveloped. There is a need for improved access arrangements alongside the effective management of adventure activities to avoid damage to the natural environment and to minimise conflict between different interests (WTB 2002).

Coastal Management

According to English Nature (2004), the many benefits of a healthy marine and coastal environment range from fishing and food resources through flood protection, nutrient recycling, bioremediation of waste, and climate regulation to its contribution to cultural and spiritual values. The tools of economics are poorly placed to monetarise these benefits.

Local Issues and Opportunities

A brief survey of Economic Development Officers in coastal local authorities revealed a number of commonalities as well as some differences in terms of issues and opportunities linked to coastal location. The opportunity was also taken to access local knowledge about employment and self-employment in the defined sectors, acting as a check on the validity of the details outlined in the earlier tables.

Economic Development Minister Andrew Davies has argued that, in addition to tourism opportunities, the Welsh Assembly Government views 'the development of a vibrant marine industry as important in encouraging economic and community regeneration with significant opportunities for investment and business growth' (WTB 2003).

Local authorities in Wales recognise the potential for tourism development in particular, and water sports and coastal tourism in general, but are conscious of the potential incompatibility between more development (including wind power) and tourism. Government commitment to increasing

renewable energy production in the UK by 2010 has led to increased levels of applications for wind power development. However, the Wales Tourist Board and its successor remain resistant to visually intrusive onshore and offshore wind power generation.

Local authorities are also very conscious of the additional costs of a marine location, lifeguards, beach cleansing, harbourmasters, public safety, coast protection, and slipways were noted. In addition pressure for housing development on the coast is a regular source of tension around land-use planning.

Attempting to understand the real value in encouraging sustainable tourism development (such as cycle and heritage paths) and maximising the economic benefit to localities is an absorbing task. The quality of the marine and coastal environment appears to be a key consideration for all the Local Authorities responding to this project. What emerges is a clear acceptance of an inherent interdependence between effective economic development and environmental quality.

Wider evidence of the economy/environment relationship in coastal areas

There is an on-going debate about the best ways to measure and represent well-being, with increasing concerns about the limitations of traditional GDP (Gross Domestic Product) indicators and the emergence of alternatives such as the Ecological Footprint, Total Economic Value (TEV) and the Index of Sustainable Economic Welfare (ISEW). However to date no composite indicator has been able to accurately reflect the many dimensions of well-being and its economic, social and environmental characteristics.

Governments in both Wales and the UK as a whole have an increasing commitment to sustainable development. The UK sustainable development framework, supported by each of the devolved governments,

has set out 'One Future - Different Paths', (HM Government 2005). This establishes five guiding development:

- Living within environmental limits
- Ensuring a strong, healthy and just society
- Achieving a sustainable economy
- Promoting good governance
- Using sound science responsibly.

Others have taken notions of sustainability still further and have sought to assess the economic value of ecosystems, including the sea, by estimating the cost of equivalent goods, services and processes. Ecosystem services may be defined as: 'the range of conditions and processes through which natural ecosystems, and the species that they contain, help sustain and fulfil human life' (Daily 1997).

In 2005 the UK government published a report entitled 'The Economic, Social and Ecological Value of Ecosystem Services'. This examined available evidence and estimates, and concluded that the ecosystem has substantial economic, social and ecological value. In particular the coast and marine environment performs a number of important ecosystem functions including purification and detoxification, nutrient recycling, regulation and stabilisation and regeneration and production.

Attaching value to these functions is problematic, with a potential range of methodologies from direct market valuation (how much would the good or service cost to replace) to indirect valuation (typically through some willingness to pay assessment), and from contingent valuation (stated rather than revealed preferences) to group valuations (such as public debate). Whilst each approach has strengths and weaknesses, typical results are some multiple of the kinds of values estimated by traditional methods.

In this research, measuring the value (or economic contribution) of the marine and coastal environment in terms of ecosystems, biodiversity etc is extremely complex. According to a recent report:

...a major information deficiency... is the absence of any robust data on the economic valuation of the UK marine assets from a nature conservation perspective (PricewaterhouseCoopers 2004).

Furthermore DEFRA (2005) suggest that ecosystem services are undervalued by society because of a lack of awareness of the link between natural ecosystems and the functioning of human support systems:

Lack of this understanding and failure of markets in reflecting the value of ecosystems mean that information that is conveyed to economic decision-makers at all levels is incomplete. Typically, the full social and environmental benefit of these goods and services and the full cost of their degradation are not translated in a way that will ensure optimal decisions for both the economy and the environment.

It was recently estimated that Scotland's current annual ecosystem value is approximately £ 17 billion (DeGroot et al. 2002). Some 84 per cent of this is generated by its continental shelf waters and estuaries (£14.3 billion). Although such a study has yet to be conducted in Wales, comparison with the estimated £6.8 billion output of the marine and coastal sectors (Table 9) implies that the economic importance of the un-priced marine and coastal ecosystem services is very significant and requires careful consideration, particularly in terms of policy making for protecting the marine and coastal environment. If a standard rent theory approach was adopted (i.e. an asset value of around ten times the annual rental earnings of invested capital), the economic capital value of Scotland's marine assets would be £143 billion.

The DEFRA (2005) report suggests that an economic analysis of ecosystem services may involve measuring total economic value (TEV), whereby 'use values' and 'non-use values' are identified. Use values involve some interaction with the resources either directly or indirectly e.g. fisheries. Non-use values comprise the benefits derived from the knowledge that the ecosystem is simply maintained.

Alternatively, the use of an Index of Sustainable Economic Welfare (ISEW) would claim to measure the underlying factors that create real progress (Matthews et al. 2003). The ISEW could be of particular relevance to the marine and coastal environment as a mechanism to assess its net benefits to society. Furthermore, within the ISEW framework, transactions that occur outside the market place, but which may bring an improvement in social welfare, are considered and assessed, however imperfectly, including for example, the value of the ecosystem. A key advantage (and inherent difficulty) of the ISEW is the attempt to create an overall measure of social welfare by combining economic, environmental and social factors (Matthews et al. 2003), although the same authors recognise that 'ISEW is not a replacement for GDP' (p. 36).

It is clear that the approach taken during this present research has utilised a methodology that does not easily measure certain aspects of the marine and coastal environment, for example, the ecosystem. However, the consistency of the approach with previous studies, combined with recognition that GDP figures (and their components) are a good indicator of overall economic activity, make it the most appropriate approach for addressing the research aims. Nonetheless, consideration of alternative indicators suggests that these may be complements to, rather than substitutes for, standard value indicators such as jobs, incomes and GDP.

Conclusions and Recommendations

This work has sought to estimate the economic value of the coast and marine environment in Wales. There can be no doubt that the coast and marine environment makes a substantial contribution to the Welsh economy in terms of jobs, incomes and GDP, and the prosperity of significant parts of Wales is highly dependent on that contribution. At the same time the coast and marine environment is under increasingly competing pressures as a resource. The importance of tourism is notable in the findings reported here and encapsulates the inherent conflict between the increased development of, and sustainability of,

Wales' coastal and marine assets. One increasingly effective means of managing these tensions is an integrated coastal management strategy that recognises but works round the inevitable trade-offs.

Similarly the coast and marine environment is a part of a wider economy and environment, and inevitably provides resources, including amenity, to that wider economy and environment. However the coastal environment faces particular challenges and opportunities that have to be managed sustainably if its economic contribution is to be maintained.

Finally there are always many ways of looking at the world, and estimating the value of the marine and coastal environment is no exception. The approach adopted here has been largely conventional, although with careful recognition of limitations and constraints. Economists, like politicians, are beginning to adopt wider definitions of well-being and to challenge the necessary limitations of conventional measures. Some of these alternatives have a great deal to offer - it is disappointing, for example, that there is, as yet, no consistent estimate of the value of the eco-system in Wales. Such an estimate would be a welcome complement to the current work.

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Regionally Based Information for State Application

Otto Wirgau*



Introduction

This paper discusses the attributes of a useful Triple Bottom Line (TBL) based dataset to fit the specific design parameters of being Local Government Authority (LGA) based, and State wide in potential application. A key outcome from this research indicated that even with detailed data streams, a professional analytical report transforming the data into understandable information for users has often been a missing link in past data acquisition cases by users.



Overall Background

This research was initiated early in 2004 to identify a set of relevant and approved indicators that reflected Triple Bottom Line (TBL) consideration across economic, social and environmental concepts that would be consistent for all regions in Queensland, Australia.

The first part of the approach required both research and consultations with key regional information users. It also required the identification of the desired range of information, and the potential sources, in relation to critical factors such as availability, regularity, and costs.

Significantly, in response to consultations, some key attributes were discovered regarding how this tactical data can be processed into meaningful information and effectively delivered so that it enhances users' strategic policy capabilities. This is regarded as the most important aspect of this paper.

The following are some existing examples of the currently used information sources:

- Several States have developed their own regional indicators including Western Australia and Victoria;
- Other government agencies, for example, Australian Local Government Association, Bureau of Rural Sciences, Department of Family Services and Australian Bureau of Statistics (ABS), have developed regional indicator sets;
- National Economics and Industry Research (NEIR) have developed regional indicators for the *State of the Regions* report. There is a CD-ROM available from NEIR called *Your Place* that provides a comprehensive set of data combined from previous *State of the Region* reports. It also includes the ability to query and analyse data and generate some analytical reports.

