Submission to the
Cassowary Coast Regional Council

28 July 2008

ITC Timberlands Pty Ltd
Diversified & Hardwood (High Value) Timber Projects in the Tully region

Economic Impact Assessment of Locating Forestry Plantations on Good Quality Agricultural Land

THG Resource Strategists
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Executive Summary

This report has been prepared under instructions from ITC Timberlands Pty Ltd (project proponents). It is designed to provide an assessment of the likely economic impact of their plantation forestry operations as a result of their undertaking a number of “high value” hardwood timber projects in high rainfall areas far north Queensland – in particular, Tully and surrounding regions. Attention has been focussed on the impact of locating forestry plantations on “good quality agricultural land”: it informs the Further Information Request for Development Application No 087/08 (Material Change of Use) requested by Cassowary Coast Regional Council, in reference to “the impact on the local economy of removing the property which is classed as Good Quality Agricultural Land from the production of food products for a period up to 20 years”.

This report accompanies Development Applications lodged for a material change of use for a forestry application over properties located at Stamp Road, Tully ("Stamp Road Tree Farm" - 1,063 ha being Lot 122 on SP 125442), Bruce Highway, Murrigal ("Murringal Tree Farm“ – 761.3 ha being Lot 120 on CWL3059), off Bruce Highway, Tully ("Trost Tree Farm“ – 40.4 ha Lot 1 on SP136934), and Upper Murray Road Tully ("Saini Bhella Tree Farm“ - 250 ha being Lot 3 on RP800579, Lot 2 on RP742041, Lot 1 on RP748825 and Lot 69 on CWL546)

By way of background, it is acknowledged that plantation forestry generally enjoys a high level of government support at both state and federal levels, reflected in strategic industry initiatives such as Vision 2020 (encouraging further development of private timber plantations in Australia from the 1997 level of one million hectares, to three million hectares by 2020), and tax deductibility for forestry MIS (managed investment schemes). Forestry projects also enjoy strong levels of investor support across wide sections of the Australian community. In addition, its environmental friendliness is widely recognised.

In addition to the continuance of beef cattle production where appropriate, the projects operated by ITC Limited at far north Queensland will establish alternate usage of land formerly utilised principally for various agricultural pursuits, including sugar cane growing, banana farming and cattle production. Whilst the primary activity to be conducted will be plantation forestry, which in itself has been described as a form of agriculture, it should be recognised that significant agricultural production will continue to be carried out on the sites in the form of, inter alia, beef cattle grazing. ITC is a major beef cattle producer in Australia, with this form of agriculture carried out on all forestry allotments upon early tree establishment. ITC have demonstrated their commitment to carrying out all their activities on an environmentally friendly basis, with no clear felling of native forest. The use of artificial chemicals will be limited (especially when compared to more traditional forms of agriculture), with the project banning usage of atrazine.

The employment multipliers for forestry operations are widely acknowledged. Typically, this has been calculated to be in the order of, for every job in the plantation forest industry, between 0.65 – 1.3 jobs being created in other related industries. Further, that for every $1m spent by the plantation sector, 8-17 new jobs are created. ITC’s High Value Timber Projects in far north Queensland will also generate significant levels of direct employment, with a considerable proportion based within the local community. It may be anticipated that for every direct job employed, more jobs will be created in other industries based on a multiplier of 1.3. Given the greater intensity of the High Value Timber project, the
multiplier could rise to 2 times or more depending on output and production, and efficiency levels reached due to productivity.

The project is also likely to contribute significantly to stabilising the economic growth within the local region, and there will be considerable flow-on effects due to plantation sector development, spending, and employment by the sector. Further, based on similar projects, for every $1m spent by the project an estimated $1.6 m to $1.75m will be generated in regional output, as well as a further $0.3m to $0.5m of income plus flow on activity outside the region. Retention of expenditure by local contracting firms and landholders whom undertake work associated and paid for by the forestry operations of ITC at Tully and surrounding districts is expected to be high (based on experience in WA, this could be at least 65% of such expenditure). It is also estimated that the likely level of long term direct employment for forest growing and harvesting could approach existing employment levels for the Tully sugar industry. In summary, overall community benefits will be significant and a boost in local employment and economic activity is likely.

Nonetheless, in some quarters, concern has been expressed regarding the impact of forestry projects on the local sugar industry. Specifically, this Report examines the impact of the ITC Timber projects on the local sugar mill located at Tully. In order to do this, the matter is looked at in the context of all local, regional, and macro settings. This is assisted by examination of a number of recent, major reports completed on the socio-economic impacts of forestry operations and plantation expansion generally. In the main, these independently prepared documents have provided overwhelming acknowledgement of the contribution of the sector, and detail the benefits that timber plantations have for local economies and local communities.

Further to this, the findings of a recent report asserting adverse economic and other consequences, significantly impacting schools, infrastructure and small businesses, is strongly challenged. The findings of this Report agrees with the vast bulk of literature and research on this matter, establishing that the most likely outcome as a result of the Far North Queensland forestry project implementation, will be an increase in local economic activity, even though some impact might be felt at the mill level. Overall, the community will benefit. Importantly, any economic comparisons between sugar cane growing and processing are more correctly made with forestry production and processing, not just forestry production: this is a fundamental issue to be considered when comparing research material. The prospect of “mill closures and sugar ghost towns“ mooted by some is much more likely to be an outcome of the sugar outlook and in particular world sugar prices, and / or seasonal / growing conditions, rather than any other factor. Concerns about the rate of expansion of forestry on traditional cane land would seem to relate strongly to the ambitions of sugar mill operators wanting to increase their viability by continued expansion of their manufacturing operations, rather than recognising an opportunity for both industries to co-exist and provide benefits to cane growing families and communities.

The tropical hardwood forestry project represents a potentially vibrant new industry for the region. It has sound potential for the development of associated value-adding businesses required to process the timber, and the expansion of other local businesses which are capable of providing goods and services to the organisation and its employees.

In relation to Good Quality Agricultural Land (i.e. land which is capable of sustainable use for agriculture, and used for crop or animal production) it can be
observed that the concept is well embedded within the State Planning Policy - primarily to guide the protection of this important natural resource from unnecessary development. In many instances it is a mechanism used to prevent residential or other kinds of development in such areas.

Forestry is identified by various levels of government as “a form of agriculture” and “a legal agricultural pursuit”, with statutory instruments in Queensland generally identifying the need to identify and target land suitable for forestry production, having regard to a range of environmental, social and economic factors. Whilst local government may consider it prudent for tree plantations to be impact accessible, recent experience suggests strong reluctance to use it as a mechanism for banning a legitimate pursuit.

Not only is plantation forestry an accepted form of agricultural pursuit, but in the case of ITC their forestry operations are tightly integrated with more traditional agricultural pursuits - in particular, the grazing of beef cattle on all of its forestry holdings. The only exceptions are those plantations establishing seedlings over the first few years from planting. Currently, ITC has approximately 5,000 head on plantations in the Rockhampton / Gladstone and Mackay regions. Therefore, by any measure, ITC is a major agricultural producer of foodstuffs. Rather than withdrawing land from the production of food, ITC intends that the land acquired, and being acquired for forestry operations, continues to be utilised for agricultural production of food.

Moreover, the National Principles established by the Australian Government provide that plantations established for wood production should be treated in the same way as any agricultural production. These principles promote greater investment in plantations, requiring that the impediments to plantation development are minimal with security of access to established resources a priority. Provided that social and environmental objectives are met, the national principles to be applied in the management of plantations are not intended to impose controls on the plantation industry that do not apply to other agricultural activities.

Finally, the importance of forestry operations as a genuine measure to reduce the impact of global warming, and therefore acting to preserve the future viability of agricultural land, is almost unquestioned. Recognition of this has led to related legislative instruments being introduced in many countries throughout the world, and is integral to many communities strategies to control, and meet, greenhouse gas emission targets. It is also a major factor, having strong general support from the scientific community, in the prevention of expanding greenhouse gases. Aside from any economic argument, it can therefore be reasonably concluded that any calculation on the impact of forestry utilising agricultural land, including “good quality agricultural land” that may be used for the production of food products, should seriously take into account the broader issue of its value in combating the impact of global warming and mitigating the subsequent potential for total loss of those lands from agricultural production as a consequence.
Government Support of Plantation Forestry

Plantation forestry in Australia has a high level of support by governments, exemplified in “Plantations for Australia: The 2020 Vision” - a shared federal and state Government and industry initiative. According to the website, this program seeks to encourage further development of private timber plantations in Australia from the 1997 level of one million hectares, to three million hectares in 2020 (About Plantations, 2007).

The Australian Government’s general level of supportive of plantation forestry may also be seen in its determination “to provide greater certainty for investors”... ensuring "the continued expansion of our plantation forestry estate, so reducing our reliance on native forests and on overseas exports” (Review of the taxation of plantation forestry 2006). The previous Howard Government also publically expressed their strong support of the plantation industry (Abetz, 2006) recognising that "large scale establishment of plantations was creating employment in regional areas as well as generating export dollars which were reducing Australia’s trade deficit in forest products of around $2billion per annum” (Senator Abetz, Australian Forestry Minister). The Minister also acknowledged their pleasure in seeing that “companies such as Great Southern are working hard to fulfil the vision targets set out in Vision 2020”.

The Australian Government recognises that wood production is an accepted major commercial use of Australia's forests and is the primary purpose for establishing and managing plantations. The National Principles (Forest practices related to wood productions in plantations: National principles 1996) recognise that plantations can provide a range of commercial, environmental and aesthetic benefits to the community. In pursuing a vision of ecologically sustainable management of Australia's forests, Australian Governments, through the National Forest Policy Statement, have enunciated a national goal for plantations:

"to expand Australia’s commercial plantations of softwoods and hardwoods so as to provide an additional, economically viable, reliable and high quality wood resource to industry".

The nature of Government support, in a financial sense, is primarily achieved via tax deductibility for forestry investors. Subsequent to a Statement issued in December 2006 by the Australian Government (Review of the taxation of plantation forestry 2006), it can be summarised that this currently extends to upfront deductibility under certain conditions for all expenditure by investors in forestry MIS (managed investment schemes), with investors treated as passive investors for GST purposes, and thus removed from the “GST net”.

As noted in a media article outlining the continuing “boom” in the tax-effective managed investment scheme industry (Bolt, 2005), the MIS can be further explained by considering that, unlike most other products, timber plantations have a concession from the Federal Government, which allows investors to claim

![Figure 1 Ownership (Australia's Plantations 2007 - National Forest Inventory Update, 2007)](image-url)
deductions provided the money is spent finding land and establishing the trees within 12 months rather than in the same financial year. Thus, investors are able to hold off until June 30 and still claim all or most of their investment as a tax deduction. However, it should be recognised that the MIS pays tax on the funds collected, in the year collected, with no deductions.
Common Misconceptions Concerning Plantation Forestry

Major Objections Commonly Directed at Plantation Forestry Operations

1. **Objection**: “Although plantations are a viable alternative to native forest logging, ironically native forest is being clear-felled to establish plantations (instead of always using already cleared land).”
   
   **Response**: Clear felling of native forest is not undertaken or proposed by ITC for the High Value Timber Project, Far North Queensland.

2. **Objection**: “Toxic chemicals are used which inevitably find their way into water systems pollution domestic and farming supplies, e.g. Atrazine (a herbicide to kill native plant regrowth).”
   
   **Response**: Atrazine is not used by ITC for the High Value Timber Project, Far North Queensland¹

   - A recent report (Jenkin & Tomkins, 2006) into the use of pesticides in plantation forestry found that the approach used for plantation forestry contrasted with the annual use of chemical pesticides in agriculture, with the latter usually requiring a massively greater quantity of herbicides, fungicides and pesticides. The results of this analysis indicated that the Australian plantation forestry industry frequently uses chemical pesticides at less than the label maximums allowable, and continues to develop alternatives to chemical pesticides use (both complying with requirements of forest certification, and in an effort to reduce the costs of production). Individual plantation forestry managers conduct water samples associated with operations and report these as part of sustainable forest management practices. This research also found through water monitoring, levels of atrizine have typically tested at nil detection levels for plantation forestry, unlike other agricultural cropping areas such as cotton production areas in Queensland where 100% detection levels have been recorded. National Principles also require that “Use of chemicals, such as herbicides and pesticides, and other pest control methods in plantation operations will be in accordance with State policies, procedures and approved usage” (National Principles Related to Wood Production in Plantations, 2006).

