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Summary

Background

The Tasmanian forest industry is currently undergoing substantial change. Since 2008 a substantial downturn in industry activity—driven by the global financial crisis, appreciation of the Australian dollar and other factors—has resulted in the shedding of 3500 jobs in the industry. The impacts of the downturn on forest industry businesses, workers, their families, and communities dependent on the forest industry are profound. Many people have lost employment, many of those remaining in the industry have experienced a decline in income, and many members of the industry—including those working in businesses in which employment has remained stable—report experiencing considerable stress and uncertainty about their future. The impacts of the downturn have reduced the capacity of businesses, workers, families and communities to adapt successfully to change in the industry. In 2010, negotiations between environmental non-governmental organisations (ENGOs) and forest industry representatives, aimed at finding a resolution to ongoing conflict over the management of Tasmania’s native forests, resulted in the signing of the Tasmanian Forests Statement of Principles to Lead to an Agreement (Principles Statement), a document that proposed significant future change to the industry. On 24 July 2011 an agreement was made in which the federal and Tasmanian governments committed to providing both short-term and long-term support to members of the forest industry and to industry-dependent communities as part of supporting substantial reduction in native forest harvesting under the Principles Statement. To ensure this funding is used effectively to support those impacted by these changes, it is important to understand how the downturn is affecting those dependent on the industry (particularly how it has affected their capacity to adapt to change), and what types of assistance can best help those affected.

In recognition of the need to better understand the impacts of the downturn and how to assist those affected by it, as well as to understand the capacity of those dependent on the industry to adapt to further change, the ‘Socioeconomic impacts of forest industry change’ study was undertaken from January to June 2011. The study was funded by the Cooperative Research Centre for Forestry. It builds on and extends a series of surveys of the forest industry, undertaken since 2006, that have tracked employment and activity in the industry (Schirmer 2008, Schirmer 2010). After the study had begun, additional funding was provided by the Federal Department of Agriculture, Fisheries and Forestry (DAFF) to enable the study to form part of the due diligence assessment of the Principles Statement. The study was undertaken by researchers at the Fenner School of Environment and Society of the Australian National University.

This study provides a comprehensive overview of how recent changes in the forest industry have impacted forest industry businesses, workers, and to a lesser extent their families; and influenced their capacity to adapt to future change. It also identifies which communities are most exposed to change—in other words, which are most likely to experience negative impacts as a result of the downturn. Unfortunately, available resources did not permit a full analysis of the socioeconomic impacts of the downturn on Tasmanian communities—work which is urgently needed given the substantial loss of employment in many communities. This study can form a starting point from which to undertake such analysis. It also provides a ‘baseline’ understanding of the current circumstances and views of those dependent on the industry, which can be used to analyse the likely impacts of any future changes proposed for the industry once the nature of these changes is known.
Methods

This study drew on quantitative surveys of 126 forest industry businesses and 373 workers either employed in the forest industry, or who had left the industry since 2008; interviews with 53 business managers and workers; data from a comprehensive survey of the forest industry conducted in Tasmania in 2006, 2008 and 2010; and data from the Australian Bureau of Statistics (ABS).

The data gathered were analysed to identify:

(i) impacts of the downturn on forest industry businesses and workers
(ii) vulnerability of these groups to further change
(iii) how exposed different communities are to change.

Impacts were defined for the purposes of this report as the social and economic changes resulting from the downturn, and the flow-on consequences these changes have had on the lives of forest industry workers and their families. Vulnerability to change was defined as the extent to which businesses and workers can cope with further change, and is a function of:

(i) their exposure to that change (i.e. whether they are in a job or business or location likely to be affected)
(ii) their sensitivity to that change (i.e. whether it will tip them over a ‘threshold’ of change)
(iii) their ability to adapt successfully to change, affected by factors such as their human capital, financial capital, social capital and attachment to their community and the forest industry.

Impacts vary considerably from business to business, and from person to person. The results reported here highlight where members of any particular groups (e.g. processing businesses, or workers employed in harvest and haulage contracting) are more likely to experience negative impacts. This does not mean that every person or business in that group has experienced negative impacts, but that a greater proportion of them have experienced these impacts in comparison with people or businesses in other groups.

Results

Long-term trends influencing the industry

Long-term trends affecting the forest industry were identified, to better understand the ‘baseline’ trends influencing the industry prior to the downturn from 2008 onwards. These longer-term trends, occurring over the past one to two decades, include rapid expansion of Tasmania’s eucalypt plantation estate, and some decline in the area of softwood plantations in recent years; while in the native forest sector, many businesses reported an ongoing fall in the quantity and quality of sawlogs available from native forests (both public and private). Markets for forest products have also changed: in the structural sawn timber market, softwood plantation timber has increasingly competed with timber sourced from native forests, while demand for appearance-grade products made from native forest species has remained relatively strong. In addition to changes in wood resources and markets, most businesses reported that business costs had grown more rapidly than revenue over the past 10 to 20 years, and that increasing regulatory requirements had contributed to increased operating costs.
Impacts of the downturn on forest industry businesses and employment

The downturn has substantially reduced business activity. The number of businesses operating in the Tasmanian forest industry declined from an estimated 464 in August 2008 to 372 in May 2011\(^1\), while the total number of people employed fell from 6960 to 3460 people (6460 to 3260 full-time equivalents) during the same period. Based on public announcements regarding planned business sales and closures, a further 410 jobs at least will be lost by the end of July 2011. The rate of decline in employment has accelerated, with almost 1200 jobs lost in the nine months from September 2010 to May 2011, compared to 2300 in the 24 months prior to September 2010. These figures do not include the woodcraft sector, which in 2009 employed an estimated additional 1750 people (including those in retailing).

While much public debate focuses on the native forest sector, there has been extensive loss of jobs in the plantation sector: 60% of jobs dependent on hardwood (eucalypt) plantations and 42% of jobs dependent on softwood plantations have been lost since 2008, compared with 47% of jobs dependent on native forests.

In terms of numbers of jobs, the types of workers most likely to have lost their jobs are those employed in processing of timber products (e.g. sawmilling) and in harvest and haulage contracting, with both sectors having shed around 50% of employees. However, the proportion of jobs lost is highest for nurseries, where more than 84% of jobs have been shed, followed by silvicultural contracting with 79% of jobs shed, although these percentages reflect smaller numbers of individual workers as these sectors employ fewer people than the processing and harvest and haulage sectors.

Processing businesses

In total, there are 64 sites in Tasmania at which wood and paper products are produced, managed by 50 businesses. Of these sites, 47 process native forest timber, while the remainder either process only plantation timber, or wood sourced from both plantations and native forests. These processors—including sawmillers, veneer mills, woodchip and pulp and paper producers, as well as downstream processors of sawn timber into trusses, mouldings and a range of other products—employed more than 1600 workers in May 2011, as well as supporting considerable upstream and downstream employment.

(i) Impacts of the downturn

Employment in the processing sector has declined substantially since 2008, with more than 46% of all jobs lost due to the closure of some processing sites and the reduction of staff at others. Further job losses to take effect in June and July 2011 will reduce employment in this sector by up to another 20%. Working hours have also been affected, with 30% of currently operating processors reporting they have reduced staff numbers or staff working hours since 2008. Production volumes have fallen by more than 25% since 2008–09, the first year of the downturn, with much of this reduction occurring through closure of processors. Of currently operating processors, almost half were operating at more than 80% capacity at the time of this study in

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\(^1\) While this study was undertaken largely during March 2011, employment data were updated to include subsequent major job losses through to May 2011. Other than employment data, all information in the report was current as of March 2011.
March 2011, while almost 40% were operating at less than 60% capacity. Those least likely to have closed or to have downsized business activities are native forest sawmillers, with many of these businesses successfully maintaining their business activities despite the downturn.

Factors contributing to business stress during the downturn have included increasing operating costs, changes in wood quality (mostly reported by native forest sawmillers), and reduced demand for wood products (for some, associated with appreciation of the Australian dollar). Relatively few reported having difficulty accessing finance, although this was primarily because few had attempted to do so. Uncertainty about the future was also having negative impacts for many processors (in addition to the impacts of the downturn), with most reporting delaying expenditure and investment in their business as they lacked confidence about the future of the forest industry.

Strategies used by processing businesses to respond to these changes include improving business efficiency through reducing production costs; seeking new markets and diversifying business activities; downsizing the business; and drawing on equity held in both business and personal finances to fund operations.

(ii) Vulnerability to further change

To identify how vulnerable processing businesses are to further change in the forest industry, a range of characteristics of businesses were analysed, focusing on business management (stress, access to business planning advice and ability to manage workforce and capital requirements); markets and finance (debt, costs, access to finance and market prospects); confidence in the future; policies affecting the industry; social capital (ability to draw on support from others in the industry and local community); thresholds of change; and ability to adapt the business by utilising different wood inputs or other strategies.

Businesses that were significantly more vulnerable to change in the forest industry typically had the following characteristics:

(i) the business manager reported being under a high level of stress
(ii) the business had experienced rapid growth in operating costs in recent years, and/or had high levels of debt
(iii) the manager of the business lacked confidence in future security of access to wood supply.

In general, those operating native forest sawmills had higher vulnerability to change than other businesses (i.e. they were more likely to have characteristics indicating higher vulnerability to change). However, almost all processors, including those in the native forest sector, reported having strong support networks within the forest industry, reducing their vulnerability to change somewhat, and many (but not all) had low levels of debt. Different sized processors are vulnerable to change in different ways. Smaller processors, which almost all process native forest inputs, typically have less debt, but are more sensitive to change in the cost of inputs or loss of supply, and have substantial difficulty adapting business infrastructure. Larger businesses, which include both native forest and plantation processors, are more likely to have high debt levels, which makes them more sensitive to the impacts of reduced revenue, and rising business costs, and potentially reduces their ability to access finance and to adapt to change by diversifying into new business activities.

When thresholds were examined at which a business might ‘tip’ into taking action such as closing the business, most processing businesses were found to be highly sensitive to any further loss of wood supply, with the majority (58%) indicating they would close business operations in response
to a reduction in wood supply, or at least reduce their scale of operations (32%). Processors have little capacity to seek work outside the forest industry in response to change, but almost half would consider diversifying into producing different timber products, or into more importing and/or retailing of wood products, as a way of responding to a 20% drop in wood supply (beyond 20%, diversification was considered unviable by most).

A second critical threshold for native forest sawmills was having a market for the woodchips and residues produced as part of the milling process. With average sawn-timber recovery rates of 36%, having an adequate return from woodchips and residues is critical to ongoing viability. In an industry with low margins, the financial return achieved from these by-products often makes the difference between a profit or a substantial loss. Loss of woodchip markets in particular is a tipping point that would lead to closure for many processors unless an alternative market was found for the residues from sawn-timber production currently processed into woodchips.

The majority of processors currently using native forest wood inputs (80%) reported it was unlikely they would use plantation-sourced wood if they lost access to supply from native forests, for a range of reasons including lack of available supply, and inability to use plantation timber for the types of processing they undertake.

Processing businesses indicated that the types of assistance they would find most useful in helping them adapt to any future change include having certainty of access to inputs for processing, ready access to finance, and assistance to develop and access new markets.

**Contracting businesses**

Forest industry contracting businesses include harvest and haulage, silvicultural, roading, nurseries and consultants. Contracting businesses differ to processors in that many undertake work both within and outside the forest industry, with silvicultural contractors, roading contractors and nurseries in particular often having some business activities outside the industry.

(i) Impacts of the downturn

The downturn has resulted in the loss of a substantial proportion of jobs generated by contracting businesses, with 47% of harvest and haulage jobs, 53% of roading contractor jobs, and around 80% of jobs in silvicultural contracting businesses and nurseries lost since 2008. Much of this job loss has been associated with closure of businesses, but those that have remained operating have typically experienced a large decrease in business activity: on average, contractors still operating in the industry reported a decline of between 30% and 50% of turnover since 2008, with nurseries and harvest and haulage contractors reporting the greatest decline.

Managers of contracting businesses reported that factors contributing to business stress during the downturn include a reduction in demand for their services, rising operating costs, difficulty maintaining capital equipment, and increased regulation. Those working in hardwood plantations reported that the collapse of investment via managed investment schemes (MIS) had been a significant contributor to loss of business activity. The level of impact varied depending on the type of contracting business and its dependence on the forest industry. Harvest and haulage contractors and contracting businesses dependent on native forests typically reported a greater number of business stresses affecting their business, although many plantation-dependent businesses reported large decreases in turnover.
Contracting businesses used several strategies to respond to the changes in the forest industry. The most common were seeking new business opportunities either within or outside the forest industry, reducing business costs through downsizing and delaying expenditure, and accessing their business and personal financial reserves to keep the business operating. A large number had exited the industry completely, including a number of harvest contractors who received funding under the Tasmanian Forest Contractors Exit Assistance Program in 2010.

(ii) Vulnerability to further change

Contracting businesses that had higher vulnerability to future change in the industry were typically experiencing a high level of financial and management stress; reported difficulty attracting and retaining skilled workers; had difficulty maintaining or replacing capital equipment; were experiencing increasing operating costs; and had a lack of confidence and certainty in the future of the forest industry. These issues were most commonly reported by silvicultural and harvest and haulage contractors, particularly those dependent on the native forest sector. In addition, the majority of contracting businesses reported having relatively little contact with or support from other contracting businesses, forest industry organisations, or their local community, reducing their social capital. This reduced social capital will increase vulnerability to change, as it means these businesses have fewer sources of support to assist them adapt to change. Overall, harvest and haulage contracting businesses are much more vulnerable to change than any other type of business (including processors), and roading contractors are least vulnerable. Harvest and haulage contractors are less likely than other businesses to be making a profit, are less likely to have confidence in the future, and are more likely to have infrastructure that is difficult to adapt to work outside the forest industry. In addition, contracting businesses dependent on native forests are generally more vulnerable to change than those in the plantation sector, typically having less ability to adapt to change through business diversification.

As well as increasing vulnerability to future change, the lack of confidence most business managers feel about the future is already having a substantial negative impact, with many putting investment and business planning ‘on hold’ until there is some feeling of certainty about the future. This has flow-on impacts due to reduced spending on capital equipment and other investment.

Many contracting businesses are highly sensitive to loss of business activity: a 20% loss on top of the reductions many have experienced in recent years is likely to ‘tip’ them into closure or substantial downsizing of the business. However, unlike processors, managers of most types of contracting businesses, with the exception of harvest and haulage contractors, indicated that they were likely to seek new business opportunities outside the forest industry as a way of coping with change. Most suggested they would shift into work in agriculture, construction, mining or transport-based industries—usually industries in which their existing skills and/or equipment could be readily utilised.

Woodcraft businesses

The woodcraft sector in Tasmania utilises special species timbers (SST) from native forests to produce specialist woodcraft products. While this sector was not studied in depth, a small number of interviews and a recent review of the sector (Farley et al. 2009) were drawn on to identify some key issues. Further work is needed to identify impacts of the downturn on this sector.
The woodcraft sector depends largely on the tourism market for sales. With tourism substantially impacted by the recent economic downturn and high Australian dollar, the sector has experienced a decline in demand for products since 2008. Access to timber resources has also decreased in recent years, although the impacts of this have been ameliorated by access to stockpiles. A shift to certifying sources of timber has also reduced supply.

The woodcraft sector is highly vulnerable to future change in the forest industry. The harvesting of SST is only economically viable if it occurs as part of the activity of harvesting native forest eucalypts, due to the need for economies of scale to cover costs such as roading and transport of equipment. In addition, any loss of access to high conservation areas of native forest is likely to substantially impact supply to the industry as many SST areas are located in high conservation areas. Businesses are already experiencing stress due to the decline in tourism, and have limited financial capacity to adapt to change, as well as high reliance on a very specific wood resource that is not readily substitutable.

Impacts of the downturn on forest industry workers

Understanding how the downturn has impacted forest industry businesses, and their vulnerability to further change, provides some understanding of how workers in those businesses are affected by change. For example, it enables identification of when and why workers may lose their jobs, and what may help businesses to continue to operate and to continue to provide employment. In addition, it is important to examine how well workers in the industry are coping with change, including the impacts of the downturn on their lives, and the factors affecting their vulnerability to further change. This can then enable prediction of the likely social impacts of future change, and inform the design of strategies to improve the capacity of workers to adapt to that change.

Two groups of workers were included in the study: those currently employed in the forest industry, and those who had left a job in the forest industry since 2008.

Currently employed forest industry workers

In May 2011, approximately 3460 people were employed in the forest industry (including only direct employment and not the flow-on employment generated as a result of the forest industry, which likely add another one to two jobs for each direct job generated in the industry [Schirmer 2010]). These 3460 people, while still having employment, have often experienced negative impacts as a result of the downturn. In addition, many are highly vulnerable to further change, particularly if it leads to loss of employment.

(i) Impacts of the downturn

For those workers who remain employed in the industry, the downturn has had multiple impacts. A majority of workers and their families have experienced reduced financial wellbeing, a result of some workers (20%) experiencing a fall in income, and a further 68.3% of workers not having any significant pay increases since 2008, during which time living costs have risen significantly. Harvest and haulage contractors were most likely to report a decrease in income since 2008. An increase in stress levels was reported by almost 75% of study participants, and almost all reported that their job security had decreased. These changes were associated with many workers feeling their financial situation, standard of living, and satisfaction with their life overall had worsened since 2008. Other aspects of their lives, such as satisfaction with their personal relationships, were not typically reported to have worsened in association with the downturn.
Workers who reported greater impacts as a result of the downturn in the industry were significantly more likely to report a decrease in satisfaction with most aspects of their work since 2008. In particular, they were more likely to report that their job security, the perceived fairness of decisions made about the forest industry, and their work-related stress levels had worsened.

People involved in some types of work were much more likely than others to report a moderate or large impact of the downturn on their lives. Harvest and haulage contractors were significantly more likely than other groups to report negative impacts, followed by silvicultural contractors, while workers employed in processing or growing/managing forests were least likely to report negative impacts.

Uncertainty about the future was often discussed by workers as having impacts beyond the effects of the current downturn. In addition to the ongoing stress associated with uncertainty about the future, the low job security accompanying uncertainty makes it difficult for workers and their families to plan for their future, with many putting off decisions about large purchases such as a new car or a house, or whether they can afford expenses such as private schooling for children.

(ii) Vulnerability to further change

The vulnerability of workers to future change was evaluated by firstly identifying whether workers with particular characteristics were more likely to have experienced negative impacts as a result of the downturn (focusing not on exogenous characteristics, such as whether they were in jobs more affected by the downturn, but on endogenous factors, such as the family responsibilities, skills and resources of the worker). The characteristics most commonly associated with negative impacts were considered then as indicators of high vulnerability to further change. The characteristics examined were a worker’s human capital, financial capital, social capital, socio-demographic characteristics, attachment to place, attachment to the forest industry, certainty about the future, and beliefs about forest industry policy.

A worker’s human capital—their own individual skills and resources, including psychological and physical wellbeing, education levels, and overall confidence and outlook—has a significant influence on their ability to adapt to change, and hence their vulnerability to change. Workers who lacked confidence in their ability to find new work were more likely to report negative impacts of the downturn, while those who felt confident in their ability to find new employment reported fewer impacts. Confidence in the ability to find new employment is therefore an important predictor of vulnerability to change. Around 50% of workers lacked this confidence, particularly amongst harvest and haulage contractors and silvicultural contractors. Interestingly, a majority of workers were highly confident of their ability to learn new skills and cope with unforeseen situations, with this relatively positive psychological outlook likely to assist them in adapting to change.

Many forest industry workers have low levels of formal education, particularly those employed in processing, harvest and haulage contracting, and silvicultural contracting. While not associated with greater self-reported impacts from the downturn, this is typically associated with more limited ability to adapt to change, as lack of education restricts the range of alternative jobs available to a worker either within or outside the industry. The relatively low level of education for workers is therefore a key vulnerability.
When financial capital was examined, unsurprisingly, those who were more vulnerable to change were the 41% of workers under moderate to high financial stress—defined as those who felt they were unable to easily cover living costs, irrespective of household income level. Those employed in processing were particularly likely to report this type of financial stress.

Social capital is also an important factor in coping with change, with the amount of support available to a person from their social networks often an important predictor of ability to adapt successfully. Consistent with this, workers who felt they had support from others in the forest industry were less likely to experience negative impacts. However, those with strong family attachments to the industry—predominantly harvest and haulage contractors—were much more vulnerable to change. They were also more likely to be living in communities in which people had shifted away due to the downturn—another factor that has reduced available social capital for some people and hence increased their vulnerability to change.

When socio-demographic characteristics were examined, workers with one or more people financially dependent on them were more vulnerable to change. Interestingly, gender and age were not associated with differences in vulnerability.

A worker’s attachment to the community in which they live appears to matter, with workers who had lived in their local community for a long time typically more vulnerable to change and vice versa. Similarly, attachment to the forest industry—measured based on time spent working in the industry—made a difference, with harvest and haulage contractors and processing workers in particular more likely to have worked a long time in the industry, and to be more vulnerable to change.

Finally, certainty about the future of the forest industry appears important. Workers with low confidence in the future of the forest industry or in the future of their job in the industry, or who felt proposed future changes for the industry would not be positive, were more likely to be vulnerable to change.

Workers who had left a job in the forest industry since 2008

In addition to surveying workers currently employed in the industry, a number of workers who had voluntarily or involuntarily left jobs in the industry since 2008—referred to as ‘ex-workers’—were surveyed and interviewed, to identify how they were impacted by the downturn, and what had happened to them since leaving their job in the forest industry.

(i) Impacts of the downturn

The most obvious impact of the downturn on ex-workers was that it had led to either forced or voluntary loss of their employment in the forest industry. Loss of a job is often associated with loss of financial security, as well as stress, depression or anxiety, and loss of self-esteem. As a first step, ex-workers were asked if they had found new work since leaving the industry. Approximately 65% to 68% of ex-workers had found new jobs (depending on which dataset was used). The new jobs were usually outside the forest industry. Between 11% and 14% had left the labour force (retiring or on illness benefits), and the remainder (approximately 18–22%) were unemployed and seeking work. A similar proportion of those who had left jobs voluntarily and involuntarily had found new work. The average time taken to find a new job (4.3 months) was also similar irrespective of whether a worker had left their job voluntarily or involuntarily, with the majority of those who found new work doing so within one to three months of leaving their forest industry job, and a small number taking up to two years to find new work. Those who had
found new work often reported that their new employment had poorer working conditions, particularly lower job security and lower income, than their previous work in the forest industry. Their new jobs were most commonly in the construction, agriculture, transport, manufacturing and mining industries. A large proportion of ex-workers found work outside the forest industry, involving different tasks to those previously undertaken in the forest industry, although some also found new employment in the forest industry.

