



Socio-economic impacts of land use change
in the Green Triangle and Central Victoria

Impacts of land use change to farm forestry and plantation forestry: a survey of landholders

Report prepared for the *Socio-economic impacts of land use change in the Green Triangle and Central Victoria study*

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Executive Summary

Introduction

Land and its uses are essential to all human communities. Every person is shaped in a range of ways by the landscape in which they live, and the products and resources produced on the land. Changes in land use can have a profound impact on the personal, family, work and social lives of people living in rural communities, as well as those living in rural and regional towns.

Many rural regions across Australia have experienced rapid land use change in recent decades. The region extending from the 'Green Triangle' in South Australia and western Victoria through to Colac in central Victoria is no exception, with multiple types of land use change occurring in recent decades, including expansion of plantation forestry, and increases in the area of land use for rural residential living and cropping. These land use changes can lead to profound shifts in the region's communities and economy. They provoke ongoing debate amongst those living in the region, who are affected in different ways by land use change.

To better understand the impacts of land use change in the Green Triangle and Central Victoria over the past 15 years, a new study was developed and launched in August 2006. The *Socio-economic impacts of land use change in the Green Triangle and Central Victoria (Land Use Change)* study builds on and extends a study undertaken in 2000 by the University of Melbourne (Petheram *et al.* 2000). The goal of the *Land Use Change* study is to provide a comprehensive understanding and quantification of land use, industry and socio-economic change across the region since 1991, and how different people experience these changes.

This report documents the results of one component of the *Land Use Change* study, which focused on understanding the impacts of land use change to plantation forestry and farm forestry in the region. Data were gathered via a survey of 158 landholders who changed land use to plantation forestry and farm forestry during the last two decades, interviews with landholders, and from plantation companies.

Aims and methods

A key type of land use change occurring in the *Land Use Change* study region is land use change to plantation and farm forestry. Many questions are asked about the social impacts of this land use change.

This study aimed to understand to impacts of this type of land use change on the landholders who make this land use change; the population and social infrastructure of the local communities in which this land use change is occurring; and the agricultural sector in terms of the types of land use and infrastructure changes involved. A secondary goal was to better understand the factors influencing the decision to change land use to plantation and farm forestry. These issues were focused on as they are common topics of debate about land use change to plantation forestry in the region.

Landholders in the region have changed land use to plantation or farm forestry in three different ways: by selling land to a plantation company, leasing land to a

plantation company, or establishing their own farm forestry. These three modes of plantation and farm forestry were analysed and compared to each other, to enable identification of how the impacts of each differ.

Data were gathered via (a) a survey of landholders who had changed land use to plantation and farm forestry, and (b) data from plantation companies who provided information on the plantation properties they manage. In addition, qualitative semi-structured interviews were undertaken with eight landholders who had changed land use to plantation or farm forestry. The interview data were used to guide design of the landholder survey, and to assist interpretation of the quantitative data gathered through the landholder survey and from plantation companies.

The landholder survey was delivered to 262 landholders of whom 158 responded, with an overall response rate of 60.3%. The sample of those who sold properties was biased towards those who have sold properties in recent years; no other bias was identified in survey responses.

Plantation companies provided data for properties they had purchased or leased from landholders (these companies have no direct involvement with farm forestry). Data were provided for 78% of the estimated 590 properties sold to plantation companies, and 79% of the estimated 155 properties leased to plantation companies in the study region between the mid 1990s and 2007.

Results

The study identified key characteristics of the plantation and farm forestry established, and of the properties established; motivations for the land use change; impacts of the land use change on property infrastructure, the number and type of people living on rural properties, and community and service group membership; benefits and costs of the land use change for the landholders involved; and landholder's future intentions regarding plantation and farm forestry.

Characteristics of plantation and farm forestry

When characteristics of plantation and farm forestry were examined, it was found that larger areas of land were established to trees when land was sold to a plantation company than when it was leased, or when a landholder established their own farm forestry. Those who sold and leased land typically established blue gums (*Eucalyptus globulus*), while those who established farm forestry established a wider range of species, although they often established blue gums.