Comparison of Timber Sectors – Wood chipping vs. High Value Timber: an inappropriate comparison

Other objections to plantation forestry surround the issue of apparently declining jobs in the timber industry since the introduction of wood-chipping in 1971. This is subsequent to industry research conducted in Tasmania which indicated the total number of people employed there in the wood and paper industries dropped from 5,600 in 1991 to 3,827 in 1996. In addition, since the growing eco-tourism industry now employs more people than the native forest timber industry, the need to ensure security of native forests especially is an imperative. However, it is important to realise that the ITC Timber Projects are not wood-chipping projects and therefore any comparison with other sectors of the forest industries should be done on an appropriate basis. This aspect will be expanded upon later in this report.

¹ As advised by the management of ITC
The expansion of plantation forestry represents sound potential to actually reduce the propensity of native forest logging, rather than compete with it. The Wildness Society comment that recent decades have seen a large investment in the establishment of soft and hardwood plantations, with Australia will soon have close to 1.75 million hectares of plantations. The Society predicts the supply of plantation based saw and pulp logs is expected to transform the industry and creates a valuable opportunity to dramatically reduce the scale of native forest logging. Tasmania shares in this plantation boom, with an unprecedented 1 million m3 p.a. of hardwood plantation sawlogs coming on stream from 2015 - 2020 ("Securing the future of Tasmania's forests and forest-dependent industries," 2008).

Further protection is afforded by National Principles established by the Australian Government, including the protection of water quality (physical, chemical, or biological), water yield, soil stability, and soil, water catchment, cultural and landscape values. In this context, the principles (Forest practices related to wood productions in plantations: National principles 1996) provide that the establishment of plantations for wood production should be determined on the basis of economic viability and international competitiveness, and market forces should determine the extent of resource use and the nature of industry operations. In essence, plantations established for wood production should be treated in the same way as any agricultural productions. The principles established also recognise that, in order to achieve greater investment in plantations, it will be necessary to ensure that the impediments to plantation development are minimal, that clear and consistent policies for resource development are established across all levels of government and that there is security of access to established resources. Provided that social and environmental objectives are met, Governments will keep regulations to a minimum. For example, the Commonwealth will remove controls over the export of unprocessed public and private plantation wood subject to the application of codes of practice to protect environmental values. Furthermore, it is not intended that controls be imposed on the plantation industry that would not apply to other agricultural activities².

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² In accordance with the National Forest Policy Statement, the Ministerial Council on Forestry, Fisheries and Aquaculture, representing the States and the Commonwealth's forestry authorities, prepared this statement of national principles to be applied in the management of plantations. These principles set the framework for a consistent and scientific basis for sound plantation management to which all States and Territories subscribe. Codes of practice for plantations... will take into account the range of plantation types, conditions and situations applying due to natural and cultural variations (Forest practices related to wood productions in plantations: National principles 1996).
**Socio-economic Impacts of Timber Plantations - Overview**

**Independent Reports Prepared on the Socio-Economic Impacts of Plantation Forestry**

One recent commentary on the Forest plantation industry (*Plantations, Investment and Employment Facts*, 2008) establishes that forest plantation expansion can make a significant contribution to the socio-economic well-being of rural areas. It summarises these benefits as follows:

- Over $4 billion of new investment in plantations and processing facilities have occurred/are planned since 2002.
- The majority of employment is created by timber processing activities.
- Since 1989-90, off-farm income has supplied around 65% of household income for broad-acre farms. Plantations are one sector which can provide such income.
- Plantations now supply 66% of Australia’s raw timber production.
- Australia still has a $2 billion trade deficit in timber products, much of which is imported paper products.

This report also comments that plantation expansion in rural areas has provided much needed employment in several regions facing population decline due to agricultural consolidation. A five year study of socio-economic trends in the Oberon area of NSW during the 1990’s revealed that local employment opportunities from a softwood industry which processes a range of wood products allowed extended farm families to remain in the region, when farm incomes were no longer able to support more than one generation.

In addition to this, over the last few years there have been a number of major reports completed on the socio-economic impacts of forestry operations, with five of these reports prepared on the socio-economic effects of plantation expansion. These independently prepared documents provided acknowledgement of the contribution of the sector, and "have dispelled the myth that timber plantations are bad for local economies" (Macdonald, 2005). They include:

1. Socio-economic impacts of plantation forestry in the Great Southern Region of WA, 1991 to 2004 (Schirmer et al., 2005d)
2. Socio-economic impacts of plantation forestry in the South West Slopes of NSW, 1991 to 2004. (Schimer et al., 2005a)

The summary booklets are:

4. Socio-economic impacts of plantation forestry in the Great Southern Region (WA), November 2005 (Schirmer et al., 2005b)
5. Socio-economic impacts of plantation forestry in the South West Slopes (NSW), November 2005 (Schimer et al., 2005c)

The first two reports were prepared for the Australian Government by the Bureau of Rural Sciences, and funded by the Forest & Wood products Research & Development Corporation. They examined the socio-economic impacts of the
plantation sector in two areas (Great Southern, WA, and south-west slopes of NSW) over the period between 1991 and 2004. The studies established links between socio-economic characteristics – notably those related to population and employment - with plantation sector expansion. The NSW study relates primarily to an established by rapidly expanding softwood industry, whilst the WA study reports primarily on the expanding hardwood plantations and in particular that more recently established. The Reports were acknowledged (Fisher, 2005) to confirm the role that plantations and wood processing can play in many regional areas of Australia, with the NSW study “associated with higher than average growth in working age population and stable household income, both of which are good indicators for ongoing economic and population growth”.

Both studies determined that the social-economic impacts can sometimes be very different during the different phases of establishment (plantations expanding but not ready for harvest), transition (harvesting and processing both being established), and mature (rotational harvesting and replanting).

Whilst acknowledging difficulties in identifying what causes socio-economic change (due to complexity and multiplicity of land utilisation occurring simultaneously), key conclusions reached by the NSW study indicated that ongoing growth in the plantation sector (especially processing) had contributed to the stabilisation of the population of towns, and the stability of economic growth across LGA’s (Local Government Areas). It found that despite increasing mechanisation, employment levels remained steady over time since efficiency increases were more than matched by harvest volume increases. The report determined that those local economies that were more heavily dependant on agriculture tended to experience a population decline. Further, that the high level of employment in the plantation sector accounted for 1.53 people directly employed per 100 hectares of plantation (Schimer et al., 2005a). It also found that for every dollar invested by the plantation sector, a total of $1.63 to $1.83 of output is generated, and $0.31 to $0.49 generated in the form of wages or salaries income to employees in the region, with further flow-ons evident. The end result establishes that “for every $1 million spent by the plantation sector, between 8.3 and 15.7 jobs are created in the region, depending upon which part of the industry is examined (includes both direct employment by the plantation industry, and flow-on employment generated as a result of the demand for goods and services from the plantation industry”.

The Western Australian study also acknowledged the complexity of socio-economic change, and found there were a number of underlying drivers behind this. These drivers primarily related to changing population dynamics (ageing population, fewer younger people entering farming), shift towards coastal areas and the withdrawal of services from smaller rural areas into larger regional centres. The introduction of new land uses in high rainfall areas, particularly plantations and viticulture, were also listed as major drivers. However, it was determined that plantation expansion was not a factor not leading to higher rates of rural decline at the local government area scale, but was responsible for growing employment associated with the expansion of plantation harvesting currently taking place in the region. The end result in higher rainfall areas was to evidence more growth in population and associated services than the lower rainfall areas with higher dependence on agriculture. This report found that (Schirmer et al., 2005d):

- for every $1 million spent by the plantation sector, 17.15 jobs are created in the region (includes both direct employment by the plantation industry,

3 This amount had fallen slightly over time from 1.71 jobs per 100 ha in 1991-92, to 1.53 jobs per 100 ha in 2003-04, attributed to reflect increases in efficiency.
and flow-on employment generated as a result of the demand for goods and services from the plantation industry)

- In addition to flow-on employment created outside the region, every direct job in the plantation sector equates to flow-on employment of 0.65 people with the region.

- for every $1 million spent by the plantation industry an estimated total of $1.76 million is generated in regional output, and a further $0.53 million of income; plus flow on activity outside the region.

Importantly, it was also determined that a significant proportion of expenditure by contracting firms and landholders, undertaking work associated and paid for by plantation operators, was made within the region the plantation was located (67% in the case of Great Southern WA).

A further report (A Socio-Economic Assessment of the Plantation Processing Sector in Queensland, 2005) reviewed the socio-economic contribution of the Exotic Pine and Araucaria ("softwood" only) processing sectors in Queensland, concluding the industry whilst robust is approaching a period of significant change associated with stabilisation in overall volume from the forest, concluding little significant expansion of the public or private estate. Although data is now several years old, the report highlighted the significance of the softwood processing industry in Queensland as the major forestry sector in the state and a major employer, consumer and contributor to gross domestic product. Without considering normal socio-economic multipliers, the Report recorded that the industry contributes around $572 million to the Queensland economy, spending locally $346 million, directly employing 1,754 people and another 670 employees in contracting organisations — i.e. harvest, haulage, mill-based, finished product transport, rail, ship loading etc. If normal multipliers are used, the flow on effects of the softwood processing industry in Queensland is reported as being in the order of $1,026 million, with some 3,154 jobs potentially supported (directly and indirectly). The Report calculated that a total of around $96 million in household income could be dependant, directly or indirectly, on payments made to labour in the industry.

In addition, an earlier report (Addicott & Freeman, 2003) also reviewed the socio-economic contribution generated by the forest industries of Central Victoria. It provided an overview of the three main forest industries within Central Victoria being the softwood plantation industry, the hardwood plantation industry and the native forest industry. Although now outdated information, it demonstrated that at the time these industries combined to play a significant role in the economy of Central Victoria, directly generating income of $233 million and directly employed 976 people. Taking indirect effects into account and using an estimated income and employment multiplier of two, it accounts for $466 million income, and employment of 1,952 people.

More recently a report profiling the contribution of the forest industry to the Queensland community has been prepared by the state Department of Primary Industries and Fisheries DPIF (The Queensland forest industry: An overview of the commercial growing, management and processing of commercial forest products in Queensland, 2004). This report updates the scope diversity and complexity of forest industries, and more particularly expressed relevant industry multipliers and other socio-economic indicators applying. It demonstrated that the Queensland Forest industry is a significant employer, with the largest component involved in the wood product manufacturing segment (34% of the labour force), followed by the furniture manufacturing segment (29%) and the smallest segment being forestry growing (10% of the total employment in the
Queensland forest industry). This emphasises the importance of forestry processing especially in the employment equation, as against production or growing of timber. Although data is now becoming somewhat outdated, it does provide a background to other key statistics presented including:

- $1 million of forest industry output generates:
  - $380 000 of value added and 8.5 jobs in the forest industry itself
  - $300 000 of value added and 5.1 jobs in input supplying industries
  - $380 000 of value added and 5.9 jobs are generated by additional household consumption.

- In total, every additional $1 million of forest industry output contributes an estimated $1 070 000 of value added and an estimated 19.5 full-time-equivalent jobs to the Queensland economy.

- These results show that for every additional one dollar of value added generated in the forest industry, an estimated additional $1.80 of value added is generated in the Queensland economy external to the forest industry. Furthermore, for every additional full-time-equivalent job in the forest industry, an estimated 1.3 full-time-equivalent jobs are created in the Queensland economy external to the forest industry.