Factors that assisted ex-workers to find new employment included having jobs available locally for people with their skill sets, accessible training courses enabling them to gain new skills or formalise their existing skills (in particular through obtaining machinery operator tickets), and being able to access job opportunities through their social networks. The latter was particularly important for those who had little experience in formally applying for jobs.

Barriers to gaining new employment included ex-workers’ perceptions about their eligibility for work, with many feeling that older workers had little chance of gaining employment, or lack of confidence in their ability to get a new job; costs associated with looking for new employment (e.g. telephone and fuel costs for travelling to job interviews); and lack of available local employment. Skills and education were commonly reported barriers, with many ex-workers having relatively low levels of formal education, and little work experience outside the forest industry, and as a result feeling they had limited skills to use outside the forest industry, as well as limited knowledge of how to successfully apply for a job.

In addition, many ex-workers found it difficult to access assistance from the government, whether it was assistance to gain new employment or other assistance such as accessing welfare benefits. They typically reported confusion or lack of knowledge about what assistance they were eligible for, and how to access it.

Ex-workers had typically been offered at most one or two forms of formal assistance after losing their job in the forest industry, from either their previous employer or government-provided services, with many provided access to services via their union or a third-party support agency. These included assistance in preparing a CV, redundancy payments, retraining opportunities, financial planning advice, counselling and career referral services, amongst others. Ex-workers who had accessed assistance reported that redundancy payments, retraining opportunities and financial planning advice were the most effective forms of assistance received.

Loss of employment was typically associated with increased personal and financial stress, and increased uncertainty about the future. However, some ex-workers reported an improvement in some aspects of their life, including increased time spent with family and friends, and improved health. Some also reported that redundancy payments had enabled them to pay off debts such as mortgages, although others found that redundancy payments were barely sufficient to cover living expenses during the period before they were eligible for unemployment benefits.

(ii) Vulnerability to further change

Vulnerability to further change was evaluated for ex-workers using the same approach as that described for workers currently employed in the industry. Overall, results were highly similar. In particular, workers who reported low confidence in their ability to find new employment or adapt to changed situations typically adapted less successfully to their loss of employment. Those with lower levels of formal education were significantly less likely to have obtained new employment compared to those with higher levels. Those with lower financial and social capital also found it more difficult to adapt successfully to losing their job in the forest industry. In one surprising
difference to the results for those currently employed in the industry, the length of time a person had spent working in the forest industry was not a predictor of their ability to adapt successfully to loss of their employment, with those who had worked a long time in the industry no more likely to report negative impacts. This is likely to be because they were older, were more likely to have paid off mortgages and were less likely to have children financially dependent on them, as well as being more likely to be eligible for larger redundancy payments—all factors that reduced negative impacts that may be associated with high dependence on the forest industry.

Workers who had left jobs voluntarily experienced fewer negative impacts compared to those who left jobs involuntarily, which was not surprising considering they typically left their job only when a new opportunity had arisen, and of their own volition.

Those who had been employed in harvest, haulage and silvicultural contracting reported the greatest negative impacts resulting from their loss of employment, and those who had been employed in managing forests/plantations the least.

Based on the analysis of both currently employed and ex-workers, it is clear that harvest and haulage contractors and processing workers are more highly vulnerable to change than those working in silvicultural contracting or managing native forest or plantations. Similar to forest industry businesses, workers whose jobs depend on native forests are more vulnerable to change than those employed in the plantation sector, having lower educational attainment, higher attachment to the industry, and higher attachment to their local community. The most vulnerable groups are therefore harvest and haulage contractors and processing workers whose jobs depend on native forests.

In the case of harvest and haulage contractors, high dependence on and attachment to the forest industry, combined with often experiencing significant negative impacts from the recent downturn (affecting both their personal finances and wellbeing) and relatively low levels of formal educational attainment, all increase vulnerability. This suggests a need for providing assistance that reduces the financial stress faced by these contractors, as well as addressing the psychological stress of change in an industry on which they are highly culturally dependent. Targeted skills training and assistance to find a new job are also essential for workers who have often not been employed outside the industry, and may not have had any experience in formally applying for a job.

In the processing sector, vulnerabilities of workers are slightly different: they have very low levels of educational attainment, but more confidence in their ability to find new work and fewer indications of very severe psychological distress (albeit with many workers indicating high levels of stress). A focus on skills training and assistance with the process of applying for employment may be most important to assist these workers.

Exposure of Tasmanian communities to change in the forest industry

The exposure of different Tasmanian communities to change was identified by examining (i) how dependent different communities are on the forest industry, defined as the proportion of the employed labour force working in the industry, and (ii) the impact of the downturn on employment in different local government areas (LGAs) across Tasmania. Many LGAs are highly dependent on the forest industry, and have experienced a substantial decline in forest industry employment during the downturn. The communities most exposed to change were identified as Dorset, Central Highlands, Glamorgan–Spring Bay, Derwent Valley, Southern Midlands, Circular Head, Waratah–Wynyard, Burnie, Kentish, Huon Valley and Meander Valley. Several LGAs
were also identified as being particularly likely to experience out-migration of forest industry workers if they lost employment, with Dorset, Hobart, Central Coast, Glenorchy and Huon Valley most likely to experience loss of population. Circular Head and Glamorgan–Spring Bay are least likely to experience out-migration of forest industry workers who lose jobs, something which may lead to long-term unemployment if new employment opportunities are not found within these communities.

It is essential that an in-depth study be undertaken of the impacts experienced by these communities as a result of the downturn, and of the likely impacts of future changes to the forest industry. The resources available for this study did not permit this analysis, and it is essential that the work reported here identifying exposure of communities to change be built upon by analysing how different communities are impacted by, and adapt to, change.

**Impacts of an uncertain future**

All groups who took part in this study emphasised that the challenges currently affecting forest industry businesses and workers are a result not only of the downturn. While the market driven factors causing the downturn were the principal cause of job loss during 2008 to 2010, over the year to March 2011 job loss and decreased business activity have also resulted from the high level of uncertainty about the future associated with ongoing discussion of the Principles Statement. Uncertainty about the future has resulted in businesses and workers delaying important decisions such as making investments in their business or large purchases, and causing skilled workers to choose to leave the industry. These issues have contributed to the rapid decline in employment and business activity. With an agreement announced on 24 July 2011, the next challenge will be ensuring that this uncertainty is reduced through the implementation of the announced forest industry changes, with appropriate support needed to ensure that businesses feel confident to invest, and workers feel confident to remain in the industry.

The results of the study also clearly indicate that most businesses and workers feel able to adapt to change, if given the time and resources to do so. A clear and adequate timeframe for implementation of change is needed to enable businesses and workers to plan and implement adaptation strategies. Ideally, a transition period of several years is needed to optimise adaptation. Knowing the timeframe for transition and the changes that will occur during it can provide those in the industry with the information they need to make decisions about their optimal adaptation strategies.

It is also essential that the assistance packages provided to help workers, businesses and communities adapt to future change in the industry address the negative impacts that both the downturn and the current uncertainty about the future of the industry have had on the adaptive capacity of businesses and workers. The downturn and ongoing uncertainty have substantially reduced adaptive capacity of many businesses and workers, and unless this is addressed, they will have difficulty adapting successfully to the future changes to be implemented in the industry.

**Assisting businesses and workers to adapt to change**

The results of this study show that some businesses and workers are more vulnerable than others to change in the forest industry—in other words, they are more likely to experience negative impacts as a result of change, and are less likely to adapt successfully to change. It is important to design support mechanisms and policies to target the specific vulnerabilities of these different groups.
Structural adjustment assistance should focus on providing support that makes best use of the skills and resources people already have, and build their capacity to adapt successfully to change. We recommend that any structural adjustment assistance include an integrated package of support measures, focused around capacity building for the long term as well as ameliorating shorter-term impacts of loss of employment, falling business activity, and difficulty downsizing or restructuring businesses. Many workers and businesses are already using their own resources to adapt to change. Providing assistance to facilitate this type of adaptation can substantially reduce the negative impacts associated with change in the forest industry, and by doing so can reduce the overall costs of assistance packages.

To do this, support measures need to go beyond simple financial payments to specific groups. Financial assistance is not nearly as effective when provided without other support such as training support and financial, business and psychological counselling to enable optimal utilisation of the financial assistance. For example, the redundancy payments enabled by the recent Tasmanian Forest Contractors Exit Assistance Program, which focused on providing grants for business exit, were considered beneficial by study participants. However, participants criticised many other aspects of the program, including the lack of clarity of application guidelines, the amount of money available, the fairness of the process, and the limited scope of eligibility for assistance.

The recommendations below focus on identifying the types of assistance most likely to reduce social and economic impacts of the downturn, and future change, on businesses, workers, and communities dependent on the forest industry. This assistance may include payments made to businesses that lose contracted rights to resources harvested from native forest, something that has formed a part of several previous structural adjustment packages in the forest industry, as well as in other industries where the government grants a right to access natural resources, such as the fishing industry. We focus on understanding whether and how such payments, as well as other strategies that aim to reduce negative impacts, can reduce the overall cost of change in the forest industry for those affected.

(i) Assistance strategies for businesses

Forest industry businesses vary in their vulnerability to change and, perhaps more importantly, in the range of strategies by which they can adapt to change. Many processors and harvest and haulage contractors are highly dependent on native forest resources and have little capacity to change their business infrastructure to either work elsewhere in the forest industry (i.e. the plantation sector), or to shift their business activities outside the industry. However, many identified that they may be able to diversify their business, but that they need certainty about the type and volume of resources that will be available to them into the future in order to do so.

Providing certainty of access to forest resources, and a clear transition period to any planned change in access, is therefore the most effective assistance that can be provided to many businesses, as it provides a basis on which they can plan their business activities and invest in the future. While uncertainty is ongoing, short-term financial assistance may be needed to maintain business activities, particularly where businesses face difficulty accessing finance due to the lack of certainty about the future of the industry.

Providing assistance to develop new business opportunities is the next most useful strategy. Supporting businesses to diversify into new activities can be more effective than exit assistance, as by maintaining business viability it reduces flow-on impacts to workers, families and communities.
This assistance can include:

(i) enabling access to finance through loan guarantees or interest rate subsidies
(ii) providing access to financial and business planning advice that encourages development of new business activities (e.g. through expansion of the Rural Financial Counselling Service)
(iii) market development assistance (e.g. through AusIndustry)
(iv) direct grants to facilitate development of new business activities, such as worker training, capital equipment, marketing, etc. The latter may be in the form of payments intended to address a business’s loss of contracted access to forest resources.

Provision of exit or downsizing assistance may be necessary for businesses that do not have the capacity to adapt their business to new work either within or outside the forest industry. Providing funding to assist exit (e.g. in the form of a payment based on the loss of contracted volumes of wood supply) ensures business debts can be paid and redundancy packages provided. It must, however, be accompanied by strategies aimed at reducing the flow-on impacts of businesses exiting the industry. This includes support for unemployed workers, upstream and downstream businesses that lose revenue as a result of forest industry businesses exiting the industry, and the communities affected by loss of business activity and associated impacts on employment. Assistance that focuses on helping business managers and workers plan for their future after exiting the industry is particularly important.

When considering who should be eligible for assistance, the overall goals of change in the forest industry need to be considered. For example, the agreement signed on 24 July 2011 commits to reducing access to native forest resources, and encouraging a shift to a plantation-based industry. Minimising the social and economic impacts of this transition requires not only assisting those currently dependent on native forests, but also considering how to facilitate the transition to greater dependence on plantations. In the plantation sector, the downturn has had a major impact on employment and on the financial capacity of existing businesses. This sector is therefore not able to readily make the types of investment needed to expand the plantation industry in Tasmania: many skilled workers have left the industry, and financial capacity is limited. Assistance that enables expansion and diversification of plantation-based businesses is needed to overcome these barriers, and to facilitate transition to a plantation-based forest industry.

(ii) Assistance strategies for forest industry workers and families

Forest industry workers and their families may be negatively impacted by the consequences of loss of employment, underemployment, and uncertainty about the future. While many workers who have lost jobs have found new employment relatively quickly, that employment is often relatively insecure and pays less than their previous work in the forest industry. Assistance that improves the capacity of workers to gain new employment with equivalent or better conditions to their previous job can improve outcomes for many workers, as can assistance that reduces the negative impacts of shifting from one job to another.

Many of the assistance strategies discussed below focus on helping those workers made redundant as a result of forest industry change. Some—particularly retraining and short-term financial support—are also important for those who remain employed but experience significant change to the nature of their employment, either in the short or long term, as a result of change in the forest industry (such as contractors who experience a substantial reduction in work hours and hence in income).
Seven forms of assistance are recommended, many of which can be packaged together. Taken together, these are intended to address the factors contributing most to vulnerability of forest industry workers (lack of experience in working outside the industry resulting in low confidence and little experience applying for employment; low educational attainment; and for some, lack of financial resources):

- **Employment referral services that help workers find new employment, reducing the length of time they are unemployed**: These services need to specifically match skills of forest industry workers to new jobs, and provide support to the large number of workers who have limited experience in applying for jobs.

- **Assistance in applying for new employment**: This may include financial assistance to cover costs of travelling to interviews, phone bills, training, or relocating to a new town to take up a new job. It can also include assistance preparing a CV and preparing for job interviews, critical for many workers who have not had experience applying for jobs outside the forest industry.

- **Access to training**: This includes training that formalises skills attained in the forest industry that may be applicable in new jobs (e.g. through obtaining machinery operator tickets), and training in new skills targeted at industries in which employment is available. Training opportunities may need to be provided both to those who leave the industry and those who remain employed, but whose jobs change substantially (e.g. as a result of a forest industry business diversifying its activities outside the forest industry).

- **Psychological and financial counselling**: Workers experiencing high levels of stress, depression or other mental health issues have limited capacity to plan successfully and constructively for their future. Providing psychological support, as well as financial planning advice, can be highly beneficial. This can occur through formal mechanisms such as counselling services; however, many workers are highly reluctant to access such formal services. Given this reluctance, it may be necessary to make accessing this assistance a requirement for eligibility for other forms of assistance, or to provide it as a packaged service together with employment referral or other services. Existing initiatives such as the Rural Alive and Well (RAW) program provide a useful blueprint for this type of service. Workers also receive psychological support from social networks within and outside the forest industry: supporting these existing networks can provide opportunities for workers and family members to interact and discuss their issues, rather than being isolated. For example, funding for community or forest industry organisations that enables them to organise events that bring workers and their families together and that provide opportunities for peer support can be highly beneficial.

- **Redundancy assistance**: Ensuring workers have access to redundancy payments helps both businesses and workers by enabling businesses to exit or downsize while workers have resources to cover living costs while seeking new work or can afford to retire early.

- **Cost-of-living support**: Short-term assistance to cover living costs may be necessary for some workers and, in particular, managers of small businesses in the contracting and processing sectors. This type of assistance is particularly useful during the period in which longer term assistance is not yet available, but workers are struggling. Many workers are currently in this position.

- **One-stop shops and other ‘information’ assistance**: Providing advice on all forms of assistance available is essential to ensure workers and businesses are able to identify and access that assistance. Workers and businesses also need support in applying for
assistance. This requires good communication through existing networks (such as forest industry organisations), and ideally the provision of ‘one-stop shops’ where all information is available, packaged together with assistance services such as employment referral and financial counselling.

As with businesses, consideration needs to be given to which workers will be eligible for different forms of assistance. Where the assistance aims to help workers transition to new types of employment (e.g. through retraining) eligibility should ideally be broad, ensuring those in both native forest and plantation-based jobs can obtain the skills needed to transition successfully to a changed forest industry. Other forms of assistance may have more restricted eligibility, particularly redundancy payments.

Consideration should be given to extending eligibility for some forms of support beyond workers in the forest industry to include their families (e.g. through support for spouses of forest industry workers to receive training assistance if they need to seek work as a result of their partner losing or changing jobs).

(iii) Assistance strategies for communities dependent on the forest industry

Communities dependent on the forest industry need specific assistance to help ameliorate the downstream economic and social impacts of change in the forest industry. Assistance provided to businesses and workers may not always ‘trickle down’ to communities, particularly if a community experiences out-migration of population as a result of change in the forest industry. While not examined in detail for this report, three broad types of support are often identified as useful:

- **Funding for community activities to build positive social capital:** This is particularly useful in the short term, to help maintain social networks that are an important form of support for those affected by change, and which may otherwise erode.

- **Funding to strengthen existing community support services, including both government services and community and industry groups providing essential support during times of difficulty:** This needs to be provided early in any change process.

- **Funding regional development assistance that enables communities to invest in developing new economic activities:** Funding to support existing local initiatives and networks can be particularly cost-effective.

(iv) Timing and coordination of support

Timing of support is critical. Assistance is needed as soon as possible to address the falling capacity of many businesses and workers to adapt to change. Providing assistance rapidly will reduce the costs of adapting to change by minimising further negative impacts. If assistance is delayed substantially, many more workers and businesses may have ‘tipped over’ their threshold of change, with substantially reduced financial and psychological capacity to cope with further change.

Support packages must be accompanied by adequate investment in coordination and communication activities, to ensure that those eligible for assistance are (i) aware of the availability of assistance, and (ii) have the ability to access this assistance, including where necessary being provided with help to fill in forms and with direct encouragement to take up assistance. Adequate investment in coordination and on-ground support is a crucial and often
missing element of structural adjustment support, and can substantially improve the speed and efficiency of delivery of assistance, thus reducing the negative impacts experienced by businesses, workers and their families.

Further work
This report does not attempt to predict the likely impacts of future change to Tasmania’s forest industry, but can be used as a basis for assessing the impacts of the agreement announced on 24 July 2011. Nor does it examine the full impacts of the downturn: flow-on impacts on local communities were not examined due to a lack of sufficient resources. This type of assessment is urgently needed, with many communities experiencing significant loss of local employment during the downturn. This study should be used as a basis from which this type of assessment is undertaken, ideally in partnership with the people and communities impacted by change in the industry.
1 Introduction

The Tasmanian forest industry is currently undergoing substantial change, and will experience further change in the near future as a result of agreements reached between representatives of the Tasmanian forest industry and environmental non-governmental organisations (ENGOs), with an assistance package to facilitate transition out of native forest harvesting announced by the federal and Tasmanian governments on 24 July 2011. In the two years to September 2010, more than 2000 jobs were lost in the forest industry as part of an ongoing downturn (Schirmer 2010); in the following nine months, almost 1200 additional jobs were lost, as documented in this report. The impacts of this downturn on forest industry businesses, workers, their families, and the communities that depend on the industry are profound. In addition to having a range of impacts on the viability of businesses and the work and personal lives of people dependent on and connected to the industry, the impacts of the downturn also affect the capacity of businesses, workers, families and communities to adapt successfully to future change in the industry.

In recognition of the substantial social and economic implications of the downturn in the forest industry, the Cooperative Research Centre (CRC) for Forestry funded the ‘Socioeconomic impacts of forest industry change’ study, undertaken from January to June 2011, to examine the social impacts of the downturn and establish a ‘baseline’ for predicting the impacts of future changes. The study builds on and extends a series of surveys of the forest industry, undertaken since 2006, that have tracked employment and activity in the industry (Schirmer 2008, Schirmer 2010). Additional funding was subsequently contributed by the Federal Department of Agriculture, Fisheries and Forestry, to enable the study to form part of the due diligence assessment of the Principles Statement.

The study examined the impacts of the downturn in the forest industry on businesses and workers dependent on the industry; the vulnerability and capacity of forest industry businesses and workers to adapt to further change in the forest industry; and which Tasmanian communities are most exposed to change in the forest industry.

This report summarises key findings of the study. It does not attempt to predict the socioeconomic impacts of future changes currently being proposed for the forest industry, as the nature of these changes is not yet known. The data gathered for this study can, however, provide the basis for such analysis in the future, and this analysis is essential to support design of strategies that can reduce negative impacts and maximise opportunities arising from any future change in the industry.

Ideally, a socioeconomic impact assessment should involve an ongoing, iterative process in which impact assessment specialists work together with individuals and communities to predict the likely impacts of a proposed change, develop strategies to minimise negative impacts and provide opportunities for positive outcomes, and monitor and adjust these strategies as they are implemented over the long term (ICGPSIA 2003, Vanclay 2003). The work reported here is designed to inform such a process, and we encourage the development of a broader, ongoing assessment that more directly involves the people affected by change.

This report provides a comprehensive overview of the recent changes in the forest industry and their impacts on businesses, workers, their families and dependent communities. The background section provides information on recent change in Tasmania’s forest industry. Following this, the scope and scale of the study is described, including how the forest industry was defined and which sectors were included or excluded. The methods used for the study are detailed, followed by the
study results which examine long-term socioeconomic trends in the forest industry, impacts of the recent downturn, and the vulnerability and capacity of businesses and workers to adapt to future change. This is followed by discussion of the implications of our findings for the development of strategies to reduce negative impacts associated with forest industry change, and how the information gathered as part of this study can be used to assess the likely impacts of proposed future change in the industry.
2 Background: change in Tasmania’s forest industry

The Tasmanian forest industry has undergone considerable change since 2008, driven by a range of factors, and is likely to continue to experience substantial change in the near future. As described in Schirmer (2010), since 2008 a number of factors have reduced demand for Tasmania’s forest products and activity in the forest industry, including:

- the global financial crisis, with reduced construction activity in particular leading to reduced demand for a wide range of timber products
- the appreciating Australian dollar, which has reduced competitiveness of Australian-produced forest products that are exported
- successful campaigns by environmental non-government organisations (ENGOs) that have led to reduced demand for Tasmanian woodchips
- collapse of many managed investment schemes (MIS), and withdrawal of others, reducing investment in plantation establishment and management and hence reducing employment in these activities.

