Measuring Community Wellbeing in Cotton Communities

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The Measuring Community Wellbeing in Cotton Communities Study was commissioned by the Cotton Catchments Communities Cooperative Research Centre (CRC) to better understand the socio-economic status of communities where cotton production and its associated activities form a significant component of the regional economy. Study areas, by Local Government Area, included Moree Plains, Narrabri, Narromine, Warren, Dalby/Wambo and Millmerran. The study developed a framework and set of social, economic and environmental indicators based on notions of community wellbeing and social sustainability that can be used to measure how the selected 'cotton communities' are performing against relevant state and national benchmarks over time, and to aid in better understanding the relationship between the industry and community wellbeing.

The investigation spanned a period of drought that affected both irrigators and dry-land farmers to varying degrees across the study areas. Most indicators relate to 2005-06 including the August ABS Census, which preceded the peak of drought conditions for irrigators and cotton production. The energy and mining boom has been gathering momentum since 2000 and has emerged as a major factor driving development in Narrabri and the Darling Downs. These two events are impacting communities in very pronounced ways, both economically and socially.

The importance of studies that track changes in community wellbeing should not be underestimated, as they will serve a significant role in better understanding the relationship between the wellbeing of communities and the cotton industry over time and in a constantly changing environment.

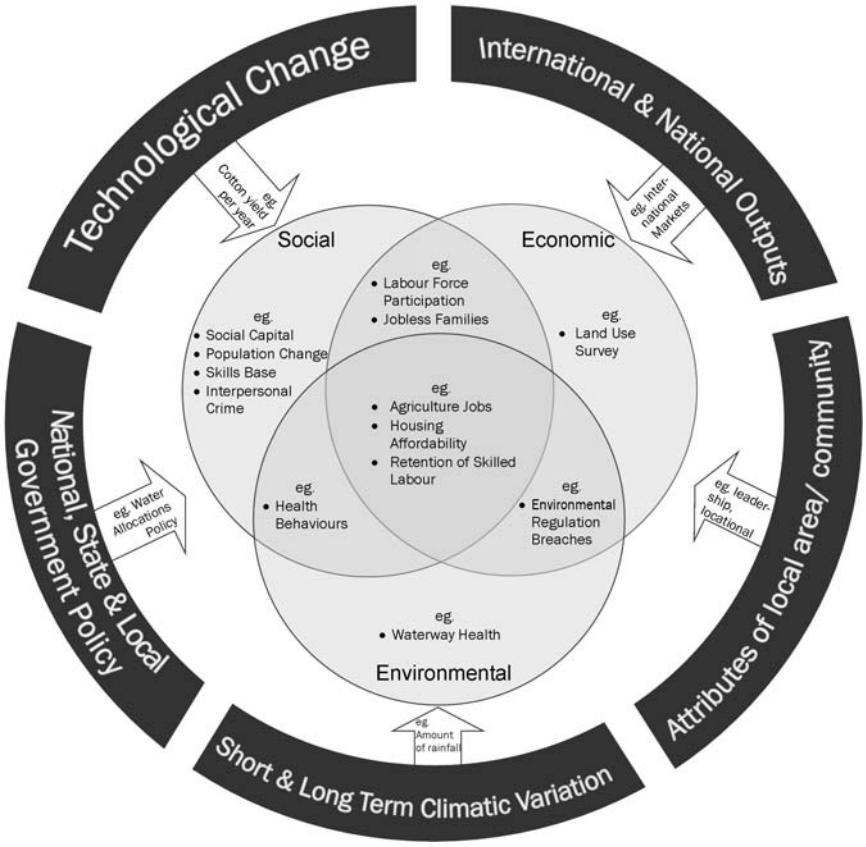
Community Wellbeing Framework

Wellbeing is described as "a state of healthy development and can be applied to people, organisations and systems, and major policy fields."[1] Discussion of community wellbeing often refers to sustainability and the integration between social, economic, environmental, cultural, and governance dimensions. It used to be that a prosperous economy was seen as the most important aspect of community wellbeing, however the concept has since shifted beyond 'what people do for a living' to a more holistic exploration of 'how well they live.'[2] Distributional dimensions of outcomes on different members of a community must also be considered, in addition to the performance of a community as a whole against relevant benchmarks. A community, for example, may be wealthy on average, but may have a relatively few high-income and many low-income residents, and quite different experiences of health. Many planning models are now designed to measure broad aspects of wellbeing by looking at the interrelationship between economic, social and material wellbeing.[3]

In our view, 'community wellbeing' is displayed through the attributes and long-term capacity of a community to be a place where people *want* to live, *can* live, and *prefer* to live when compared to other areas. The community wellbeing framework developed for this study focuses on the interrelationship between social, economic and environmental factors, with an emphasis on those issues that fall at the intersection between the three fields, as well as an acknowledgment of the external factors that contribute to overall wellbeing but are not in and of themselves indicators of

wellbeing. A key element of this approach is the idea of robustness or resilience, or how well a community can withstand, respond and adjust to changing circumstances and challenges presented by factors in the external environment. The following figure illustrates this approach to community wellbeing.