This multiplier analysis may be summarised thus:

**Flow-on impacts (multipliers) of the Queensland forest industry**

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Industrial support</th>
<th>Type 1</th>
<th>Consumption induced</th>
<th>Type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value added</td>
<td>0.38</td>
<td>0.30</td>
<td>0.69</td>
<td>0.38</td>
<td>1.07</td>
</tr>
<tr>
<td>Employment</td>
<td>8.52</td>
<td>5.09</td>
<td>13.61</td>
<td>5.90</td>
<td>19.50</td>
</tr>
</tbody>
</table>

The table above provides a summary of the flow-on impacts of the forest industry to the Queensland economy (when aggregated, these impacts provide a measure of the overall linkages of the forest industry to the Queensland economy). The input-outputs summarised thus:

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4 Initial impacts refer to the direct impact of an increase in forest industry output on value added and employment in the industry itself.
5 Industrial support impacts refer to the flow-on impacts that increased forest industry output has on input supplying industries, that is, the additional activity resulting from the requirement of more inputs to the forest industry.
6 Consumption induced impacts refer to the overall impacts on household incomes (and therefore consumption) of increased forest industry output.
Inputs and outputs of the Queensland forest industry

The DPIF Report therefore argues that the forest industry impacts on many different parts of the Queensland economy. It suggests this is because one industry’s output is another industry’s input, with indirect links also arising because of competition between industries for labour, capital and other inputs. The conclusion reached is that when these economy-wide impacts are taken into account, the economic contribution of the forest industry to Queensland is clearly much more wide-ranging and substantial than any direct measures made.

Macro-economic Impacts of Forestry

The Gross value of production (‘farm gate’) from Sugar cane is $730 million, compared to Forestry’s $210 million. However, “first-round processing” accounts for $305m (Sugar processing) and $360m for log sawmilling and various timber manufacturing: $360 million (Prospects for Queensland’s Primary Industries 2007–08, 2007).

The following impacts have also been observed (BRS, 2005):

- Timber plantations are an important part of the Australian forest industry, making a significant contribution to economic activity and employment.
- The forest industry is the country’s second largest manufacturing industry, employing over 86,000 people.
- It contributes over 1% to the country's Gross Domestic Product (GDP).
• The forest industry provides diversity to many rural economies that have been battling decline.

• Recent studies conducted by the Bureau of Rural Sciences (BRS) into the Socio-economic Impact of Plantation Forestry included the following findings.
  
  o For every $1million spent by the plantation sector, between 8.3 - 15.7 jobs are created.
  
  o For every direct job in the plantation sector, more than 1.3 jobs have been created.
  
  o The plantation sector can contribute to stable economic growth in regional areas.
  
  o Local government areas with a significant plantation presence experience either rural population growth or a lower rate of rural decline than those with a high dependence on broadacre agriculture.
  
  o The forest industry small towns with high levels of plantation sector employment experienced:
    ∼ At all stages of plantation sector development, spending and employment by the sector has flow-on effects.
    ∼ Purchase of supplies and services locally generates employment and taxable income.
    ∼ Expenditure by plantation sector employees generates employment and taxable income

The extent that plantation forestry impacts a region may be readily seen by a recent Queensland government (Forestry Plantations Queensland) decision to shut down its timber harvesting agreement with Pentarch Forest Products resulting in the loss of 200 full time jobs, involving a reported $444 export revenue and a capital investment of $27.5m (NQ Timber Industry Wiped Out, 2007).

The economic importance of forestry has also been recently recognised once more by the Queensland Government. The FNQ Regional Plan states that “Agriculture, forestry and fisheries are major contributors to the regional economy and are dependent on the use of its natural resources. FNQ is fortunate to have large areas of good quality agricultural land which provide the basis for its extensive agricultural, horticultural, dairying and grazing industries” (Far North Queensland Draft Regional Plan 2025, 2008). Furthermore, “While much of the region’s rainforest is protected within the Wet Tropics World Heritage Area, there is still potential for a strong and lucrative forestry industry in the region in the form of private farm forestry, sustainable management of native forests and broad- hectare plantations”.

**Employment Opportunities resulting from plantation forestry**

The employment multipliers for forestry operations are widely acknowledged. Typically, this has been calculated to be in the order of, for every job in the plantation forest industry, between 0.65 – 1.3 jobs being created in other related industries. Further, that for every $1m spent by the plantation sector, 8-17 new
jobs are created (Forest and Wood Products Research and Development Corporation).

Socio-economic studies have shown that when the flow-on or indirect effects are added to the direct effects, plantation forestry can produce significantly more jobs than agriculture (Plantations, Investment and Employment Facts, 2008). For example, 900 ha of beef cattle production on the north coast of NSW generated 4 jobs in the regional economy. A 900 ha eucalypt plantation in a steady state with 30 ha being harvested and processed annually generated 50 jobs. The majority of these jobs (42) are delivered by timber processing activities (CARE 1997).

This broadly compares with estimates undertaken by others such as the Bureau of Rural Sciences (BRS) which concluded that for every $1million spent by the plantation sector, between 8.3 - 15.7 jobs are created, and for every direct job in the plantation sector, more than 1.3 jobs have been created (findings included in the Socio-economic Impact of Plantation Forestry).

Conclusions reached by Gillespie Economics also support the foregoing general employment outcomes. This is contained within the context of proposed 5 year investments in Tasmania's forests, as suggested by the Australian Conservation Foundation and the Wilderness Society (Protecting Forests, Growing Jobs: Review of the Australian Conservation Foundation and The Wilderness Society Proposed 5 Year Investment in Tasmanian Forests and Jobs Growth, 2004). In particular, it is calculated that Industry Development Assistance would provide 20 direct new jobs created by a Plantation Hardwood Sawlog Program, which would see a High prune of an additional 14,000 ha of existing hardwood plantations for High Quality saw logs - 100,000m3/annum. Secondly, up to another $48m investment for the creation of up to 900 direct new jobs created involving incentives for higher value downstream processing designed to encourage greater productivity, sustainability and responsible utilisation. The project will see retooling of mills and encouragement of investment in downstream processing of existing plantation. Products will include sawn timber, veneer, laminated veneer lumber (LVL), various particle boards inc. MDF, pulp & paper, based on world’s best practice environmental processes.

Social and Environmental Context

The forestry has been noted to be an important contributor to social cohesion - the industry interacts with its host communities in complex ways that affect the character and wellbeing of these communities (The Queensland forest industry: An overview of the commercial growing, management and processing of commercial forest products in Queensland, 2004). This latter report comments that the forest industry, especially the sawmilling segment, is the main employer in many small regional Queensland communities. It also suggests that the strong linkages between the forest industry and the broader community mean that the fortunes of the forest industry and host communities are directly related. However, many of these interactions are not easily quantified.

Further, it is increasingly, and widely held, that economic theory and policy can no longer be understood in isolation from the natural world. Attempts to bring about a richer understanding of this commenced a number of years ago with the development of environmental economics as a distinct discipline. Ecological economics progresses these concepts further “in recognition that economic behaviour cannot be understood outside its social and environmental context” as expressed by Gowdy in Ecological Economics (Common & Stagl, 2005). Thus
neoclassical economics now incorporates the study of human economy as part of nature's economy.

Ecological economics can therefore assist in understanding the role the environment might play in determining economic benefit or detriment. It includes for example, the possible impacts of agricultural, forestry, mining or other operations upon the landscape. Whilst acknowledging difficulties in measurement, there are a number of distinct features related to forestry that can be determined in terms of environmental and social impact.

One of the most profound advantages of forestry is the positive impact upon the concentration of greenhouse gases in the earth’s atmosphere. This is especially important in the case of the most significant greenhouse gas, carbon dioxide (CO₂), which is the major contributor to anthropogenic (i.e. due to human) emissions predominantly caused by fossil fuel combustion. Common describes this phenomenon as the “enhanced greenhouse effect”, greatly influencing the warming of the earth, with the most pressing impact upon resources being the loss of agricultural and urban land in low-lying coastal areas (Common & Stagl, 2005).

The DPIF in Queensland (The Queensland forest industry: An overview of the commercial growing, management and processing of commercial forest products in Queensland, 2004) suggest that forests serve at least three principle roles in global efforts to address climate change:

- as a major storehouse of carbon in terrestrial vegetation and forest soils and, where the area of forests is extended or biomass increased, as a sink of carbon dioxide from the atmosphere
- forest products can serve as a low-embodied energy-building material, replacing those materials with higher embodied energy or emissions associated with their production (like steel, concrete and aluminium)
- forest biomass can contribute renewable energy, such as biomass energy and charcoal.
- There are also opportunities provided for the disposal of waste (recycled) water: Using recycled water to establish and irrigate forests may be a means for the disposal of municipal water in an ecologically sustainable way. In addition, there are benefits to other agricultural activities: e.g. Forests can also provide shelter and shade for livestock, rehabilitate degraded land, and help to increase overall agricultural productivity and sustainable natural resource management.

The contribution of forests in combating the global warming problem is widely documented across scientific literature world-wide. This particularly relates to the potential reversing of compromised “life support services”, perhaps the most worrying threat of global warming. Such a response to the enhanced greenhouse effect is known as “offsetting”, as it has the opposite climatic effect of consequences due to greenhouse gas build up in the atmosphere. It offers a more practical and possibly realistic alternative than “adaptation” (simply letting things happen, and making necessary adjustments to the changing climate), and sits well with the other alternative of “mitigation” (reducing the rate of increase in greenhouse gas emissions by humans).

Although mitigation is currently the primary tool used by most nations to combat the impact of global warming, particularly in terms of setting global CO₂ emission
targets and the like, offsetting is a widely-recognised / utilised method of slowing down the rate of increase in greenhouse gases. In an economic sense, it is certainly on par with other methods of de-carbonisation of the economy (i.e. reducing CO\textsubscript{2} emissions per $ of GDP) especially given population growth alone counteracts merely holding CO\textsubscript{2} emissions constant at the current level - since that will not even stabilise the existing concentration (Common & Stagl, 2005).

The combination of offsetting and mitigation has resulted in the emergence of “Carbon Offsetting” typically achieved by the purchase of carbon offsets to compensate for the greenhouse gas emissions. Offsets have traditionally involved tree planting, however many other forms of carbon offsetting have since emerged including, for example, methane capture, renewable energy, and energy conservation offsets. The EPA describe a carbon offset as an investment in a project or activity that reduces greenhouse gas (GHG) emissions or sequesters carbon from the atmosphere that is used to compensate for GHG emissions from an organisation’s activities. Businesses purchase 'credits' from emission reduction or carbon sequestration activities occurring at another location to offset their calculated emissions. Forestry activities is described as a typical project that can be invested in to provide a Carbon offset products. Offsets are usually measured in tonnes of carbon dioxide equivalents, and can be sourced from a variety of projects that reduce or sequester emissions of one or more of the six key greenhouse gases\textsuperscript{7}, including carbon dioxide (“What are carbon offsets?,” 2008).

Thus, the acquisition of carbon credits is a carbon emission offsetting process whereby an organisation purchases carbon credits to neutralise its CO\textsubscript{2} impact on global warming. The purchase and withdrawal of emissions trading credits creates a connection between the voluntary and regulated carbon markets. Each carbon credit represents the abatement or sequestration of one tonne of CO\textsubscript{2} - or carbon emissions - from the atmosphere. Tree plantation projects sequester CO\textsubscript{2} through photosynthesis; thus allowing for the creation of carbon credits. This enable funding the removal of CO\textsubscript{2} from the atmosphere by the purchase of carbon offsets from tree plantation projects.

Tree planting has played an important role in enabling organisations, and the community generally, to participate in offsetting. This particularly applies in the case of afforestation (establishing forests on land not previously forested) which has been documented to produce higher carbon sequestration rates\textsuperscript{8}. There is evidence of accelerating interest in investing in such projects, with EcoBusinessLinks suggesting that “....more and more people are concerned about global warming and seeking to reduce their climate impact, carbon offsets, along with personal carbon reductions, providing an important solution to global warming” (“EcoBusinessLinks - Environmental Directory,” 2008).

The importance of forestry operations as a genuine measure to reduce the impact of global warming, and therefore acting to preserve the future viability of agricultural land, is therefore almost unquestioned. This is despite commonly held assertions, as well expressed by McTaggart, of the uncertainties of economists

\textsuperscript{7} The six key greenhouse gases are described by EPA Victoria as being carbon dioxide (CO\textsubscript{2}), methane (CH\textsubscript{4}), nitrous oxide (N\textsubscript{2}O), hydro fluorocarbons (HFC\textsubscript{n}), perfluorocarbons (PFCs), and sulphur hexafluoride (SF\textsubscript{6}).