*Sunshine Coast Research Institute for Business Enterprise,
University of Sunshine Coast

- Private enterprises consulting in this area such as the AEC Group have regional indicator sets that they deliver to a range of private and public sector clients.

Major studies involving regional sustainability, from a more holistic sense, continues to affect thinking in this developing field. The sustainability construct should be inextricably linked to regional indicators, in keeping with the management by measurement paradigm. Critical overseas background material includes work performed for Cape Cod (Cape Cod Sustainability Indicators 2003), Flagstaff, Louisiana (Regional indicators of Sustainable Development 2002), as well as truly international societal initiatives across institutions, government, and industry. Organisational outcomes such the Sustainability Reporting Guidelines of the Global Reporting Initiative (Sustainability Reporting Guidelines 2002), as well as the Australian Department of the Environment and Heritage (Corporate Sustainability Reporting 2003) guidelines for environmental reporting of organisations were particularly influential in the field.

It is proposed in this paper that previously a critical problem has not been the lack of regional data, but rather the plethora of statistics that are both inconsistent in form and, for a myriad of reasons, unaccompanied by appropriate analysis to make the data useful to decision makers. Integral to this problem has been the fact that many of the most influential projects were conducted at a larger scale (often state or national) than the Local Government Authorities (LGA) determined to be of paramount usefulness in this instance.

It must be stressed, that the goal is not to seek to produce a complete regional statistical and analytical account. Rather, the goal is to identify, on the basis of research and informed consultation a potential array of relevant data criteria, some general needs and sources, and the potential for analysis that could be applied from these readily available, but largely untapped data sources.

Perhaps most importantly, this goal is driven by the end users' need. This need, unlike that of many of the more well known projects using indicators

which support strategic policy development, is to support tactical policy implementation on a smaller regional level. This tactical information may then be used in a bottom up driven system to derive strategic policy that is a function of the people on the ground having access to the information they need to quantitatively understand and interpret their region.

Goals of the Research Project

Users of regional information need to be as well informed as possible about regional trends and issues so problems can be identified earlier, appropriate policies elected and targeted, priorities set and limited resources allocated to maximise their impacts. A decision making tool is needed to achieve better priority setting, monitor regional trends, identify needs, develop strategies and respond to the particular needs of diverse regions.

Research showed a need for a set of statistics that can be deployed to provide information in a consistent fashion across all regions. Such statistics can provide clear indicators of trends within particular regions, and when developed on a consistent basis, also be a means of effective inter-regional comparisons for strategic priority setting. This is supported by the use of regional indicators to monitor regional economic development and the sustainability of regional industries both overseas and within Australia. This paper provides a sound basis with which to identify 'best practice' methodology to select, gather, analyse and disseminate regional indicator data for the purpose of managing sustainable regional development.

Given the limitations of existing data collections utilised in practice, it was decided that the issue of regional statistics needed to be addressed. In particular, what is urgently needed is a practical and robust set of data that is regionally based, consistent across all regions and regularly updated. The task is not just about finding information, but finding the right information within the constraints imposed by the project's goals in terms of availability, currency and cost effectiveness. The information generated must be clear and useable without being oversimplified. Most importantly,

such data needs to be appropriately processed so that meaningful information and a level of analysis can be developed to enhance regional monitoring and improve strategic decision-making and planning across a variety of users.

Thus, the goal of this paper is to:

- * **Identify** the parameters of a dataset and its sources relevant to end-users and key stakeholders covering the entire state of Queensland, spanning across all of regional Queensland at a Local Government Area level;
- * **Outline** the processes used to enhance the data into meaningful information.

Importantly, the information must be robust enough to maintain currency, be easily updated, be accessible and clearly understandable by users while being cost effective.

The paper does not seek to provide detailed regional statistical analysis. Rather, the emphasis is on highlighting the potential of a range of workable regional indicators that can be used to improve access to meaningful information and improved levels of analysis.

A key goal initially was to identify the appropriate data and their sources able to meet the following criteria and be:

- Available across the whole of Queensland;
- Available at an LGA spatial orientation;
- Already collected and may be pursued for a minimal cost;
- Consistently gathered in the:
 - past
 - present, and
 - future
- Quantitatively based;
- Able to be enhanced or benchmarked against future Census outputs;

- Relevant to end-users and key regional stakeholders covering the entire State, spanning across all of regional Queensland at a Local Government Area level, thus alleviating potential equity concerns.

The data to support the information need to be carefully chosen as it provides the framework to develop further the information that users require. The data also affects costing and further development and delivery of:

- Regional monitoring;
- Informing for strategic regional development planning; and,
- Informed planning and evaluation processes.

Indicators meeting these parameters will also be a tool to monitor the impact of the activities and projects of users aimed at achieving sustainable regional and industry development or adjustment. Further, the work may contribute to the ability to distribute and discuss such information with other regional players.

It was determined through primary research that this project needed to be able to supply information disaggregated to the level of Local Government Authorities (LGAs). A number of prior studies that could contribute directly were limited as many of them looked either at:

- Only a specific area, using indicators which were specific to that area, and were not collected in other areas; or,
- At larger regions, or states, where vastly different scales and levels of information were available, but did not have the level of detail allowing disaggregation to the necessary levels.

Other projects of particular interest were those undertaken in the Douglas Shire (Douglas Shire Council, 2001) and other regions of Queensland under a more holistic approach to sustainability.

Another aim of this paper is to develop a tool for ongoing monitoring of regional trends and to identify how data can be processed to provide information which is more useful to information users than at present.

As research proceeded it became clear from extensive consultations with potential users that the fundamental need that should be met was not just the production of another set of data much of which could be partly sourced from existing suppliers, but rather data and information that was accompanied by clear and consistent analysis. Hence it has not been this paper's intention to examine data/information that was known from the onset to not meet the project's basic criteria. Much of the environmental material in particular failed under this design specification.

Impediments to Regional Sustainability

Primary and secondary research for this paper revealed that regions face challenges to their long term economic sustainability such as:

- Globalisation of markets and, therefore, stronger competition for many of Australia's traditional agricultural commodities;
- Growing corporatisation of many traditional, and often family based, agriculture based industries;
- Rapid technological change in many industries including information and communication technology;
- Demographic changes with some regions losing population either overall, or particular elements of population, and others growing rapidly;
- Changes in the age composition of some regions;
- Shortage of skills;
- Infrastructure bottlenecks.

At the same time some recent changes provide new opportunities for regional business. Improved telecommunications for instance, allow many businesses access to both sources of information and the tools for marketing. Businesses in growth regions have enjoyed rising incomes and face different problems compared with those in declining regions. There are also different and competing infrastructure needs from region to region. Regional Queensland is not uniform, but rather is marked by varying features, different industry concentrations and contrasting problems.

In summary, the problems with existing data sets and processes appear to be centred around:

- Lack of consistent regional data available on regions;
- Irregularity of updated data;
- Limited resources to update data;
- Difficulties in accessing data;
- Existence of multiple and often conflicting data sets being used;
- Difficulty in undertaking regional comparisons;
- Problems in forging cross-regional linkages and doing collaborative projects with other users that use different data sets;
- Cost of collecting and maintaining long term, consistent data sets.

In addition, as is later highlighted, much of the existing data is not accompanied by adequate levels of analysis to make it meaningful to the final information users.

Methodologies and Principles

In selecting data the following principles were used as part of the overall criteria:

- Data had to come from reputable sources;
- Data had to be developed on a regular basis;

- Data had to meet end user needs;
- Data had to be provided on a LGA basis.

Extensive research was conducted to identify potential indicators, sources and their availability. Information was carefully analysed from a wide variety of State, Federal, and non-government sources to generate over 180 potential individual information sources. Some preliminary consultation with potential users, both on the Sunshine Coast and elsewhere, was an integral part of this process. Consultation processes with end users were essential to assess the usefulness of specific indicators proposed following the research. It was also important to further refine these so that a clear set of indicators can be identified and developed that meet the criteria of the project.

Detailed feedback was then further required from a selection of users regarding the usefulness and acceptability of the potential information sources before being further pursued. As a result, an initial list of indicators was tested with users.

A detailed survey instrument was used in this part of the project to support a consistent quantitative ability in aggregating the preferred indicators specified by the potential users. Meetings then supplemented the survey with key regional users (see Appendix 1) and these were followed by consultations regarding responses to the survey with a preferred set of indicators. This review was further refined through focus group discussions with key users including:

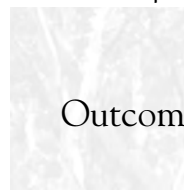
- DSDI;
- SDIC Sunshine Coast;
- Economic development practitioners in the Sunshine Coast (Noosa Shire, Maroochy Shire, Caloundra City Council; Commerce Queensland; Sunshine Coast Business Council; Sunshine Coast and Hinterland Business Council);
- Regional business leaders.

One of the desired outcomes of the project is to present interpretable information that supports comparability between the regions.