Changes in the Tasmanian forest industry are also being driven by the ongoing conflict surrounding forest management activities; a conflict that has continued for several decades. Debate and disagreement occurs about forest management practices such as harvesting of old-growth forests, clearfall harvesting, burning of forest residue, use of 1080 poison, and application of pesticides, amongst other issues. In 2010, in an attempt to resolve the ongoing conflict surrounding the forest industry, negotiations between representatives of the Tasmanian forest industry and ENGOs resulted in these groups signing the *Tasmanian Forests Statement of Principles to Lead to an Agreement*, from here on referred to as the *Principles Statement* (Principles Statement 2010). On 24 July 2011, an agreement was made in which the federal and Tasmanian governments committed to providing both short-term and long-term support to members of the forest industry and to industry-dependent communities, as part of supporting substantial reduction in native forest harvesting under the *Principles Statement*. To ensure this funding is used effectively to support those impacted by these changes, it is important to understand how the downturn is affecting those dependent on the industry (particularly how it has affected their capacity to adapt to change), and what types of assistance can best help those affected.

Socioeconomic impact assessment can inform discussions about the design and implementation of change, and in particular can inform the design of strategies intended to reduce negative impacts of change and provide opportunities for positive outcomes. The negotiating parties involved in the *Principles Statement* and the Tasmanian State Government and Australian Government have all stated that assessment of the social and economic impacts of the proposed changes to the Tasmanian forest industry is essential as part of any proposed change. Signatories to the *Principles Statement* requested that the Tasmanian and federal governments support the *Statement* through providing a ‘fully-funded package and timeline that maximises benefits and reduces negative impacts’. The federal government’s *Statement of Action on the Tasmanian Forestry Principals* (sic) (Gillard 2010) included a commitment to undertake an initial due diligence assessment of the implications of the *Principles Statement*, including examining issues such as sustainable yield but ‘most importantly the social and economic impact on communities in Tasmania’. 
The federal government appointed an independent facilitator, Bill Kelty, to progress discussions beyond the *Principles Statement*. In the Interim Report issued in 2011, the need for social and economic impact assessment was identified in several submissions, as was the importance of achieving positive social impacts from the forest industry:

There must be a comprehensive and sophisticated assessment of the regional social and economic impacts of any outcome of the negotiations (submission made by Timber Communities Australia, recorded in Kelty 2011, p. 40)

... a full socioeconomic study is required to fully assess the impacts associated with implementing the agreement, and these impacts must be mitigated so as to minimise adverse outcomes (submission made by Institute of Foresters of Australia, recorded in Kelty 2011, p. 135)

This study provides an initial ‘baseline study’ that forms part of what is necessary for the social and economic impact assessments called for by various stakeholders involved in discussions about the future of the Tasmanian forest industry. It focuses on understanding the impacts of the profound change already occurring in the industry, and how this affects the ability of those in the industry to adapt to future changes such as those that will occur under the agreement announced on 24 July 2011. It does not, however, provide the full social and economic impact assessment called for by stakeholders involved in debate over the future of Tasmania’s forest industry; rather, it provides a basis from which such an assessment can be undertaken. Further work is needed, ideally in ongoing collaboration with these stakeholders, to complete a comprehensive assessment of the likely impacts of future change. In particular, a full assessment of the flow-on impacts the downturn in the forest industry has had on many Tasmanian communities is urgently needed, as well as identification of their ability to adapt to future change.
3 Defining the forest industry

The goal of this study was to identify the impacts of the downturn in the forest industry on forestry businesses and workers, the vulnerability of these forest businesses and workers to future change, and the exposure of communities to future change in the industry. This required defining the scope of the forest industry. For this study, forest industry businesses were defined as all businesses undertaking activities specific to the forest industry. All workers employed by these businesses were defined as being part of the forest industry, whether they undertook forest-industry-specific tasks or not. For example, businesses involved in managing plantations were included in the study; if a person worked as an accountant for such a business, they were considered part of the industry even though the specific work tasks they undertake are not unique to the forest industry.

Under this definition, the following types of businesses were included in the study:

- **Processors of wood up to finished wood products**—processing facilities that process roundwood logs into initial wood products such as green sawn timber and woodchips, or secondary (further-processed) products such as mouldings or trusses. Direct dependence ends where wood products are mixed with other materials such as plastics and cloth in the process of making end products.

- **Contractors**—a number of types of contracting businesses were considered to be specific to the forest industry:
  - **Harvest and haulage**—businesses that harvest and transport logs to processors
  - **Silviculture**—businesses that prepare ground for planting, plant seedlings, undertake infill planting, undertake weed and pest control activities, and undertake other silvicultural activities
  - **Roading**—businesses that maintain, build, and upgrade/rehabilitate roads into forestry areas

- **Nurseries and seed suppliers**—nurseries growing seedlings for planting in commercial forestry activities, and seed collectors

- **Forest and/or plantation growers and managers**—managing privately and publicly owned native forest and plantations

- **Woodcraft sector**—people involved in transforming wood products into woodcraft objects.

All businesses that fell within the groups listed above were identified and included in the study, although only limited examination of the woodcraft sector was possible (discussed further later).

Some types of businesses were excluded from the study, even though they undertake activities specific to the forest industry. While these are all important sectors, for various reasons they are difficult to survey, and practical difficulties and funding constraints meant it was necessary to leave them out of the study:

- firewood cutters and sellers
- research focused on forestry
- processors who utilise Tasmanian wood yet are based outside of Tasmania
- forest industry groups and regulatory agencies including industry lobby groups, industry associations, and government regulators.
Some groups that depend substantially on the forest industry were also not included, in particular:

- suppliers of goods and services to the industry (e.g. mechanics, fuel suppliers, equipment supplies)
- contractors who provide services not specific to the forest industry.

These groups were not included as they do not provide services specific to the forest industry. However, it must be recognised that they can experience significant impacts as a result of change in the forest industry, as can many other businesses (such as retail businesses dependent on spending by forestry workers in areas with high dependence on the industry). Impacts on these groups should be identified through methods estimating the indirect economic impacts of change in the industry. This was beyond the scope of this study, but where possible we identify the likely nature of indirect impacts to ensure they are considered in future impact assessments.

Figure 1 summarises the scope of businesses included in the study, and the businesses excluded.
Figure 1: Forest industry sectors included in the study, and those excluded

Included in study

- Processors – to finished wood products
- Contractors – harvest, haulage, silviculture, roading
- Nurseries / seed suppliers
- Forest / plantation growers and managers
- Woodcraft sector (limited analysis)

Businesses dependent on the forest industry but not undertaking activities specific to the industry—not included in study

- Suppliers of goods and services to the forest industry e.g. mechanics, fuel suppliers
- Retail businesses dependent on worker spending
- Processors utilising both wood and non-wood products

Forest-industry-related activities not included in study

- Firewood collectors
- Regulatory agencies
- Processing outside of Tasmania
- Research
4 Methods

Understanding how humans are affected by and respond to change is complex. As is now well recognised in the socioeconomic impact assessment (SEIA) literature, the way a person is impacted by a given change depends on many things, including the nature of the change (e.g. losing a job or having work hours and hence income reduced), the individual’s personal circumstances, and the support that person can access from government, family and friends, amongst other factors.

A first step in understanding the socioeconomic impacts of changes in the Tasmanian forest industry, such as those resulting from the downturn occurring since 2008, and the changes being proposed at the time of writing, is identifying the ‘baseline trends’ already occurring in the industry, as well as the vulnerability of different people to being impacted negatively by change. This report focuses on undertaking this analysis. This section briefly reviews the conceptual framework used to understand (i) baseline trends and impacts of the downturn and (ii) vulnerability to change, with more detail provided in Appendix 1. It also briefly describes the data collection methods used in the study.

4.1 Conceptual framework

The goal of this study is to assess the impacts of the downturn impacting the Tasmanian forest industry since 2008, and to use this together with assessment of vulnerability of businesses and workers to produce the ‘baseline’ data needed to predict likely impacts of future change in the forest industry. This was done through:

1) identifying long-term socioeconomic trends in the forest industry (defined as those occurring over a longer time period than five years), focusing on how the following factors have influenced the direction of the forest industry in Tasmania:
   - political trends: public debate, public opinion and government policy decisions
   - economic trends: market trends, changes in regulations governing forest industry businesses, and trends in business costs and revenues, as well as the changing structure of the industry
   - socio-demographic trends: changes in number and type of people employed in the industry, as well as changes to worker skills, income, age, and working hours.

2) Identifying the socioeconomic impacts of the downturn impacting the industry since 2008. These impacts in turn become part of the baseline conditions that affect the ability of those in the industry to adapt to any future changes to the nature of the industry—thus this part of the ‘baseline assessment’ is both an impact assessment of recent events, and forms part of the baseline for assessing impacts of future change. Impacts were assessed using a framework in which:
   - Socioeconomic changes resulting from the downturn were identified for forest industry businesses and workers. These include changes to business turnover, revenue and costs; and underemployment and unemployment resulting from the downturn. The analysis focuses on understanding which businesses and workers have been affected by these changes, and which have not.
The impacts these changes had on people in the industry were analysed, focusing on understanding how and why different individuals have experienced differing impacts such as stress and depression as a result of the changes. This required identifying impacts and who experienced them; as well as some analysis of the factors that influence whether a person has adapted successfully to the changes resulting from the downturn.

While both socioeconomic changes and the impacts of these changes were analysed, the term ‘impact’ is used throughout this report to refer to both changes and impacts. This is because it is not always easy to distinguish between what should be considered a ‘change’ or an ‘impact’, with many interview participants viewing these as the same things.

The baseline analysis of impacts then contributed to a broader assessment of the vulnerability of forest industry businesses and workers to change. Vulnerability was defined as being a function of (i) exposure to change, (ii) sensitivity to change, and (iii) capacity to adapt to change. An initial index of vulnerability was developed for forest industry businesses and forest industry workers. The index was then ‘ground truthed’ by examining results regarding the impacts of the downturn and identifying if the factors believed likely to indicate increased vulnerability did in fact predict whether a business or worker experienced negative impacts as a result of the downturn. This analysis was used to modify the proposed set of indicators of vulnerability, and the revised indicators were analysed. Appendix 1 provides a detailed description of how indicators of vulnerability were selected, tested and revised.

Finally, the study also identified the likely exposure of communities to change in the forest industry, through identifying (i) the proportion of the employed labour force dependent on the industry for their employment in different areas, (ii) which communities have been most affected by the downturn in the industry in terms of jobs lost, and (iii) whether workers are more or less likely to migrate out of different communities to find employment. This analysis does not represent a vulnerability assessment of communities, but rather provides an initial basis for such an assessment to be undertaken in future.

### 4.2 Data collection and analysis

Multiple sources of data were used for the analysis presented in this report, including existing data from a comprehensive survey of the forest industry conducted in Tasmania in 2006, 2008 and 2010 (see Schirmer 2010); data from the Australian Bureau of Statistics; quantitative surveys of forestry businesses and workers in Tasmania; and qualitative interviews held with business managers and workers.

#### 4.2.1 Existing data sources

A number of existing data sources were used for this report, particularly the ‘Forest Industry Survey’ and data from the Australian Bureau of Statistics. The Forest Industry Survey, conducted in Tasmania in 2006, 2008 and 2010 and reported in Schirmer (2010), is a survey of employment and expenditure by the Tasmanian forest industry. A comprehensive database of forest industry employment and spending compiled from this survey was drawn on to identify baseline trends in the industry, assist in assessing impacts of the recent downturn, and to identify the likely spatial impacts of change. When drawn upon, data from this database is cited as being sourced from the ‘Forestry Industry Survey database’.
Data from the Australian Bureau of Statistics (ABS) *Census of Population and Housing* are drawn on largely when analysing longer term trends in industry employment and changes in characteristics of the forest industry workforce over time. These data have important limitations: the most recent Census was undertaken in August 2006, and is now significantly out of date. Because of this, more recent data from the Forest Industry Survey and the surveys conducted for this study are drawn on where possible in preference to utilising ABS data.

In addition, data from other sources such as market reports are used to identify trends in markets for products produced by the Tasmanian forest industry.

### 4.2.2 Quantitative surveys

In addition to drawing on existing information, new data was collected via quantitative surveys of three groups: forest industry businesses, currently employed workers, and ex-forest-industry workers. Surveys were used as there was a need to understand not only the types of socioeconomic changes and impacts experienced by forest industry businesses and workers, but their distribution and extent—requiring quantitative data that is most effectively gathered through surveys that utilise standardised questions. Questions in the surveys were informed by review of existing knowledge of the factors influencing how people in the forest industry are impacted by change (see for example Lynch-Blosse et al. 1991, McGuffog and Western 1995, Chambers Galloway & Associates 1998, Coakes et al. 1999, Schirmer 2010).

Additionally, there were some pragmatic reasons for a survey-based approach. The resources for the study were limited, preventing extensive use of in-depth interviews or focus groups; hence only a small number of these were undertaken. To usefully inform ongoing discussions regarding the future of the Tasmanian forest industry, the study needed to be completed in a relatively short timeframe. This was best achieved by focusing on quantitative data collection from which key data could be synthesised relatively rapidly.

Table 1 summarises the sample of forest industry businesses and workers surveyed, and response rates for each group. Survey response rates differed markedly for each group, largely due to the methods that were used to survey each. These are summarised below:

- Forestry businesses involved in processing roundwood and timber and fibre products were surveyed via face-to-face meetings. Each business was initially contacted by letter, then by phone, and then a meeting was organised to complete the survey. While some businesses elected to complete the survey by phone or mail, most agreed to complete it via face-to-face meetings. This resulted in a very high response rate (82.8%).

- Forestry businesses involved in non-processing activities, including contracting firms and growers, were surveyed by initially contacting businesses by letter, followed by a phone call, and delivery of the survey by post or email, with phone support provided to complete the survey. This resulted in a response rate of 35.8%, lower than that for processors as it was not possible to deliver the survey face to face with the resources available for the survey.

- Forestry workers were typically delivered surveys via their workplace, with their employer distributing surveys on the researchers’ behalf, and the researchers having no access to contact details for individual workers. This was necessary in most cases as privacy legislation prevented businesses from providing the researchers with contact information for their employees. It was not possible to send follow-up reminders to these workers, which reduced the response rate considerably (to 24.9%)—response rates to a postal
survey in the absence of reminders are typically anything from 10–20% compared to 50–60% if multiple reminders can be sent (Schirmer 2009). To ensure an adequate sample was achieved, a large number of workers were sent surveys. Sample bias was then assessed by comparing characteristics of respondents to known characteristics of the workforce as a whole.

- Workers who had lost a job in the forest industry since 2008 were sent surveys by their ex-employer based on their last known postal address. As not all workers still lived at the same address, and no reminders encouraging survey completion could be sent, a relatively low response rate was expected, with a response of 14.6% achieved.

### 4.2.3 Qualitative interviews

A total of 53 qualitative interviews were conducted in parallel with survey data collection. The purpose of the interviews was to gain a deeper understanding of the factors that influence how forest industry businesses and workers respond to change, and the ways in which they are impacted by change. Interviews were conducted with a wide range of individuals, selected to represent the full diversity of circumstances occurring in the forest industry as far as possible, with a goal of having an understanding of the full range of ways different individuals adapt to change in the industry. The final sample included:

- 17 managers of businesses involved in processing wood products (primarily sawmillers, with eight of these undertaking some form of further processing, and two only undertaking downstream processing and no sawmilling activities)
- 14 managers of contracting and nursery businesses
- 11 currently employed workers, employed in a range of businesses including growers, contractors and processors
- 11 workers who had lost a job in the forest industry since 2008, both through leaving voluntarily and involuntarily. This included two managers of contracting businesses that had left the industry
- 2 representatives from the woodcraft sector.

### 4.2.4 Data analysis

Quantitative surveys were analysed using IBM SPSS Statistics. Descriptive statistics were generated, and some simple statistical tests of correlation and significance conducted. These are described as they are presented in different parts of the results. As described above, qualitative interviews were fully transcribed and thematically coded to identify key themes related to and informing the various aspects of this study.

### 4.3 Ethical considerations

A range of measures were implemented to ensure that research was conducted in an ethical manner. The study was approved by the Australian National University Human Research Ethics Committee.
Table 1: Quantitative survey sample

<table>
<thead>
<tr>
<th>Group</th>
<th>Estimated sample frame (total population that could be surveyed)</th>
<th>Sample surveyed</th>
<th>Response rate and total number of survey responses received</th>
<th>Sample bias considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest industry businesses—processors</td>
<td>64 processing sites managed by 50 businesses</td>
<td>64</td>
<td>82.8% (53)</td>
<td>Basic data was obtained for a further seven processors, ensuring data on production and employment was known for 92.3% of processors. The survey response was representative, with surveys completed by: 100% of three large businesses (defined as those employing more than 100 people). 75% of 20 medium-sized businesses (employing between 20 and 99 people). Respondents were representative of this part of the industry, with a representative mix of native forest and plantation processors responding to the survey. 82.9% (34) of 41 small businesses (employing less than 19 people). Non-respondents all processed native forest timber, while of the total of 41, 33 processed only native forest timber, 1 softwood, and 4 a combination of native forest and plantation timbers. This, together with the additional data obtained for some non-respondents, ensured comprehensive coverage of the processing sector.</td>
</tr>
<tr>
<td>Forest industry businesses—growers, contractors, nurseries and others</td>
<td>317 businesses</td>
<td>201</td>
<td>35.8% (72)</td>
<td>Responses varied for different types of contracting business, with responses received from 29 harvest and haulage businesses (of a total of 94), and 20 of 58 silvicultural businesses. A relatively small number of roading contractors responded (6), and because of this limited information is analysed for this sector. 80% of nurseries operating in the industry provided data (4), but small numbers mean data for this sector is often not reported separately.</td>
</tr>
<tr>
<td>Workers currently employed in the forest industry</td>
<td>3460</td>
<td>1000¹</td>
<td>24.9% (249)</td>
<td>See report section discussing results of worker surveys, which provides a brief analysis.</td>
</tr>
<tr>
<td>Ex-workers who had left a forest industry job since 2008</td>
<td>3500</td>
<td>Est. 850¹</td>
<td>14.6% (124)</td>
<td>As above.</td>
</tr>
</tbody>
</table>

¹The sample of worker and ex-worker surveys is an estimate, as surveys were sent via employers (or ex-employers). In the case of workers, some employers did not distribute all surveys, and of the total of 1158 surveys sent electronically or in paper form it is estimated around 1000 were distributed by employers. In total, 1131 surveys were posted to ex-workers; however, many surveys were sent to the ‘last known address’ of ex-workers, and based on the ‘return to sender’ rates reported by employers, approximately 900 of these reached ex-workers. In addition, a number of workers who had left a job in the industry had found new work in the industry, and were also sent a ‘worker’ survey, reducing the ex-worker sample further, to an estimated 850 people.
5 Long-term baseline trends influencing the Tasmanian forest industry

Change is inevitable in any industry, and the Tasmanian forest industry is no exception. Longer term trends in the industry were identified as part of this study to help in establishing a ‘baseline’ picture of change in the industry, focusing on trends that have occurred over a longer time period than the downturn that forms the primary focus of this report. These trends were identified through both interviews with forest industry businesses and workers, and analysis of available data on the industry. The trends identified included ongoing change in the structure of the forest industry; rising business costs; changing markets; reduced access to native forest resources; and introduction of new government regulation. In addition, the number of people employed in different communities has changed, as has the demographic structure of the workforce, as discussed later in the report.

5.1 Structure of the forest industry

The structure and nature of operations in the forest industry have changed over time, with trends including changes in the type of timber resource used by the industry; changes in the nature of business relationships within the industry; and changes in the nature of the processing sector.

At the ‘resource’ end of the supply chain, there has been an ongoing trend towards the increased use of plantation resources, as well as changes in access to native forest resources (discussed further below). Figure 2 shows the area of Tasmanian plantations as at 2009, based on the year in which trees were established. While this does not give a full understanding of when trees were first established on a site (the year of planting may indicate a second or subsequent rotation of plantation establishment in some cases), it does clearly show the establishment of softwood plantations (primarily Pinus radiata) from the 1960s onwards, with the area stabilising at a peak in the 1990s. In recent years, the total area of softwood plantations has fallen, with some softwood plantations harvested and replanted to hardwood plantations (primarily Eucalyptus nitens and E. globulus). Figure 2 also shows the rapid increase in hardwood plantation area occurring from the 1990s, with most of the hardwood plantation estate established since 1996.

In addition to the changes in the plantation sector, and changes in access to native forests described further below, interview participants described a number of changes in the nature of logs harvested from native forests. Several contractors and processors described an ongoing fall in the diameter of logs accompanying the shift to increasing harvesting of regrowth native forests. Some processors also described an ongoing decline in quality of native forest logs delivered to their mill, with a greater proportion of logs with defects, rot, spiral grain or other issues.

Some interview participants described changes in the nature of business relationships within the industry, in particular a shift from a ‘mates’ approach in which personal relationships largely determined who received contracts for work, to a more business-oriented approach in which formal tendering systems are used to award contracts. While not discussed by many interviewees, those who did discuss it described this change as a significant cultural shift in how the industry operates, occurring over the last 10 to 20 years.
In the contracting sector, the main change discussed was the need for larger investments in capital machinery as harvesting technology has changed, and contracting firms shifted from being small ‘mum and dad’ businesses operating using chainsaws or relatively simple technology, to businesses that had at a minimum several hundred thousand, and often millions, of dollars invested in capital equipment. This shift, occurring since the 1980s, was described by some as being accompanied by a rapid rise in debt owed by many contractors, a result of having to invest substantially in capital equipment.

The nature of the processing industry has also changed. Over recent decades, there has been considerable rationalisation of processing, with a large number of small sawmills closing and production becoming concentrated at larger mills. Similar to most manufacturing industries, ongoing investment in upgrading mill technology has led to improvements in production efficiency, with fewer people required to produce the same amount of output. Investment in large new processing facilities has occurred occasionally, but overall most described the processing sector as including a large number of older facilities and relatively few modern facilities—the main exceptions cited being several larger sawmills that have invested in upgrading mill equipment, and the construction of new mills (e.g. the Bell Bay softwood sawmill, and veneer mills located at Smithton and Southwood).