Figure 1. JSA Community Wellbeing Framework



Methods

The development of the study framework and selection of indicators was derived from a literature review and rigorous assessment of a range of possible social and economic indicators for their ability to contribute to the aims of the study including their accessibility, reliability, and ability to be repeated to ensure that tracking over time can be achieved. The study focuses on six selected regions of NSW and QLD and compares their current status against state and national benchmarks across a range of indicators. The economic indicators involved compiling regional equivalents of the measures from the national accounts system used by the ABS. In addition to the application of the indicators and compilation of secondary indicators, additional qualitative data were obtained through interviews, community surveys, local business surveys and stakeholder workshops in some of the communities.

A list of the indicators was first distributed to 28 stakeholders in Narrabri NSW for consultation. Stakeholders were asked to indicate the level of importance of each indicator for tracking community wellbeing. Results from the Narrabri consultation showed that the majority of respondents agreed with the types of indicators proposed. The indicators were then applied to the cotton communities of Moree Plains, Narrabri, Narromine, Warren, Dalby, Wambo and Millmerran.

These communities were compared to Balance NSW, Balance QLD, NSW, QLD and Australia values.[4] Data for the majority of the indicators used in this study is reported by Local Government Area (LGA), a standard geographical classification common to all of the communities.

This is a pilot study designed to provide preliminary findings about the selected communities, with the framework and indicators able to be replicated in other cotton communities for comparison. Long term monitoring and tracking of these indicators will be required to gain a richer understanding of the complex relationship between the cotton industry and community wellbeing. With some adaptation, the framework is sufficiently robust to be applied in any community of interest, regardless of its involvement with cotton production.

Results

A wide range of indicators was applied across all of the case study communities. It is outside the scope of this paper to present detailed findings for each community. Instead we have drawn out some common themes and trends evident across the communities.

Economic Indicators

All of the case study regions have a high dependence on agriculture. They vary in terms of the extent to which the economy has non-agriculture related urban activities. It is those urban activities that provide diversity of economic structure and protection against the seasonal and market instability of agriculture. For this section of the work, input-output models were compiled to implement the national accounts structure and to analyse the flow-on impacts of the cotton industry to the respective economies. The economies vary considerably in size although that is emphasised by the drought effects likely to be more severe in NSW than in the Darling Downs. A summary of main economic findings is shown below in Figure 2.

Figure 2. Summary of Case Study Region Economies (2005-2006)

Socio-Economic Indicator	Moree Plains	Narrabri	Narromine	Warren	The Darling Downs	NSW	QLD	AUS
Gross Regional Product 2005-06 $m	$605	$520	$205	$110	$1,278	$315,709 (GSP)	$178,581 (GSP)	$967,453 (GDP)
Agriculture Share of GRP (%)	43.7	28.4	34.8	44.2	17.6	-	-	-
Employment – workplace 2006	5,691	5,350	2,159	1,105	14,450	2,748,396	1,737,621	9,104,184
Diversity Index	28.8	30.1	33.0	48.2	25.3	4.9	6.4	1.0
Cotton Growing Share of GRP (%)	29	19	11	22	6	-	-	-
Cotton Research Share of GRP (%)	0.3	1.7	-	-	0.04	-	-	-

Source: CARE (2008), ABS (2006) Australian National Accounts: State Accounts, ABS (2006) Census of Population and Housing, Cotton Catchment Communities CRC and Cotton Research and Development Corporation.

Agriculture, forestry and fishing formed a considerable portion of the GRP for each area ranging from 44% for Moree Plains and Warren to 18% for Darling Downs. The impact of the cotton industry on GRP (both direct and flow-on impacts) contributed between 6% in Darling Downs and

29% in Moree Plains. Cotton research was most significant in Narrabri. Cotton growing accounted for around $400 million in regional product when aggregated across all the areas.