However, experience indicated that it may be unwise to 'inbed' information into the data structure that might, inadvertently, make it likely for an end user to draw inappropriate conclusions (i.e. accidentally comparing apples with oranges). Comparing multi sourced information based upon data is inherently challenging enough without including information that is naturally incomparable across the regions. The goal here is to develop and present the criteria for a tool that allows end users to balance the ability to evaluate and take actions, with the intent of managing goals with actions.

It must be reiterated that specific data streams do not individually, or en-masse, perfectly represent a regional system or sub-system. A region, however defined, is not a stand-alone system. A region is also dependent to varying degrees on the forward and backward linkages perhaps more appropriately studied through regional input-output analysis. This interaction is well beyond the stated scope of this paper.

It is likely that there will be no single set of data streams that will provide all the information desired by users. Nevertheless, the purpose of this research is to investigate potential indicators, suggest those that may be suitable given the shortcomings that may be discovered, and develop a simple analytical process and report format. The information being provided here is intended to be flexible enough to incorporate the expected continual evolution of knowledge relevant to regional understanding and to support comparability from region to region and from the past to the present.



Outcomes

To reiterate, the key driver of this project was the need to assess geospatial areas across the continuum of Triple Bottom Line criteria encompassing the three key variables - Economic, Social and Environment data. Whilst data to support these general constructs is available, research with users demonstrated it is severely mitigated by five key moderating, or constraining, variables:

- time period;
- cost;
- availability;
- overall usefulness, and
- designated area.

These constraining variables impact upon the data availability in the following particular ways:

- **Time period** was a key, though not critical, variable in assessing all potential variables. Optimal availability incorporated data that was quarterly in both detail, and release date. This consideration was subjugated to other considerations to maximise the overall utility of the project;
- **Cost** was a critical consideration, as one of the basic project parameters was that secondary data with existing availability be the predominant source for the indicator set;
- **Availability** while closely related to cost, deserved separate consideration, as there were many desired indicators which, cost considerations aside, were in existence, but not available;
- **Overall usefulness** was a subtle consideration, involving the expected likelihood that an indicator, in its raw form, would have a higher than desirable probability of being used in a manner incorrect with its form. Many of the environmental assessment variables, for example, failed these criteria, as they were point estimates which would generate misleading information if applied as a representative of an area, thus compromising the integrity of the project.
- **Designated Area** was a critical variable subject to the project's ability to provide information at a pre-determined lowest common denominator of Local Government Area designation. This variable impacted considerably on the data available for original consideration, however it was also integral to achieving an optimal outcome in line with the project parameters.

A final listing of indicators revealed a preponderance of data streams geared towards either social or economic understanding. Generally, environmental information was either too secular, or too localised to be consistently applied to individual areas, nor did it lend itself to inter-regional comparisons. Additionally, while there was interest in some environmental information, there was much more interest in the social and economic variables.

The particular social and economic indicators selected covered a range of areas including, but not limited to:

- Business Information;
- Demographic Information;
- Labour Market Information;
- Tourism Information;
- Welfare/Income Assistance Information;
- Educational Attribute information;
- Unemployment Benefits;
- Household Demographics;
- Building Approvals and Building Commencements;
- Indigenous Information;
- SEIFA Indices;
- Cost of Living Information.



Conclusion

There is an underestimated, and often completely unrecognised, need for information, as distinct from data, which particularly impacts on the ability of end users to initiate and manage either tactical or strategic policy initiatives. The usefulness of the information discussed here, motivated by extensive user consultations at the beginning, and running throughout the process, supports the equitable goal of obtaining information which can be used across regions of Queensland at a Local Government Authority level, and aggregated up to Statistical Division if warranted.

Integrating these aspects into the equation to generate a useful dataset has significant impacts on the availability of data that fit the original parameters of the research. A final outcome from this research indicated that even with detailed data streams, a professional analytical report transforming the data into understandable information has often been a missing link in the use of past data acquisition.

Table 1:Key Regional Users

| |
|--|
| DSDI - Sunshine Coast Sunshine Coast Regional Managers' Forum involving over 15 representatives from State government agencies Director - SunROC (Sunshine Coast Regional Organisation of Councils) Mayor of Caloundra City Mayor Maroochy Shire Council Mayor of Noosa Shire Council CEO of Caloundra City Council CEO of Maroochy Shire Council CEO of Noosa Shire Council Economic Development Officer of Caloundra City Council Economic Development Officer of Maroochy Shire Council Economic Development Officer of Noosa Shire Council General Manager of the Sunshine Coast Area Consultative Committee CEO of Tourism Sunshine Coast Commerce Queensland – Sunshine Coast Sunshine Coast Business Women's Network Chair, Property Council Australia – Sunshine Coast Director of Noosa Shire Council Corporate Planning and Support |
|--|



Further Reading

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Issues in the Economic Evaluation of Improved Water Quality Objectives

Khorshed Alam, John Rolfe and Peter Donaghy



Introduction

Water quality issues have received substantial attention in Australia over the last decade. The range of government responses is reflected in the formulation of various policies and guidelines pertaining to safe and clean water at all levels. A national guideline titled the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 2000) was formulated within the framework of the National Water Quality Management Strategy (NWQMS). ANZECC provides, inter alia, a framework for developing water quality objectives (WQOs) following two steps, namely identifying the environmental values (EVs) of water bodies to be protected, and then establishing a range of water quality levels to maintain or protect each of the nominated values. The term 'environmental value' is often taken to mean the categories and aspects of water use that communities think are important (EPA 2004a). In addition to these national guidelines, state level guidelines were prepared in the 1990s. In Queensland, the *Environmental Protection (Water) Policy 1997* (EPP 1997) was formulated to provide a framework for identifying environmental values and associated water quality objectives. Both national and state guidelines and policies are applicable at the regional level.

Despite these developments in establishing a legislative and regulatory system to address water quality issues, significant issues remain. These can be grouped into three main areas. First, there are concerns that water quality objectives may be too

low in some regions, or that some types of emissions (particularly diffuse sources) are not being considered. Second, there are problems with the current guidelines being too broad to be very useful at a regional level. ANZECC (2000) put strong emphasis on the need to develop more locally relevant guidelines. According to the EPA (2005), the essence of a locally specific water quality indicator is due to the fact that each waterway poses specific environmental values depending on its physical, biological, social, economic and historical features. Furthermore, water quality varies naturally due to location-specific variation in rainfall and runoff pattern, river discharge, landuse, geology and soil type, topography (slope length and gradient) and land cover conditions.

The third area of interest relates to the potential to trial more institutional and market-based instruments (MBIs) instead of a traditional regulatory approach to address water quality issues. MBIs are increasingly being recognised as cost effective policy mechanisms to deliver environmental outcomes such as water quality targets in Australia and elsewhere. A range of pilot MBI projects has recently been trialled in Australia to examine their applicability in order to address water quality problems. An evaluation of this first round of MBI pilot programs revealed that auctions, cap and trade, and offsets could be successfully used to address a range of water quality issues in Australia (Grafton 2005). The trials have shown that it is not only important to have a regulatory base for quantity-control mechanisms, but that it is also

important to understand the relationship between environmental outcomes and various levels of intervention.

There is current interest from the Queensland Environmental Protection Agency (EPA) to set higher standards for water quality as well as to formulate locally specific water quality objectives. Setting environmental values and water quality objectives for receiving waters in Queensland is expected to provide long term management goals for both statutory and non-statutory planning. Once finalised, environmental values and their supporting water quality objectives will be considered for scheduling under the EPP 1997. State agencies, local government and other stakeholders would be required to consider scheduled environmental values and water quality objectives when deciding development applications for activities that require approvals under the *Environmental Protection Act 1994* (EPA 2004b).

To meet new water quality objectives, a number of new initiatives may be required in addition to current mitigation strategies. While improved water quality measures are likely to generate a range of benefits to society, their introduction will not be costless. A key question is whether there are net benefits of improved water quality measures, particularly at the regional level. For example, it may be unclear whether the upgrade of a sewage treatment plant or restoration of riparian buffers generates sufficient benefits to justify the cost of these intervention strategies.

The purpose of this paper is to review the process and information needed to evaluate the potential impacts of stringent water quality objectives in regional areas of Queensland. The remainder of this paper is set as follows. Methodological issues of measurement are covered in section two, the link between intervention strategies and load reductions is reviewed in section three, and the link between water quality changes and environmental outcomes is reviewed in section four. Measurement issues of environmental outcomes follow in section five, with concluding comments presented in section six.