5.2 Business costs

Most businesses reported that rising business costs were an ongoing trend having a negative impact on their business, with costs often rising at a faster rate than revenue received. The costs most commonly discussed by businesses included:

- costs of employing staff, particularly growth in costs of paying workers’ insurance premiums and wages
- fuel—a cost most commonly discussed by contractors who typically travel long distances to work in native forest and plantations, as well as using fuel in their business operations (e.g. harvesting, excavating)
• electricity, most commonly discussed by processors
• wood inputs, again most commonly discussed by processors.

5.3 Market trends
While a comprehensive review of market trends is beyond the scope of this report, many business managers reported changes in forest products markets occurring over the long term (as opposed to changes occurring over the last three years as part of the downturn). The most commonly discussed market trends occurring over the long term were:

• producers of structural sawn timber from native forests reported increasing competition from plantation timber over recent decades
• some reported growing demand for appearance timber produced from native forest timber, a trend continuing today
• slightly rising demand for woodchips, which was followed by a rapid fall as part of the downturn.

Other than these trends, most discussions focused on the more recent market changes accompanying the downturn, discussed in subsequent sections of this report.

5.4 Access to forest resources
Reduced access to native forest resources was an ongoing trend discussed by most contractors and processors. When discussing the current negotiations regarding the future of Tasmania’s forest industry, most discussed the history of change in access to native forests, particularly increased reservation of areas for logging under the 1997 Regional Forest Agreement, with further areas reserved as part of the Tasmanian Community Forest Agreement in 2005. Several study participants also discussed the Salamanca Agreement of 1989–1990, which, despite breaking down after a year, was a significant policy shift.

As well as reduced access to publicly owned native forests, several described the private native forest resource as ‘tapped out’, believing there was little resource remaining that could be viably logged on private land, particularly in the south of the state.

5.5 Government regulation
Some businesses discussed increasing government regulation as a trend affecting their business over the long term. The regulations typically discussed were occupational health and safety regulations, which have been strengthened over time, and regulations related to noise and dust pollution. Those businesses that raised these issues typically viewed increased regulation as presenting an increased cost and management burden on their business, effectively acting to increase business operating costs. While many agreed with the regulations, they felt their revenue was not growing rapidly enough to cover the increased costs associated with complying with regulatory requirements.
6 Impacts of downturn on number of forest industry businesses and workers

Since 2008, the Tasmanian forest industry has experienced a significant downturn, with the loss of a large number of jobs and the closure of many businesses resulting from a large reduction in industry turnover. This section of the report examines the impacts of this downturn on the total number of forest industry businesses and workers.

The number of businesses operating in the Tasmanian forest industry, excluding those involved in the woodcraft sector, has declined substantially since 2008, from an estimated 464 in August 2008 to 410 in September 2010 and 372 in May 2011 (Figure 3). During the same time, total employment in the industry declined from 6960 to 3460 people and 6460 to 3260 full-time equivalents (again excluding the woodcraft sector). The rate of decline has been particularly rapid during 2010–2011, with almost 1200 jobs lost in the nine months from September 2010 to May 2011, compared to 2300 in the 24 months prior to September 2010.

In addition to the substantial losses occurring since 2008, more job losses will occur in the near future in the Tasmanian forest industry. Based on publicly reported plans for closures of mills by Gunns Ltd, as well as the ongoing exit of some contracting firms from the industry, by July 2011 a minimum of a further 410 jobs (and likely more) will be lost. This assumes that all contracting firms who reported to researchers that they were in the process of exiting the industry do exit, and that mills proposed to be closed by Gunns Ltd do not continue operations under new management.

![Figure 3](image_url)

*Figure 3:* Employment and business numbers in the Tasmanian forest industry, 2006–2011
The driving factors discussed earlier, including the reduction in markets for various forest products resulting from the global financial crisis, appreciation of the Australian dollar, collapse of the MIS sector, and ongoing debate over the future of the Tasmanian forest industry, have all contributed to this rapid decline. While much debate in Tasmania during 2010 and 2011 has focused on the native forest sector of the industry, there has been considerable loss of employment in the plantation sector as well, as can be seen from Figure 4 and Figure 5. However, decline in the native forest sector has occurred since 2006, whereas employment dependent on hardwood and softwood plantations grew between 2006 and 2008 as establishment of hardwood plantations expanded and some investment was made in new softwood plantation processing. Plantation-dependent employment subsequently declined, due to the global financial crisis, cessation of most investment in MIS in the hardwood plantation sector, and closure and downscaling of processing dependent on softwood plantations.

![Figure 4: Employment in the native forest and plantation sectors, 2006–2011](image-url)
The rate of job loss has varied substantially depending on the type of job a person undertakes in the forest industry, as can be seen in Table 2. People working in silvicultural contracting and nurseries are most likely to have lost their jobs, and those employed in managing forests and plantations are least likely to have. The largest number of jobs (as opposed to the proportion of jobs) have been lost in the processing sector, as it employs the largest proportion of workers, followed by harvest and haulage contracting and silvicultural contracting.

The figures provided in Table 2 do not include the woodcraft sector, which depends on native forests. Farley et al. (2009) estimated that in 2009 the woodcraft sector generated 1750 jobs in specialist businesses, as well as 250 jobs in larger processors. The larger processors are included in the job estimates provided above, as many of these processors also process eucalypt timber, and so the woodcraft sector is considered to add up to 1750 additional jobs on top of those discussed above. However, as discussed further in the woodcraft section, the actual number of jobs in the woodcraft sector is currently likely to be lower than this estimate, with the current downturn in the tourism sector having a negative impact on this sector. It was not possible to produce an updated figure on employment in the woodcraft sector as part of this study.
### Table 2: Employment by type of forest industry job, 2006 to 2011

<table>
<thead>
<tr>
<th>Jobs—Estimated number of people employed</th>
<th>Jobs—Estimated full-time equivalent employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>----------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Growers</td>
<td>733</td>
</tr>
<tr>
<td>Processors</td>
<td>3034</td>
</tr>
<tr>
<td>Silvicultural contractors</td>
<td>668</td>
</tr>
<tr>
<td>Nurseries and seed suppliers</td>
<td>139</td>
</tr>
<tr>
<td>Harvest and haulage contractors</td>
<td>1394</td>
</tr>
<tr>
<td>Roading and earthmoving contractors</td>
<td>Unknown¹</td>
</tr>
<tr>
<td>Other (includes land survey, expert advice, research, government regulators)</td>
<td>441</td>
</tr>
<tr>
<td>Total</td>
<td>6409</td>
</tr>
</tbody>
</table>

¹The change over 2008–2011 is focused on here as this enables identification of the changes resulting from the forest industry downturn, which is a primary focus of this report.
7 Forest industry businesses—processors

The impacts of the downturn in the forest industry on *processing businesses* operating in the industry, and their vulnerability to further change, are described in this section. Processing businesses, as described earlier, include sawmills and downstream processors. When examining impacts of the downturn on forest industry businesses the analysis focuses on how business operations have been affected by the downturn and how this has impacted the ability of the business to operate successfully. Section 11 of this report examines the impacts of the industry downturn on workers, including impacts on the managers of the businesses examined in this section.

When this study was undertaken during March to May 2011, processing of wood products took place at 64 individual processing sites, managed by 50 businesses. These included woodchip mills, sawmills, pulp mills and downstream processing (including only those downstream processors that focus solely on processing timber products). In this section, these businesses are referred to as ‘processors’. Key characteristics of different businesses are summarised in Table 3 and Table 4.

As discussed in the Methods section (Section 4), 83% of processors provided data for this study, and basic employment and processing volume data were obtained for a further 9%. Non-respondents were principally small businesses, making it possible to estimate employment and processing volumes for non-respondents and ensuring the information reported in this section covers the entire industry.

All small and most medium sized processors operate between seven and eight hours a day, usually five days a week (a small number operate only four days a week). Many of these are restricted to these operating hours by environmental regulations to reduce noise pollution. Only six sites (all medium or large employers) reported operating two or more shifts per day, and of these only three operate more than five days per week.

Businesses were asked when they had last significantly upgraded their processing infrastructure. In total, 15 reported a significant upgrade since 2008, while a further 11 had upgraded between 2000 and 2007. The remaining seven businesses that responded to the question had last upgraded their infrastructure at some point between 1985 and 1996. There were no major differences between different types of processors in the time of last upgrading, with native forest and plantation sawmills, different sized businesses, and different types of processors all reporting a wide spread of years in which they had upgraded their infrastructure.
**Table 3:** Processing sites by type of inputs utilised

<table>
<thead>
<tr>
<th>Size of site→</th>
<th>Type of inputs utilised ↓</th>
<th>Small sites (employing 1–19 people)</th>
<th>Medium sites (employing 20–99 people)</th>
<th>Large sites (employing 100 or more people)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native forest</td>
<td></td>
<td>33</td>
<td>13</td>
<td>1</td>
<td>47</td>
</tr>
<tr>
<td>Softwood plantation</td>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Hardwood plantation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both native forest and softwood or hardwood plantation</td>
<td></td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>41</td>
<td>20</td>
<td>3</td>
<td>64</td>
</tr>
</tbody>
</table>

**Table 4:** Processing sites by types of processing undertaken

<table>
<thead>
<tr>
<th>Size of site→</th>
<th>Type of inputs utilised ↓</th>
<th>Small sites (employing 1–19 people)</th>
<th>Medium sites (employing 20–99 people)</th>
<th>Large sites (employing 100 or more people)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Woodchip mills</td>
<td></td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Sawmills—undertaking green milling only</td>
<td></td>
<td>13</td>
<td>5</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Sawmills—undertaking both green and dry milling (and some also retailing)</td>
<td></td>
<td>17</td>
<td>3</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Processors undertaking both sawmilling and downstream processing</td>
<td></td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Processors undertaking downstream processing only (e.g. mouldings)</td>
<td></td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Post/pole production</td>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Veneer production</td>
<td></td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Processors undertaking pulp and paper production</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>39</td>
<td>21</td>
<td>3</td>
<td>63</td>
</tr>
</tbody>
</table>

Note: Tables 3 and 4 provide data by individual processing site, rather than by business, with some businesses managing multiple sites. The figures reflects operating sites as at May 2011; this is a smaller number than existed when this study was first proposed in early 2011, with some processing sites closing since the start of the study.

1Woodchip mills listed here include the Triabunna mill, which despite being on a temporary shut-down in May 2011 was still potentially ready to restart operations. The number of woodchip mills does not include the Hampshire and Tamar mills closed in the last six months.
7.1 Impacts of downturn on business activities and management

Businesses were asked to what extent they had been impacted by a number of changes known to be associated with either the forest industry downturn, or other trends, since 2008:

- The most common change reported by businesses was increasing costs of operation, with 80.0% reporting this had had a moderate or large effect on their business since 2008. Associated with this, 56.4% reported difficulty maintaining the competitiveness of their business.
- 51.3% reported the quality of raw material they had access to had changed. While most reported a long-term reduction in log quality, in recent months some sawmills with an allocation of Category 2 logs had had increased access to Category 1 and 3 sawlogs, increasing the quality of their inputs. While 43.6% reported a change in quantity of available inputs, the nature of changes similarly varied, with some reporting a decrease and others an increase.
- 44.7% had experienced reduced business revenue as a result of decline in demand, compared to 25.6% who had experienced increased revenue as a result of growing demand.
- One-third were affected to a moderate or large extent by the increase in the Australian dollar; this predominantly included medium and large businesses delivering to export markets.
- 28.2% were impacted by increased competition from other businesses within Tasmania and 42.1% by competition from businesses outside Tasmania. In particular, native forest sawmillers producing structural timber reported increasing competition from plantation-based products, whereas those producing appearance products were less likely to report increasing competition having an impact.
- Difficulty maintaining capital equipment was a moderate or large issue for 35.9% of businesses.
- Increased regulation was reported as having a moderate or large effect by 37.8% of businesses, principally small sawmillers. The regulations most commonly discussed were occupational health and safety regulations, and sometimes environmental regulations relating to noise pollution or other issues.
- Only 21.1% reported being impacted by experiencing difficulty accessing finance, with many of those who reported no impact stating they might have difficulty, but had not sought finance and hence could report no difficulties.
- Few (8.3%) had been impacted by reduced investment in managed investment schemes, which has mostly impacted the growing and management of plantations rather than availability of supply to plantation processors. Similarly, while many protests against forest activities have occurred, few processors have been directly impacted by these, with most having an adequate stockpile of logs such that any temporary decrease in supply does not affect day-to-day processing activities. Harvest and haulage contractors were those most affected by protest activities.
Figure 6: Impacts of downturn on processors’ business activities and management

Large and medium processors were more likely to report having experienced a reduction in revenue since 2008 than small processors (63%, 67% and 37% respectively); as well as difficulty maintaining competitiveness (100% compared to 33% of medium and 46% of small businesses); to report being impacted by the rising Australian dollar (88% compared to 33% of medium and 18% of small businesses); and increased competition by businesses outside Tasmania (88% compared to 33% of medium and 30% of small businesses). Green sawmills were more likely than all other types of processors to report having difficulty upgrading their infrastructure (60% compared to 30% or less of other businesses).
Strategies processors had used to respond to these changes included:

- reducing costs and improving efficiency, particularly labour efficiency (n=10). Some had actively sought to employ skilled workers made redundant from other processors and shed less productive workers as a way of improving labour efficiency, often with a net loss of staff. One reported reducing staff turnover as a key labour efficiency measure
- some reported not taking any specific actions and either ‘focusing on survival’ or ‘dealing with reduced profits for a while’ (n=7)
- seeking alternative markets (particularly higher value or niche markets) and diversifying their customer base (n=7)
- downsizing business operations (n=6)
- improving quality of product to ensure customer loyalty (n=3)
- running down business financial reserves (and sometimes the owner’s own reserves) to keep the business running (n=3)
- putting up prices, reported as viable only for small price increases (n=2)
- investigating or expanding downstream processing (n=2)
- holding off on making new investments to reduce costs, although this was viewed as having detrimental impacts on the business in the long term (n=1)
- diversifying suppliers of inputs (n=1)
- being involved in industry forums (n=1)
- renegotiating contracts early (n=1).

7.2 Impacts of the downturn on production volumes

Processors were asked a number of questions relating to the impacts of the downturn on production volumes. They provided detailed information on the volume of products produced, and how this has changed since 2008.

Total production volumes reported by businesses for 2008, 2010 and 2011 are summarised in Figure 7; the types of products produced in 2011 are summarised in Table 5. As can be seen a large majority of production is in the form of woodchips and residues.

Sawmillers were asked to report on their average recovery rates. Of 31 eucalypt sawmillers who reported their average recovery rate when sawing roundwood to green sawnwood, the median recovery rate reported was 33% while the mean was 36%, with reported recovery rates of between 24% and 54%.
Figure 7: Volume of roundwood inputs used by the Tasmanian forest industry, 2008–2011

Table 5: Wood products produced by Tasmanian forest industry processors, 2010–2011—estimated volumes

<table>
<thead>
<tr>
<th>Product type</th>
<th>Est. volume produced, 2010–2011 (m³/tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green structural sawn timber</td>
<td>216 000</td>
</tr>
<tr>
<td>Green appearance sawn timber</td>
<td>110 000</td>
</tr>
<tr>
<td>Green sawn timber—other</td>
<td>44 800</td>
</tr>
<tr>
<td>Dry structural sawn timber</td>
<td>145 500</td>
</tr>
<tr>
<td>Dry appearance sawn timber—select</td>
<td>47 100</td>
</tr>
<tr>
<td>Dry appearance sawn timber—standard</td>
<td>35 000</td>
</tr>
<tr>
<td>Dry sawn timber—other</td>
<td>6740</td>
</tr>
<tr>
<td>Veneer and pulp (combined to preserve confidentiality)</td>
<td>373 000</td>
</tr>
<tr>
<td>Woodchips</td>
<td>194 5000</td>
</tr>
<tr>
<td>Residues (sawdust and dockings)</td>
<td>345 000</td>
</tr>
<tr>
<td>Unspecified (likely to be primarily woodchips and residues)</td>
<td>500 000</td>
</tr>
</tbody>
</table>

Note: This table includes estimates based on a sample of 45 processing sites out of 64, with estimates made for the remaining 19 sites. A large volume of products—estimated at 500 000 m³/tonnes—remain unspecified into products after this analysis.
Businesses were asked to report how they utilise their residues. The following uses were reported:

- The majority reported sending woodchips for export, but that this had become economically difficult with recent large declines in woodchip prices. However, some smaller sawmills are now stockpiling woodchips in their yard, with the substantial reduction in woodchip prices making it uneconomic for them to pay for transport of chips to port for export. These sawmills all reported they were considering closing their business in the near future if they did not find a viable market for these by-products of the sawmilling process. At the time that data were gathered the Triabunna woodchip mill was operating, with this mill going into temporary closure after data were gathered.

- Sawdust residues were usually sold, with the price charged sometimes simply aiming to cover costs of transport, but often charged to make a small profit, with the buyers most commonly reported including:
  - horse stables
  - chicken farms
  - other livestock sheds (e.g. cattle)
  - boiler fuel (either onsite or sold for other businesses to use in their boilers)
  - bricks
  - municipal tips, used for covering waste
  - horticultural producers (e.g. mushrooms)
  - garden mulch
  - chicken farms
  - some sawdust residues were burned on site or sent to the municipal tip for disposal.

- Docking ends were either sold or given away for firewood, with around 15 mills reporting selling docking ends (usually investing time in bundling them for firewood) and eight reporting that they gave docking ends away, usually by allowing local residents to pick them up from the sawmill yard without any bundling.

Businesses were asked how their current turnover compared to the average turnover of the past five years. One-third (12) indicated their turnover was lower than the average, 39% (14) that it was the same as the average, and the remaining 28% (10) that it was higher than the average. Native forest sawmills (and those utilising both native forest and plantation timber) were least likely to report a decrease in turnover, while small processors were most likely to report turnover staying the same. In total, 20% of small processors reported a decrease in turnover compared to more than 60% of medium and large businesses. Those most likely to report an increase in turnover were processors engaged in multiple types of business activity, generally including green and dry sawmilling as well as some further processing into finished products, or retailing and import/export activities.
7.3 Impacts of the downturn on employment

Since 2006, employment in the processing sector has declined substantially, due both to closures of some processing sites and the reduction of staff at some remaining processors. In total, this has led to employment in the processing sector falling from an estimated 3030 people in 2006, to 1620 people in May 2011 (Figure 8). While the greatest fall in employment in this sector occurred between 2008 and 2010 largely due to the closure of three large processors (Australian Paper’s two mills and the Gunns Tonganah sawmill in Scottsdale), between September 2010 and May 2011 a further 270 jobs were lost in the processing sector, representing 14.4% of jobs as at September 2010, with approximately 20% of remaining jobs likely to be lost during June and July 2011 if publicly announced job cuts and mills closures go ahead.

![Figure 8: Change in employment in processing sector over time](image)

Thirty per cent of currently operating processors have reduced staff numbers or staff working hours since 2008, while the remainder reported staff numbers and hours remaining stable or increasing. Of the 51 currently operating sites that reported whether staff working hours had increased or decreased since 2008, 29.4% reported a decrease, 56.9% that staff working hours had remained the same, and 13.7% that staff hours had increased. Of the seven businesses reporting an increase in staff hours, the mean increase was 17.9%, with hours increasing by between 10% and 25% for the different businesses. Of the 15 businesses reporting a decrease, 14 reported the amount by which hours had dropped, where working hours fell by an average of 29.3%, with the fall in hours ranging from 10% to 75% amongst the different businesses.

In addition to identifying how employment has changed since 2008, businesses were asked to identify the maximum number of full-time equivalent employees that would be employed if they were able to operate at maximum capacity, with maximum capacity defined as the maximum volume their current infrastructure can produce at the maximum number of hours they are allowed...
to operate (eight hours a day, five days a week for most), assuming no restrictions on inputs. This was then compared to their current employment to identify how this current employment compares to the potential maximum.

Of the 43 processors who answered this question:

- 32.6% were currently operating at maximum capacity
- 16.3% were operating at 80–99% capacity
- 11.6% were operating at 61–80% capacity
- 20.9% were operating at 41–60% capacity
- 18.6% were operating at less than 40% of their maximum capacity.

Small native forest sawmills, usually focused on green sawmilling, were most likely to report they were currently operating at less than 40% of their maximum capacity, with 25% of native forest processors and 25.9% of small processors reporting this, most of which were green sawmills. Medium-sized processors were most likely to report operating at 100% capacity, compared to small or large businesses, as were those who undertake some drying and further processing in addition to green sawmilling (primarily medium-sized businesses).

**7.4 Vulnerability to future change**

Processors experiencing negative impacts as a result of the downturn are more likely to experience negative impacts as a result of future change, as the downturn has increased their vulnerability to change. For example, businesses negatively impacted by the downturn are typically less financially stable than they were before the downturn, and their managers under greater stress, reducing their capacity to respond to changes or cope with future periods of reduced production or uncertainty.

In addition to the downturn, factors affecting vulnerability to future change include:

- a manager’s ability to successfully run the business (e.g. through access to business and financial advice)
- available market opportunities
- access to finance
- the certainty of the future
- views about the fairness of policies affecting the industry
- access to social capital.

In addition to assessing the factors leading to vulnerability, ‘tipping points’, or thresholds, at which businesses may change the nature of their operations, were identified. Businesses may continue operating despite being under stress for some time before they reach a threshold at which they ‘tip’ into making substantial changes such as closing their business. The ability of business managers to take specific actions to maintain their business in the face of change is also important, particularly the ability to utilise different types of wood inputs in response to reduced access to public native forests. Capacity to adapt to change in this way was assessed as this helps identify the extent to which processors are vulnerable to specific types of change.
7.4.1 Business management

Various aspects of business management may influence a business’s vulnerability to future change, including the capacity of the manager to plan for the future; the amount of stress they are under; and their ability to manage finances, capital, labour and other aspects of the business.

The large majority of managers of processing businesses agreed that they were experiencing greater than usual stress at the moment. However, the majority felt they had the skills needed to plan for the future of their business and they had adequate access to financial and business planning experts. Most felt their business was currently under considerable stress, although 26% did not agree with this statement. A majority found it difficult to attract skilled workers, and felt their capital equipment would need upgrading in the near future (Figure 9).