These results reflect many factors including development strategies, development opportunities, size and location. Remoteness is most evident in Warren, which is highly specialised in agriculture with limited opportunities to diversify (and to date not able to gain from energy-related developments). World-class competitiveness in agriculture is the hallmark of Moree Plains and Narrabri, with the latter building a cluster of cotton related activities, and is on the brink of major energy developments. Narromine benefits from its proximity to the fast growth in Dubbo with 24% of its workforce commuting to work. The Darling Downs aggregation is building size, is proximate to SE Queensland and is a focus for energy developments. As a result, Dalby is rapidly taking on the characteristics of a major urban centre. All of the case study regions remain relatively specialised and their strategies should include building diversity into their economic structure.

Typically unemployment was 1-2% points below national and state benchmarks, except in the case of Moree Plains with unemployment currently 1% point above benchmarks. Uptake of traineeships and apprenticeships was generally below state averages, however again, proximity to regional centres and extractive industries appeared to be related to the rate of trainees and apprentices.

Social Indicators

Tracking social indicators can help us understand how well communities are coping with change. While a direct correlation between a specific indicator and an external influence like drought is difficult to draw, by looking at a range of indicators and taking into account the context, we can better understand how communities are changing and adapting to internal and external influences over time. Social indicators used in this study include median age of a population, change in population size, migration of individuals to the from an area, the composition of household types in a community, health behaviours, school enrolments, rates of chronic disease and premature death and crime.

Population growth is perhaps the most obvious social indicator. Each of the areas, except Dalby and Wambo, has experienced depopulation during the period of 2001 to 2006. Millmerran and Warren each experienced a net decrease in population of more than 15%. Collectively, these cotton communities lost in excess of 3,700 residents or more than 7% of the total population between 2001 and 2006. A large proportion of this decline in population may be attributable to the impact of the drought, however Narrabri and Warren both lost population in the preceding five-year period from 1996 to 2001 indicating a continuing trend of rural population decline. Dalby and Wambo actually experienced an increase in population between 2001 and 2006, which may be attributed to their closer proximity to the regional centre of Toowoomba and the major urban areas of the Gold Coast and Brisbane. These trends are predicted to continue over the next twenty years. Other notable indicators included net loss from outward migration across all communities but more noticeably so in NSW communities.

The NSW towns tended to have much larger Indigenous populations with Moree Plains having 19.9% of Indigenous people and Millmerran (in Darling Downs) having 2.7%, just above the Australian average of 2.3%. This difference is likely to have a profound impact on the needs and concerns of each area.

The Australian Bureau of Statistics Socio-Economic Index For Areas (SEIFA) index of disadvantage shows that all of the study areas are disadvantaged relative to the national average; again with the NSW areas significantly disadvantaged compared to the Queensland towns. A number of health indicators were also considered. Of most concern was the high level of premature mortality across the study areas with Warren and Narrabri having the highest rates at around 50% above the NSW average, as well as relatively high crime rates across the study areas. On the positive side, labour force participation rates and engagement in community volunteering are high. A summary of key findings from the social indicators for the study areas and benchmarks of NSW, QLD and Australia are displayed below in Figure 3.

Figure 3. Key Social Indicator Findings

Socio-Economic Indicator	Moree Plains	Narrabri	Narro-mine	Warren	Dalby	Wambo	Millmer-ran	NSW	QLD	AUS
Median Household Income ($/week)	$946	$792	$725	$696	$940	$790	$795	$1036	$1033	$1027
% Population Change (2001 – 2006)	-9.9	-5.5	-3.2	-15.2	+1.3	+1.5	-21.8	+3.4	+10.7	+5.7
% Population - Indigenous 2006	19.4	9.2	15.8	12.1	6.1	2.7	2.7	2.1	3.3	2.3
Median Age	34	37	38	40	34	39	39	37	36	37
SEIFA Disadvantage	928.88	966.82	948.24	959.53	989.52	995.6	976.17	1000.46	991.53	1002.2
Skills Base - % of pop 15+ w/ trade or better qualifications	28.9	29.1	29.6	27.9	28.9	27.6	25.1	40.7	37.6	30.1
Labour Force Participation (15+)	61.8	61.3	59.8	64.1	62	65.3	62.3	58.9	61.8	60.4
Labour Force Participation (65+)	20.4	14.9	17.6	26.6	10.0	28.2	18.6	8.49	8.57	8.42
Youth (15-24yrs) Unemployment Rate	13.2	13.9	15.3	13.8	9.3	4.3	7.3	11.5	8.9	10.2
Premature Mortality Rate	3.28	4.88	3.94	4.64	DNA*	DNA	DNA	2.6	DNA	DNA
Chronic Disease Index (Rate per 1,000)[5]	922.5	950.7	958.7	DNA	996.1	982.7	940.4	885.3	959.1	928.7
Crime Rate (Steal from Dwelling)	571.0	592.7	440.8	672.2	DNA	DNA	DNA	358.8	DNA	DNA
Crime Rate (Total personal crime)[6]	3325.9	1961.6	1905.3	2658.2	DNA	DNA	DNA	1190.2	DNA	DNA
Voluntary work for an organisation	22	25.8	26.3	29.1	22.1	30.2	28.5	17.1	18.3	17.9