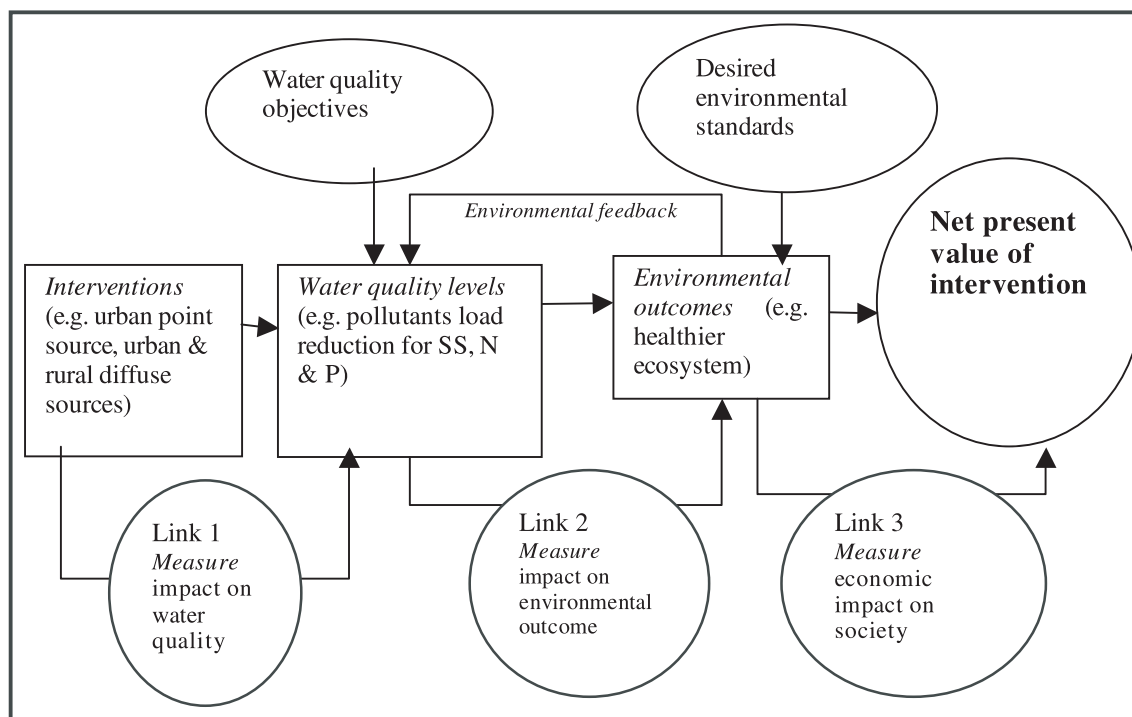
2. Methodological Framework for Measuring the Net Benefits of Water Quality Improvements

Assessing the desirability of potential water quality mitigation actions is complex. The measurement challenge can be illustrated with the aid of Figure 1. The figure illustrates how various options to improve water quality successively impact on parameters through to human value systems. However, impacts at each step in the process can be difficult to predict because of inadequate scientific knowledge and modelling, variability in systems, and the diversity of impacts and social systems. The process is further complicated by the diversity of impacts across a large number of waterways in Queensland, where there are large variations in the condition of waterways and the different impacts occurring.

There are three links that need to be established and quantified in order to measure the benefits of water quality improvement flowing to the community and other stakeholders as a result of the intervention actions being undertaken. These links are:

- First, modelling the load reduction outcomes of intervention strategies to measure the impact on water quality;
- Secondly, measuring the impact of water quality changes (e.g. load reduction) on the environmental outcome; and
- Finally, estimating the economic impact on society using a common measure (both tangible and intangible benefits).

Figure 1: Measuring water quality impact on society



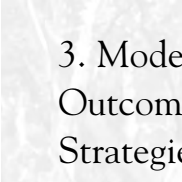
It is evident that proper quantification is required between all the three links to measure the water quality impacts on society. Furthermore, there is a feedback loop between improvements in environmental outcomes and subsequent impacts on water quality. The extent to which a particular intervention strategy promotes this type of feedback will impact on its overall desirability and value. Policy makers in the area of water resources management quite often face a challenge: how to ensure the best use of scarce resources, which can be defined as the allocation which maximises the net benefits to society. From an economic perspective, resources can be allocated efficiently whenever the marginal benefit of an intervention is greater than or equal to its marginal cost. Thus an economic evaluation helps to answer the question: which allocation of resources will maximize the net benefit to society?

In an economic framework, the evaluation of net benefits is done by comparing the cost of intervention strategies with the value of net benefits achieved. The most common economic

evaluation process is the cost-benefit analysis (CBA).¹ This approach assigns a monetary value to outcomes, which is then directly compared with a mitigation action's associated costs.² The application of this approach becomes difficult because of the uncertainty inherent in dealing with the intervention, due to lack of data (e.g. economic value of the resulting benefits from an improvement in water quality) and the intertemporal comparisons of costs and benefits. While the costs of intervention strategies can often be measured from market data, predicting the impacts of those strategies and evaluating the benefits in monetary terms is more challenging. The issues involved can be illustrated with the aid of a Queensland case study.

¹In many instances, the interest is to find the option that meets a pre-defined objective at a minimum cost. In such a situation, a Cost-effectiveness Analysis (CEA) is an appropriate technique to use. Costs are measured in monetary terms such as dollars and effectiveness can be measured in a single common effect specific to the water quality issue being studied (e.g. pollution load reduction). The evaluation would then give a comparison of the cost per unit of pollutant load reduction across the various interventions (Alam et al, 2006a).

²Techniques of cost-benefit analysis are well known and documented (e.g. Campbell and Brown 2003; DFA 2006; Pearce et al. 2006).



3. Modelling the Load Reduction Outcomes of Intervention Strategies

The EPA has been undertaking studies about water quality in three regions of Queensland, namely Moreton Bay/South-east Queensland, Mary River Basin/Great Sandy Region and Douglas Shire waters (EPA 2004b). For illustrative purposes, the case of the Douglas Shire in Far North Queensland is used here. The Douglas Shire waters include the freshwaters, estuaries and coastal waters of the Daintree, Saltwater, Mossman and Mowbray catchments, with a total catchment area of about 1,850 km². The development pressures facing the Shire are particularly challenging given the region's high ecological values. In particular 78 per cent of the Shire is World Heritage listed under two World Heritage Areas - the Great Barrier Reef (GBR) and the Wet Tropics of Tropical North Queensland. The Shire directly drains into the GBR.

Major land uses include rainforest and sclerophyll forest (~87%), mixed agriculture such as sugar cane, grazing, horticulture and aquaculture (~9%) and urban and rural residential uses (Rolfe et al. 2005). The region itself is a high tourism growth area, attracting large numbers of tourists every year. Land use activities in the catchments are generally contributing to a decline in water quality. High concentrations of total suspended sediment (TSS), total nitrogen (TN) and total phosphorus (TP) affect not only Shire water resources, but the Great Barrier Reef lagoon. The control and reduction of sediment and nutrient movement is considered an essential mechanism to reduce pollutant loads within the GBR.

Unsustainable levels of nutrients, sediments and toxicants in aquatic ecosystems have been identified as key water quality issues for each of the major catchments in the Douglas Shire. The EPA (2004c) has considered interventions as surrogates for a wide range of possible management actions to reduce the amount of suspended sediment (SS), nitrogen (N) and phosphorous (P) in the Douglas Shire waterways by 2026, based on the research undertaken by Bartley et al. (2004a; 2004b). These objectives of pollutant load reduction may include a range of physical, chemical and biological

parameters, all of which provide a detailed description of catchment and overall water quality condition.

The effect of land-use change or management interventions on pollutant loads can be measured with the recent advancement of catchment modelling in Australia such as SedNet (Sediment River Network Model) and EMSS (Environmental Management Support System). Catchment modelling is a predictive support tool used to provide information about the impact of management interventions on pollutant loads. Using catchment modeling such as SedNet, estimates have been made of total point and diffuse source loads for each of the major catchments in the Douglas Shire. Indicators of the key water quality issues that are the subject of SedNet model predictions are TN, TP and TSS, expressed as annual loads to waterways. Intervention scenarios include a range of planned and possible future actions by both government and the community (including industry), targeting the reduction of urban and rural point source and diffuse source loads emitted to waterways. Such actions are aimed at initially halting aquatic ecosystems decline and, over time, achieving sustainable management of the water environment. Possible interventions include both existing programs, such as the upgrades of sewerage treatment plants, and projected activities such as the restoration of riparian areas and management of cane drains.

To judge the efficiency of potential mitigation actions, the SedNet model can be used to predict likely changes in pollution loads. However, to make the modelling task more manageable in this case study, the scenarios for the catchment have been simplified in three important ways. First, only a select number of potential mitigation actions have been nominated in each of the three broad categories of point, diffuse urban and diffuse rural sources. The actions selected are assumed to be broadly representative of the wider range of actions available within each category. Second, the impacts for only one level of each action have been modelled. There is a significant lack of scientific data available in the case study region that links reductions in TSS, TN and TP to more complicated biological improvements in water quality.

Table 1: Comparison of average loads (tonnes/year)

| Scenario | Parameter | Point source | Diffuse source | Total source |
|----------------------------|-----------|--------------|----------------|--------------|
| Base Case 2004 | TSS | 383 | 262,000 | 262,383 |
| | TN | 20 | 1,692 | 1,712 |
| | TP | 23 | 277 | 300 |
| No Intervention 2026 | TSS | 383 | 273,900 | 274,283 |
| | TN | 25 | 1,692 | 1,717 |
| | TP | 30 | 277 | 307 |
| Intervention 2026 | TSS | 383 | 207,000 | 207,383 |
| | TN | 10 | 1,539 | 1,549 |
| | TP | 12 | 252 | 264 |

Source: EPA 2004b

Third, impacts have only been assessed in terms of three indicators of water quality, namely TSS, TP and TN. This has the potential of understating impacts because it excludes impacts of pathogens, toxicants, acid sulphate soils and other issues from the analysis, which will not be reflected in measures of TSS, TP and TN.