![Figure 9: Vulnerability of processing businesses to change—business management](image)

Native forest processors, particularly green sawmillers, were less likely to feel they had access to financial and business planning expertise to help them plan for the future of their business, with 23.1% of native forest processors (including 44.4% of green sawmillers and 20.0% of sawmillers who mill both green and dry timber) feeling they did not have access to financial and business planning expertise. No managers of plantation-based processing businesses indicated a lack of access to financial and business planning expertise. Managers of all types of processors were equally likely to report being currently under higher than average stress.
7.4.2 Business markets and finance

Both access to markets and the financial position of a business influence its vulnerability to change. When asked about various aspects of their business’s financial viability and market prospects:

- 61% of processors felt their current business activity was sufficient to cover operating costs and service debt, but only 40% felt confident their business was in a good position financially.
- Most processors felt demand for their business’s products was likely to grow in the near future, with only 26% feeling it would not, although only 40% were confident their business revenue would grow in the near future.
- The large majority (92%) felt their operating costs would increase in the near future.
- While 45% felt they had adequate access to finance, many were unsure or neither agreed nor disagreed (35%), and 23% did not feel they had adequate access to finance, indicating substantial variability in knowledge about and ability to access finance (Figure 10).

Native forest processors were more likely than those who processed plantation timber to indicate that they did not feel confident that they had access to finance. In other respects, different types of businesses provided relatively similar distributions of responses to these statements.

![Figure 10: Vulnerability of processing businesses to change—markets and finance](image-url)
Businesses were asked to provide financial data enabling analysis of their profit/loss position and debt-to-revenue ratios, as well as key business expenditures. A relatively small number of businesses provided responses to these questions with 30 processors providing some information and 25 providing full information in response to this question.

Of the 25 who provided full information, 24% (6) had made a loss in financial year 2009–10, 32% (8) had broken even, and 44% (11) had made a profit. Of those who made a loss, the majority (5) reported a greater than 10% loss. Of those who reported a profit, the majority (8) reported a profit of 10% or more.

When debt-to-revenue ratios were examined, they varied considerably across businesses. Around a quarter (27%) reported having no debt, 23% reported a debt-to-revenue ratio less than 20%, 19% owed debt totalling between 20–30% of revenue, 19% owed debts totalling between 30–50% of revenue, and 12% had debt greater than 50% of revenue.

The amount of profit reported did not vary considerably between native forest and plantation-based mills, with a similar proportion reporting making a loss and a profit. Large mills were more likely to report making a loss, with all large mills reporting either making a loss or just breaking even, while 50% or more of small and medium-sized processors reported making a profit in the 2009–10 financial year. Enterprises that undertake further processing and activities such as retail sales were more likely to report making a loss (31%) than those that concentrated purely on green sawmilling (14%) or green and dry sawmilling (20%). However, similar proportions reported making a profit, such that the main difference was whether a business reported breaking even or making a loss—suggesting the differences were not substantially related to the type of processing. Several sawmills suggested that their profit margins would be substantially reduced in the current financial year due to reduced returns for woodchips, with the reduction from $31 to $20 per tonne effectively ‘wiping out’ the profit margin for several sawmilling businesses relying on obtaining a return from the woodchips produced as a by-product of sawmilling to achieve a positive financial return.

When debt-to-revenue ratios were examined, processors utilising plantation timber were more likely to report a high debt-to-revenue ratio (more than 50%) than those utilising just native forest inputs. Almost all small and medium-sized businesses reported a debt-to-revenue ratio of less than 30% (75% and 100% respectively) while all large businesses reported debt-to-revenue ratios of greater than 30%, indicating higher vulnerability of larger businesses to financial stress.

Processors were asked what proportion of their expenditure in the last financial year was on (i) fixed costs, (ii) wages and salaries (including payments to managers from profits) (iii) servicing debt (iv) paying for log and other wood inputs, and (v) taxes. Several businesses had difficulty identifying the proportion of spending on fixed costs, as their accounts were not organised to enable identifying this spending versus spending on variable costs, and as such the results of responses to this query by many businesses should be considered estimates only. Several were reluctant to report their expenditure on taxes, and similarly the reported proportions should be considered an estimate only. Most business managers were able to relatively easily report their spending on wages, inputs and servicing debt. When results were examined:

- Of the 18 businesses that reported spending on fixed costs, 72.2% reported that fixed costs made up less than 20% of spending, and only one business reported that they were more than 50% of spending. The mean proportion spent on fixed costs was 18.3%, and there were few differences between small and large businesses, or those utilising native forest or plantation inputs.
• Of the 23 businesses that reported their spending on wages, wages made up 10–20% of spending for 39.1%, between 20–30% of spending for a further 26%, and 30–50% of spending for the remainder of businesses. The average proportion spent on wages was 28%. Businesses that undertook further processing beyond green sawmilling spent a higher proportion of revenue on wages, with a mean of 36% for sawmills that undertook drying and retail sales in addition to green milling, and 29% for mills undertaking further processing into products such as trusses, compared to 21% for green sawmills.

• An average of 6% of spending was on servicing debt, with a range of 0% to 20% of spending. Large and medium businesses reported higher proportions of spending on debt compared to small businesses.

• Spending on inputs was greater for native forest sawmills (an average of 40% of expenditure) compared to those utilising plantation inputs (34%). Small businesses also reported a higher proportion of spending on inputs, reflecting that most small processors utilise native forest timber, with small businesses reporting an average 42% of spending on inputs, compared to 23% for medium-sized businesses and 28% for large businesses. Green sawmills (often small businesses) reported an average 54% of spending on inputs, compared to 41% for sawmills undertaking both green milling and drying (and sometimes also retailing or further processing), and 27% for businesses focused on further processing of sawn timber into a range of end products. While not surprising—the addition of further processing reduces the proportion of spending dedicated to log inputs—this does highlight the high sensitivity of small sawmills focused on green sawmilling to changes in input prices.

7.4.3 Certainty about the future

As discussed further later in this report, certainty regarding the future is an important component of vulnerability, and many businesses surveyed for this study reported that uncertainty about the future was having negative impacts as it reduced their ability to make investments, access some markets, and in general to plan for the future. A number of questions were asked of businesses to gauge the extent to which they felt uncertain about the future of their business.

The majority of managers of processing businesses felt the future of Tasmania’s forest industry is highly uncertain. Almost 70% indicated that they did not feel confident to invest in their business due to this uncertainty, and, while most felt confident their business would operate one year from now, when asked if they would be operating in five years time, only 39% reported feeling confident. More than 40% indicated they were actively considering closing their business at the moment, and only 33% felt confident they could continue to operate their business successfully into the future. Responses are shown in Figure 11. The responses given to questions about the future indicate that lack of certainty is having a negative impact on businesses, and that many are putting investment and business planning ‘on hold’ until there is some feeling of certainty about the future.

No major differences were observed in responses from different types of businesses regarding certainty about the future. Plantation-dependent businesses were just as likely to report being highly uncertain about the future as those dependent on native forest resources.
7.4.4 Policies affecting the industry

A business manager's perceptions of policies affecting the industry can impact their vulnerability, with those who feel policies do not have positive outcomes for the industry likely to have reduced motivation to remain in the industry or adapt to change they feel is unfair or inappropriate.

Business managers were asked if they felt changes proposed in the Principles Statement would be good for (i) Tasmania's forests, (ii) Tasmanian communities, and (iii) Tasmania's forest industry.

The large majority of businesses felt that significant reduction in the use of wood from public native forests would not be good for the Tasmanian forest industry, Tasmanian communities, or Tasmanian forests in the long term (as shown in Figure 12). Managers of all types of processing businesses were equally likely to indicate that they felt a reduction would not be beneficial.
The concept of social capital has gained popularity in recent years, with a strong argument in the social science literature that access to support from social networks is critical to successful adaptation to change. While rarely applied to businesses, access to social capital in the form of peer and industry support networks, as well as feeling supported by the broader community, were hypothesised in this study to be likely to impact on a business’s vulnerability to change, similar to the theories of social capital that are well accepted more broadly for communities and individuals. Processing business managers were asked whether they felt they had access to support from others within the forest industry, and in their local community, and the extent to which they received support or interacted with others in the industry. These are all measures of social capital available to the business.

While the large majority (82%) felt their local community was supportive of their business, fewer (50%) felt they could turn to people or organisations in their local community for support during difficult times.

While 72% of managers reported talking to or meeting with managers of businesses similar to theirs on a regular basis, slightly fewer (between 52% and 62%) reported feeling they had sources of support within the forest industry, and that they received support from forest industry organisations (Figure 13).
Green sawmills were less likely than other types of processing business managers to feel that they did not receive support from forest industry organisations, with 50% reporting they did not, compared to 30% or less of other processors. Native forest sawmills were more likely than those managing businesses that also process plantation timber to feel they could turn to people or organisations in their community during difficult times (56% compared to 33%).

### 7.4.6 Thresholds of change

Managers of processing businesses were asked a number of questions aimed at identifying likely thresholds of change. They were first asked how likely they would be to take different actions if they lost ‘some or all’ of their access to wood supply in coming years. A majority (76%) indicated they would be somewhat or very likely to close their mill, although 59% indicated they would also be somewhat or very likely to reduce the scale of their operations to suit smaller throughput. They were less likely to think they would invest in new processing infrastructure to utilise different inputs, or invest in changing their suite of products to maintain operations with a smaller volume of inputs, with less than 30% considering either of these likely. Small, medium and large businesses provided relatively similar responses to the question. Green sawmills were less likely than other businesses to think they would reduce the scale of their operations, with 20% reporting this would be likely or very likely compared to more than 70% of other types of processors (including mills undertaking timber drying in addition to green milling). Green sawmills were more likely to consider it likely they would close altogether, with 70% considering this very likely compared to 50% of sawmills undertaking drying and further processing in addition to green sawmilling, and 47% of those undertaking further processing activities.

Native forest sawmills were less likely to think they would reduce the scale of their operations to cope with reduced access to inputs, with 50% considering this likely or very likely compared to more than 80% of other processors, and more likely to think it likely or very likely they would close operations (82% compared to 50% of other processors) (Figure 14).
Business managers were then asked how likely it would be that they would choose to act in any of the following ways if they experienced a loss of access to (i) 20%, (ii) 50%, or (iii) almost all of their current supply of inputs: seeking new business within the forest industry; seeking new business outside the forest industry; downsizing their business; or closing their business.

The likelihood that a manager would seek new business opportunities within the forest industry became less likely the greater the loss of supply, with 46% considering this somewhat or very unlikely as a response to a loss of 20% of supply, 71% if the supply decrease was 50%, and 86% if almost all supply was lost. The responses indicate that many businesses are highly sensitive to loss of supply, with a 20% loss likely to ‘tip’ them into closure or substantial downsizing of the business (Figure 15).

Almost equal proportions of business managers thought it was likely and unlikely they would seek business opportunities outside the forest industry if they experienced a reduction in supply (Figure 16). While the proportion who considered this a likely response increased a little with increasing reduction in supply, the increase of around 10% was not particularly high, and around 40% considered it unlikely they would seek business opportunities outside the forest industry under any of the three scenarios. Most managers did not feel they could reshape their business to focus outside the forest industry.
Figure 15: Likelihood a processor would seek new business within the forest industry if their inputs were reduced by 20%, 50%, or almost 100%.

Figure 16: Likelihood a processor would seek new business outside the forest industry if their inputs were reduced by 20%, 50%, or almost 100%.
Business managers who indicated they might consider seeking new business opportunities outside the forest industry were asked what industries they might consider shifting into. Of 23 businesses that responded, most suggested they would shift into work either as a salaried employee or small independent tradesperson, with few identifying business opportunities that utilised equipment they had at their current processing business:

- Six initially said they didn’t know what industry, although three of these subsequently suggested some possible industries.
- Two said they would seek business opportunities of any kind that provided reasonable return.
- Six suggested they would shift into agriculture (most of these already undertook some agriculture as well as milling).
- Four suggested construction, particularly of things such as portable sheds or houses, or shifting into civil construction.
- Two suggested they would seek work in the mining industry.
- One suggested cartage or roadworks, using the trucks the business already had.
- Five suggested using the land the business was on to establish different business opportunities such as machinery sales, other types of manufacturing or tourism.
- Three suggested other industries including telephone sales, operating machinery, or investment-based industries.

The likelihood that the business manager would close the business increased substantially if they lost access to 50% of more of their supply, with almost all indicating they would be somewhat or very likely to close their business under these scenarios. Around half indicated they would be somewhat or very likely to close the business if they lost 20% of their current supply (Figure 17).

**Figure 17:** Likelihood a processor would close if their inputs were reduced by 20%, 50%, or almost 100%
Downsizing the business was considered a more viable response if supply reduced by 20%, with 60% of processors indicating they would be somewhat or very likely to respond to a 20% reduction in supply by reducing the scale of their operations. However, it became less likely if there was a 50% reduction in supply, with only 40% indicating it was likely in this case, and only 16% if they lost almost all their supply (Figure 18).

![Figure 18: Likelihood a processor would downsize their business but continue operating if their inputs were reduced by 20%, 50%, or almost 100%](image)

Other actions business managers indicated they might take if faced with a reduction in supply included shifting to produce higher value low-volume products, importing supply from other sources, taking up a job outside milling while continuing to operate their sawmill ‘on the side’, and ‘seeking employment.’

To try to identify the thresholds at which businesses would ‘tip’ into being forced to close, managers of processing facilities were asked to estimate the minimum monthly revenue they would need to earn to maintain their current workforce; the minimum needed to stay open if they downsized as far as possible; and the volume of inputs and workforce needed to operate at this minimum.

Most business managers struggled to answer these questions. Few had actively considered what minimum activity was needed to stay open. Most processors explained that they tended to think more about how long they could continue operating through a downturn based on how much debt they could afford to go into while awaiting an upturn, rather than judging whether they would stay open based on minimum operating levels. This suggests that thresholds are reached when businesses run out of financial reserves after an extended period of making losses, rather than based on any decision taken on the basis of whether the business has shifted from making a profit to a loss at a particular point in time. The ability to stay open is therefore determined by a mix of access to financial reserves and the business manager’s willingness to tolerate making a loss.
7.4.7 Ability to utilise different types of wood inputs

The agreement reached as a result of the Principles Statement involves substantial reduction in wood production from publicly owned native forests. The extent to which this will lead to substantial change in the processing sector depends in part on the ability of processors to shift to utilising wood inputs from alternative sources. To assess this, managers of businesses utilising native forest inputs were asked their views on whether they could shift to utilising either (i) private native forest timber or (ii) plantation-grown timber.

Of 35 respondents to this question, 29% believed it was very likely they would consider sourcing wood from private native forests if they lost access to publicly owned native forest wood inputs, 11% that it was somewhat likely, 3% that it was somewhat unlikely, and 57% that it was very unlikely. Of those who said it was likely, six respondents were unsure what proportion of their inputs could be sourced from private native forest, while four felt it would be less than 20% of their inputs, two that it would be 30–40%, and four indicated they believed more than 70% of their supply could come from private native forests. Those indicating a higher proportion were all located in the north of Tasmania, with southern processors typically indicating they could source very little or no timber from private native forests. 65% were confident or highly confident they knew how to obtain access to private native forest timber if they wanted to do this.

Small businesses were much more likely to indicate they would consider sourcing input from private native forests, with 50% indicating this was likely or very likely, while 67% of medium and 100% of large businesses indicated it was unlikely. This likely reflects that small businesses have potential to make up their volumes from private native forests, whereas the relatively smaller volumes available from private native forests would not be adequate for large businesses to replace loss of access to supply from publicly owned native forests.

When asked if they would consider shifting to utilising plantation wood if they lost access to timber from publicly owned native forests, 69% of 36 respondents said this was very unlikely and 11% that it was unlikely. Only 19% considered it likely or very likely they would do this; these were mostly processors already utilising some plantation timber as part of their business activities and who had the infrastructure in place to increase utilisation of this plantation timber. Business managers were asked to explain why they felt it was likely or unlikely they would access plantation timber. The principal responses given for not being able to utilise plantation resources included the following:

- There is currently no suitable plantation timber available that can be used in sawmilling, with a minimum 20–30 years required before plantations mature adequately to enable sawing of timber.
- Plantation-grown timber does not have the wood properties required for the type of sawmilling or other processing they engage in, even when mature.
- Shifting to utilising plantation timber would require investing in replacing most or all of their current processing infrastructure.
- Their current markets would not accept plantation-based products as a substitute. This was particularly reported by native forest sawmillers producing appearance-grade products.
- Some business managers were not confident that they would be able to gain access to plantation timber, feeling others would obtain access and they would be ‘locked out’.
7.4.8 Factors influencing ability to adapt to change

Vulnerability to change depends in part on the ability of a business to undertake a number of actions to adapt to that change, such as accessing new markets, developing new product lines, or taking other actions that enable them to develop new or alternative business activities as a way of coping with loss of access to resources needed for some of their current activities. A series of questions were asked to assess the factors that act as barriers to these types of adaptive actions, and to identify the assistance measures that would be most useful to assist businesses to take these adaptive actions (Figure 19).

When asked whether a series of issues were barriers to developing new business activities and opportunities, business managers indicated that the biggest barriers facing them currently are lack of security of access to native forest or plantation resources, followed by a lack of available high-quality sawlogs from eucalypt plantations. Many of those who indicated that the latter was not a barrier felt that the statement did not apply to them, with several native forest sawmills stating they believed that they would never be able to utilise eucalypt plantation for sawn timber and hence this issue did not present a barrier for them.

Rising business costs were the next most common barrier, with more than 65% of businesses indicating rising costs are a moderate or large barrier to developing new business opportunities.

Issues not considered a large barrier were access to financial and business planning advice, the business skills of the manager completing the survey, or the motivation of that manager. When asked to describe the business skills they felt necessary to their business, many sawmill managers principally listed skills related to the technical aspects of sawmilling, and few discussed issues such as marketing or business management skills, indicating that the responses to this question are often based on a narrow interpretation of the skills a business manager needs to be successful.

Business debt levels, access to finance, and access to staff training were not typically considered significant barriers to development of new market opportunities, although some answered that access to finance was not a barrier because they didn’t plan to access finance, and hence it was not a problem if they couldn’t access it. Therefore responses to this statement should be interpreted carefully, as it is likely that access to finance is more limited than is apparent from responses to the statement.

When differences between various types of processors were examined, small businesses were less likely than medium or large businesses to consider lack of market opportunities or their business debt levels a barrier, and more likely to consider rising business costs a barrier to developing new market opportunities and activities.

Native forest sawmills were less likely than processors using plantation inputs to consider lack of market opportunities a barrier (44% considered this was ‘not a barrier’ compared to 17%), but more likely to consider their current infrastructure (often relatively old) a barrier, with 44% rating infrastructure a moderate or large barrier compared to 33% of plantation processors. They were also less likely to consider access to staff training, their motivation to develop their business, their own skills and business knowledge, or the lack of high-quality eucalypt sawlogs a barrier.

Managers of green sawmills were more likely than other types of processors to consider their current infrastructure a barrier to developing new markets and opportunities, with 50% rating this a moderate or large barrier compared to around 40% of businesses that engage in a wider range of processing activities. They were also more likely to rate lack of access to financial and business planning advice a barrier. They were less likely to consider their own motivation a barrier.
Businesses in general indicated that the types of assistance they would find most useful to develop new business activities and opportunities would be having certainty of access to inputs for processing, with almost 90% indicating this would be highly useful (Figure 20). Other than this, the most useful assistance measures were being provided with ready access to finance, and assistance to develop and access new markets, with more than 55% of businesses indicating these would be moderately or highly useful. Being provided with financial and business planning advice was considered useful by fewer business managers, as was being provided with staff training resources, as most felt they had adequate access to these forms of business assistance already.

Native forest sawmills were less likely to consider staff training a useful form of assistance than those who process either plantation timber or a mix of native forest and plantation timber, with 37% of native forest mills indicating this form of assistance would be useful or highly useful compared to 60% of more of businesses engaged in some form of plantation processing. Certainty of access was somewhat less of a concern for plantation-based processors, particularly those engaged in softwood plantation processing, although two-thirds of these still indicated greater certainty of access to resource would be highly useful (compared to 97% of native forest based businesses). All sawmills, including both green and dry, indicated greater certainty of access
would be highly useful, while slightly less (85%) businesses undertaking further processing without sawmilling indicated this would be highly useful.

**Figure 20:** Perceived usefulness of different types of assistance for processors

Small businesses were less likely to consider staff training a useful form of assistance with 48% indicating it was not useful compared to 29% of large businesses. Medium and large businesses were more likely than small businesses to indicate that having access to finance would be highly useful (more than 67% and 43% respectively compared to 30% of small businesses).
8 Forest industry businesses—contractors

A large number of contracting businesses operate in the Tasmanian forest industry. Those that are highly dependent on the industry are principally harvest and haulage contractors involved in logging and transporting roundwood to mills, silvicultural contractors, and roading contractors. In addition, a number of nurseries grow seedlings for the industry; while not technically contractors, they are included in this section as they produce a product that is specific to the forest industry. Key characteristics of different contracting businesses are summarised in Table 6.

As this study was being undertaken (with data collection principally occurring during March to May 2011), the contracting sector was undergoing significant change. The number of harvest and haulage businesses was declining rapidly, a result both of a number of businesses participating in the *Tasmanian Forest Contractors Exit Program* (referred to from here as the *Contractors Exit Program*), and ongoing decline in business activity leading to contracting firms exiting the industry. In the silvicultural contracting sector, rapid decline in employment was also occurring, with lack of investment in establishing first rotation plantations and reduced establishment of second rotation plantations substantially reducing the amount of work available to these contractors. The data provided in this section reflect the position of the contracting sector as at May 2011, when rapid employment decline was continuing to occur.