Land was predominantly used for sheep or cattle grazing prior to the land use change, for all types of plantation and farm forestry. Less commonly, land was cropped, and very rarely used for dairy farming.

The proportion of the farm enterprise established to plantation or farm forestry was highest for those who sold properties, with an average 61% of the enterprise established to trees. The proportion of enterprise established to trees was smaller for those who leased land (average 29%), and smallest for those who established farm forestry (less than 5% on average).

Sale process

When land was sold to a plantation company, it was sold directly to the plantation company in 68% of cases. Where land was placed on the market for sale prior to

being sold to a plantation company, it typically stayed on the market for less than three months before being sold.

Motivations

Landholder's motivations for changing land use to plantation and farm forestry varied. A desire to achieve a financial return, to reduce workload and to plan for immediate or future retirement were the most common reasons landholders reported for selling land to a plantation company. Those who leased land also commonly reported financial motivations and a desire to reduce workload, but were also likely to be motivated by a desire to improve property management. Those who established their own farm forestry were typically motivated by a desire to improve the environmental and aesthetic characteristics of their property, and achieve improved property management through diversification of their enterprise and better use of difficult or marginal land.

On-property infrastructure

In most cases, land use change to plantation and farm forestry resulted in relatively little change to infrastructure on the property involved. Those who sold land were most likely to report a decrease in infrastructure, with removal of fences and sheds/storage infrastructure the most common decreases reported. It was rare for housing to be removed or demolished as a result of establishment of any type of plantation or farm forestry, although houses were removed in 4% of cases where a property was sold or leased to a plantation company. These results reflect practice in recent years, and may not be representative of practices in earlier years of plantation establishment in the region.

Population

The establishment of farm forestry has no impacts on the number of people living on rural properties, while leasing of land to a plantation company results in a reduction of population in a small number of cases, and the sale of land to a plantation company results in change in the population living on a property in a majority of cases. In many cases, the overall number of people living on a property doesn't change, but the people living on the property do change, with previous residents shifting away and new residents shifting onto a property.

When properties are sold, in approximately 44-52% of cases they have residents living on them before the land is sold to a plantation company. Where residents were living on the property before sale, about 75% of the time they shift away when the property is sold to a plantation company. Of those cases where the previous residents shift away, new residents then shift onto the property in anywhere from 50-80% of cases, depending on the timeframe examined – sometimes it takes some time for new residents to shift in, and hence it may take one or two years before some properties are occupied; additionally, some new residents may be temporary so that properties are sometimes inhabited and sometimes not.

In the study region this means that, based on an estimate of 590 properties established to plantation via land sale to a plantation company over 1995-2007, there were:

- approximately 820 people living on these properties before the sale of land to plantation companies,
- of these, about 615 shifted off the property as a result of the sale

- between 300-485 new residents shifted onto these properties, and
- there was a net loss of anywhere between 130 and 315 people living on rural properties across the 17 local government areas of the study region. Some of these remained living in local areas (for example going to live on another farming property or retiring into a local town), while some shifted away to other regions.

This represents ongoing social change, with some type of change in resident population occurring in 75% of cases in which a property with residents living on it is sold to a plantation company.

When properties are leased, in approximately 60-70% of cases they have residents living on them before the land use change. Where residents were living on the property before it was leased to a plantation company, they shift away in about 10% of cases as a result of the land use change, and in 45-55% of cases new residents then shift onto the property. This would result in a net loss of population of around 20 people in total in the study region between 1995 and 2007, with approximately 40 people shifting off properties, 20 new residents shifting onto the properties, and a net loss of around 20 people.

When farm forestry is established, in just over half of cases the property was lived on in the five years prior to the land use change. All respondents to the survey reported that these residents remained on the property after land use change to farm forestry. Therefore no change in population results from the establishment of farm forestry.