Source: ABS (2006) Census of Population and Housing Census, Population Health Information Development Unit (PHIDU) (2005), NSW Bureau Of Crime Statistics and Research (BOCSAR) (2007)

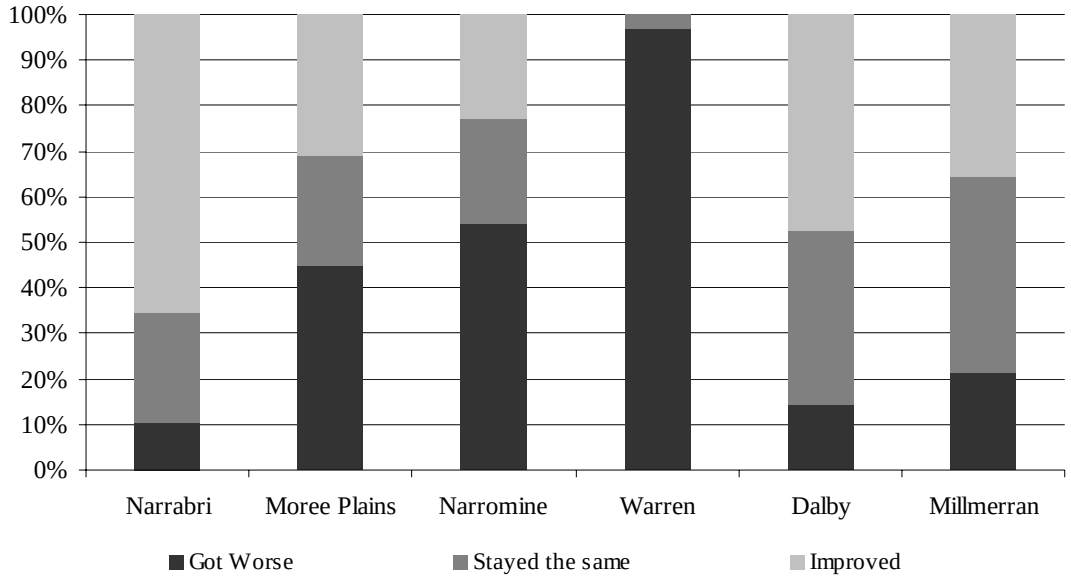
* DNA – Data Not Available

Community Survey

A telephone survey of 30 residents in each community was conducted to gain an understanding of how people perceive their community and their relationship with the community. Respondents across all of the study areas had overwhelmingly positive feelings about their community, with the

majority indicating that they were either ‘very positive’ or ‘positive’ about how life is going in their community currently. The primary differences in sentiment were clear when participants were asked ‘how life has changed in your area in the last five years.’ While residents in Narrabri, Dalby and Millmerran generally felt that life has improved, those in Moree Plains, Narromine and Warren were much more likely to feel that things have either ‘stayed the same’ or ‘gotten worse’ in the last five years. Respondents from Warren attributed these feelings to the effects of the drought including the high numbers of people moving out of the area, business closures and the general vitality of the town.

Figure 4. “Compared to 5 years Ago, Life in My Community Has…”



Environmental Indicators

The environment is made up of both ‘built’ and ‘natural’ features. The built environment includes homes, places of work and places of recreation and play, which are created by humans. The natural environment refers to the natural features and physical layout of the area in which a community is located. Information about the built and natural environment is useful and important for understanding the wellbeing of a community, as these features and attributes may contribute to a community’s local identity or way of life. The relationship that the community has with its environment, how natural resources and features are used and valued, is likely to have an impact on planning and development strategies.

Due to limitations of the scope of this study, our review is limited to indicators of the wellbeing of the built environment. Indicators used in this study included tenure based on homes being purchased, social housing and vacant properties; median weekly rental and home loan repayment costs; and measures of housing stress for low income households. Further study of the connection between the natural environment and overall community wellbeing is recommended.