Once these catchment scenarios were modelled, the range of expected impacts could then be predicted. Table 1 presents the modelled TSS, TN, and TP loads for the case study area for the base case (i.e. 2004), *No Intervention* and *Intervention* scenarios. The *No Intervention* scenario represents a business-as-usual case where water quality levels are projected to decline in line with current trends and increasing populations up to 2026. It is only a modelling scenario that does not include a number of planned government and community initiatives. The second scenario is the *Intervention* scenario where management intervention strategies are introduced that enhance or protect water quality in spite of population increases, economic development and land use change up to 2026. Under the *Intervention Scenario*, a number of key load reducing best management strategies were modelled to protect the environmental values. These included investing significantly in new and retrofitting existing waste water treatment plants, reducing rural diffuse loads by introducing vegetated riparian buffer strips and riparian rehabilitation and investing in a number of structural and non-structural urban diffuse management actions. With the introduction of these

intervention strategies load reductions were modelled for the waterways within the case study area.

In order to estimate the benefit of introducing load reducing best practice management strategies at societal level in the Douglas Shire, annual net benefits need to be compared for the *No Intervention* and *Intervention* scenarios. The basis for this comparison is the annual difference between TSS, TN and TP loads for the two scenarios starting in 2004 and running through to 2026. By 2026, the staged introduction of best practice management strategies will have reduced TSS, TN and TP loads from the Base Case levels by the following amounts:

- Reduction in total sediment of 55,000 t/yr;
- Reduction in total nitrogen of 163 t/yr; and
- Reduction in total phosphorous of 36 t/yr.

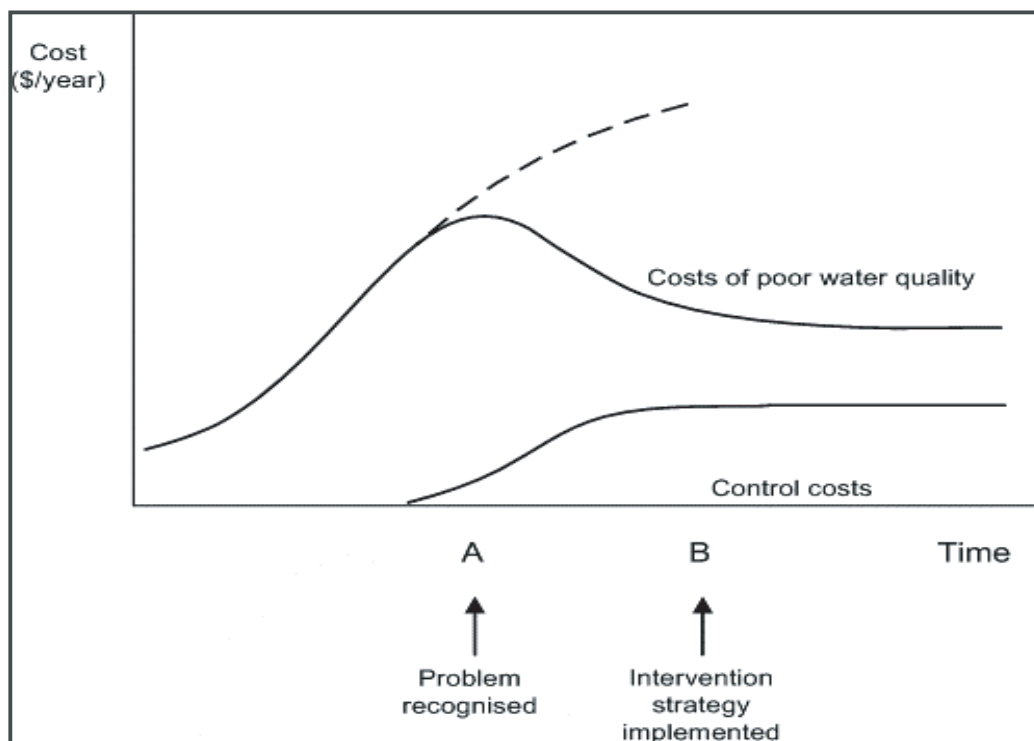
Rolfe et al. (2005) estimated that an additional amount of \$18.91 million in present value terms would be required to achieve these load reductions in the Douglas Shire waters outlined under the *Intervention* scenario. The present value represents a stream of costs arising from different intervention scenarios, after taking into account the 'time value of money' (i.e. discounting). Now, at this stage, it can be argued that in a general sense, policy makers could weigh up the social benefits of various mitigation activities and compare them with

the costs of achieving them, to identify the activities that provide net social benefits. This process would take into account a wider range of impacts, not only tangible or market-related, but also non-market social and environmental consequences. In the same way, policy makers can identify the appropriate level and magnitude of mitigation strategies; for instance, whether it is worthwhile to reduce water quality impacts by targeting reductions at the source, treating water in some way to improve quality, or banning certain activities at particular sites.

The problem can also be framed in terms of deciding which standard of water quality generates the lowest net cost to society. Figure 2 demonstrates the general policy situation facing decision makers. Water quality problems emerge, with costs trending upwards over time (as shown by the initial stages of the cost curve). If there is no intervention, then costs blow out (dotted line) to have significant impacts. Alternatively, governments recognise the problem and begin intervention and

and education strategies. These controls have costs, but help to minimise or reduce the costs of adverse water quality (the cost curve trends lower than its initial path). A program is worthwhile when the present value of the control costs are lower than the present value of the savings in impact costs achieved as a result of the controls. The use of the discounting process helps to account for variations in costs that fall in different time periods.

Figure 2: Minimising the costs of poor water quality



Source: Adapted from Agtech Group 1999

In reality, it is relatively straightforward to generate cost estimates for different mitigation strategies as most information is available from markets or public agencies. On the other hand, a wide variety of potential benefits (reductions in social costs) are expected to accrue from water quality improvements. The value of these potential benefits will depend on the specific uses of water. While in many cases the understanding of how a particular use will benefit from an improvement in water quality is reasonably well understood, this is not so easy for other uses. Therefore, estimating benefits of water quality improvement, particularly those involving non-use values, is often problematic. The relevant issues are discussed in the sections below.

4. Linking Water Quality Changes with the Environmental Outcomes

Based on the projected reduction of pollutant loads, the next step is to identify the physical linkage between the projected changes and the benefit activities. For example, a relationship needs to be established and quantified between the projected changes under the different scenarios and human use activities such as fishing and recreation at the community level. However, this information is difficult to assess for a number of reasons:

- impacts often depend on a number of factors;
- there are a number of time lags involved;
- scientific data and modelling is limited; and
- there is little data available about how human use varies with ecosystem health.

It is likely that a further deterioration in ecosystem health will have a larger impact on human interactions than will further improvements. This is because further deteriorations might mean that critical thresholds are reached, so that fish catches plummet, or because of health reasons swimming is not allowed in some waterways. In contrast, improvements in water quality are unlikely to directly correspond with increased levels of usage. For example, if water quality parameters improve by 50 per cent, it is very unlikely that the number of

people swimming (or the number of swimming events) in the Douglas Shire waters increases by 50 per cent as well.

Furthermore, there still remains considerable uncertainty about how a reduction in loads entering into the Shire waterways may translate through to community benefits in terms of environmental outcomes. Load reductions have been used in this study as a way of summarising the policy changes needed. However, it is not fully accurate to focus on load reductions, as the key focus here is on setting water quality guidelines. These relate to ambient water quality rather than total loads, so any policy outcomes are likely to involve consideration of the timing and intensity of emissions into waterways as well as other factors.

A review of the literature was unable to identify a plausible scientific approach to estimate marginal changes in the value of water use resulting from the intervention measures assessed. For example, if intervention measures were introduced in the Douglas Shire that improved water quality parameters by 33 per cent, it is unlikely that the value of recreational fishing, waterside properties and tourism would also increase by 33 per cent.

Unfortunately there is a lack of modelling data to indicate how human use of water resources varies with ecosystem health. The difficulty of estimating marginal impacts resulting from changes in water quality is a key reason why it is difficult to measure the impact of an intervention action on the environmental outcome. The modelling feature that can establish linkages between changes in water quality and the impacts on human populations are not very clear cut.

5. Estimating Environmental Outcomes into a Common Measure

The next link in the framework would be the conversion of many physical, chemical and biological effects of water quality into a common measuring yardstick that can be compared with costs if required. Due to its varying nature, enhancing or protecting water quality in the Douglas Shire catchments can generate a wide

range of goods and services for the community, most of which are external to the actual water market. For example, water bodies provide recreation and aesthetic benefits to communities, as well as being a basis for a number of ecosystem services that communities rely on.

Changes in water quality can be expected to have impacts on the community in a number of ways. Some changes can relate to the direct use of water systems, e.g. for recreation or agricultural production. While others may indirectly impact the community, e.g. by changing the aesthetics of waterfront properties. In some cases, such as where there are impacts on biodiversity protection, people may have strong preferences about the changes without necessarily having any contact with the environmental assets.