Table 6: Profile of contracting and nursery sector, May 2011

<table>
<thead>
<tr>
<th>Size of forestry-related operations</th>
<th>Small (employing 1–19 people)</th>
<th>Medium (employing 20–99 people)</th>
<th>Large (employing 100 or more people)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harvest and/or haulage to mill</td>
<td>85</td>
<td>9</td>
<td>0</td>
<td>94</td>
</tr>
<tr>
<td>Silvicultural contracting</td>
<td>53</td>
<td>5</td>
<td>0</td>
<td>58</td>
</tr>
<tr>
<td>Nurseries</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Roading contractors</td>
<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haulage from mill</td>
<td>n/a</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Businesses undertaking harvesting activities and haulage of logs to mills are combined here as many of these businesses undertake both harvest and haulage activities (many also undertake roading). Note that a small number of businesses undertake both harvest, haulage and silvicultural contracting activities; these have been spread between the ‘harvest and haulage’ and ‘silvicultural’ categories as there are too few to report them as a separate category.
8.1 Characteristics of survey respondents

As discussed in the Methods section, 36% of contracting and other businesses provided data for this study. This included 31% of harvest and haulage businesses, and 35% of silvicultural contracting businesses. A low response rate was received from roading contractors (most of whom undertake much of their business activity outside the forest industry), and as a result analysis of this type of contractor was limited. Almost all nurseries operating in the industry provided data (four of five major suppliers), but the small numbers of businesses involved mean that data for this sector cannot always be reported separately in the results reported in this section.

Survey respondents were asked how many years their business had been operating. On average, harvest and haulage businesses had been operating for 18.6 years (n=24), nurseries for 18.0 years (n=4), roading contractors for 12.5 years (n=6), and silvicultural contractors for 10.3 years (n=19). Those who operated solely in the native forest sector typically had a longer history, with these businesses operating for an average of 18.7 years (n=28) compared to 13.8 years for those operating solely in the plantation sector (n=17) and 13.9 for those operating in both native forests and plantations (n=13).

8.2 Exposure to change: dependence on different sectors of the forest industry

Businesses were classified based on whether they (i) operated predominantly in native forests (more than 90% of forest industry activity), (ii) operated solely in the plantation sector (more than 90%)\(^2\), or (iii) operated in both native forests and plantations (Table 7). Silvicultural businesses largely operated in the plantation sector, typically in both the softwood and hardwood plantation sector, as did nurseries. Harvest and haulage contractors predominantly operated in the native forest sector, although a small number operated in both the native forest and plantation sector.

\[
\begin{array}{|c|c|c|c|}
\hline
 & \text{Native forest} & \text{Plantation} & \text{Both native forest and plantation} \\
\hline
\text{Harvest and haulage contractors (n=29)} & 75\% & 14\% & 11\% \\
\text{Silvicultural contractors (n=20)} & 22\% & 61\% & 17\% \\
\text{Nurseries (n=4)} & 0\% & 100\% & 0\% \\
\text{Roading contractors (n=6)} & 33\% & 0\% & 67\% \\
\hline
\end{array}
\]

The average proportion of forest industry activity dependent on publicly owned native forest, privately owned native forest, softwood plantation and hardwood plantations was analysed for different business types, shown in Figure 21. This was also analysed for different years, to see how dependence is changing over time for different business types, with the average change over 2008 to 2011 shown in Figure 22.

\[^2\] Businesses were not separated based on whether they operated in softwood or hardwood plantations as only three businesses operated solely in the softwood plantation sector, and many operated across both types of plantations.
Since 2008, silvicultural businesses and nurseries have typically reduced their work in the hardwood plantation sector, following the collapse of the MIS sector. The businesses reporting the greatest reduction in dependence on hardwood plantations were those who undertake weed control and firebreak development and maintenance activities, suggesting reduced investment in plantation maintenance activities as well as in new plantation establishment.

Roading contractors and harvest and haulage contractors work principally in the native forest sector, reflecting the higher volumes harvested in this sector. Additionally, plantation harvesting occurs primarily on established road systems, reducing the need for road building within the plantation sector, although road maintenance is required.

**Figure 21:** Dependence of different types of contracting business on native forests and plantations, 2011
8.3 Exposure to change: dependence on the forest industry

Many contracting businesses undertake work outside the forest industry as well as in it. In general, businesses with higher dependence on the forest industry are more exposed to change in the forest industry. In addition, identifying how dependence has changed over time can provide an indication of how forest industry businesses have responded to the downturn in the industry.

Contractors were asked what proportion of their business activity depended on the forest industry in 2008, 2010 and 2011 (Figure 23). Many businesses had reduced their dependence on the forest industry over time, and several interview participants described this as a deliberate response to the downturn in the industry, having actively sought business opportunities outside the industry, or simply been forced to downsize their activities in the forest industry so that their business outside it made up a greater proportion of their overall business activity.

Harvest and haulage contractors were the most dependent on the forest industry, with almost 90% of their business activity typically dependent on forestry in 2011, and 80% of these businesses wholly dependent on the forest industry. The lack of diversification of harvest and haulage businesses may be attributed to the specialised machinery used in this sector and the limited capacity for this machinery to be used in alternative industries such as agriculture, civil construction or mining, where silvicultural and roading business often undertook work.
Roading businesses are not usually as dependent on the forest industry as harvest and haulage businesses, as shown in Figure 23, and all of the six respondents in this category reported that they had sought or were seeking work outside of the industry, including work in civil construction, which is well suited to the machinery configuration common for roading contractors.

Silvicultural contracting businesses have typically reduced their reliance on the forest industry substantially since 2008. The decline in MIS has had a significant impact on these contractors, with 77% of silvicultural businesses reporting that this decline impacted on their business to a large extent, resulting in reduced business revenue. Many silvicultural contractors reported seeking work in other industries such as agriculture and broader natural resource management (NRM) activities, and as a result had substantially reduced the proportion of their business activity in the forest industry.

Other businesses have typically experienced a decrease in reliance on the forest industry over the past two to three years; however, many are still highly reliant on the industry. Similar to most of the contracting sector, most of these businesses are seeking alternative employment opportunities, with interview participants reporting that they were seeking work both outside the forest industry and outside Tasmania.
8.4 Impacts of downturn on business activities and management

When asked to what extent their business had been affected by a number of changes known to have had an impact on some forest industry businesses since 2008 (Figure 24), the following impacts were reported:

- The most common change reported by contractors and nurseries to have have a moderate or large impact was reduced business revenue as a result of decline in demand, with 77% experiencing this, compared to 10% who had experienced increased revenue as a result of growing demand.
- 64% of businesses reported that increasing operating costs had affected their business to a moderate or large extent since 2008. Associated with this, 38% reported difficulty maintaining the competitiveness of their business.
- Difficulty maintaining capital equipment had affected 44% of businesses to a moderate or large extent.
- Increased regulation was reported as having a moderate or large effect by 39% of businesses. The regulations most commonly discussed were occupational health and safety regulations.
- 38% of businesses were affected to a moderate or large extent by increased competition from other businesses within Tasmania and 15% by competition from businesses outside Tasmania.
- 37% of businesses reported that difficulty accessing finance had affected their business to a moderate or large extent. The proportion would likely have been higher if more businesses had attempted to seek finance—many reported that they had not attempted to do so.
- One-third of businesses were affected to a moderate or large extent by the increase in the Australian dollar.
- 25% of businesses had been affected by protests against forest activities to a moderate or large extent, with almost all harvest and haulage contractors affected.
- 25% of businesses reported that the quality of raw material they had access to had changed to a moderate or large extent, and 33% reported a change in quantity of available inputs.
- 45% of businesses had been affected to a moderate or large extent by reduced investment in MIS, principally silvicultural contractors and nurseries.

The average ‘score’ of impact was calculated for each response, and compared for different types of contracting business. A score of four indicates businesses have been affected to a large extent; a score of one that there has been no impact. When average scores were compared, harvest and haulage contractors were more likely than silvicultural and roadling contractors to report being affected by rising operating costs; difficulty accessing finance; reduced quantity and quality of inputs to their business; difficulty upgrading capital equipment; and reduced business competitiveness.

All businesses were similarly likely to report experiencing reduced revenue since 2008, although those dependent solely on plantations were slightly more so (with an average score of 3.7 out of a possible four compared to 3.4 for those dependent on native forests and 3.2 for those operating across both sectors). Native-forest-dependent businesses were more likely to report being affected by rising operating costs, increased regulations, difficulty maintaining business competitiveness,
reduced access to quantity and quality of inputs, and difficulty maintaining and upgrading capital equipment. Those operating in the plantation sector were much more likely to report being impacted by reduction in the MIS sector than those working in native forests.

Figure 24: Types of changes affecting contracting businesses since 2008

Those who were more dependent on the forest industry for their business activities were more likely to report being impacted by rising operating costs, difficulty accessing finance, difficulty maintaining business competitiveness, and the increased Australian dollar. Those who undertook some or most of their business activity outside the forest industry were more likely to report being impacted by collapse in the MIS sector (which has likely been a key reason for them reducing their dependence on the industry), and by forest protests, compared to those with more dependence.
Businesses reported several strategies used to respond to the changes in the forest industry, including:

- downsizing their business by laying off or not replacing departing employees, or reducing staff hours
- selling part of the business or selling equipment
- seeking new business opportunities either within or outside the forest industry, and in some cases outside Tasmania (e.g. civil construction, mining)
- reducing business costs through measures such as reducing income paid to owners of the business, asking family members to work unpaid hours, managers taking on tasks usually performed by service providers (e.g. equipment maintenance), delaying replacing capital equipment and downsizing
- using financial reserves to keep the business afloat (both business reserves and often the owner’s personal assets)
- restructuring the business to focus on activities that are more likely to produce a return (in many cases, these involve activities outside the forest industry)
- applying for the exit package offered by the federal government to harvest and haulage contractors in the native forest sector.

8.5 Impacts of the downturn on turnover

Businesses were asked how their total business turnover in 2011 (including both forest and non-forest industry activities) compared to the average turnover of the past five years (Figure 25). Nurseries reported the greatest decrease, reporting their turnover to be almost half of their average over the past five years; followed by harvest and haulage contractors who on average only had 60% of average turnover. In the harvest and haulage sector, this figure does not reflect the full impacts of the downturn, as a large number of businesses have exited the industry; the 60% figure reflects the decrease for those who remained operating. Silvicultural and roading contractors were somewhat less impacted, with roading contractors in particular able to obtain work outside the forest industry to make up for loss of turnover within the industry.
When examined by forest and plantation type, a similar decline in turnover was reported by businesses dependent solely on native forests (with 2011 turnover on average being 60% of the average for the past five years) and those dependent solely on plantations (61%). Those who operated in both native forests and plantations reported a higher current turnover, averaging 74% of their typical turnover over the past five years, indicating that businesses with a greater diversity of forest industry activities are likely to be experiencing slightly less impact as a result of the downturn.

Businesses with 100% dependence on the forest industry reported their current business turnover in March 2011 to be an average of 68% of their usual turnover over the past five years, while those with less than 50% dependence reported it to be 63% and those with 50–90% dependence reported it to be 53%. It is possible that these figures reflect that many businesses with 100% dependence on the forest industry have left the industry since 2008, with those remaining being the most successful and hence having higher turnover; however, this does not fully explain the results.

### 8.6 Impacts of the downturn on employment

Since 2006, employment in the contracting sector has declined substantially, due to closures of some businesses, and reduced staff numbers and hours at many businesses that have remained operating. Employment in harvest and haulage contracting has declined from 1394 people in 2006 to 823 people in 2011 (Figure 26), and the fall since the peak of employment in 2008 is even higher, with a decline of 47% in employment. In the silvicultural sector, the decline has been greater, with loss of 78% of jobs since 2008 (Figure 27).
Almost 70% of contracting businesses reported having reduced staff hours since 2008, while 25% reported stable working hours and 4.8% reported an increase. The types of businesses most likely to report a decrease were nurseries and silvicultural contractors, and roading contractors were the least likely (Figure 28). A small number of silvicultural and harvest and haulage contractors reported that their staff hours had increased. In interviews, managers of some of these businesses reported that they had to increase their own working hours as a result of decreased income. Some managers took on additional tasks such as machinery maintenance that they would normally have outsourced, as they could not afford to engage a professional service with their decreased turnover. Of respondents, 7% reported an increase in business turnover over the last five years.
and therefore a small number of businesses reporting increased working hours may have done so because of increased business activity.

**Figure 28:** Change in staff working hours reported by contracting businesses, 2008–2011

### 8.7 Vulnerability to future change

As was discussed when analysing impacts in the processing sector, businesses experiencing negative impacts as a result of the downturn are likely to be more vulnerable to experiencing negative impacts from future change, as the stress of the downturn reduces their ability to cope with further periods of reduced business activity or uncertainty. In addition, other factors related to business management, markets and finance, certainty of the future, social capital and views about forest policy may affect the vulnerability of a business to changes such as those to be implemented in the Tasmanian forest industry as a result of the agreement reached in the *Principles Statement* process. The extent to which contracting businesses are vulnerable in relation to these different areas is analysed in the following sections.

#### 8.7.1 Business management

Contractors were asked a number of questions about different aspects of their business management to gauge how these issues might influence their ability to cope with future changes in the industry. Similarly to managers of processing businesses, the large majority of managers of contracting businesses reported that they were experiencing greater than usual stress at the moment (Figure 29). However, the majority felt they had the skills needed to plan for the future of their business and they had adequate access to financial and business planning experts. Most felt their business was under considerable stress currently. A majority found it difficult to attract skilled workers (73%), and felt that their capital equipment would need upgrading in the near future (70%).
Silvicultural contractors and harvest and haulage contractors were less likely than roading contractors to feel confident their business would be operating in five years time, with harvest and haulage contractors least confident and more likely to report that their business was currently under considerable stress. Native-forest-dependent businesses were also more likely than those operating in the plantation sector to report their business being under considerable stress at the moment.

### 8.7.2 Business markets and finance

When asked about various aspects of their business’s financial viability and market prospects (Figure 30):

- 47% felt their current business activity was sufficient to cover operating costs and service debt; 40% felt confident their business was in a good position financially
- only 21% felt demand for their business’s products was likely to grow in the near future, and only 11% were confident their business revenue would grow in the near future
- the majority (77%) felt their operating costs would increase in the near future
- 51% felt they had adequate access to finance.

Harvest and haulage contractors and silvicultural contractors were less likely than other contractors to believe that their business revenue or that demand for their business services and products were likely to grow in the near future. They were much less likely than roading contractors to report that their revenue was adequate to cover debts and operating costs, and more likely to report lacking confidence to invest in their business. Harvest and haulage contractors were most likely to report expecting operating costs to rise in the near future, and least likely to feel they had adequate access to finance, followed by silvicultural contractors. Silvicultural
contractors were least likely to rate their business as being in a good position financially, and were much less likely than harvest and haulage contractors to do so.

Businesses with greater dependence on the forest industry were less likely to believe their business revenue would grow in the near future, or to feel that they had adequate access to finance.

Native-forest-dependent businesses were less likely to believe their revenue would grow in the near future than those operating in the plantation sector; less confident to invest in their business; more likely to believe operating costs would rise in the near future; less likely to believe their business was currently in a good position financially; and less likely to report their revenue as being adequate to cover operating costs and expenses.

Businesses were asked to provide financial data enabling analysis of their profit/loss position and debt-to-revenue ratios, as well as key business expenditures. A relatively small number of businesses responded to these questions, with 47% of contracting businesses who responded to the survey providing some information, and 42% providing full information in response to this question.

Of those who provided full information, 37% (11) had made a loss or zero profit in financial year 2009–10, and 63% (19) had made a profit. Of those who reported a profit, the majority (12) reported a profit of 10% or more while five made a profit of less than 10%. Many of these would have taken their own salary out of their profits, with several business managers not including their own salary in their estimates of business expenses. After this is taken into account, a larger proportion of businesses would make a net loss.

**Figure 30:** Vulnerability of contracting businesses to change—markets and finance
Debt-to-revenue ratios varied considerably across businesses. Almost one-fifth (19%) of contracting businesses reported having no debt, while 13% reported a debt-to-revenue ratio less than 25%, 29% owed debt totalling 25–49% of revenue, 23% owed debts totalling 55–99% of revenue, and 16% had debt greater than 100% of revenue.

Harvest and haulage contractors were more likely than other contractors to report making a loss, with 43% making a loss or no profit compared to 14% of silvicultural contractors, and an average loss of 10% compared to an average profit of 13% for silvicultural contractors and 4% for roading contractors. Businesses dependent solely on native forests (most of which were harvest and haulage contractors) were also more likely than others to report making a loss or zero profit, with 58% reporting a loss compared to 11% of businesses dependent solely on plantations, and 17% of those dependent on both plantations and native forests. On average, native-forest-dependent contractors made a loss of 15% compared to an average profit of 13% and 15% for businesses operating in (i) both native forest and plantations and (ii) plantations.

Roading contractors had a lower debt-to-revenue ratio than other types of contractors, with their debt averaging 25% of revenue, compared to 100% for harvest and haulage contractors (many of whom owed a greater amount than they received in revenue), and 52% for silvicultural contractors. Businesses with greater dependence on the forest industry as a proportion of their business activity reported somewhat lower debt, with their average debt being 41% of revenue, compared to 81% for those who undertook less than 50% of their business in the forest industry. Native-forest-dependent businesses had an average debt-to-revenue ratio of 106% compared to 65% for plantation-dependent businesses, and 32% for businesses dependent on both native forest and plantations.

Contractors were asked what proportion of their expenditure in the last financial year was on (i) fixed costs, (ii) wages and salaries (including payments to managers from profits), (iii) servicing debt, (iv) paying for log and other wood inputs, and (v) taxes.

Of the 27 businesses that reported spending on fixed costs, these costs made up an average of 35% of total expenditure. Fixed costs made up an average of 40% of expenditure by harvest and haulage businesses, 35% of spending by roading contractors, and 27% of silvicultural contracting business expenditure. As was the case with processing businesses, several contractors had difficulty identifying the proportion of spending on fixed costs, as their accounts were not organised to enable identifying spending on fixed costs versus spending on variable costs, and as such the results of responses to this query should be considered estimates only.

Of the 23 businesses that reported their spending on wages, the average proportion spent on wages was 27%. This did not vary much between different types of businesses, with the exception of roading contractors, who reported an average of 15% of spending on wages compared to 28–29% for harvest, haulage and silvicultural contractors. An average of 16% of spending was on servicing debt, and 16% was spent on taxes.
8.7.3 Certainty about the future

As described for the processing sector, a number of questions were asked of contracting businesses to gauge the extent to which they felt uncertain about the future of their business (Figure 31).

The majority (92%) of managers of contracting businesses felt the future of Tasmania’s forest industry is highly uncertain. Eighty per cent indicated that they did not feel confident to invest in their business due to this uncertainty. Just under half (49%) felt confident their business would operate one year from now, and when asked if they would be operating in five years time, only 33% reported feeling confident. Despite this, only 21% indicated they were actively considering closing their business at the moment, and 44% felt confident they could continue to operate their business successfully into the future. The responses given to questions about the future indicate that lack of certainty is having a negative impact on businesses, and that many are putting investment and business planning ‘on hold’ until there is some feeling of certainty about the future; however, this is not necessarily leading to managers closing businesses.

All types of contractors were similarly likely to rate the future of Tasmania’s forest industry as being highly uncertain. Harvest and haulage contractors had the lowest confidence in their ability to adapt to change in the industry. Businesses that were more dependent on the forest industry for their business activity were less likely to feel confident they would be operating in one or five years time compared to those who undertook a higher proportion of work outside the forest industry. Businesses dependent solely on native forests were less confident they would be operating one or five years in the future than those working in the plantation sector, and less confident they would be able to successfully adapt to future change in the industry.

![Figure 31: Vulnerability of contracting businesses to change—certainty about the future](image-url)
8.7.4 Policies affecting the industry

As discussed earlier, business managers’ perceptions of policies affecting the industry can impact their vulnerability. Business managers were asked if they felt changes proposed in the *Principles Statement* would be good for (i) Tasmania’s forests, (ii) Tasmanian communities, and (iii) Tasmania’s forest industry (Figure 32).

![Figure 32: Vulnerability of contracting businesses to change—policies affecting the industry](image)

Harvest and haulage contractors were less likely than other types of contractors to believe that implementing the *Principles Statement* would be good for the forest industry. Other than this difference, managers of different types of contracting businesses were equally likely to indicate they felt a reduction in access to publicly owned native forests would not be good for the industry, communities or forests.

8.7.5 Social capital

As described previously when analysing impacts of the downturn on processors, managers of contracting businesses were asked whether they felt they had access to support from others within the forest industry, and in their local community; and the extent to which they received support or interacted with others in the industry. These are all measures of social capital available to the business.

While just over half of business managers (52%) felt their local community was supportive of their business, only 20% felt they could turn to people or organisations in their local community for support during difficult times, which was much lower than reported by processing businesses (Figure 33).

Only 46% reported talking to or meeting with managers of businesses similar to theirs on a regular basis, which was also a much smaller proportion than for the processing sector. Fewer than a third felt members of the forest industry support each other during difficult times, or that they had sources of support or assistance within the industry (34%). Fewer than half (39%) reported receiving support from forest industry organisations.
Silvicultural contractors, and to a lesser extent nurseries and roading contractors, were less likely to report receiving support from forest industry organisations than harvest and haulage contractors, and less likely to report talking to or interacting with managers of similar businesses on a regular basis, indicating lower access to social capital. Consistent with this, businesses dependent on native forests (mostly harvest and haulage contractors) were more likely to report receiving assistance from these organisations. While being similarly likely to report that they felt members of the forest industry help each other in difficult times, and that their community was supportive of their business, silvicultural contractors were less likely than harvest and haulage contractors to report feeling they could turn to others in their community for assistance during hard times.

Businesses with greater dependence on the forest industry were more likely to report receiving support from forest industry organisations than those who undertook more business outside the forest industry.

8.7.6 Thresholds of change

Managers of contracting businesses were asked a number of questions aimed at identifying likely thresholds of change, or, in other words, at what point they would be ‘tipped’ to taking actions such as substantially changing or closing their business. They were asked how likely it was that they would choose to act in any of the following ways if their current forestry-related business activity declined by (i) 20%, (ii) 50% or (iii) almost 100%: seeking new business within the forest industry; seeking new business outside the forest industry; downsizing their business; or closing their business.

The likelihood that a manager would seek new business opportunities within the forest industry became lower the greater the loss in business activity, with 63% considering this somewhat or very unlikely as a response to a loss of 20% of supply, 68% if the decrease in supply was 50%, and 77% if almost all supply was lost (Figure 34). The responses indicate that many businesses...
are highly sensitive to loss of business activity, with a 20% loss on top of the reductions many have experienced in recent years likely to ‘tip’ them into closure or substantial downsizing of the business.