\textsuperscript{8} It should be noted that this may occur due to the level of carbon in such land being normally comparatively low. Also, it should be noted that concerns have been raised over the permanence of carbon storage in trees and forests, as potential future clearing or burning of the forest would return the stored carbon to the atmosphere. In addition, claims have been made that plants are a significant source of methane (a potent greenhouse gas), raising the possibility that trees and other terrestrial plants may be significant contributors to global methane levels in the atmosphere. However these claims have been disputed and there is now some doubt over whether plants are significant emitters of methane.
being able to calculate how temperature increases translates into costs and benefits, and climatologists ability to calculate how carbon emissions translate into atmospheric concentrations (McTaggart et al., 2003). The importance has nonetheless been enshrined in legislative instruments in many countries throughout the world, and is integral to many communities strategies to control, and meet, greenhouse gas emission targets. It is also a major factor, having strong general support from the scientific community, in the prevention of expanding greenhouse gases.

The importance of this issue is also highlighted by the Australian Sugar Milling Council, who devote a whole section in their Annual Report (Annual Review 2006 Season - Australian Sugar Milling Council, 2007) to this issue. The focus is on the economic effects of climate change and concludes that "The pursuit of Government policy change to foster more renewable energy, projects must be given the highest priority by the sugar industry". Although commentary tends to focus on aspects relating to bio-fuel production and renewable energy, they agree that "serious, long-term and irreversible damage will occur from business-as-usual paths for emissions and the cost will be up to 5% of GDP unless a continuing investment of 1% of GDP is directed toward reducing emissions and achieving stabilization of greenhouse gas levels".

It is therefore suggested that any calculation on the impact of forestry utilising agricultural land, including "good quality agricultural land" that may be used for the production of food products, should seriously take into account the broader issue of its value in combating the impact of global warming and mitigating the subsequent potential for total loss of those lands from agricultural production as a consequence.

**Impact of the plantations on the environment**

The establishment of hardwood plantations has a number of environmental benefits. The major ones include reduction in salinity and erosion problems caused by historic over-clearing of land, assisting in the absorption of phosphates which have built up in the soil, and (where applicable) produces a woodchip product which requires less bleaching than native forest chips.

A comprehensive study has been undertaken by the Department of Primary Industries & Fisheries in Queensland (The Queensland forest industry: An overview of the commercial growing, management and processing of commercial forest products in Queensland, 2004). In outlining the environmental benefits for the community, it suggests emphasis benefits in improving soil conservation, reducing soil salinity levels, improving the water quality of streams and rivers, maintaining biodiversity, and mitigating the greenhouse effect and climate change. The report highlights the way the forest industry benefits the environment including:

- Lowering the water tables to mitigate salinity: In drier parts of Queensland there is a build-up of salt deep in the soil. Where trees are cleared from the land the result is raising water levels, which carry salt to the surface, killing crops and other plants. By utilising underground water, forests help to keep the water table low, thereby contributing significantly to the prevention of salinity.

- Improving the water quality in streams: By acting as a filter, forest vegetation helps to keep rivers and streams clean and healthy. New
plantation development on cleared land will lead to enhanced downstream water quality over time.

- Soil conservation and improving soil structure and fertility: Forests protect the ground and watercourses from erosion. When it rains, the fallen leaves, grass and small plants on the forest floor help soak up the water and stop the soil from being washed away. Leaf litter adds organic matter and nutrients to the surface layers, improving the rate water infiltrates the soil. The removal of forests results in faster water movement and erosion, and may pollute river water with excess nutrients and silt.

- Maintaining biodiversity: Native forests provide habitats for many thousands of unique plants and animals interacting and depending on one another within an ecosystem. Research has demonstrated that plantations can also provide habitats for native fauna.

- Mitigating greenhouse effect and climate change: Since the Industrial Revolution, increased concentrations of CO$_2$ and other greenhouse gases are thought to have resulted in changes in global climate and weather patterns, and may continue to do so in the future. Carbon sequestered by appropriately managed plantations and native forests may play a significant role in mitigating the greenhouse effect and climate change.
Socio-economic Impacts of ITC Plantations Operating in Far North Queensland

ITC Limited – Forestry Overview

ITC Limited is an agribusiness. The company’s website reports that ITC Limited is a forestry company with a history of sawmilling and value-adding timber for over 80 years, and delivery of forest establishment and management services to retail, corporate and institutional investors since the early 1990s. Employing 450 staff nationally, including 70 forestry professionals and PhD qualified staff, the activities are stated to be managed through two operating divisions: ITC Forestry and ITC Timber. ITC Forestry delivers plantation establishment and management services nationally while ITC Timber processes and value-adds high-grade, quality timbers in Victoria and Tasmania for architectural applications, furniture, flooring and construction material.

Independent analyst Lonsec reports that amongst the company’s key “project drivers” is the extensive experience of ITC as Forestry Manager, with approximately 152,000 hectares of plantation forests under management (ITC Diversified Forestry Project 2008, 2008).

Another independent analyst comments that ITC’s plantation division (ITC Forestry) first offered managed investment scheme (MIS) investments in 1992 and now manages over 50 different plantation projects. It establishes and manages a range of hardwood plantation species including Eucalyptus, Sandalwood, Teak and Mahogany (ITC Diversified Forestry Project 2008: Retail Investment Research, 2008). ITC’s timber processing division (ITC Timber) is a producer of timber for domestic and export markets. With production capacity to receive more than 250,000 cubic metres of logs in Victoria, Tasmania and New South Wales, it specialises in the processing of native re growth eucalypts and has experience in harvesting, processing and marketing woodchips to paper and pulp mills in the Asia Pacific region.

There are potentially three projects under which ITC will operate their forestry plantations in far north Queensland (relevant references accompany each project):

1. ITC Diversified Forestry Project 2008
2. ITC Hardwood Project 2008
3. ITC Sandalwood Project 2008

In relation to ITC Diversified Forestry Project 2008, four different types of timber for different end products are being grown in different locations in Australia. The four different products are Pulpwood, Red Mahogany, Sandalwood and Teak. However, only Red Mahogany and Teak will be grown at Innisfail & Cooktown respectively, as per the graphic to right (Product Disclosure Statement - ITC Diversified Forestry Project 2008, 2007). The Red Mahogany Woodlots will be situated in the coastal strip of the wet tropics region of far north Queensland. The PDS indicates that the
first commercial harvest is expected to be 7 years after planting of the Project from thinning of Red Mahogany, with further Harvesests occurring periodically until the final clearfall harvest expected at age 18 years.

The ITC Hardwood Project 2008 involves both “High Value Timber” or “Pulpwood” options. The High Value Timber Option will comprise plantings of Tasmanian Blue Gum, Spotted Gum, Red Mahogany and Gympie Messmate, whilst the Pulpwood option will comprise a single species: Tasmanian Blue Gum (Product Disclosure Statement - ITC Hardwood Project 2008, 2008). Only the “high value timber” option is relevant here since the PDS states that coastal north Queensland will only comprise Red Mahogany and Gympie Messmate. Plantations in the Pulpwood Option will predominantly be located in Western Australia, in addition to SW Victoria and SE South Australia with minor plantings possible in coastal subtropical Queensland.

Finally, the ITC Sandalwood Project 2008 involves the growing of (1) Australian Sandalwood - using dryland (nonirrigated) techniques; and (2) Indian Sandalwood – the highest quality sandalwood grown on irrigated sites to be harvested approximately 15 years after planting. The relevant species here is Indian Sandalwood since it is planned to locate plantations in far north Queensland and/or in the Ord River Irrigation Area at Kununurra in Western Australia. In these regions, irrigation will be used to support sandalwood growth. (Product Disclosure Statement - ITC Sandalwood Project 2008, 2008) (Product Disclosure Statement - ITC Sandalwood Project 2008, 2008)

Therefore, the timber of relevance in the Tully region will comprise:

- Red Mahogany
- Gympie Messmate
- Indian Sandalwood

Figure 3 - ITC Tully Regional Office
Involvement with Local Rural Communities

Through its portfolio of agricultural-based projects, ITC has provided the means for thousands of investors to inject capital and skill into country areas. The documentation explains that as ITC estate reaches critical mass and continues to mature to include processing and other value-adding industries, it is helping to arrest or reverse rural decline through the provision of jobs in rural and regional areas.

The Company is also involved in beef cattle and related agricultural projects – also located in rural and remote areas. This provides people in these regions with long-term employment where there may be few other options.

ITC management advise that more than $220 million has been expended to date in Queensland – a major growth area for ITC operations. Of this amount, approximately $100 million has been for capital investment (land acquisition), and $120 million has been expended for local contractors for plantation establishment and management.

The Queensland estate is now more than 30,000 hectares, located in the Gladstone, Mackay, Mourilyan and Cooktown regions. Expansion is conducted on a sustainable basis, with plantations only established on previously cleared agricultural land.

ITC management advise that more than $200,000 is invested annually in Queensland local communities via financial and in-kind support. ITC’s stated intention is to continue support of local communities where ITC is resident.

At the local level, ITC’s community contribution also involves the re-instatement of a large wetland community project (Tully / Murray system) at Caravan Hill, including in-kind support and cash donations of $10,000 and $30,000 respectively. This has also seen involvement with the local Gerrigum aboriginal community.

Local ITC management also report involvement with the local fire brigade, and are committed to strengthening good relations with their neighbours.

Employment in undertaking Plantation Management

As regional plantation resources are growing to a critical mass capable of supporting timber processing, significant employment opportunities are opening up in terms of income to farmers, jobs in regional areas, and opportunities for development of processing industries as the trees mature.

Employment is required during the following plantation management activities:

- Establish hardwood plantation
  - Preparation of land and planting
- Management & Maintenance of the growers woodlot until tree maturity
  - Weed / pest control
  - Fire Breaks
- Harvesting
  - Felling & Chipping
  - Other activities
Rural Businesses “Upstream” and “Downstream” of Core Business Activities

Business likely to grow as a result of ITC’s plantation activities includes upstream (nurseries, mechanics, contractors, fertiliser businesses), and downstream (wood exporters, timber mills). Many rural businesses that are both upstream of the company’s core business activities (such as nurseries, mechanics and contractors, fertilising businesses) and downstream (wood exporters and timber mills, olive oil and wine producers, and abattoirs) have the potential to grow as a direct result of ITC’s activities.

Figure 4 - The phenomenal growth of less than two year old Red Mahogany shown in this photo, grown on site from seedlings like those being held by local ITC Representative.
The ITC High Value Timber Project, Far North Queensland

Establishment of plantations generally in North Queensland

According to Parsons (Parsons et al., 2006) the establishment of plantations in North Queensland has been dominated by softwood plantations concentrated between Ingham and Tully, near Yeppoon and on the Atherton tableland. He observes that these plantations are mainly on public land and have been established for many years.

It is further observed that hardwood plantations are dispersed more widely and are nearly all on private land. Of the total softwood plantation area (22,658 hectares), nearly 82% is Caribbean pine, 8% is slash pine and 6% is hoop pine. Establishment of farm forests, comprised of a range of native hardwoods, commenced on a significant scale in the 1990s with funding from the Community Rainforest Reforestation Program. More recently, a number of private investment schemes has established eucalypts, mostly spotted gum, a hybrid between flooded gum and red gum (Eucalyptus grandis x E. camaldulensis) and red mahogany North Queensland (E. pellita) and tropical hardwoods, including teak (Tectona grandis) and African mahogany (Khaya senegalensis) - the ITC Timber plantation projects is intended to be chiefly Red Mahogany and / or other tropical hardwood. Parsons also observes that due to these schemes, the hardwood area has increased by about 250% since 2000.

Establishment of ITC “High Value Timber” Plantations in Far North Queensland

ITC currently have approximately 7,000 hectares under management in the broader Mackay / Whitsunday region. The area is considered to be an excellent growing region with close proximity to end-markets in Japan and China, and access to excellent export facilities through Mackay Port.