Overall, the study region experienced a loss of just under 8,000 residents living on rural land or in towns with less than 200 residents, over the period 1996 to 2006 (the period when almost all plantations were established). In the local government areas (LGAs) in which plantation expansion occurred (all rural LGAs except Horsham, Northern Grampians, Ararat, Kingston and Robe had at least 1,000ha of plantation established over this period), there was a decline of 1,495 in the rural population. Given that plantation expansion led to a net loss of between 150 to 335 people living on rural properties in these regions – although some of the people who shifted off plantation properties did remain living in the local region – plantation expansion is likely to have influenced at most 10-20% of the net loss of rural population experienced in plantation regions. In other regions with little plantation expansion, rural population also declined at similar or higher rates to the decline seen in plantation areas. This issue is explored in more detail in other reports forming part of the *Land Use Change* project.

On-property employment

People stopped working on the property in a majority of cases where a property was sold (59%), 33% of cases where a property was leased, and very rarely (only 5.9% of cases) when farm forestry was established. Where people did stop working on the property, between 1.6 and 2.3 people typically stopped working. More people were reported to stop working on properties that were sold compared to those that were leased. Of those who stopped working on a property, the majority either went to work on another property forming part of the farm enterprise, or retired.

Community and service group membership

Land use change to farm forestry was not associated with any change in membership of community and service groups. Leasing of land to a plantation company was

associated with changes in membership in approximately 10% of cases, and sale of land to a plantation company in just over 50% of cases.

Membership of rural fire fighting services and sporting groups were most commonly reported to be affected by land use change to plantation forestry. In about half of cases where the land use change affected membership, the landholder ceased membership of the group altogether, while in the other half they changed the location of their group membership.

Overall, sale of land led to cessation of membership of rural fire fighting groups, sporting groups, or other community and service groups in approximately 25% of cases, and led to a change in location of membership in 25% of cases. In the other 50% of cases, membership of these groups was not affected by the land use change.

It was not possible to identify whether new residents who shift onto plantation properties join community and service groups, so the 'net' impact of the land use change to plantations on community and service group membership could not be estimated.

Benefits of the land use change for different landholders

Different types of landholders described different benefits of the land use change to plantation or farm forestry. Those who had sold properties most commonly described increased resources, personal financial benefits, retirement, enterprise financial benefits, lifestyle and reduced workload as benefits of their decision to sell their property. Other benefits were less frequently reported by this group of landholders. This indicates that benefits of selling a property primarily involve a mix of financial benefit and benefits related to workload and lifestyle, particularly for those who are selling land in order to retire.

Those who had leased properties also listed personal financial benefits and reduced workload as key benefits of the land use change. Many also described environmental and stock management benefits, issues which were rarely raised by those who had sold properties.

Those who had established farm forestry most commonly reported environmental benefits, benefits for stock, aesthetic benefits and lifestyle benefits, with financial benefits much less commonly reported than for the other two types of respondent.

The large majority of respondents were satisfied or very satisfied with the decision to change land use, whether it involved sale of land, lease of land, or farm forestry.

Costs of the land use change for different landholders

Of landholders who sold a property to a plantation company, 37.5% reported that the land use change had no costs for themselves or their families. Those who did report some negative effects listed family and community impacts, pests and weeds, land prices and land management challenges as the most common costs of the land use change.

Landholders who leased a property were also likely to report there were no costs involved, but did so in only 17.8% of cases, compared to 37.5% for those who sold properties. In general, a wider range of costs were reported by this group of landholders, with no one topic reported by more than 20% of respondents. The negative effects identified were somewhat similar to those who sold properties, with pests/weeds and family/community impacts commonly reported. Those who leased land also reported some issues not typically raised by those who sold properties, with

negative interactions with plantation companies (relating to issues such as stock management or property access), fencing costs, financial costs and risk, land management difficulties, and concerns about cost of reverting land to agriculture, all reported by some respondents in this category.