Each of the cotton communities report a median weekly rent cost well below the national benchmark of $190 per week and the state benchmarks. Wambo reports the lowest median weekly rental cost at $70 and Dalby reports the highest at $160. Generally, there was good access to housing across the areas with low levels of ‘housing stress’, or after-housing poverty.

Discussion and Conclusion

The study revealed clear differences in wellbeing between the communities, which are likely to be the result of many factors. Primary factors appear to be related to proximity to capital cities and large regional centres, the impact of the drought and energy/mining boom, diversity of the local economy and other less tangible aspects of community resilience.

Proximity to Larger Centres

There are striking differences across many of the indicators between the NSW and QLD communities studied. We attribute some of these differences to the proximity of these areas to larger regional centres. The Darling Downs towns studied (Dalby, Wambo and Millmerran) are all relatively close to Toowoomba, such that many Dalby residents choose to commute, and are within approximately 200 km of Brisbane and the Gold Coast. Within the NSW communities, the clearest example of this influence can be seen between Narromine and Warren. Whilst both are relatively small communities, the proximity of Narromine to Dubbo has a noticeably positive impact on the wellbeing of the area and its capacity to both diversify and access the employment opportunities and services of a larger centre.

Drought Coupled with the Energy & Mining Boom

Wellbeing in many of these communities is being affected by the recent drought and its impacts on the agricultural sector, as well as by the energy and mining boom occurring in locations around the country including some of those studied here. Impacts have included jobs lost in agriculture and associated industries, workers and families moving to seek employment opportunities in the energy and mining sector elsewhere, workers and families choosing a fly-in/fly-out schedule to access employment opportunities elsewhere yet remain residents of the community, or, if the boom is occurring in the local area, benefits are directly observed and experienced by the community. There has been tremendous difficulty for unskilled agricultural workers, as many have lost work due to the drought and technological advancements in cotton production that have reduced the need for chippers and itinerant workers. Many local businesses indicated that the drought was having a significant impact on their livelihoods. For others who have chosen to follow new opportunities in the energy and mining sectors, there are impacts on family and community relationships. For example, some workers in Narromine have left for the mines in NSW or WA, while the family has stayed in town. It appears that many such arrangements last about 12 to 18 months, then either the family moves away or there is a separation.[7] Some residents of Moree worry that when the drought breaks and the jobs return, many of the skilled workers will not return to the community. However, the opposite seems to be the case in Narrabri and Dalby where energy/mining activities are bringing more opportunities to the area and are generally thought to be a positive influence on the community among those surveyed.

Economic Diversity

Economic diversity appears to be a key indicator of community wellbeing and robustness. Dalby is an example of an area where the traditional agricultural (primarily cotton) base to its economy is changing and diversifying. The area is also home to many feedlots, grain cleaning and processing operations, coal seam gas plants, coalmines, machinery manufacturers, and an ethanol plant in the near future. It is acknowledged that cotton has had a lot to do with establishing the now-diverse

economy, such that many of the machinery and electrical companies would not exist if it were not for the base the cotton industry provided. However, there is a sense that when cotton was booming it was benefiting a very small part of the community, while the 'new economy' is benefiting the community more widely. Further evidence of this change is the annual 'Australian Cotton Week' held in Dalby, which this year will be known as the 'Cotton On To Energy' festival. This is a small but significant indicator of the shifts taking place in the local economy and community focus.

Narrabri has also diversified its economy in many ways. While still having a strong agricultural base, the increase in specialised cotton related research and upsurge of mining not far away has had an impact on the diversity of the community and its ability to attract a range of groups to the area. Despite these changes, Narrabri has still experienced a net out-migration of people and a decrease in overall population between 2001 and 2006. Of the areas included, Warren appears to be the community that is most reliant on the cotton industry. Factors including its more remote location and lower level of diversity contribute to this reliance and the sense that it seems to feel the impact of external influences (such as the drought) more strongly than the other communities. We see this most strongly in the results from the community survey in Warren, where when asked 'how life has changed in the last 1 year, and last 5 years' 95% of those surveyed felt that 'things have got worse'.

Community Resilience

What makes a community strong? While a strong economy is an essential component of a strong community, there are other attributes that contribute to community strength and resilience – many of which are related to the health and wellbeing of individuals, relationships and service structures, and community leadership. This study has aimed to identify some of these attributes that influence the capacity of a community to be a place where people can live, want to live and chose to live compared to other areas. These attributes are benchmarked here and can be tracked over time through the indicators and replication of the community and business surveys used in this study.