As part of this, ITC advise that they have established a total of over 2,000 hectares of high value solid-wood tree farms within the boundaries of the newly formed Cassowary Coast Regional Council (CCRC). These plantations are predominantly of the native, fast growing appearance grade structural timber red mahogany (Eucalyptus pellita); colloquially known as Red Stringy.

In addition to considerable in-house expertise, ITC are committed to strengthening strong links with the Queensland Department of Primary Industry both locally, and in conjunction with collaborative trails. Their involvement is most significant in the areas of various forestry research, and seed selection. The company itself attends to high level mapping and planning, as well as soil testing, involving high levels of due diligence.

Whilst the Product Disclosure Statement indicates that it is not possible to accurately forecast returns (Product Disclosure Statement - ITC Diversified Forestry Project 2008, 2007), the Project has been assessed independently as representing a sound investment as follows:
ITC Diversified Forestry Project 2008 – Independent Ratings Summary

<table>
<thead>
<tr>
<th>Independent Analysis</th>
<th>Rating (Out of possible 5 stars)</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lonsec Agribusiness Research</td>
<td>Overall rating of “recommended” (assessed within 75 to 84.9 against a scale of 1-100).</td>
<td>The Project received its highest major determinant rating in financial returns, offers potential for strong financial returns for the risk profile, which are very robust to nominal and relative changes in key project assumptions. The lowest major determinant rating is in industry being exposed to the specific industry risk associated with each sector (i.e. pulpwood, red mahogany, Indian sandalwood and teak).</td>
</tr>
<tr>
<td>Adviser Edge</td>
<td>4.09 stars</td>
<td>Potential Investment returns 10.4% - 16.4% (pre and post tax) with adjusted midpoint IRR of 15%. The underlying projects within the blend are considered to be of a good quality and are grown in suitable and proven growing regions within Australia. The product provides a solid mix of both product market and regional diversification (areas chosen for planting are favourable).</td>
</tr>
<tr>
<td>Australian Agribusiness Group</td>
<td>4¼ stars</td>
<td>Returns are good in comparison to other timber Projects. The Project is very robust to changes in yield or price, demonstrating the benefits of diversification and the backend fee structure. AAG is comfortable with the marketing strategy for the timber proposed to be harvested from the Project. Growing red mahogany, teak and Indian sandalwood on this scale has only a limited history and as a result provides additional risk to investors. Any extended period of low rainfall, especially in the establishment phase of the plantations, is the major risk to investors achieving the forecast yields.</td>
</tr>
</tbody>
</table>

Sources:

ITC Properties Related to this Report

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Title</th>
<th>Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stamp Road Tree Farm</td>
<td>Stamp Road, Tully</td>
<td>Lot 122 on SP 125442</td>
<td>1,063 ha</td>
</tr>
<tr>
<td>Murringal Tree Farm</td>
<td>Bruce Highway, Murringal</td>
<td>Lot 120 on CWL3059</td>
<td>761.3 ha</td>
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<tr>
<td>Trost Tree Farm</td>
<td>Bruce Highway, Tully</td>
<td>Lot 1 on SP136934</td>
<td>40.4 ha</td>
</tr>
<tr>
<td>Saini Bhella Tree Farm</td>
<td>Upper Murray Road Tully</td>
<td>Lot 3 on RP800579, Lot 2 on RP742041, Lot 1 on RP748825 and Lot 69 on CWL546</td>
<td>250 ha</td>
</tr>
</tbody>
</table>
Labour Requirements

Currently, total direct employment by ITC in Queensland is 12 (predominantly tertiary qualified forestry, agricultural or soil science graduates), with the expectation that this will increase to 20 in the next few years. Contractor employment presently exceeds 150 people and is continuing to rise.

The planned workforce is based on the following requirements (source ITC management) –

- Currently, labour accounts for approximately 40% of total spraying costs, and 20% of cultivation costs
- Trees are pruned once per year
- Trees can be harvested over several years – the timing can be flexible in accordance with, for example, prevailing market or labour conditions.

Security for the workforce is based on a more strategic business model –

- Long term supply agreements exist with timber purchasers, and are typically negotiated three or more years prior to harvest. This tends to normalise income levels, therefore with less potential for seasonal fluctuations that are prevalent in many other agricultural pursuits.
- Harvest can be stockpiled for later negotiated sale. As a public company this can be more easily achieved than other business models that more vitally depend upon critical cash flow timing.
• The value added component is potentially significant with the prospect of sawmilling operations opening up at Tully - or a nearby region that is ideally centrally located amongst ITC forestry properties.

The Project is therefore likely to generate significant levels of direct employment, with a considerable proportion based within the local community. Based on the above data, macro-economic experience from similar projects, and estimates previously provided, it may therefore be reasonably estimated that:

1. For every direct job employed, more than 1.3 jobs will be created in other industries based on available industry multipliers. Given the greater intensity of the High Value Timber project, the multiplier could rise to 2 times or more depending on output and production, and efficiency levels reached due to productivity.

2. The project will contribute very significantly to stabilising the economic growth within the local region.

3. There will be very significant flow-on effects due to plantation sector development, spending, and employment by the sector

4. The generation of local employment and taxable income as a result of locally sourced supplies and services

5. There is a reasonable expectation that for every $1m spent by the project, a total of up to 17 jobs will be created both directly and indirectly

6. For every $1m spent by the project an estimated $1.6 m to $1.75m will be generated in regional output, and a further $0.3m to $0.5m of income plus flow on activity outside the region

7. There will be a high retention of expenditure by local contracting firms and landholders whom undertake work associated and paid for by the forestry operations of ITC at Tully and surrounding districts. Based on experience elsewhere, indications are that this could be at least 65% of such expenditure.

It is therefore estimated that the likely level of long term direct employment for forest growing and harvesting could rival existing employment levels for the Tully sugar industry. Overall community benefits will be significant with a boost in local employment and economic activity. In addition, for any fair comparison to be made, it should be recognised that cane growing and sugar milling is the equivalent to plantation establishment and growing, in addition to processing. When these are combined the benefits to both the local and broader economy is much more significant in the case of forestry, particularly when the value-added potential of high value timber products derived from tropical hardwood species like teak is taken into account.

It is submitted that these results can be predicted with a far greater level of certainty compared to the economic multipliers and impacts of the local sugar industry which are much more susceptible to production variances due to seasonal conditions, price volatility for end products, and local (i.e. domestic) demand. The sugar industry has a high level of dependence on a single commodity which has already been shown to be a problem for sugar communities when prices fall, which unfortunately has been a feature of the industry over time.

According to Australian Bureau of Agricultural & Resource Economics (ABARE) Farm cash income for sugar cane growers averaged $66 600 in 2005-06 (Hooper et al., 2007). However, an estimated 27 per cent of producers reported negative farm cash incomes. Most of the farms reporting negative farm cash incomes were
smaller sugar cane growers — that is, those producing less than 7500 tonnes. In addition, ABARE calculate gross margins achievable by sugar cane growers is generally less favourable compared to other high rainfall alternatives (e.g. 05/06 av sugar cane gross margin $363/ha, with others reporting $1,102–1,157/ha under improved systems, in comparison to Peanut-Navy bean rotation gross margin being $4,000/ha, Peanuts $2,543/ha, Soybean $590/ha, Pumpkin $693/ha, Potato $2,277/ha, Tomato $10,508/ha). In 2005–06 the average gross margin of sugar cane production (the difference between the sugar price and cash costs of production per tonne of cane) is estimated to have been around $8 a tonne. Sugar cane production was most profitable for growers in the Ord River and Herbert, and least profitable for growers in New South Wales and Far North Queensland. This may help to explain that the survey indicated that, in terms of growers intentions, around half of all cane growers indicated that they expect to maintain or increase sugar cane production over the next three years, compared with 16 per cent of growers who expected to reduce the area plant to sugar.

Recent studies indicate that improving a return on investment can emanate from a combination of factors. In a case study undertaken recently, it was found that under a new system of farming, whilst cane yield had increased from 53 t/ha to 96 t/ha, cane growing costs dropped from $1262/ha to $703/ha.


<table>
<thead>
<tr>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>Price per tonne sugar</td>
<td>$300/t</td>
<td>300/t</td>
</tr>
<tr>
<td>Average yield cane</td>
<td>53 t/ha</td>
<td>96 t/ha</td>
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<tr>
<td>Gross margin per hectare</td>
<td>$-148ha</td>
<td>$1157/ha</td>
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<tr>
<td>Gross margin per tonne cane</td>
<td>$-2.81</td>
<td>$12.06</td>
</tr>
<tr>
<td>Return on investment</td>
<td>-10.8%</td>
<td>+5.9%</td>
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<tr>
<td>Variable cost per tonne</td>
<td>$29.94</td>
<td>$13.23</td>
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<td>Production per man per annum</td>
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<tr>
<td>Cane</td>
<td>1837tc</td>
<td>15084tc</td>
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<tr>
<td>Peanuts</td>
<td>–</td>
<td>119t</td>
</tr>
<tr>
<td>Tractor labour h/ha cane</td>
<td>15.12 h</td>
<td>1.12 h*</td>
</tr>
</tbody>
</table>

*(2.4 h/ha in peanut land preparation reducing amount required for cane).

Source (Loeskow et al., 2006)

In this instance, peanuts contributed a significant amount of income with a gross margin of $2543/ha at a payment yield of 5.34 t/ha. Under the old method of growing sugar actually had a negative gross margin - the new system is profitable but the costs reduced, therefore down go the input costs by over 40%, and accordingly the production induced flow-on effects reduced proportionately. This implies that if sugar is moving this way, production induced flow ons will go down, although consumption induced flow-ons might go up though if the industry is more profitable, assuming income derived is spent locally.

Indicative Expenditure Levels for ITC Projects in the Tully Region

Expenditure levels by ITC locally are estimated as follows:
### Indicative Initial 3 Year Establishment Expenditure

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs per ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Up</td>
<td>647</td>
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<tr>
<td>Planting</td>
<td>210</td>
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<tr>
<td>Post planting Operations</td>
<td>170</td>
</tr>
<tr>
<td>Pre-planting chemicals</td>
<td>486</td>
</tr>
<tr>
<td>Seedlings</td>
<td>370</td>
</tr>
<tr>
<td>Seedling infill</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>1,913</strong></td>
</tr>
<tr>
<td>Year 2 (materials and services)</td>
<td>1,080</td>
</tr>
<tr>
<td>Year 3 (Materials and services)</td>
<td>252</td>
</tr>
<tr>
<td></td>
<td><strong>$3,245</strong></td>
</tr>
<tr>
<td><strong>Total amount:</strong></td>
<td><strong>$750,000</strong></td>
</tr>
</tbody>
</table>

Source: ITC management

All the above expenditure represents both materials and services estimates, of which nearly 100% is acquired locally. Capital expenditure on roads provides enhanced access for all persons including local residents. The following additional comments are made that relate to potential additional expenditures:

1. Feral pig control is exercised. Management report over 200 pigs across three properties have been eliminated over the previous 9 months
2. Weeding regime typically includes hand weeding.

### Value-Adding Initiatives by ITC

ITC Limited have made over $100 million long term infrastructure investment around Australia. This is likely to increase significantly with planned processing (sawmill) facilities required in future including the Tully and Ingham regions. Additionally, Far North Queensland plantations produce high value appearance grade timber, capable of providing value adding initiatives including carbon sequestration and bio-fuels and aims to offset carbon emissions from energy producers and high energy consumers in industrial processing.
Impact of the ITC Far North Queensland High Value Timber Projects on Good Quality Agricultural Land Used For the Production of Food Products

Good Quality Agricultural Land
Good Quality Agricultural land is defined as “land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources. In this context, agricultural land is defined as land used for crop or animal production, but excluding intensive animal uses such as feedlots, piggeries, poultry farms and plant nurseries based on either hydroponics or imported growth media”.