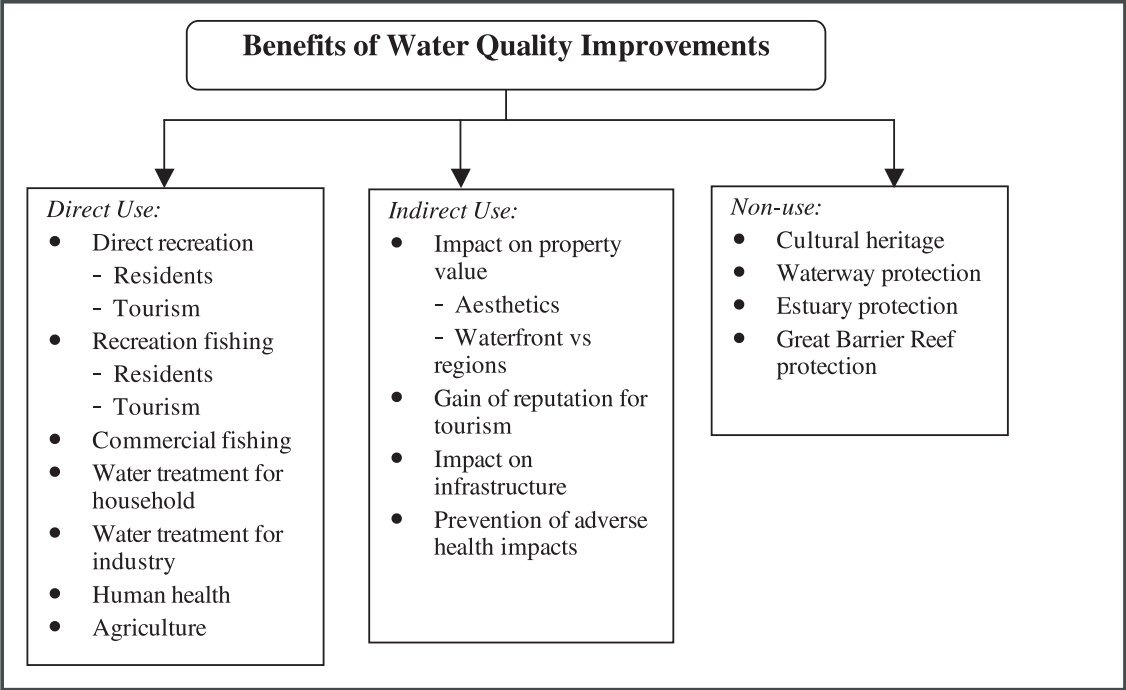
For rational decision making it is therefore important to include all relevant categories of impacts, whether or not they can be easily assessed and measured. There are three broad categories of

benefits that a water quality improvement can generate:

- *Direct use benefits:* values derived from goods and services that can be consumed, traded or enjoyed on-site, e.g. fishing and recreation. Direct use may include both consumptive and non-consumptive uses.
- *Indirect use benefits:* relating values derived from ecosystem services of improved water quality that support and protect off-site activities, e.g. reputation for tourism and impact on property values.
- *Non-use benefit:* values derived neither from current direct nor indirect use of improved water quality, rather from altruistic or intrinsic motives in that a resource (e.g. cultural heritage) is being protected and/or restored for others' use.

A summary of the impacts that might be expected from improvements in water quality in the Douglas Shire is shown in Figure 3. A detailed discussion on the categories of these water quality benefits in the Douglas Shire is described in Alam et al. (2006b)

Figure 3: Expected Benefits of Water Quality Improvements



Although many of the impacts reported in Figure 3 are comparatively easy to identify, it is rather difficult to monetise these impacts as the benefits do not typically accrue in the form of readily measurable financial flows. For example, major impacts of reduced water quality may reduce recreation activities (i.e. beaches closed to swimming and boating) and put more biodiversity at risk in the region, neither of which are priced in markets. Many of the most significant impacts of reduced water quality are for items that are not directly priced in markets. If these impacts are ignored, it may lead to very misleading information to society and policy-making bodies. Where impacts are not directly priced in markets, specialised valuation techniques are currently available to assign monetary values on such goods and services. There are two main groups of these techniques: revealed preference methods and stated preference methods. Techniques for measuring benefits of non-market natural resource and environmental goods are now well-known and documented in numerous books and articles (e.g. Champ et al. 2003). An overview of economic valuation techniques is provided by Queensland EPA (EPA 2003).

To fully account for all the impacts it is important to be able to assess most impacts in monetary values to ensure each strategy is compared in a consistent manner. Some of the benefit estimates of intervention strategies can be taken from market information. In the Douglas Shire region, this might include impacts on tourism, commercial fishing, agriculture, infrastructure and saved water treatment costs. In many cases production or other models are used to identify how changes in environmental conditions impact on economic values. For example, a dose-response model might be used to assess impacts of poor water quality on human health or agricultural productivity, while a replacement cost model might assess the additional cost of replacing damaged environmental assets due to poor water quality (EPA 2003).

A review of the literature on non-market valuation studies undertaken in the area of water quality improvement has identified a number of examples where stated and revealed preference techniques have been applied to estimate the non-market benefits of water quality improvement in Australia and overseas. Whilst there is a limited pool of

studies relevant to water quality issues in Queensland and Australia, across the world, quite a large number of studies have been conducted to capture the non-market aspects of water quality improvement (for a detailed description, see Rolfe et al. 2005).

However, these valuation studies grossly differ in terms of scope of the water quality issues considered for the Douglas Shire waters which necessitate the need for further research and empirical/valuation studies both at the study area and specific to the scope of water quality objectives to protect the environmental assets. This also makes it hard to use benefit transfer approach to 'borrow' values of original estimates to the study of interest (i.e. Douglas Shire).

6. Conclusion

Different land uses and human activities have different impacts on water quality in waterways at local and regional level. A considerable amount of research has been directed to quantifying the physical magnitude of these impacts under varying circumstances, although considerable information gaps still remain. The focus of this paper is to find a link on how setting of water quality objectives can enhance or protect environmental assets in a specific area. To perform this task, it is important to establish three links, flowing from management intervention to impacts at the community level. Due to the advancement of scientific knowledge and the availability of data and the introduction of catchment modelling, it is now easier to predict the pollutant load reduction from management actions. The development of economic valuation techniques means that where pollutant load reductions benefit society, it is possible to assign a monetary value to the many non-market benefits of water quality improvement.

Despite these advances, it is often not possible to evaluate the net benefits of water quality improvement in economic terms. There are two key reasons for this. The first is that the physical linkages between mitigation strategies and impacts on society remain poorly understood.

While there is better understanding of the linkages between mitigation strategies and pollutant levels, information about the subsequent impacts on environmental conditions and human direct, indirect and non-use values remains poorly understood.

The second key reason is that very few economic valuation studies have been conducted, so that there is little knowledge about the size or extent of economic benefits that might be involved. To provide a better framework for evaluating planned mitigation strategies, both issues will need to be addressed. Therefore, there is a role for scientists to provide information about the linkages between mitigation strategies and human systems, and a role for economists to assess those impacts with the aid of non-market valuation techniques.

Acknowledgements

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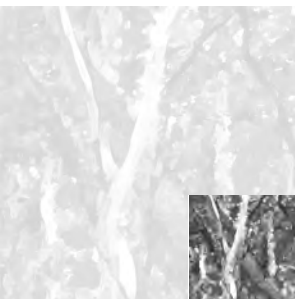
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News, Conferences & Happenings



Regional Matters - An Atlas of Regional Victoria Department of Sustainability and the Environment

The Victorian Department of Sustainability and the Environment has just put out the second issue of its *Regional Atlas of Victoria*. The first issue was released in 2005 and was an enormous success as it brought together a vast array of useful information on a thematic basis. This issue follows that format with the maps and commentary organised into eight chapters: changing populations; community well being; servicing communities; industry and skills; land and people; water in a dry land; coastal development; and energy choices.

Once again, the *Regional Atlas of Victoria* presents material in a way that is engaging and in, in some cases, quite quirky. It doesn't seek to be a traditional atlas in presenting a raft of conventional information that may, or may not, attract the reader's eye, instead it presents material that challenges the way we think about regions and opens up new ways of looking at our regions and communities. There are, for example, fascinating maps about the distribution of mental health in non-metropolitan Victoria; the rate of participation in community events; and the strategies employed by rural communities to find female partners for

their ageing and increasingly male dominated populations.


Everyone with an interest in regional issues - regardless of where they live - will enjoy reading this publication. It is published in hard copy, but is also available on the web at:
www.dse.vic.gov.au/regionalmatters



The Department of Transport and Regional Services

The Department of Transport and Regional Services has just published the *Bureau of Transport and Regional Economics Working Paper No. 68 Skill Shortages in Australia's Regions*. The publication considers the definition and measurement of skill shortages and the division of responsibilities for addressing skill shortages before focussing on a number of case studies. The Working Paper examines five regions - Queensland, Broken Hill, the Limestone Coast, Mildura and Hunter - before examining six industries, health professionals, nurses, education, child care, trades and Information and Communication Technology. The Working Paper then turns to a discussion of current programs and responses.

Skill shortages are an important topic for many parts of metropolitan and non-metropolitan Australia. There is much in this publication that will interest practitioners and researchers alike.