Between 64% and 67% of business managers thought it was likely they would seek business opportunities outside the forest industry if they experienced a reduction in business activity of 20%, 50% or almost all (Figure 35). Only around 30% thought this an unlikely response, indicating that many contractors feel that it is possible to identify business opportunities outside the forest industry.

**Figure 34:** Likelihood a contractor would seek new business within the forest industry if their business activity was reduced by 20%, 50%, or almost 100%

**Figure 35:** Likelihood a contractor would seek new business outside the forest industry if their business activity was reduced by 20%, 50%, or almost 100%
Business managers who indicated that they might consider seeking new business opportunities outside the forest industry were asked what industries they might consider shifting into. Of 40 businesses that responded, most suggested they would shift into work in agriculture, construction, mining or transport—usually industries where their existing skills and/or equipment could be used. Managers could specify multiple industries they might shift into.

Of harvest and haulage contractors (n=29), the following industries were identified:
- 16 provided no ideas, indicated they didn’t know what industry they would shift into, or didn’t feel able to seek work in a different industry, with one saying he felt he would ‘end up on unemployment’
- 5 indicated they would seek work in agriculture
- 3 would seek work in mining
- 6 would seek work in transport
- 2 would seek work in roading
- 3 would seek work in silviculture
- 5 would seek work in civil construction (usually specifying excavation or earthworks) or general excavation.

Of silvicultural contractors (n=20):
- 3 suggested no ideas
- 7 would seek work in agriculture
- 5 would seek work in mining
- 6 would seek work in civil construction
- 1 would seek earthmoving or quarry work
- 2 would focus on silvicultural activities outside the forest industry (e.g. game control)
- 1 would shift into the transport industry
- 3 considered expanding existing non-forestry work outside the silvicultural sector
- 3 would seek work in other industries such as retail sales.

Of roading contractors (n=6):
- 3 would seek work in agriculture (including building new irrigation infrastructure)
- 3 would shift to work in civil construction
- 3 would undertake roading activity outside the forest industry, particularly for councils
- 2 would seek work in mining
- 2 would seek excavation work.

Of nurseries (n=4), all indicated they would seek to expand activities servicing the agriculture and horticulture sectors, or reafforestation (e.g. Landcare).
Businesses were also asked how likely it was that they would downsize or close their business. Downsizing the business was considered a likely response to loss of 20% of business activity by 57% of businesses, but fewer felt it would be a response to larger losses of business activity, with less than half (48%) thinking it a likely response to losing almost all business activity (Figure 36).

Business closure was considered a likely response to loss of 20% of business activity by 40% of businesses; and to loss of almost all business activity by 58% of businesses (Figure 37).

**Figure 36:** Likelihood a contractor would downsize business operations if their business activity was reduced by 20%, 50%, or almost 100%

**Figure 37:** Likelihood a contractor would close business if their business activity was reduced by 20%, 50%, or almost 100%
To try to identify the thresholds at which businesses would ‘tip’ into being forced to close, managers of contracting businesses were asked to estimate the minimum monthly revenue they would need to earn to maintain their current workforce; the minimum needed to stay open if they downsized as far as possible; and the volume of inputs and workforce needed to operate at this minimum.

Most business managers struggled to answer these questions, with only 22 contracting businesses providing adequate data to analyse responses, and with too few responding to analyse the results by type of contractor. Of those who provided data, answers regarding the minimum revenue a business needed to remain open varied from 1% to 16% of current revenue, with 41% indicating they could stay open with less than 5% of current revenue, 45% with 5–10%, and 14% indicating they would need 10 to 16% of current revenue if they downsized their business to minimum size.

In interviews, some managers indicated that they based their answer on downsizing their business to being staffed by just one person, and assumed when answering that they would be able to sell capital equipment. Without being able to sell this equipment, the downsizing would not be possible for most, as they would need to continue servicing debt owed on equipment and this would require higher revenue. Similar to processors, several suggested that they tended to think more about how long they could continue operating through a downturn based on how much debt they could afford to go into while awaiting an upturn, rather than judging whether they would stay open based on minimum operating levels.

8.7.7 Factors influencing ability to adapt to change

Vulnerability to change depends in part on the ability of a business to undertake a number of actions to adapt to that change. Contracting businesses were asked whether a range of factors would act as barriers to adapting to change, or would assist them in adapting to change (Figure 38). They indicated that the biggest barriers facing them currently are lack of market opportunities, followed by lack of security of access to native forest or plantation resources, and rising business costs, with more than half of businesses indicating that these were barriers.

Issues not considered significant barriers were the business skills or the motivation of the manager completing the survey, access to financial and business planning advice, and availability of sawlogs from eucalypt plantations.

Roading contractors were much less likely than harvest, haulage and silvicultural contractors to consider a lack of market opportunities to be a barrier to developing new business activities, with 33% considering this a large barrier compared to 61% of silvicultural contractors and 71% of harvest and haulage contractors. Harvest and haulage contractors were more likely to consider their current business infrastructure as presenting a barrier with 50% indicating it was a moderate or large barrier to developing new activities, and interviewees explaining this was because of the difficulty of converting specialised harvesting machinery to use in other industries. Having secure access to native forest or plantation resources or lacking access to eucalypt plantation sawlogs were not considered large barriers by silvicultural contractors as often as by other types of contractors. Lack of motivation was considered a moderate or large barrier by 32% of harvest and haulage contractors compared to 24% of silvicultural contractors.
Lack of market opportunities was more commonly considered a large barrier to developing their business by businesses that were 100% dependent on the forest industry, with 69% of these rating this as a large barrier compared to 39% of those who have less than 50% of business activity in the forest industry. Similarly, current business infrastructure and lack of access to finance were more likely to be considered large barriers if a business was 100% dependent on the forest industry than if it conducted a high proportion of activity outside the industry.

**Figure 38:** Barriers to developing new business activities and opportunities

Current business infrastructure and lack of access to finance were more commonly considered barriers to developing new business activities by businesses dependent solely on native forests (60% and 50% respectively), and less commonly considered barriers by those operating solely in the plantation sector (38%, 29%) or in both sectors (23%, 23%). They were also more likely to consider rising business costs and their current level of business debts—as well as lack of security of access to forest resources or high-quality eucalypt plantation sawlogs—as barriers than were businesses that operate in the plantation sector.

Survey respondents in general indicated that the types of assistance they would find most useful to develop new business activities and opportunities would be having certainty of access to inputs for processing, with 72% indicating this would be moderately or highly useful (Figure 39). Other than this, the most useful assistance measures were being provided with assistance to develop and access new markets, and having ready access to finance, with more than 56% of businesses indicating these would be moderately or highly useful. Being provided with financial and business planning advice was considered moderately or highly useful by 52% of business managers, while...
being provided with staff training resources was considered moderately or highly useful by 44% of managers.

![Bar chart](image)

**Figure 39:** Forms of assistance considered useful for assisting contractors to develop new business activities and opportunities

Access to staff training was less commonly considered a useful form of assistance by harvest and haulage contractors than by other types of contractors. Access to business planning advice was considered moderately or highly useful by 77% of silvicultural contractors compared to 50% of harvest and haulage contractors.

Businesses with less dependence on the forest industry were more likely to consider being provided access to staff training as a moderately or highly useful form of assistance than those with high dependence on forest industry activities. Those with higher dependence on the forest industry, meanwhile, were more likely to consider having ready access to finance a useful form of assistance.

Businesses operating solely in native forests were more likely than those that work in the plantation sector to consider having greater security of access to forest resources a moderately or highly useful form of assistance for developing business opportunities.
9 Forest industry businesses—growers

The ‘growing’ sector of the forest industry refers to those businesses involved in overseeing management of native forests and plantations for commercial wood production. As there are few businesses involved in this sector, particularly since Great Southern Plantations and Forest Enterprises Australia entered administration and receivership in recent years, it is not possible to report growers’ survey responses separately to those of other businesses. Instead, data provided by these businesses was used to identify change in employment in this sector (reported in Section 6).

Growers’ responses were relatively similar to those of other types of businesses, with growers experiencing loss of demand for their products from processors, and cost pressures. All had downsized staff numbers, but total job losses from this part of the forest industry have been lower than those in the processing and contracting sectors.
The woodcraft sector consists of businesses and craftspeople involved in woodcraft activities including the processing, design and retail of special species timber (SST). The sector is an important component of the value chain that makes up the Tasmanian timber industry, and contributes to Tasmania’s culture and tourism (Farley et al. 2009). The woodcraft sector employs more than 2000 people through SST processing (31 enterprises; 160 people), design and production (approximately 250 enterprises; 1750 people) and retail sales (140 people) (Farley et al. 2009). Approximately 250 of these are included in the employment estimates generated for our study, as several processors surveyed for this study process SST either as a primary focus of their business, or as a small part of their business (with the remainder of business activity primarily focused on producing sawn timber from eucalypt species).

While recognising the significance of the woodcraft sector, we did not have sufficient resources to carry out a full social assessment. Instead, this section draws on Farley et al. (2009) and in-depth interviews with two members of the sector who produce woodcraft products, as well as with five processors who produce sawn timber from SST (three of these focus primarily on producing Tasmanian Oak but also process SST as part of their business; two focus largely on SST).

The key challenges faced by the woodcraft sector and the ability of woodcraft producers to respond to forest industry changes were evaluated based largely on these interviews. While limited, the interviews and existing reports provide some understanding of the vulnerability of this sector of the industry to change, especially in relation to changes in access to native forest resources in the future. Key challenges include the high reliance of the sector on tourism; change in access to resources; and rising operating costs.

The woodcraft sector relies largely on the tourism market and discretionary spending for sales, with Farley et al. (2009) finding that 75% of sales are to visitors to Tasmania (usually tourists). The sector has therefore faced challenges due to the recent economic downturn and high Australian dollar which decreased tourism across the state. This challenge was highlighted by interview participants, particularly those involved in producing and selling end products, who felt that economic factors such as the high price of SST products due to high labour costs and the costs of transport and timber meant that potential customers found it ‘hard to justify [purchasing SST] alongside cheap imported furniture’ (Woodcraft worker #1).

The sector is also vulnerable after already experiencing decrease in access to SST resources. The Tasmanian Community Forest Agreement led to a reduction in availability from 22 390m³ SST sawlog in 1999/2000 to 13 300m³ SST sawlog in 2006/07 with an additional allocation of 515 tonnes of craftwood (Bruekner-Leech, quoted by Farley et al. 2009, p. 3). In addition, concerns have been reported about reduced quality in the SST logs available (Farley et al. 2009). The introduction of chain of custody certification has further reduced supply in the sector, with stockpiled timber for which chain of custody is not documented unable to be used by certified businesses (Woodcraft representatives #1, #2). To date, these changes have not had a significant impact on the industry due to factors such as prior stockpiling (except where stockpiles don’t meet certification requirements) and the limited amount of timber that the sector requires. Interviewees believed that the reduction in demand resulting from the downturn in tourism has had a greater negative impact on the woodcraft sector than reduced quantity and quality of sawlogs, or certification requirements. However, all were concerned that any further reductions in quantity may have a negative impact, particularly the recent reservation of high conservation value areas which, according to two interviewees, contain many SST areas. Some of these SST areas provide unique timbers with location-specific characteristics valued by woodcraft producers.
The recent changes experienced by the wider timber industry, particularly changes in sawlog harvest volumes, are also important. Woodcraft production relies on SST being harvested at the same time as eucalypt timber, as it is not economically viable to incur the roading, harvesting and transport costs associated with logging for SST alone: larger economies of scale are needed. The woodcraft sector therefore relies on the broader timber industry, with supply of SST contingent on continued harvesting of non-SST timbers:

Harvesting special timbers is very dependent on proximity to other activities. You can’t do it on its own because it’s just not economic. (*Woodcraft worker #1*)

We get in a bit of special species here and there, it provides some extra return, but it wouldn’t make any kind of a viable business on its own (*Processor #10*)

Woodcraft workers have responded in a number of ways to the downturn in demand from tourism and changes in supply: some have left the industry, others have reduced their business spending, and a third group have made little change to their business but are losing money, with one interview participant believing many of those in the sector have limited business management skills to respond to the downturn.

Similar to other parts of the forest industry, these changes have affected woodcraft workers both financially and personally. Interview participants reported that financial returns were substantially reduced for many woodcraft workers. In addition, uncertainty about the future is reducing willingness to invest and to attract new workers. Finally, impacts related to a feeling of fear and injustice about forest policy were reported, with one participant feeling that the woodcraft sector was not being adequately considered in policy decisions, and was in general undervalued:

What are you doing to it if you say you’ve got some of the most spectacular timbers on the planet, but you can’t use any of them? (*Woodcraft worker #1*)

A number of factors reduce the ability of woodcraft workers to adapt successfully to future change in the industry. Farley et al. (2009) found that the sector fails to speak with a collective voice, partly due to a lack of networking, which also reduces learning within and development of the sector. A lack of innovation and adaptation favours ‘supply-side thinking’, rather than working towards new markets and products. Additionally, high dependence on harvesting of eucalypt species to provide a way of cost-effectively harvesting SST exposes those in the woodcraft sector to changes in the broader native forest industry, with their future dependent on the future of eucalypt harvesting.

In addition, a lack of skilled workers, lack of business management skills, and the constrained nature of current markets, particularly the focus on Tasmanian markets and reliance on tourism (with delivery of products outside Tasmania often considered difficult due to the high transportation costs involved) reduce ability of those in the woodcraft sector to adapt to change (Farley et al. 2009; Woodcraft workers #1, #2). The woodcraft sector relies heavily on the unique characteristics of native forest timbers, making any transition to plantations unlikely.

Despite these constraints there are opportunities for the sector, with Farley et al. (2009) arguing that development and marketing of products for niche markets could provide a source of industry growth. These could be developed through assistance for development of human capital in the sector (e.g. provision of training, mentoring and employment opportunities); developing products for new and diversified markets; and improving marketing.
11 Forest industry workers

The impacts of the downturn on forest industry workers were explored through surveying workers currently employed in the industry; workers who had left employment in a forest industry job since 2008; interviews with a number of currently employed and ex-workers; and through questions asked of forestry business managers in both surveys and interviews. In total, 249 workers currently employed in the forest industry completed surveys, and 124 workers who had left work in the industry since 2008. All 53 qualitative interviews conducted for the study provided insights into the experience of workers, as interviewees all reflected on their experiences working in the industry either as business owners, managers or employees.

The impacts of the downturn are reported separately for two groups of workers: those who remained employed in the industry throughout the downturn, and those who had left a job in the forest industry since 2008 (some of whom had since found a new job in the industry).

For each group, characteristics of survey respondents are briefly reviewed, followed by examining (i) the social and economic changes and impacts associated with the downturn in the forest industry, (ii) factors influencing the extent of impact experienced, and (iii) vulnerability of workers to future change.

11.1 Workers currently employed in the industry

The impacts of the downturn on workers currently employed in the industry were examined in both the survey and interviews with workers. In the survey, impacts were explored through asking workers whether the downturn had led to a range of socioeconomic changes such as changed employment conditions; and if these were associated with impacts such as stress, anxiety or depression. An ‘index of impact’ was developed based on these reported changes, and used to evaluate whether and in what ways worker wellbeing was impacted by the downturn, as well as the various factors that were associated with experience of greater or lesser impact.

11.1.1 Characteristics of survey respondents

The 249 workers currently employed in the industry who participated in the study were representative of the industry overall. Of respondents, 66% were employed in jobs that depended wholly or partly on timber production from publicly owned native forests, 43% privately owned native forests, 41% softwood plantations and 55% hardwood plantations. A large number of workers were employed in businesses that manage, harvest, or process wood from more than one type of forest or plantation: 26% reported solely working in native forests (publicly or privately owned, 24% solely in softwood and/or hardwood plantations, and the remaining 50% in both native forest and plantations. It is likely that in the latter category many workers were largely dependent on native forests, with many working for businesses that reported having only a small proportion of their business activity dependent on plantations.
The descriptions given by respondents of their occupation, together with their employer’s name, were used to identify their primary role in the forest industry, and they were classified into the following categories:

- growing/managing forest (e.g. working for Forestry Tasmania or Gunns Ltd in a forest management role or as a forester): 17% of respondents
- harvest, haulage and roading contracting (some of these also undertook silvicultural activities): 21% of respondents
- processing and export: 40% of respondents
- silvicultural contracting: 9% of respondents; some of these also reported being involved in other activities such as harvesting or nursery-related work
- other work: principally administration, contracting, and nurseries (13% of respondents).

Throughout this section, differences between workers (i) dependent on different types of forest and plantation for their employment, and (ii) undertaking different types of work, are examined. This analysis of differences, and how the differences impact on vulnerability, is then drawn on when examining the vulnerability of workers to further change.

11.1.2 Social and economic changes associated with the downturn

Workers completing the survey were first asked the extent to which changes in the forest industry since 2008 had affected their lives (Figure 40). Survey respondents were most likely to report that the downturn had a moderate or large impact on their certainty about their future employment, their level of stress/depression or anxiety, and that decreased business activity had a moderate or large impact on their lives, with more than 50% of respondents reporting each of these. Approximately one-quarter of respondents had experienced a decrease in work hours or a decrease in income, while 16% reported that increased work hours as a result of the downturn were having a moderate or large impact on their lives.

Having identified whether the downturn led to different types of socioeconomic change in their lives, more specific questions were asked about the nature of these changes, with workers asked to identify whether their work hours, income, job security, and their or their family’s level of stress had increased or decreased since 2008. This question repeated some concepts explored in the set of questions shown in Figure 40, with responses compared to check consistency (identifying very high consistency in responses), but asked for more specific responses regarding the nature of change.

Respondents were most likely to report that recent changes in the forest industry had led to an increase in stress levels (for the worker, their spouse and to a lesser extent their children) and decreased job security, and were less likely to report a decrease in income, or change in time with family or work hours, as shown in Figure 41. Harvest and haulage contractors were significantly more likely to report a decrease in personal and family income than any other group, as shown in Table 8 (p<0.000).
Figure 40: Socioeconomic changes experienced by forestry workers as a result of the downturn

Figure 41: Socioeconomic impacts experienced by forest industry workers as a result of the downturn
Table 8: Impacts of recent changes on different types of forestry workers

<table>
<thead>
<tr>
<th></th>
<th>Growers of forests/plantation</th>
<th>Harvest and haulage contractors</th>
<th>Processing workers</th>
<th>Silvicultural contractors</th>
<th>Other types of workers</th>
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<td>Mean</td>
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Note: The mean refers to the mean value of responses on a scale of 1 to 5; a higher value means a higher proportion of people reported this issue/activity increasing since 2008; a lower value means a higher proportion of people reported it as decreasing since 2008.

Impacts on income were further explored by asking survey respondents whether their income at the time of completing the survey was higher, lower, or about the same as the amount they earned in 2008; and how their working hours had changed. Just over one-fifth (20.3%) reported that their income in the four weeks before completing the survey was lower than that earned in 2008, 68.3% said that it was about the same, and 11.5% reported it was higher, as shown in Table 9. In interviews, participants described employers giving few or no pay rises in recent times, as one worker explained:

The way the industry’s been going with the reduced sales and also we haven’t been given our pay raises over a period [of] time that we would have expected to get. (Worker#3)

Those working in the native forest and plantation sectors did not differ significantly in their responses; while those working in harvest and haulage contracting and silvicultural contracting were significantly more likely than other types of workers to report earning less income in 2011 compared to 2008. A worker employed in a contracting business commented on the loss of income and work hours as a direct result of the downturn:

Financially it’s affected me, because as soon as it came through, they cut our hours back straight away. (Worker#10)

Table 9: Current level of income compared to income earned in 2008 (n=227)

<table>
<thead>
<tr>
<th>Current level of income compared to previous income is...</th>
<th>Number of survey respondents</th>
<th>Percentage</th>
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<td>About the same</td>
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<td>Higher</td>
<td>26</td>
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</tbody>
</table>
Of respondents, just over half (56%) reported that their work hours had not changed since 2008, while 27% reported reduced work hours and 17% increased work hours. Those employed in the harvest and haulage sector, and to a lesser extent in processing, reported working longer hours (typically more than 40 hours for harvest and haulage contractors, and more than 35 for processing workers) compared to other workers.

An index of key impacts of the downturn was made based on the average level of impact reported in terms of (i) whether a decrease in income was experienced, (ii) whether the uncertainty of employment increased, and (iii) whether the worker experienced stress, depression or anxiety as a result of the downturn occurring since 2008. These three factors were chosen as they were most representative of the various dimensions of social and economic change experienced by workers. This index was used throughout subsequent analysis to identify differences in impacts of the downturn amongst workers with different characteristics; a higher ranking in this ‘index of impact’ indicates higher negative impacts as a result of the downturn.

This index was then used (i) to explore whether workers who experienced more negative change in their lives as a result of the downturn also experienced negative shifts in their overall wellbeing, measured based on their self-reported level of satisfaction with their life and work; and (ii) whether negative change was more likely amongst particular groups of workers or those with differing characteristics, focusing on those working in different types of jobs; with differing access to human and social capital; and with differing attachment to place and the forest industry.

Where results are reported below using this index, it is reported as the ‘index of impact’.

11.1.3 Impacts of downturn on worker wellbeing

To further explore whether the social and economic changes associated with the downturn (such as loss of income, changes to working hours or certainty of employment) impact on a person’s wellbeing, workers were asked how their satisfaction with various aspects of their life and work had changed since 2008. Respondents were first asked how important different aspects of their life and work were to them, followed by asking about their current level of satisfaction, and then how this level had changed since 2008.

Respondents were most satisfied with their personal relationships (58% reporting they were somewhat or completely satisfied), standard of living (51%), life as a whole (49%), and health of their family (48%). They were most dissatisfied with their present financial situation (48%), what they were achieving in life (40%) own health (35%), and life as a whole (34%), as shown in Figure 42.
Figure 42: Satisfaction of forest industry workers with different aspects of their life

Those working in both plantations and native forests were more likely to report a lower level of satisfaction with various aspects of their lives than those working solely in plantations or solely in native forests.