The concept of Good Quality Agricultural Land is embedded within the State Planning Policy 1/92: Development and the Conservation of Agricultural Land. This policy sets out principles to guide the protection of this “important natural resource”, and responds to growing national concern about land conservation. Specifically, it recognises that good quality agricultural land is a finite resource that must be conserved and managed for the longer term. Protecting it from unnecessary development is considered essential for maintaining the future productivity and efficiency of Queensland’s rural industries.

The Queensland Government position maintains that, though population demands mean there will be some inevitable loss of agricultural land, not just close to major towns and cities, but also in rural areas, any “unnecessary development” should take into account land conservation and the importance of agriculture. The concept provides that the best and most versatile farming land is a valuable resource that should, in general, be protected from irreversible development. The guiding principle is that it should not be built on unless there is an overriding public benefit, and no other site is suitable for the particular purpose. The overriding principle is that local governments should avoid, as far as practicable, locating residential development close to agricultural land (“Good quality agricultural land ”, 2008). This general principle is supported by the local authority for the region in which ITC operates its High value Timber project, as exemplified by recent mayoral comments (Shannon, 2008b) that “Future rural residential developments are prohibited, on the basis that there is already sufficient supply and there is a need to conserve good quality agricultural land.”

The above concepts are more formally expressed in the Position Statement of the Queensland Government which “considers that good quality Agricultural land is a finite national and state resource that must be conserved and managed for the longer term. As a general aim, the exercise of planning powers should be used to protect such land from those developments that lead to its alienation or diminished productivity.” (State Planning Policy No. 1 of 1992 (Development and the Conservation of Agricultural Land) Order - Development and the Conservation of Agricultural Land, 1992)

Furthermore, the need for consistency and appropriateness of application of the GQAL concept appears now well recognised at local government level. For example, the Cassowary Coast Regional Council expressed its view recently that it “sees merit in having tree plantations impact accessible, so that appropriate conditions can be applied, but this is not a mechanism for banning a legitimate pursuit” (Mayor’s Blog June 5th, 2008 - Cassowary Coast Regional Council, 2008).
Importantly, **forestry itself is clearly identified as “a form of agriculture”**, according to the Queensland Government (*Far North Queensland Draft Regional Plan 2025*, 2008). This document provides the need to identify and target land suitable for forestry production, having regard to a range of environmental, social and economic factors. Forestry operations can assist in meeting environmental objectives through reforestation and rehabilitation of natural areas and sustainable harvesting practices. Forestry can also play a part in the reduction of gas emissions through carbon sequestration and the resulting limitation of global warming.

**GQAL Classifications**

**AGRICULTURAL LAND CLASSES**

*(Planning Guidelines: The Identification of Good Quality Agricultural Land 1993)*

<table>
<thead>
<tr>
<th>Class A Crop land</th>
<th>Land that is suitable for current and potential crops with limitations to production which range from none to moderate levels.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class B Limited crop land -</td>
<td>Land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and/or agronomic improvements may be required before the land is considered suitable for cropping.</td>
</tr>
<tr>
<td>Class C Pasture land -</td>
<td>Land that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; but some areas may tolerate a short period of ground disturbance for pasture establishment.</td>
</tr>
<tr>
<td>Class D Non-agricultural land -</td>
<td>Land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and/or catchment values or land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.</td>
</tr>
</tbody>
</table>

The above table lists GQAL classifications. It should be noted that forestry plantations do not necessarily line up well with these classifications, with operations being able to be established on any or all of the above land classes, dependent on soil types and forest type and other considerations.

**Existing Land Uses – Overview and Outlook**

It has been recently expressed (Shannon, 2008a) that growing trees is a legal agricultural pursuit and it is not for Council to compensate for discriminatory Federal Income Tax Laws favouring tree plantations. In this recent mayoral statement, it was pointed out that the canegrower organization represents virtually all the growers in the local region and two thirds of the industry, with their executive strongly supporting farmers having the opportunity to sell their farms to whoever offers the best price. Further, that “the irony of this debate is that sugar millers are now pressing for some sort of Local Government regulation, whilst in the 1990’s they pressed for deregulation of the industry, with growers reluctant to embrace change. Now the tables have turned. The sad fact remains that the sugar industry cannot present a united position”. 

Ref: G4836
Response to GQAL Policy Principles
Principles as expressed in SPP 1/92 (State Planning Policy No. 1 of 1992 (Development and the Conservation of Agricultural Land) Order - Development and the Conservation of Agricultural Land, 1992)

1. Good quality agricultural land has a special importance and should not be built on unless there is an overriding need for the development in terms of public benefit and no other site is suitable for the particular purpose (Section 3).

Not only is plantation forestry an accepted form of agricultural pursuit in itself, but in the case of ITC their forestry operations are tightly integrated with more traditional agricultural pursuits - in particular, the grazing of beef cattle on all of its forestry holdings. The only exceptions are those plantations establishing seedlings over the first few years from planting. Currently, ITC has approximately 3,000 head on plantations in the Rockhampton / Gladstone region, and approximately 2,00 head on plantations in the Mackay region.

Therefore, by any measure, ITC can be considered to be a major agricultural producer of foodstuffs. Rather than withdrawing land from the production of food, ITC intends that the land acquired, and being acquired for forestry operations, be continued to be utilised for agricultural production of food.

2. The alienation of some productive agricultural land will inevitably occur as a consequence of development, but the Government will not support such alienation when equally viable alternatives exist, particularly where developments that do not have very specific locational requirements (for example, 'rural residential') are involved (Paragraphs 4.6-4.7).

ITC Forestry do not specifically target particular categories of GQAL. Above comments also apply here. However, extensive due diligence and testing is carried out to ensure a selected property is suitable for the tree farm purpose.

3. When preparing, reviewing or amending planning schemes, local authorities will be expected to include provisions for the conservation of good quality agricultural land, regardless of the effect of market fluctuations on its viability (Section 4).

The National Principles established by the Australian Government (Forest practices related to wood productions in plantations: National principles 1996) provide that plantations established for wood production should be treated in the same way as any agricultural productions. The principles established also recognise that, in order to achieve greater investment in plantations, it will be necessary to ensure that the impediments to plantation development are minimal, that clear and consistent policies for resource development are established across all levels of government and that there is security of access to established resources. Provided that social and environmental objectives are met, Governments will keep regulations to a minimum. For example, the Commonwealth will remove controls over the export of unprocessed public and private plantation wood subject to the application of codes of practice to protect environmental values. Furthermore, in accordance with the National Forest Policy Statement, the Ministerial Council on Forestry, Fisheries and Aquaculture, representing the States and the Commonwealth's forestry authorities, the national principles to be applied in the management of plantations are not intended to impose controls on the plantation industry that do not apply to other agricultural activities.
4. The preparation of strategic plans should include an evaluation of alternative forms of development, and significant weight should be given to those strategies which minimise the impacts on good quality agricultural land (Paragraph 4.2-4.3).

Beef cattle grazing will continue on all woodlots once seedlings are mature enough to withstand grazing pressure – usually with a few years of establishment. Agro-forestry, itself a form of agriculture, is a compatible land use and is strategically sound for various reasons presented in this report.

5. Due consideration should be given to the protection of good quality agricultural land when applications for rezonings, consent, or subdivision are being determined (Paragraph 4.1).

Unlike clearly ambiguous development such as rural residential or urban expansion, the protection from such inappropriate or unnecessary development is entirely consistent with plantation forestry operations which provide a sound alternate agricultural use of land.

6. Where a planning scheme does not contain adequate agricultural land conservation provisions, the Government will be guided by the principles set out in this Policy when considering applications for the approval of planning schemes, rezoning and other scheme amendments (Paragraph 4.1).

Forestry is strongly aligned with sound land and resource conservation practice. The integral part which forestry operations play as a genuine measure to reduce the impact of global warming, and therefore acting to preserve the future viability of agricultural land, is almost unquestioned.

7. The fact that existing farm units and smallholdings are not agriculturally viable does not in itself justify their further subdivision or rezoning for non-agricultural purposes. Subdivision provisions and policies should be devised in a way that encourages amalgamation of titles where this would enhance farm viability (Paragraph 4.5).

Not applicable in this instance.

8. Local Authority planning provisions should aim to minimise instances of incompatible uses locating adjacent to agricultural operations in a manner that inhibits normal farming practice. Where such instances do arise, measures to ameliorate potential conflicts should be devised wherever possible (Paragraph 4.8).

Although generally committing land utilisation for extended periods compared to most other forms of traditional agriculture, plantation forestry is compatible with other forms and in many instances may actually assist other agricultural pursuits by providing natural advantages to adjacent agricultural operations through the provision of such things as wind breaks, and elimination or reduction of water-logging.
Impact of the ITC Far North Queensland High Value Timber Projects on the Local Sugar Industry

The Queensland Sugar Industry – Overview and Outlook

It is widely recognised that the sugar industry is a cornerstone of many Queensland regional communities, providing employment and livelihood for many Queensland families. The size of the industry can be measured, according to Sugar Australia, by considering more than 38 million tonnes of cane has been crushed annually in Australia (QLD, NSW and WA) and 5.25 million tonnes of raw sugar produced. In 2006 the ASMC (Annual Review 2006 Season - Australian Sugar Milling Council, 2007) calculated that the amount of cane processed by Queensland Mills was 33 million tonnes, down 7% compared to the previous season (refer Appendix 5 for further detail). The impact of Cyclone Larry was attributed as the major cause. Australian raw sugar industry is estimated to be one of the largest in the world, producing 5.2 million tonnes of raw sugar annually and 85% of this is exported ("About Sugar Australia - Overview," 2008). Queensland produces 95% of Australia’s raw sugar, with 85% of Queensland’s raw sugar production sold on the world market, generating up to $1.5 billion in export earnings (McMaster, 2007).

Like many agricultural commodities, but perhaps more than many others, the sugar industry exemplifies extremes in volatility depending on seasonal conditions and prices. At the current time the industry is facing very difficult circumstances, with many commentators pointing towards a difficult outlook despite extensive industry restructuring and strong government support. This is despite the Industry’s “Strategic Vision” that seeks to sustain a “commercially vibrant, sustainable and self-reliant raw sugar and sugarcane derived products industry...” (Sugar Industry Oversight Group - Strategic Vision, 2006).

According to the DPI, the sugar industry has faced major economic downturns in recent years, as a consequence of drought, poor crops, pests and diseases ("The Queensland Government and the Queensland sugar industry," 2007). They also report that the industry currently faces some of the lowest world sugar prices on record due mainly to Brazilian production capacities. The effect on Australian producers has worsened due to currency fluctuations. The Australian Sugar Milling Council acknowledge that the industry is currently in process of deregulation and industry reform with support to the sugar industry continuing to be provided by the Australian and Queensland Governments (McMaster, 2007).

Another source (Sugar Cotton & Wool - Regional Economic Report, September 2007) comments that sugar prices have almost halved from their peak in 2006 when rising oil prices, and rising demand for ethanol, was the basis for the argument for a new stronger environment for sugar. For 2007/08, ABARE is forecasting the world indicator price for to fall by 13% to average US10¢/lb as increased production in India and Brazil, the world’s largest sugar producers, place downward pressure on prices. Production is also forecast to rise in sugar importing countries. World production of sugar is forecast to increase greater than world consumption with subsequent increasing stocks expected to contribute to lower average prices. Another recent regional economic report from Westpac Agribusiness (Commodity Index October 2007, 2007) indicates that a resurgent Australian dollar (AUD) has led to a further 2.2% reduction in the world sugar price in AUD terms over September 2007.
As may be seen from the above graph, both production and area harvested typically vary greatly from year to year, the volatility brought about by a variety of factors, some of which are noted above.

The existence of forestry plantations has not been historically recorded as having an impact on sugar production or prices, rather, a function of factors such as general economic conditions, seasonal conditions, crops yields, pests and diseases, and commodity prices. As yet, no real evidence to the contrary has been presented.

The Tully Sugar Mill & ITC forestry activities

Cardwell Shire is part of the Far North Queensland coastal region, situated between Cairns and Townsville. Tully is the administrative centre of the shire which serves a number of townships, settlements and islands in the region. A recent report highlighted the relative importance of the Cardwell Shire’s major ‘base’ industries, which includes fruit $120m, sugar $115m (2005 production, 2006 prices), other agricultural, forestry, fishing and aquaculture industries $30m. At expected 2007 prices for sugar, tourism is now close to the sugar industry in value (Cummings, 2007).