Overall, there appears to be a difference in the health and wellbeing of the communities across the state line, such that the NSW areas appear to be experiencing a reduced level of wellbeing across many indicators compared to the QLD areas. Indicators where these differences are most apparent include: SEIFA measures that show less disadvantage in the QLD areas, higher unemployment rates in NSW, higher labour force participation rates for youth and indigenous people in the QLD areas, higher rates of premature deaths from cancer in the NSW areas, and population projections which show gradual increases for the QLD areas and continued decline in the NSW communities. Moreover, when the study areas are compared with two randomly selected NSW non-cotton areas we see more similarities between the non-cotton NSW towns and the QLD cotton towns. For example, the non-cotton NSW areas are less disadvantaged, have lower crime rates and have lower rates of premature mortality compared to the NSW cotton towns. To what extent these differences are related to the cotton industry is very difficult to say, which is why continued tracking of the indicators.

A limitation to the study is noted in this regard. In particular, there were too few data points (towns) to draw meaningful conclusions regarding the role of cotton *per se* in any perceived variations in wellbeing across the study areas. Further, as a snapshot in time, it is not possible to correlate specific changes in variables in the external environment (e.g. drought, government policy, area

under cultivation, etc) with selected indicators of community wellbeing. Understanding the contribution of cotton to the local economy is not straightforward or constant but able to be calculated for a particular period. However, understanding the role of cotton in relation to other aspects of social wellbeing is a more complex and multi-dimensional endeavour, and is an important area of more detailed future study.

However, results from the community survey show some interesting contrasts to the indicators. Residents from all of the study areas report a high level of satisfaction with life in their communities. If we rank the communities in terms of their responses to the survey questions regarding social cohesion/social capital the order is Narrabri, Warren, Millmerran, Narromine, Dalby and Moree Plains. This indicates that while economic diversity and proximity to larger centres is important, other factors contribute to feelings of neighbourliness, community engagement and community safety, as many of the more remote communities with smaller economies show higher levels of social cohesion and social capital compared to the larger and more economically diverse areas. An example of this is that despite the high rate of respondents who felt that life in Warren has got worse in the last five years, correspondingly 90% of Warren respondents felt either 'very positive' or 'positive' about life in their area at the moment. These findings received an interesting response from the Warren consultation workshop. As one person exclaimed,

> "The fact that so many people in Warren said that things have got worse in the last 5 years says to me that they responded honestly! It makes me feel good that even though people said they think things have gotten worse, they are still positive about living here. I think that says a lot."

It is this kind of positive attitude, expressed by both the community through the survey and by a local leader present at the workshop, which demonstrates some of the resilience and robustness of a community to withstand challenges and the potential to adapt positively to change**.**

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1 Wiseman, J et al. (2006) Measuring Wellbeing, Engaging Communities: Developing a Community Indicators Framework for Victoria: The Final Report of the Victorian Community Indicators Project, Institute of Community Engagement and Policy Alternatives (ICEPA), Available online at www.communityindicators.net.au, p21.

2 Kusel, Jonathan (1996) Well-Being in Forest-Dependent Communities, Part I: A New Approach, Pages 361-373 in Sierra Nevada Ecosystem Project: Final Report to Congress. Vol. II, Assessments and Scientific Basis for Management Options. Center for Water & Wildland Resources, University of California, Davis, California.

3 Wiseman, J et al. (2006) Measuring Wellbeing, Engaging Communities: Developing a Community Indicators Framework for Victoria: The Final Report of the Victorian Community Indicators Project, Institute of Community Engagement and Policy Alternatives (ICEPA), Available online at www.communityindicators.net.au, p19.

4 Balance NSW refers to all of NSW minus the Sydney SD. Balance QLD refers to all of QLD minus the Brisbane Statistical District. These values aims to provide a more accurate comparison to other rural and regional areas of NSW and QLD.

5 Chronic Disease index refers to the rate per 1,000 for 5 selected conditions including respiratory system diseases, circulatory system diseases, Type 2 diabetes, mental and behavioural disorders, musculoskeletal system diseases

6 Total Personal Crime includes rates for domestic assault, non-domestic assault and sexual assault, this data is sourced from NSW BOCSAR. Crime statistics in QLD are not collected or published so as to be comparable with NSW, this data is not included here.

7 Response received from Narromine stakeholder workshop, Narromine NSW, 30 January 2008.