AusIndustry fact sheet: Help from AusIndustry in regional Queensland



AusIndustry in brief

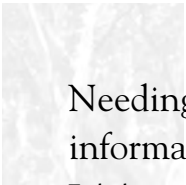
AusIndustry is the Australian Government's business program delivery division in the Department of Industry, Tourism and Resources and provides a range of incentives to support business innovation.

We deliver a range of more than 30 business products, including innovation grants, tax and duty concessions, small business services, and support for industry competitiveness worth nearly \$2 billion each year to about 10,000 small and large businesses.



A sample of AusIndustry products

- Commercial Ready is AusIndustry's new innovation grants product. It will provide up to \$200 million a year in grants ranging from \$50,000 to \$5 million to small and medium sized businesses for research and development, proof-of-concept, and early-stage commercialisation projects.
- The R&D Tax Concession enables companies to claim their research and development costs at a concessional rate of 125%. For small companies in a tax loss, a cash rebate is available.
- Commercialising Emerging Technologies (COMET), which employs private sector business advisors across Australia to assist successful applicants become ready for commercialisation activities by supporting access to financial and business development. The program offers grants from \$5000 to \$120,000.
- The Tradex Scheme provides an upfront exemption from customs duty and GST on imported goods or components intended for re-export.
- Small business service products: Most of AusIndustry's products are suitable for Australian small businesses. In addition, AusIndustry delivers some service products specifically for the small business market. These provide grants to a range of private sector and community organisations to deliver services, such as skills and business development, mentoring services and business advice, to small businesses.
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- Gold Coast-Southern Queensland (and Northern Coastal NSW)
 - Townsville-Northern Queensland
 - Gladstone-Central Queensland
- as well as
- 10 Small Business Field Officers throughout regional Queensland
 - Export Hubs in Bundaberg and Tweed Heads.

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AusIndustry Gold Coast-Southern Queensland (and Northern Coastal NSW)

Rowena Bell-Bradbury
rowena.bell-bradbury@industry.gov.au
Phone: 07 5503 1601 or 0418 982 092

AusIndustry Townsville-Northern Queensland
Ross Contarino - ross.contarino@industry.gov.au
Phone: 07 4721 6649 or 0428 188 308

AusIndustry Gladstone-Central Queensland
Ian McKirdy - ian.mckirdy@industry.gov.au
Phone: 07 4972 4751 or 0428 103 560

Bundaberg export hub

205 Bourbong St PO Box 1719 Bundaberg QLD 4670
Phone: 07 4151 9708 Fax: 07 4151 9711 Contact:
Ian McKirdy ian.mckirdy@industry.gov.au


Tweed Heads export hub

Suite 7 Hutton House 40 Frances Street Tweed Heads NSW 2485 Phone: 07-55031601
Fax: 07-55031628 Contact: Rowena Bell-Bradbury
rowena.bell-bradbury@industry.gov.au

AusIndustry Queensland State Office

Level 10, Samuel Griffith Place, 340 Adelaide Street, Brisbane GPO Box 9839 Brisbane 4001
Phone: 07 3227 4700 aiql@industry.gov.au

To subscribe to the AusIndustry e-bulletin or to email updates about specific AusIndustry products, visit www.ausindustry.gov.au, or contact the AusIndustry hotline on 13 28 46 or hotline@ausindustry.gov.au for more information.



AusIndustry fact sheet: Help from AusIndustry in regional Victoria



AusIndustry in brief

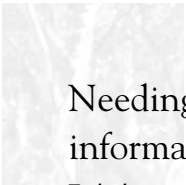
AusIndustry is the Australian Government's business program delivery division in the Department of Industry, Tourism and Resources and provides a range of incentives to support business innovation.

We deliver a range of more than 30 business products, including innovation grants, tax and duty concessions, small business services, and support for industry competitiveness worth nearly \$2 billion each year to about 10,000 small and large businesses.



A sample of AusIndustry products

- Commercial Ready is AusIndustry's new innovation grants product. It will provide up to \$200 million a year in grants ranging from \$50,000 to \$5 million to small and medium sized businesses for research and development, proof-of-concept, and early-stage commercialisation projects.
- The R&D Tax Concession enables companies to claim their research and development costs at a concessional rate of 125%. For small companies in a tax loss, a cash rebate is available.
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AusIndustry Ballarat (Western Victoria)

John Finch - john.finch@industry.gov.au
Phone: 03 5320 5960 or 0429 172 068

AusIndustry Bendigo (Northern Victoria)

Neil Hamilton - neil.hamilton@industry.gov.au
Phone: 03 5442 4199 or 0428 360 230

AusIndustry Traralgon (Gippsland)

Marlene Battista - marlene.battista@industry.gov.au
Phone: 03 5174 7604 or 0428 579 644


Ballarat Export Hub

Victorian Business Centre 48 Sturt Street Ballarat
Vic 3350, Australia
Phone: 03 5320 5940 Fax: 03 5320 5998

AusIndustry Victorian State Office

9th Floor 161 Collins Street, Melbourne
GPO Box 85 Melbourne 3001
Phone: 03 9268 7555 aivic@industry.gov.au

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AusIndustry in brief

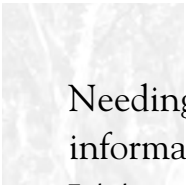
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To help customers with product and eligibility information, AusIndustry has customer service managers located in 26 offices across Australia, including a regional office located in Bunbury (Southern Region WA) and an export hub in Carnarvon, as well as seven Small Business Field Officers located around regional WA.

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AusIndustry Bunbury (Southern Region WA)

Julie Mizen - julie.mizen@industry.gov.au
Regional Manager Phone: 08 9721 8216 or 0429 689 665 Fax: 08 9721 7584

Cnr Molloy & Symmons Streets PO Box 2488
Bunbury WA 6231

Carnarvon export hub

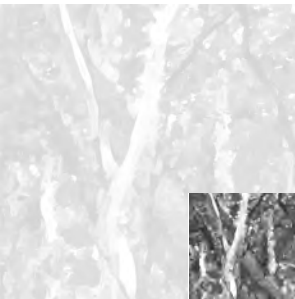
Brett Cockman - brett.cockman@industry.gov.au
Deputy State Manager - Northern Region WA
Phone 08 9287 3525 or Fax 08 9287 3522

Gascoyne Development Commission

Stuart House, 15 Stuart Street PO Box 781
Carnarvon WA 6701

AusIndustry WA State Office

Level 25, St Martins Tower 44 St Georges Terrace
PERTH WA 6000 GPO Box 9839 PERTH WA 6848
Ph: 08 9287 9500 Fax: 08 9287 3522
email: aiwa@industry.gov.au



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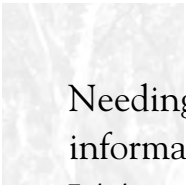
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AusIndustry Port Augusta (covering the Barossa Valley, Mid North, Far North, Yorke and Eyre Peninsula, and Upper Spencer Gulf)

Mark Arnold - mark.arnold@industry.gov.au
Phone: 08 8641 2563 or 0427 607 751
Cnr Highway 1 & Tottenham Road PO Box 421
Port Augusta SA 5700

AusIndustry Mt Gambier


(covering the Riverland, Murraylands, Fleurieu, Kangaroo Island, and Limestone Coast)
Stephen Chapple -
stephen.chapple@industry.gov.au
Phone: 08 8723 1057 or 0429 095 973
Old Town Hall Commercial Street East
Mount Gambier PO Box 1537 SA 5290

Port Augusta export hub

Port Augusta Business Centre 500 Stirling Road
Port Augusta SA 5700 Ph: 08 8642 2999
Fax: 08 8641 1999

AusIndustry SA State Office

Ph: 08 8406 4700 Fax: 08 8406 4717
email: aisa@industry.gov.au 11th Floor Terrace
Towers 178 North Terrace Adelaide SA 5000
GPO Box 9839 Adelaide SA 5001



AusIndustry fact sheet: Help from AusIndustry in regional New South Wales



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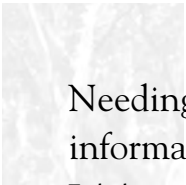
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We also have two regional managers based in our Sydney Office who service the Central East (Cowra to Mudgee) and Central West and Outback NSW (Willcania to Condobolin to Lightning Ridge), as well as 15 Small Business Field Offices located around regional NSW.