Nonetheless, sugar is a clearly important contributor to the local economy, and the local sugar mill at Tully – one of 24 in Queensland – is an important part of the industry equation.

According to the Department of Primary Industries & Fisheries, (Mill area profile: [source Dept Primary Industries & Fisheries website http://www2.dpi.qld.gov.au/sugar/])
Tully Mill area, 2007), the Tully mill (privatised in 1931 to become Tully Cooperative Sugar Milling Association Ltd, and registered as a public company in March 1990) has significantly increased production over recent years, coupled with a significant increase in cane land expansion. The region does not require irrigation, and there are sufficient areas with suitable terrain and soils to accommodate future development. The DPI&F report observes that “CPAs has almost doubled in the period 1991-2001 to 30,000 ha, while the area harvested has increased by 64 percent over the same period to 23,774 ha. The amount of cane crushed has increased by 57 percent over the same period, however, production has declined in recent years and is 19 percent down on the 1996 peak. The decline in production is due to adverse weather conditions, pests and disease and depressed sugar prices”.

Of perhaps greatest significance is that, in contrast to mill areas to the north, the DPI reports that there is scope to increase production areas by extending the present rail system. In addition “The Tully mill itself has actively pursued a policy of expanding and upgrading its cane railway network to accommodate growth of CPAs. Over the period 1991 to 2001, the mill developed an additional 60 km of track, increasing its network by 38 percent” (Mill area profile: Tully Mill area, 2007).

Recent reports state that the mill has up to 280 employees, and the harvesting sector more than 110; there are also around 120 farmhands in the district in addition to the families on farms and the services industry that sits behind that – according to Mill general manager Chris Connors ("Dire prediction Report analyses impact of forestry on sugar towns," 2007).

Recently, there has been a significant amount of publicity surrounding the impact on sugar mill viability by private forestry plantations, and more particularly planned forestry activities in the wet tropics region. This has followed lodgement of several applications for development of a land parcel located at Tully, under the Cardwell Council’s Planning Scheme. Much of this commentary highlighted concerns regarding possible impact forestry operations might have on the local economy, and in particular, the local sugar mill. Reports that "Cardwell Shire Councillors are putting conditions in place to discourage private forestry plantations in the Shire” ("Private Forestry Plantations Not Welcome," 2007) and “Council and the government must act to ensure the region is protected against timber plantations replacing annual crops” ("Dire prediction Report analyses impact of forestry on sugar towns," 2007) typify media sentiment in some quarters, although others have been more supportive “...the CSC should not discriminate against private forestry applications” ("About Sugar Australia - Overview," 2008) and “for some growers, particularly those seeking to leave the industry, offers being made by forestry MIS’s are very beneficial” (Kennedy, 2007).

According to the Chairman of Tully Sugar Limited (Dick Camilleri), “a throughput of two million tons and more per annum is vital to us for the economics of the mill” ("EcoBusinessLinks - Environmental Directory," 2008). He claims that cane supply and viability of the mill at Tully is being eroded by tree plantations, and later states that “the mill needs to maintain a critical tonnage to remain viable”. However, according to the Tully Sugar Mill website, the mill crushed 2.38 million tonnes of cane harvested from 24,250 hectares even as far back as in 2002 (Tully Sugar Online - Tully Sugar Mill, 2007). A profile of the Mill and its expansion in crushing area and tonnages is located at Appendix 4. This indicates that expansion rose steadily from 1991 when less than 1 million tonnes was crushed from under 16,000 ha, to just under 2 million tonnes in 1998 from an area harvested of approximately 27,000 ha.
However, production varies widely from year to year. For example, the Northern region – in which Tully is located - crushed only 5.63 million tonnes, down a significant 26% on the previous year, averaging under 70 tonnes per hectare for the first time since the disappointing 2001 season (Annual Review 2006 Season - Australian Sugar Milling Council, 2007). Much of this was attributed to seasonal conditions, with overlays from the impact of prices and world trade liberalisation / international competition. This review did not highlight any perceived impacts of forestry on sugar industry or milling operations.

Appendix 6 details productivity for the Tully (and other) mills, also highlighting the enormous disparity of production experienced from year to year. For example, the mid 1990’s saw yields almost double from 2001 where tonnes harvested per hectare was only 63.9 (compares to over 100 tonnes per harvested hectare in 1993 and 1995). Appendix 5 reflects the end result (sugar cane production by mills) which has reduced from 7.7 million tonnes in 1998, to 5.6 million tonnes in 2006.

The variability in production is obviously a key challenge for both producers and millers whom struggle with vagaries of weather and international competition, much of which is outside the control of any party. It should be noted that weather conditions can also affect timber production as well. (The explanation of poor harvesting of sugar cane in 2006 due to Cyclone Larry was also observed (Parsons et al., 2006) to destroy a large proportion of the hardwood farm forests in the Innisfail-Cairns region and some softwood plantations on the Atherton Tableland).

The security of cane for processing is also understandably a top priority for mills processors, whom often compete even amongst each other. For example, a recent Queensland Country Hour broadcast (8 November 2007) reported that "the right for cane land in far north Qld is heating up where a showdown is looming between Tully Sugar Mill and Bundaberg Sugar over cane supply for 2008. The Tully Mill has confirmed that it is in discussions with growers from the Innisfail region, growers who currently supply Bundaberg Sugar's South Johnston Mill" (Stephen, 2007).

The economic comparisons between sugar cane growing and processing, and forestry production and processing, must also take into account a number of other factors with have been hitherto undiscussed. For example, when comparing the amount of land to be taken up by forestry to that previously devoted to sugar cane, it should be appreciated that:

- sugar cane is typically grown beyond the “technical” boundary of the property
- under forestry production, allowances for set-backs and borders apply

The above scenario results in an over-statement of the land utilised by sugar cane in comparison to that taken up by forestry. In the case of the ITC project at Far North Queensland, this is likely to amount to at least 20% of the total hectareage as shown in the table below:
A further consideration is that of the sugar industry’s vision for a sustainable industry achieved, inter alia, through “operating in an open, deregulated industry environment, within Australia’s corporate governance framework” (Sugar Industry Oversight Group - Strategic Vision, 2006). In the spirit of that intent it would seem that the impact of forestry might be considered part of that open environment in which the industry operates. Having regard for “regional and community issues, and the environment” may mean a cooperative approach towards the plantation forest industry is an option worth considering, and indeed is one already adopted by some sugar industry participants. The diversity of opinion is exemplified an observation by the Sugar Industry Oversight Group that “tensions between growers and millers have been reflected in the institutional structures within the industry, sometimes duplicating functions and embedding additional costs within the value chain”, as well as differences that may also be observed when considering responses by various industry participants to the CIE Report into Sugar and Forestry (comments on this issue later in this Report).

### Properties Targeted by ITC for Plantation Forestry

ITC management advise that they do not target cane properties specifically for acquisition, with former sugar cane land currently representing just 6.75% of the total Queensland estate, and less than 16% of ITC’s estate in sugar growing regions. Furthermore, it may be observed that forestry does not necessarily take-up the most “productive” land, as productivity for forest growing does not necessarily directly relate to productivity of other forms of crops or vegetation. A practical example of this principle may be seen with ITC’s acquisition of their Stamp Road property where the previous use was predominantly banana growing – an activity which itself also competes with land utilised for the growing of sugar cane.

### The CIE Report – Sugar versus forestry in Queensland: Regional Impacts

*Sugar versus forestry in Queensland: regional impacts, 2007*

The CIE Report – prepared for the ASMC\(^\text{11}\), focuses its comparisons between sugar growing and its allied processing industries, against forestry growing operations only (rather than growing and processing industries). In the context of

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\(9\) Total area acquired by ITC in the Tully region as at date of this Report

\(10\) Net Plantable Area available for forestry

\(11\) ASMC is the peak policy forum for mill owners. According to the ASMC website, ten companies that own and operate all twenty-four raw sugar mills in Queensland are members of the Australian Sugar Milling Council. The 2006 ASMC Annual Review states that the number of sugar mills is now 23.
providing a valid industry comparison, this represents a major flaw in the outcomes presented, let alone the narrow scenario analysis assumptions used in building an adversarial case against forestry.

In the case of forestry, and in consideration of the combination of both growing and processing, this is significant since the processing sector is larger than the growing sector. Latest available forecasts (Prospects for Queensland’s Primary Industries 2007–08, 2007) estimate the total value of Queensland’s forest industry at $570 million in 2007–08, which is 5% higher than 2005–06. The forest growing sector gross value is forecast at $210 million in 2007–08, which accounts for about one-third of total forest industry, with the first-stage processing value forecast at $360 million. By comparison, the gross value of Queensland’s sugarcane production in 2007–08 (i.e. from the 2007 harvest) is forecast at $730 million. The forecast value of sugar processing in 2007–08 is $305 million.

Further, the CIE Report essentially presents outcomes based on worst case scenarios. This contrasts with a more objective approach typically involving the development of a base case scenario, and then constructing both “worst case” and “best case” scenarios using sensitivities constructed around the most probable set of circumstances. This is not lost on commentators such as the Editor for the Australian Canegrower whom comments that “The Australian Sugar Milling Council Report, which has the confronting title of Sugar versus forestry in Queensland: regional impacts, outlines these impacts which vary from one region to the next but includes worst case scenarios of mill closures and sugar ghost towns” (Kennedy, 2007). He rightly points out the Report itself highlights that “the loss of sugarcane land is strongly linked to the sugar outlook which includes world sugar prices...” - from there the Report attempts establish links with adverse impact of plantation forestry. In effect, one argument could be that the ASMC report attempts to blame the sugar industry’s own particular problems on a highly visible industry - i.e. forestry is being used as a scapegoat.

The CIE Report may therefore explain some of the more extreme and unbalanced comments made concerning the possible impact of forestry on the local economy, such as “this threat has the ability to take away our livelihoods and potentially our communities... We could easily lose our services – our hospital, our schools, the car and tractor dealers and so on – we may well end up in a vacuum” ("EcoBusinessLinks - Environmental Directory," 2008). There is slim, if any, evidence supporting such commentary.

The CIE Report also utilises a “whole-of-economy CGE model” which assumes, inter alia, all businesses respond to shocks in the same way (which they do not) that there is a general state of equilibrium conditions (which don’t exist).

Another Report from the Australian Grower brings about a more balanced view to the argument – quoting Canegrowers CEO Ian Ballantyne as stating “although there was concern about the rate of expansion of forestry on traditional cane land, there was an opportunity for both industries to co-exist and provide benefits to cane growing families and communities”. Further, that “this organisation is not opposed to competition from cane land from short rotation crops or even forestry plantations, provided that they have positive benefits” ("MIS: Can Forestry and sugar co-exist?," 2007). In this media article, it was also submitted that “forestry and sugarcane both have very long histories in north Queensland and there is no reason that they cannot continue to exist in harmony, now, and in the future. Because forestry, like sugar, needs a critical mass of resource, and benefits from being processed locally, forestry will help to diversify local economies”.

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A recent media release by Council (Shannon, 2008a) also points out the disunity in the sugar industry, given the generally strong support for forestry operations shown by the canegrower organization, as against sugar millers whom are now pressing for some sort of Local Government regulation. The irony of this situation is also exposed, since it is pointed out in the 1990’s the sugar millers pressed for deregulation of the industry, with growers apparently reluctant to embrace change at that time.

In responding to these issues, some forestry organisations have indicated their difficulty in comprehending why a Council should wish to discourage an industry which is delivering both jobs and a range of economic and environmental benefits to the region. Forestry projects in Far North Queensland have, and are, delivering direct and indirect employment to the region, with preference being given to local expertise and suppliers at every stage (Ikin, 2007). This response also points out that its tropical hardwood forestry represents an “exciting new industry for the region”, holding great promise for the development of “value-adding” businesses being established to process the timber as it comes on stream in years to come.