Landholders who established their own farm forestry, meanwhile, were more likely than other survey respondents to report that the land use change involved financial costs and risks (38.9% of respondents). Other costs reported by farm forestry respondents included the hard work involved, pest and weed problems, negative interactions with the plantation industry (about issues such as finding a market for timber being grown in a farm forest), fencing and land management costs.

Discussion and conclusions

Overall, the study results indicate that establishment of trees for commercial wood production has different effects on landholders, communities and infrastructure depending on the way it is undertaken. Changes to the population living and working on the property, and to community and service group membership, are most likely to occur when land is sold to a plantation company, and less likely to occur when land is leased to a plantation company or farm forestry is established. Sale of land also involved establishment of larger areas of trees, and of a larger proportion of the enterprise, than leasing or farm forestry.

Understanding the impact of the sale of land to plantation companies on local communities requires not just counting the numbers of people who shift off and onto the property, but identifying the extent of change, or 'turnover', in the population. In 75% of cases where the land sold to a plantation company had people living on it prior to the sale, there is either a shift to a new person living on the property, often someone who works in a nearby town rather than a farmer, or a loss of population. This represents an important social change for rural communities. The social impacts of this change depend on how the new residents who shift into housing on the property are able to integrate into the local community. If the new residents are temporary or 'weekenders', they may have relatively little interaction with the local community compared to previous residents; conversely they may be people who live and work in the local area and who join many local groups. The impact of the change also depends on how existing residents of the community view the new residents – are they welcomed, or viewed as outsiders who are not given opportunities to integrate into the community?

The results of this study are consistent with perceptions reported in previous studies, in which the sale of properties has been singled out as particularly likely to have impacts on the population living on properties and to lead to social change (eg Petheram *et al.* 2000, Schirmer 2002, Schirmer *et al.* 2008). Farm forestry, meanwhile, is commonly perceived as having few or no impacts on rural population (Schirmer 2007).

The data presented here confirm these perceptions, but also identifies that the magnitude of the net change is lower than the perceptions reported in previous studies would suggest, both in terms of the loss of population living on rural properties, and reduction in membership of community and service groups. This provides some context to perceptions that land use change to plantation forestry will lead to ongoing and large-scale decline in rural population. The results of this study do not support this suggestion, but do support that there is some loss of rural population from rural

properties, and some decline in community and service group membership, as well as changes in location of membership.

However, it is important to emphasise that the population changes identified in this report occurred in a context where plantation companies have generally been able to subdivide a small parcel of residential land from a plantation property and sell it; this has been facilitated by both having a regulatory and planning environment which permits this subdivision, and high demand for rural residential properties in the region. It is likely that the population impacts of plantation expansion would be quite different in situations where subdivision was not possible, and in regions where there is less demand for residential housing.

More importantly, the results of this study suggest a need to focus attention on the social impacts of the population turnover that results from sale of land to plantation companies, and to identifying ways of assisting integration of new residents into the communities they have shifted into.

The Land Use Change study

This report forms one of several reports from the *Land Use Change* study, and should be read in conjunction with other reports. The project reports are summarised in the following table, and are available on the project website, www.landusechange.net.au.

Publication	Description	Publication date
Living with land use change: different views and perspectives	This report presents the results of the group interviews undertaken in the region in late 2006. It highlights the diversity of way people in the region have been impacted by land use change.	Mar 2008
Understanding resident views on land use change	Reports results of the 'resident views on land use change' survey.	Aug 2008
Impacts of land use change to farm forestry and plantation forestry: landholder survey results	Analyses the impact of changing land use to plantation forestry or farm forestry on rural populations and on those who decide to make the change.	Nov 2008
Employment and spending: comparing the activity generated by different primary industries	Quantifies how much employment and spending different industries generate in the community.	Summary: Dec 2008 Full report: Mar 2009
Socio-economic impacts of land use change: what do the statistics tell us?	Analyses the changes in land use, and social and economic characteristics across the region over time.	Summary: Dec 2008 Full report: Mar 2009
Socio-economic of land use change: Integration report & Summary report	Integrates and summarises findings across the whole project	Dec 2008