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AusIndustry Illawarra and South Coast

Steve Sanders - steve.sanders@industry.gov.au
Phone: 02 4254 5534 or 0429 455 441

AusIndustry Newcastle-Hunter

Graham Baker - graham.baker@industry.gov.au
Phone: 02 4960 3823 or 0429 033 081
Tim Cotter - tim.cotter@industry.gov.au
Phone: 02 4960 3823 or 0429 033 082

AusIndustry Tamworth-New England

Michael Grieve - michael.grieve@industry.gov.au
Phone: 02 6761 3624 or 0429 447 307

AusIndustry Wagga Wagga

Gilli Williams - gilli.williams@industry.gov.au
Phone: 02 6921 1828 or 0429 838 024

AusIndustry Central West

(west of Dubbo) and outback NSW

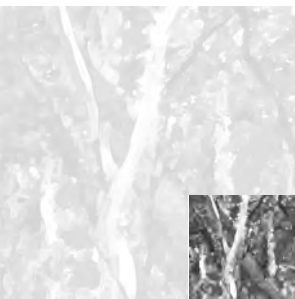
Alex Caroly - alex.caroly@industry.gov.au
Phone: 02 9226 6024

AusIndustry Central East (Lithgow to Parkes)

James Turvey - james.turvey@industry.gov.au
Phone: 02 9226 6071 or 0427 602 191

AusIndustry NSW State Office


Level 15, 135 King Street, Sydney
GPO Box 9839 Sydney 2001 Phone: 02 9226 6000
ainsw@industry.gov.au



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| McKenzie Haslam, Fiona | 4 | 2 | | | |
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Regional Services Directory



South Australia *Australian Bureau of Statistics National Centre for Rural and Regional Statistics (RRSNC)*

Contact: Ms Claire Conroy
Director
GPO Box 2272
Adelaide SA 5001
Tel: (08) 8237 7368
Fax: (08) 8237 7393
Email: claire.convoy@abs.gov.au
Website: www.abs.gov.au

Based in the Adelaide Office of the ABS, the National Centre's roles are to:

develop and disseminate data that will assist policy analysts and researchers study the underlying causes of change across rural, regional and remote Australia, support the regional priorities of Commonwealth agencies by providing relevant statistical information to assist policy planning and assessment.

Recent Key Projects:

The RRSNC has developed a Rural and Regional Statistics Information Development Plan (IDP), which has scoped the field of regional statistics, and, in consultation with users, has identified gaps in statistical information availability which will be addressed by the RRSNC between 2005-2007. The IDP will be available on the ABS website from March 2005.



SA Centre for Economic Studies

Contact: Mr Michael O'Neil
Director
PO Box 125
Rundle Mall
Adelaide SA 5000
Tel: (08) 8303 5555
Fax: (08) 8232 5307
Email: michael.oneil@adelaide.edu.au
Website: www.adelaide.edu.au/saces

Products and services:
Regional and Industry Development.
Public Sector Economics.
Economic Conditions and Outwork.
Economic Impact of Gambling.
Studies into Coastal Growth.
Economic Evaluation of Water Reuse.
Innovation.
Program Evaluation.

Recent Key Projects:

'Value of New Zealand Recreational Fishing', New Zealand Ministry of Fisheries.

'Unmet demand for Information Technology and telecommunications courses', Department of Education, Training and Youth Affairs. 'Economic and Social Impact of Gaming on the Provincial Cities', Provincial Cities Assoc. of SA. 'Labour Market Planning for the Regions'. 'Keeping Pace: A study on the South Coast Region, Fleurieu Regional Development Commission.

Review of Science, Technology and Innovation Program in Victoria.

Investigation into the Impact of Caps on Electronic

Gaming Machines and Review of Self-exclusion Programs.

Labour Market Planning and Supply Side Response (NT Government).

Provincial Cities Update 2002 (Provincial Cities Association of SA).

A Series of Regional Economic Reviews, Forecasts and Planning. Extension of 'Keeping Pace: A Study of the South Coast Region' (Fleurieu Regional Development Commission).

Program and Project Evaluations: Cost and Models Analysis for Commonwealth and State Agencies.

Victoria

Peter Tesdorpf & Associates

Contact: Mr Peter Tesdorpf
Director

Unit 2 1386 Toorak Road
Camberwell VIC 3124

Tel: (03) 9889 6177

Fax: (03) 9889 6166

Email: tesdorpf@netspace.net.au

Products and services:

Regional and local economic development.
Regional cooperation and intergovernmental relations.

Planning and urban affairs.

Facilitation, consultation, advocacy, negotiations.

Strategy development and policy analysis.

Local government and community affairs.

Project management.

Recent Key Projects:

Our consultancy is small, innovative and flexible. We can handle small single person assignments right through to large projects where we assemble multi-disciplinary teams. We have successfully completed over 100 assignments spanning a wide range of issues in several States for clients including regional development organisations, Local State and Commonwealth governments, large and small businesses, utility companies, ACCs, peak bodies and private clients.

The Principal, Peter Tesdorpf, has over 28 years experience including managing delivery of the Commonwealth's regional development program, establishing regional bodies, as Executive Director of one of Australia's most successful regional organisations of Councils and as a local government and consultant planner. He was Victorian President of the Planning Institute of Australia for 2000, 2001 and 2002 and is a past councillor of the Regional Science Association ANZRSAL.

Centre of Policy Studies

Contact: Contact: Professor Philip Adams
Director

Room 1161, Menzies Building

Monash University

Clayton VIC 3800

Tel: (03) 9905 2398

Fax: (03) 9905 2426

Email: philip.adam@buseco.monash.edu.au

Website: www.monash.edu.au/policy/

Products and services:

The Centre of Policy Studies (CoPS) is an acknowledged world leader in computable general equilibrium (CGE) modelling. These models are widely used by government, private and university sectors in Australia and overseas. The Centre has 14 research staff, including three professors, plus 4 support staff.

The Centre operates a number of large-scale multiregional CGE models which it applies to forecasting, policy analysis and historical analysis. CoPS produces forecasts of Australian regional economies at the statistical division level. It also conducts analysis of a wide range of economic questions at the regional level, including regional development, tourism, hallmark events, major projects, energy, the environment, natural resources, labour markets, transport, industry productivity, microeconomic reform and fiscal federalism. Detailed information on the Centre's products and services can be found at our website, or by phoning the CoPS' Director-Consulting, Professor Philip Adams, on (03) 9905 5094.

CoPS provides a post-graduate research programme and conducts a number of short training courses in economic modelling each year. Prospective students should contact Associate Professor John Madden on (03) 9905 9757. The Centre also produces a suite of general-purpose economic modelling (GEMPACK) software especially suitable for general and partial equilibrium models. It can handle a wide range of economic behaviour. GEMPACK is used in over 400 organisations in over 60 countries. Potential subscribers to GEMPACK should contact Professor Ken Pearson on (03) 9905 5112. Further information on the above services can also be found at the CoPS' website.

Recent Key Projects:

CoPS undertakes around 20 major commissioned studies each year. A few recent examples are:

Economic Modelling for The Review of Commonwealth-State Funding.

Tourism Scenarios and Australian Regional Economies.

Economic Impacts of Townsville Power Station Proposal.

Regional Effects of E-commerce.

MMRF-Green Model for Transport Analysis.

Impact of a New Nickel Mine and Refinery in NSW.

Impact of an Outbreak of Foot and Mouth Disease.

Geographical Information Systems for Better Water Pricing.

Proposed Canberra-Sydney Fast Rail Link.

Research Planning Design Group (TBA Planners P/L)

Contact: Mr Trevor Budge

PO Box 2750

Bendigo VIC 3554

Tel: (03) 5441 6552

Fax: (03) 5441 6694

Email: rpdgroup@netcon.net.au

Website: www.rpdgroup.com

Products and services:

Strategic Planning.

Regional Economic Development.

Statutory Planning.

Research - Demographics, Economic.

Rural and Resource Based Research.

Community Consultation.

Recent Key Projects:

Regional Dynamics Report - Department of Innovation, Industry & Regional Development.

Research for Department of Sustainability & Environment 'Victoria in Future 2004'.

Regional profiling - Wimmera Development Association and Department of Sustainability and Environment.

Enhancing the capacity of local government to contribute to the management of dryland salinity - Land and Water Australia.

Regional growth centres study - Victorian Department of Infrastructure.

Victorian rural living study - Department of Infrastructure.

Western Australia

Institute for Regional Development

Contact: Dr Neil Drew

Associate Professor

Director

35 Stirling Highway

Crawley WA 6009

Tel: (08) 9380 8029

Fax: (08) 9380 7995

Email: neildrew@ird.uwa.edu.au

Email: liaison@ird.uwa.edu.au

Website: www.ird.uwa.edu.au

Products and Services:

Community facilitation and mediation.

Develop and deliver the education, training and professional development initiative.

Economic and social assessment.

Infrastructure planning and evaluation.

Natural resources and environment management.

Policy formulation and analysis.

Post Graduate Programme in Regional Development - national and international - occ@ird.uwa.edu.au

Professional development and capacity building for regional development practitioners.

Programme and project planning and evaluation.

Regional advocacy.

Strategic and statutory planning.

Tourism planning: eco and wilderness tourism.

Recent Key Projects:

An evaluation of the impacts and implications of environmental initiatives on the maritime transport sector for the Australian Maritime Group of the Australian Transport Council.

Provision of field research and professional inputs for the environmental assessment of the Hydroacoustic Station (HAo1) to be located offshore from Cape Leeuwin to monitor illegal nuclear tests.

Specialist input into identification of high priority areas for dedication as no-take marine reserves in the World Heritage Area of the Great Barrier Reef Marine Park.

Specialist input into the resources inventory for the coastal and marine planning strategy and management framework for the Batavia Coast.

The preparation of the Coastal Environs Report for the South West Catchment Council's regional strategic plan.

The provision of specialist consultancy services for community consultation and for the preparation of the Warren Blackwood Development Plan for the South West Development Commission.