Other major assumptions used in this report that can be challenged include as follows:

- The CIE is a Single Report that is at odds with many reports from different authors (including independents) that have been produced looking at the impact (socio-economic) of forestry
- The CIE Report is based on worst case scenarios - the underlying assumption is mill closure and a lowering of throughput of cane way beyond that likely to be impacted by existing Forest operations
- The impact of multipliers promoted by forest investment is not addressed.
- It is suggested in the Report that sugar production is a far more input intensive enterprise than forestry. As such it generates considerably more local economic activity than forestry. However, whilst it would appear that sugar cane is more input intensive, this ignores general industry multipliers and the accelerating input intensity of forestry over time, especially at harvest. Furthermore, at the growing stage, sugar has higher economic impacts than plantations but, relative to growing, sugar milling does not have the same high economic impacts as it does for plantations, i.e. if local processing is not captured, plantation economic impacts are significantly reduced.
- Local economic activity are most likely in general terms increase as a result of forestry operations, not decline (refer data throughout this document), even though some impact might be felt at the mill level only. Overall, the community will benefit.
- Despite the long lead times involved before obtaining a return from forestry, the considerably lower labour and capital input intensity of forestry may make it appear financially attractive relative to sugar production at current low sugar prices.
- The sugar industry has faced and met many challenges over many decades. Its fortunes have fluctuated over the years with the notoriously cyclical and volatile world sugar price, but generally the industry has expanded and prospered for over a century. This underscores the risky nature of sugar in comparison to forestry.
- How attractive the returns are from sugar production relative to forestry will depend a lot on the opportunity cost of an owner operator’s time and
the owner’s expectations of future sugar prices and risks. At returns of between $783 and $812 per hectare per year for all sugar producing assets, growers’ share of that return to cover returns to land, their own labour and risk is probably regarded as only a subsistence rate of return.

Other Comments Concerning Local Sugar Production

It may be further commented that the Tully mill area is concentrated in previous Cardwell Shire and the southern part of previous Johnstone Shire. The mill has pursued a policy of expanding and upgrading its cane railway network to accommodate growth of CPAs. Over the period 1991 to 2001, the mill developed an additional 60 km of track, increasing its network by 38 percent. Most of the new cane land has been developed as in-fill or on the outer margins of the rail system. There is very little cane grown in isolated pockets, which is inaccessible to rail.

Recent cane land expansion has been significant. CPAs has almost doubled in the period 1991-2001 to 30,000 ha, while the area harvested has increased by 64 percent over the same period to 23,774 ha. The amount of cane crushed has increased by 57 percent over the same period, however, production has declined in recent years and is 19 percent down on the 1996 peak. The decline in production is widely held to be due to adverse weather conditions, pests and disease and depressed sugar prices – not forestry operations. In contrast to mill areas to the north, there is scope to increase production areas by extending the present rail system. The region does not require irrigation, and there are sufficient areas with suitable terrain and soils to accommodate future development.
Appendices
## Appendix 1 – Value of Forest Products in Australia

### abare

#### Industry structure

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<td>Log sawmilling and timber dressing</td>
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</tr>
<tr>
<td>Total</td>
<td>2 493</td>
<td>2 355</td>
<td>2 695</td>
<td>2 569</td>
<td>3 542</td>
<td>4 136</td>
<td>na</td>
</tr>
</tbody>
</table>

#### Other wood product manufacturing

| Plywood and veneer | 238 | 253 | 262 | 158 | 281 | 325 | na |
| Fabricated wood | 843 | 890 | 977 | 1 158 | 1 232 | 1 352 | na |
| Wooden structural component | 2 184 | 2 512 | 3 241 | 2 624 | 2 670 | 3 053 | na |
| Wood products nec | 560 | 599 | 682 | 617 | 1 023 | 1 106 | na |
| Total | 3 825 | 4 245 | 5 161 | 4 557 | 5 215 | 5 836 | na |

#### Paper and paper products

| Pulp, paper and paperboard | 1 961 | 2 114 | 2 277 | 2 660 | 2 629 | 1 943 | na |
| Solid paperboard containers | 506 | 556 | 551 | 714 | 659 | 649 | na |
| Corrugated paperboard containers | 1 440 | 1 537 | na | 2 629 | 2 420 | 3 232 | na |
| Paper bag and sack | 279 | 310 | 1 999 | 261 | 346 | 359 | na |
| Paper products nec | 933 | 1 085 | 1 054 | 1 686 | 1 754 | 1 989 | na |
| Total | 5 179 | 5 602 | 5 780 | 7 951 | 7 808 | 8 133 | na |
| Total value | 11 493 | 12 201 | 13 626 | 15 077 | 16 565 | 18 105 | na |

---

a Prior to 2000-01 groups where based on Manufacturing Establishments. From 2003-01 ABS has adopted a new statistical infrastructure based on the Australian Business Number, hence data from 2001-02 is not directly comparable to previous years, see Appendix 3 in ABS cat no. 8221.0 for comparative tables. b Turnovers defined as follows: sales of goods whether produced by the establishment or not, plus transfers out of goods to other establishments of the same enterprise, plus bonuses and subsidies on production, plus all other operating revenue from outside the enterprise such as commission, repair and service revenue, plus capital work done for own use or for rental or lease. Receipts from rent, leasing interest other than hire purchase, royalties and the sale of fixed tangible assets are excluded. c Sales and service income is defined as follows: sales of goods whether or not manufactured by the business and includes income from consulting services, repair, maintenance and service income and fees, contract, subcontract and commission income, management fees and charges from related and unrelated businesses. Includes rent, leasing and hiring income derived from ownership of land, dwellings and other equipment. Excludes royalties from mineral leases, income from finance leases and payments received under hire purchase arrangements. They are exclusive of goods and services tax (GST). Prior to 2006-01 values where on a value of turnover definition which is not directly comparable to the sales and service income definition, d Included with Paper bag and sack. na Not available.

**Sources:** ABS, Manufacturing Industry, Australia, Preliminary, cat. no. 8221.0, Canberra; ABS, Manufacturing Industry, Australia, cat. no. 8221.0, Canberra.
## Appendix 2 – Value of Forest Production in Australia

**abare**

gross value of production

<table>
<thead>
<tr>
<th>Logs category</th>
<th>2001-02</th>
<th>2002-03</th>
<th>2003-04</th>
<th>2004-05</th>
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</thead>
<tbody>
<tr>
<td>Hardwood sawlogs</td>
<td>244.1</td>
<td>259.2</td>
<td>297.6</td>
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<tr>
<td>Softwood sawlogs b</td>
<td>591.0</td>
<td>608.5</td>
<td>574.5</td>
<td>610.2</td>
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<td>Cypress sawlogs</td>
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<td>22.5</td>
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<td>Plywood and veneer logs</td>
<td>34.8</td>
<td>44.8</td>
<td>39.3</td>
<td>43.9</td>
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<tr>
<td>Wood panels pullogs</td>
<td>44.7</td>
<td>57.8</td>
<td>60.1</td>
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<tr>
<td>Export woodchip hardwood pullogs</td>
<td>231.9</td>
<td>343.0</td>
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<td>Export woodchip softwood pullogs</td>
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<td>50.3</td>
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<td>Paper pullogs</td>
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<td>120.8</td>
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<td>1369.0</td>
<td>1513.3</td>
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**Broadleaved**

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<th>2001-02</th>
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<th>2003-04</th>
<th>2004-05</th>
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<tr>
<td>Native</td>
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<td>583.8</td>
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<td>Plantation</td>
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<td>86.9</td>
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<td>Coniferous</td>
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</table>

---

*a Estimated gross value of logs delivered at mill door (or wharf gate). b Excludes cypress sawlogs.*

_Sources:_ State and territory forest services; private industry associations; private industry; ABARE.
## Appendix 3 – Local Population Statistics

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<tr>
<th></th>
<th></th>
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<tr>
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<td>36.1</td>
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## PERSON AND HOUSEHOLD CHARACTERISTICS, Urban Centres and Localities continued

### PERSONS

<table>
<thead>
<tr>
<th>Urban Centre/Locality</th>
<th>Males</th>
<th>Females</th>
<th>Aged 0-14 years</th>
<th>65 years or more</th>
<th>Indigenous origin</th>
<th>Australian-born</th>
<th>Overseas-born (UK, Ireland and NZ)</th>
<th>Overseas-born (Other)</th>
<th>Total persons in 1996</th>
<th>Total persons in 1991</th>
<th>Lone person</th>
<th>Family with dependent children</th>
</tr>
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<tbody>
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<td>5</td>
<td>3</td>
<td>398</td>
<td>468</td>
<td>42</td>
<td>54</td>
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## Appendix 4 - Mill area profile: Tully Mill area

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<tr>
<th>Categories</th>
<th>Relevant information and remarks</th>
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<tbody>
<tr>
<td>Location of mill</td>
<td>Tully, Cardwell Shire</td>
</tr>
<tr>
<td>Location of main cane production areas</td>
<td>Cardwell Shire</td>
</tr>
<tr>
<td>Type of ownership</td>
<td>Unlisted public Company</td>
</tr>
<tr>
<td>Number of cane farmers</td>
<td>335</td>
</tr>
<tr>
<td>Cane production</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td><strong>Cane production area (ha)</strong></td>
</tr>
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<td>Recent expansion</td>
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</tr>
<tr>
<td></td>
<td>1992  17,975</td>
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<tr>
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<tr>
<td>Change over 1991-01 period</td>
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<tr>
<td>State irrigation schemes utilised</td>
<td>No irrigation</td>
</tr>
<tr>
<td>Weighted average haul distances.</td>
<td>15.4 km siding to mill; 1.5 km field to siding</td>
</tr>
<tr>
<td>Typical vehicles for haul out from field to siding</td>
<td>Elevator transporter up to 14t net</td>
</tr>
<tr>
<td>Unit size of bins for cane railway</td>
<td>7.63t average net</td>
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<td>Type of railway bins</td>
<td>Roll-on and dedicated cane rail</td>
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### Appendix 5 - Sugarcane production by mill (tonnes)


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<tbody>
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<td>1,048,309</td>
<td>1,100,133</td>
<td>1,062,048</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
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### Appendix 6 - Sugarcane yield by mill (tonnes per harvested hectare)

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Appendix 7 – Forest Plantation Areas in Australia

![Figure 01: Total Plantation Area, 1994-2006](chart)

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<td><strong>Total</strong></td>
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<td><strong>Change since 2005</strong></td>
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Source: *(Australia’s Plantations 2007 - National Forest Inventory Update, 2007)*
References

Abetz, E. (2006). *100 millionth tree planting*: Department of Fisheries, Forestry and Conservation

About Plantations. (2007). Australian Government Department of Agriculture, Fisheries and Forestry


Cummings, W. S. (2007). *Value and Development of Tourism in the Cardwell Shire / Mission Beach Area (Revised) June 2007*: Cardwell Shire Council


Forest practices related to wood productions in plantations: National principles (1996). Fisheries and Forestry Division, Department of Agriculture, Fisheries and Forestry


Kennedy, N. (2007, 3 November 2007). A Word from the Editor. Australian Canegrower,


Mill area profile: Tully Mill area. (2007). Department of Primary Industries & Fisheries


National Principles Related to Wood Production in Plantations. (2006). Department of Primary Industries & Fisheries


*Planning Guidelines: The Identification of Good Quality Agricultural Land* (1993). Department of Primary Industries; Department of Housing, Local Government & Planning, Queensland


*The Queensland forest industry: An overview of the commercial growing, management and processing of commercial forest products in Queensland.* (2004). Department of Primary Industries & Fisheries


*Socioeconomic Impacts of Plantation Forestry - Information Booklet.* (2005). Bureau of Rural Sciences; Forest & Wood Products Development Corporation


Stephen, A. (Writer) (2007). Qld Country Hour - ABC Western Queensland (Longreach) - Interviewees: Craig Ullman, Cane Supply Manager, Bundaberg Sugar; & John King, General of Manager, Tully Sugar Ltd.

*Sugar Cotton & Wool - Regional Economic Report.* (September 2007 ). Westpac


*Tully Sugar Online - Tully Sugar Mill.* (2007). Tully Sugar