When asked whether various aspects of their lives were getting worse or better at the time of completing the survey, respondents were most likely to report that the following were getting much worse or a little worse: their financial situation (47%), their standard of living (43%), life as a whole (37%), and their own health (31%), as shown in Figure 43. Less than 30% reported that other aspects of their lives were worsening. Respondents were less likely overall to report improvement in their lives, with less than 25% reporting any aspect of their life was getting a little or a lot better. The aspects of their lives most likely to be reported as getting a little or a lot better were what they were achieving in life (23%), life as a whole (19%), and personal relationships (15%) with less than 15% reporting any other aspect of their life was improving. A majority of respondents felt that the health of their family, their sense of feeling part of their community, their personal relationships and their own health were not currently changing (76%, 70%, 68% and 57% respectively).

Those employed in harvest and haulage contracting were significantly more likely to report their current financial situation was worsening compared to those employed in other parts of the forest industry, followed by those employed in processing. Other factors did not vary significantly in likelihood of worsening/improving based on the sector of the forest industry a person worked in.
Those who reported their lives were worsening in any dimension, shown in Figure 43, were significantly more likely to report a moderate or high impact of the forestry downturn on their lives (p<0.000 in all but one case; p=0.001 in the case of personal relationships).

When asked how important different aspects of their work were to them, the things rated most important by respondents were job security (somewhat important or important to 92% of respondents), fair and consistent management of the forest industry (95%), having ability to exercise independent control over their work (88%), having a sense of worthwhile accomplishment from work (86%), having stimulating and challenging work (91%), and interactions with other people in the workplace (91%). No aspects of work were rated unimportant by many respondents; however, earning a high income, interactions with the public, and working outdoors were the aspects of work rated less important than others (although a majority of respondents still rated these as important).

Having high income was rated as more important by harvest and haulage contractors than other groups (p=0.001), while harvest and haulage contractors and workers in processing facilities (mostly sawmills) were most likely to report working with forests or wood products as important (p=0.008), and working outdoors was significantly more often rated important by harvest and haulage contractors and silvicultural contractors (p<0.000).

Respondents were most satisfied with the people they talked to and worked with as part of their jobs (69% being somewhat satisfied or satisfied), the amount of challenge in their work (62%), their work overall (56%), their sense of accomplishment from their work (53%), and the amount of control they had over decisions affecting their work (52%). They were most dissatisfied with the fairness of decisions made about the forest industry (74% being somewhat unsatisfied or unsatisfied with this), their job security (62%), amount of income earned and the stress they
experienced as a result of their work (40%), and the amount of time they spent working to make a living (36%), as shown in Figure 44.

Those working in processing jobs, and harvest and haulage contracting, were significantly less satisfied with their income than those working in other parts of the forest industry (p<0.000).

![Figure 44: Forest industry workers’ satisfaction with aspects of current employment](figure44.png)

A majority of workers reported that since 2008 they were less satisfied with their job security (75%), the fairness of decisions made about the forest industry (72%) and their stress levels (50%). The only aspect of work for which more than 20% of respondents reported an increase in satisfaction since 2008 was the people they talked to and worked with, with 20% reporting being somewhat or much more satisfied with this aspect of their work. More workers reported being less satisfied than more satisfied with all aspects of work asked about in this question, indicating that working conditions have more commonly deteriorated than improved for workers since 2008.

One worker talked about how the lack of opportunity for promotion meant that his job satisfaction had declined:

> I’ve walked away with this qualification just as there’s been a huge downturn. So currently I’m a very frustrated supervisor … having all this training and not seeing a way to use it. And my benefits and my salary hasn’t changed in that period. Work is more than fronting up and collecting a salary. It’s got to have meaning and it’s got to lead somewhere. (Worker #6)
Workers who reported greater impacts as a result of the downturn in the industry were significantly more likely to report a decrease in satisfaction since 2008 with all aspects of their work except one: the people they talked to and worked with in their job (p<0.01 in all cases) (Figure 45).

Figure 45: Change since 2008 in forest industry workers’ satisfaction with their employment

Those who reported greater impacts from the downturn were significantly more likely to rate as important or somewhat important aspects of their work having long-term job security (p=0.001), fair and consistent management of the forest industry (p=0.011), a good balance between home and work life (p=0.031), interactions with the public related to their work (p=0.021) and working with forests and/or wood products (p=0.001). Workers who reported greater impacts reported lower satisfaction with all aspects of their work except the people they talked to and worked with in their job (p<0.01 in all cases).

11.1.4 Vulnerability to future change: factors influencing experience of impact

A number of factors may influence whether a worker has experienced greater or lesser impacts as a result of the downturn. These were analysed both to better understand variance in the impacts of the downturn, with this analysis then providing a basis for assessing the vulnerability of workers to future change in the industry. First amongst these factors is whether their employment had been directly affected, with those in different types of jobs more or less likely to be impacted. The extent to which a change in employment affects a person’s life may also differ depending on a range of considerations. These include the personal resources an individual has to draw on (their human and financial capital); the support they feel they have access to from others in the broader community and at their workplace (their social capital); their socio-demographic characteristics; and their ability to adapt to change, affected by things such as their attachment to place and dependence on and attachment to their work in the forest industry.
These factors were analysed to identify whether there appears to be a relationship between extent of impact experienced and particular characteristics. There are some important limitations to the analysis undertaken: it identified correlations only, rather than causal relationships, as the sample obtained did not enable causal analysis. This means that in many cases it is possible that factors were correlated but one did not cause the other: for example, workers who are members of forest industry organisations may experience greater negative impacts, but this may be because those who choose to become members of these organisations already had a greater attachment to the forest industry, or other characteristics making them more likely to experience negative impact.

**Nature of forest industry work**

Workers dependent on the native forest sector and plantation sectors and employed in different types of jobs (e.g. contracting versus processing), were considered likely to have been impacted differently by the downturn. Relatively similar impacts were reported by those working in the native forest and plantation sectors, as shown in Table 10, reflecting that change has affected all parts of the forest industry during the downturn.

<table>
<thead>
<tr>
<th></th>
<th>Native forest</th>
<th>Plantation</th>
<th>Both (mostly NF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decrease in working hours</td>
<td>1.52 58</td>
<td>1.61 54</td>
<td>1.63 112</td>
</tr>
<tr>
<td>Decrease in income</td>
<td>1.72 58</td>
<td>1.56 54</td>
<td>1.74 113</td>
</tr>
<tr>
<td>Lose of employment or contract</td>
<td>1.27 59</td>
<td>1.64 53</td>
<td>1.43 107</td>
</tr>
<tr>
<td>Increase in working hours</td>
<td>1.41 54</td>
<td>1.40 52</td>
<td>1.55 107</td>
</tr>
<tr>
<td>Uncertainty about future employment</td>
<td>3.04 56</td>
<td>3.08 52</td>
<td>3.18 111</td>
</tr>
<tr>
<td>Stress, anxiety or depression</td>
<td>2.47 58</td>
<td>2.36 53</td>
<td>2.61 109</td>
</tr>
<tr>
<td>Changed employment e.g. role</td>
<td>1.48 58</td>
<td>1.56 54</td>
<td>1.65 112</td>
</tr>
<tr>
<td>Decreased business activity</td>
<td>2.31 58</td>
<td>2.48 54</td>
<td>2.64 110</td>
</tr>
</tbody>
</table>

**Note:** Workers were asked whether each issue had affected them since 2008; a higher mean score indicates the downturn on average had greater negative impacts on workers in this particular way.
When the nature of a person’s work was examined, there was more variation. People involved in some types of work were much more likely to report a moderate or large impact than others: harvest and haulage contractors were significantly more likely than other groups to report negative impacts, followed by silvicultural contractors, while workers employed in processing or growing/managing forests were least likely to report negative impacts (Table 11).

Table 11: Social and economic changes and impacts for different types of workers

<table>
<thead>
<tr>
<th></th>
<th>Growers of forest/plantation (n=37–39)</th>
<th>Harvest and haulage contractors (n=47–50)</th>
<th>Processing workers (n=88–92)</th>
<th>Silvicultural contractors (n=18–21)</th>
<th>Other types of workers (n=29–30)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean decrease in working hours</td>
<td>1.44</td>
<td>2.18</td>
<td>1.48</td>
<td>1.67</td>
<td>1.21</td>
</tr>
<tr>
<td>Mean decrease in income</td>
<td>1.41</td>
<td>2.18</td>
<td>1.74</td>
<td>1.81</td>
<td>1.17</td>
</tr>
<tr>
<td>Mean lose of employment or contract</td>
<td>1.24</td>
<td>1.81</td>
<td>1.57</td>
<td>1.10</td>
<td>1.03</td>
</tr>
<tr>
<td>Mean increase in working hours</td>
<td>1.54</td>
<td>1.72</td>
<td>1.40</td>
<td>1.56</td>
<td>1.28</td>
</tr>
<tr>
<td>Mean uncertainty about future employment</td>
<td>2.87</td>
<td>3.46</td>
<td>3.12</td>
<td>3.45</td>
<td>2.79</td>
</tr>
<tr>
<td>Mean stress, anxiety or depression</td>
<td>2.63</td>
<td>2.77</td>
<td>2.42</td>
<td>2.75</td>
<td>2.28</td>
</tr>
<tr>
<td>Mean changed employment</td>
<td>1.35</td>
<td>1.89</td>
<td>1.65</td>
<td>1.55</td>
<td>1.43</td>
</tr>
<tr>
<td>Mean decreased business activity</td>
<td>2.48</td>
<td>3.06</td>
<td>2.20</td>
<td>2.90</td>
<td>2.31</td>
</tr>
</tbody>
</table>

Note: Workers were asked whether each issue had affected them since 2008; a higher mean score indicates the downturn on average had greater negative impacts on workers in this particular way.

ABS data from 2006 were used to compare average work hours of workers in different parts of the forest industry, and the Tasmanian labour force as a whole (Figure 46). While the ABS does not use the same categories of workers as those used for this study, this still provided a useful picture of differences between sectors. Forest industry workers in general work longer hours than the average for the labour force, largely because a larger proportion of workers are employed full time than is the case for the labour force as a whole. Those employed in forestry support services (the ABS label for those involved in providing services such as silvicultural contracting and consulting services), in forestry management (growing and managing forests and plantations), and harvest and haulage were more likely to work more than 49 hours a week, indicating potentially higher stress for people in the silvicultural contracting, harvest and haulage contracting, and growing sectors.
When part-time and full-time workers were compared, the current hours a person worked were generally less useful in predicting extent of impact than a person’s desired hours of work. Those who wanted to work either more or less hours were significantly more likely to report that the downturn had a negative impact on their lives compared to those who were satisfied with their current work hours (p=0.001). Those who worked less than 20 hours and those who worked more than 40 hours a week currently were more likely to report a negative impact, although this result was not statistically significant.

**Human capital**

Human capital refers to the resources an individual has to draw on to help them achieve their goals in life, including their education, psychological outlook, and financial resources. Financial resources are discussed in the following section on financial capital; this section focuses on aspects of human capital related to a person’s confidence in their own skills and abilities, and the extent to which they have attained formal skills and educational qualifications.

First, workers’ confidence in their ability to adapt to change was examined. Of respondents to the worker survey (Figure 47):

- 86% were confident of their ability to learn new skills and only 5% lacked confidence
- 83% agreed that thanks to their resourcefulness they can handle unforeseen situations, while 7% disagreed with this statement
- 76% agreed they could remain calm in the face of difficulties due to their coping abilities
- 13% agreed they could not cope with any more change, while 56.6% disagreed.

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**Figure 46:** Work hours of Tasmanian forest industry workers compared to the total Tasmanian labour force, 2006 (ABS 2006)
Silvicultural contractors were significantly less confident than other workers of their ability to draw on their own resourcefulness (p=0.006) and remain calm in the face of difficulties due to their coping abilities (p=0.020).

These results indicate relatively high human capital in terms of psychological outlook and confidence in capacity to adapt to change, but were not strongly correlated with experience of impacts of the downturn.

![Figure 47: Forest industry workers’ confidence in their own ability to cope with change](image)

When asked more specific questions regarding their confidence to adapt to change, however, lower levels of confidence were reported. Only 24% of workers had high confidence in their ability to find a new job in the forest industry, compared to 46% who did not; while more (46%) had confidence in their ability to find a job outside the forest industry and only 27% did not have this confidence. Those with more confidence in their ability to find a new job in the forest industry were less likely to report the downturn had a negative impact on them (p=0.026), as were those who had more confidence in their ability to find a new job outside the industry (p=0.002). Similarly, when asked if they felt confident they could find a new job in their local community, those with higher confidence in their ability to find a new job locally reported fewer negative impacts as a result of the downturn (p<0.000) than those with lower confidence. Harvest and haulage and silvicultural contractors had lower confidence in their ability to find a new job outside the forest industry compared to other types of workers (p<0.010).

In addition to gauging their confidence, workers were asked (i) how they had obtained their forest industry related skills, and (ii) the highest level of formal educational attainment they had attained, irrespective of whether it was related to their work in the industry.

Of 238 respondents who provided information on the ways in which they had learned forest industry skills (a question for which they could provide multiple responses), 41% had gained some of their skills through formal training courses such as TAFE and traineeships, an apprenticeship or a university diploma or degree, while 46% had primarily trained on the job with no formal qualifications, and 13% were primarily taught by family members or were self-taught.
People employed in managing forests and plantations (i.e. in the ‘growing’ sector) were most likely to have formal qualifications of some type relevant to their forestry work such as a university degree, TAFE qualification or apprenticeship, with 83% of these workers reporting some type of formal qualification, compared to 53% of ‘other’ workers, 52% of silvicultural contractors, 37% of harvest and haulage contractors, and 20% of processing workers.

Those who worked solely in native forests were least likely to have a formal qualification (22%) and most likely to have learned skills through being self-taught or taught by family members (22%), while those who worked in the plantation sector were much more likely to have a formal qualification (42% for those working solely in plantations and 52% for those working across both the native forest and plantation sector), and much less likely to have learned skills through family connections or being self-taught (6% and 8% respectively).

The downturn was more likely to be reported to have negative impacts by those who learned their forest industry skills through obtaining formal qualifications (mean index of impact of 2.5) than those who were self-taught or taught by family (2.1), while those who learned their forest industry skills through on-the-job training had a mean score of 2.4.

Just over a quarter of respondents (28%) had completed only the fourth year of high school or less as their highest level of formal education. A similar proportion (26%) had completed high school, while 24% also had a TAFE diploma, and 22% had a university degree or postgraduate degree.

Those working in the native forest sector had significantly lower levels of formal education compared to those working in the plantation sector (p=0.014). Harvest and haulage contractors and processors had less formal education than other types of workers (p=0.001).

However, a worker’s overall level of formal education more generally (rather than just the education or training they had undertaken specific to their forest industry work) was not associated with significantly different levels of impact as a result of the downturn.

Of respondents to the survey, 51% were interested in undertaking education or training to help them shift into new types of work, while 20% were not. This was not correlated with experiences of impact resulting from the downturn.

In addition to asking workers their level of educational attainment as part of the survey, ABS data from the 2006 Census of Population and Housing were analysed to identify the level of educational attainment of workers from different parts of the forest industry, compared to the Tasmanian labour force as a whole (Figure 48) and to compare Tasmanian forest industry workers to the average for the Australian forest industry (Figure 49). All types of forest industry workers except those employed in pulp and paper manufacturing and secondary wood product manufacturing had lower levels of educational attainment than the average for the labour force. Harvest and haulage, silvicultural contractors, and those employed in sawmilling had the lowest levels of formal educational attainment. When compared to the average for the Australian forest industry, a similar pattern was identified: with the exception of those employed in pulp, paper and secondary wood product manufacturing, Tasmanian forest industry workers had lower levels of formal education than those in the Australian forest industry as a whole.
Figure 48: Educational attainment of Tasmanian forestry workers compared to the labour force, 2006 (ABS 2006)
Financial capital

A person’s financial capital can affect their capacity to adapt to change. According to most theories of adaptive capacity, people with fewer financial resources are less able to adapt to change, and hence are more likely to be negatively impacted by change. Workers were asked to provide details of their individual income and their household income, as well as to evaluate the extent to which their income was sufficient to cover their debts and living costs, and to describe their housing situation, a useful indicator of financial wellbeing in many cases.

A quarter of respondents earned less than $40,000 a year in their forest industry job, 41% earned $40,000–59,999 and 35% earned $60,000 or more. Those working in the native forest sectors and those working in processing earned significantly lower individual income than other workers (p=0.002 and p=0.001 respectively) while growers earned significantly higher income (p=0.001). The amount earned was not significantly correlated with extent of experience of impact.

In addition to asking for data as part of the survey, data from the 2006 ABS Census of Population and Housing was analysed to compare the income earned by forest industry workers to that of the Tasmanian labour force as a whole (Figure 50). As a whole, forest industry workers earn more than the average member of the labour force, largely reflecting that they are more likely to work full-time and less likely to work part-time than other parts of the labour force. When comparing different types of forestry workers, those employed in pulp and paper manufacturing typically earn more, and those in secondary wood product manufacturing, silvicultural contracting (labelled forestry support services by the ABS) and sawmilling typically earn less.
When asked their household income, 13% of respondents reported their household earned less than €40 000 in 2009–10, 24% earned €40–59 999, 25% earned €60–79 999 and 38% earned €80 000 or more. Similarly to individual income, those working in the native forest sectors and those working in processing earned significantly lower household income than other workers while growers earned significantly higher income (p<0.000 in all cases). There were no significant differences between those working in the native forest and plantation sector in their evaluation of their ability to cover debts and living costs, despite those working in the native forest sector reporting significantly lower individual and household income. Similar to the results for individual income, the amount of household income earned was not significantly correlated with the extent of impacts of the downturn.

Most respondents reported their household income was either just enough to cover debts and living costs with nothing spare (41%) or enough to cover these costs and spend on some extra items such as holidays (46%). Those working in processing, consistent with their reports of their individual and household income, were significantly more likely to report their income was just enough to cover debts and living costs with nothing to spare compared to other workers (p=0.002).

Those who reported their household income was only just enough to cover costs with nothing to spare were more likely to report experiencing negative impacts from the downturn compared to those who felt their income was adequate to cover debts and living costs and spend on some extra items, with an average index of impact of 2.32 compared to 2.53. This suggests that financial capital should be evaluated based on net financial position, rather than just on income levels.

Financial capital should also be evaluated with relation to the forest industry: where financial wellbeing is more dependent on the industry, it is more likely a downturn will have a negative impact on a person. Of survey respondents, the majority (53%) derived 100% of their household income from the forest industry, while 13% derived 80–99% of household income (n=234). Only 17% reported that less than 60% of household income came from the forest industry, indicating high dependence on forest industry income in the households of workers in the industry. Proportion of household income derived from the forest industry did not differ significantly between sectors.

**Figure 50:** Weekly income earned by forest industry workers compared to the Tasmanian labour force average, 2006 (ABS 2006)
Those who reported a higher proportion of their household income depended on the forest industry reported a higher average negative impact as a result of the downturn, with a mean impact index of 2.47 for those with 100% of their income dependent on the forest industry compared to 2.20 or less for those with less than 50% of the income derived from the forest industry. While this result was not statistically significant due to the low numbers of respondents who earned less than 100% of their income from the industry, it does indicate an important difference.

Of respondents, 12% were renting housing, 59% had a house with a mortgage, 23% owned their house outright, and 6% had a different accommodation situation. The housing situation of different types of workers did not vary significantly. Those with different housing situations did not report significantly differing levels of negative impacts as a result of the downturn.

**Social capital—friends, family and broader community**

The term ‘social capital’ refers to the relationships and networks that exist within a community, which help to facilitate cooperative action and the sharing of ideas and resources (Nelson et al. 2007). This community can be the community a person lives in and interacts with, such as their friends, family and neighbours (examined in this section), or the community of people they interact with in their workplace (examined in the following section). These various communities will often overlap substantially. An extensive body of literature examines the benefits of positive social capital and how supportive social networks and relationships can be encouraged (see for example Falk and Kilpatrick 2000, Edelman et al. 2004, Lee et al. 2005). A reduction in social capital may reduce the ability of forest industry workers to adapt successfully to change, reducing their ability to change behaviour and management practices to cope with stresses such as changes in or loss of employment (Brookes 2003, Hogan et al. 2011). At the community scale, a reduction in social capital may affect a community’s social resilience, which refers to a community’s ability to ‘transform and respond to change in an adaptive way’ (Maguire & Cartwright 2008, p.8), or to ‘bounce back’ from adversity, and to maintain social cohesion within the community (Stehlik 2003). This community-scale social capital is not examined here.

Workers’ access to social capital in the form of trusted networks of friends, family and broader community was explored through a number of survey questions. Respondents had high variability in their access to different forms of social capital, although there were some commonalities across most workers (Figure 51):

- 7% agreed they could trust people in government to look after their interests, while 83% disagreed, indicating low social capital related to public policy. Those working in plantations were significantly more likely to trust government to look after their interests than those who worked in the native forest sector (p=0.03)
- 38% felt most people in their local community have a good perception of people who work in the forest industry, while an equal proportion (38%) did not agree with this statement
- 20% felt they could access a lot of support from other people in their local community while 33% did not
- 69% believed people in the wider community had a negative view of people who work in the forest industry, while only 13% disagreed with this statement
• 80% agreed that they had access to support from family and friends to help them through difficult times, while 10% disagreed
• 82% agreed that perceptions of the wider community about the Tasmanian forest industry had worsened over the last 10–15 years, while only 6% disagreed with this statement.

These results were not strongly correlated with experience of impacts of the downturn: those who disagreed that they could trust government to look after their interests or who believed perceptions of the forest industry had worsened were more likely to report negative impacts as a result of the downturn, although in both cases the result was significant at the 5% rather than 1% level (p=0.022 and 0.013 respectively).

Figure 51: Workers’ social capital—family, friends and community

Membership of community groups is sometimes considered a useful indicator of a person’s level of social capital, with higher levels of membership and activity in these groups an indicator of a person with strong social networks and hence support.

In total, 56% of respondents reported being members of some type of community group. Of these, 103 were members of a sporting group, 40 members of a civic group, 38 of a religious group, 40 of a school group, 34 of a hobby group, 39 of an emergency services group and 6 of other groups. Membership of a group was not significantly correlated with particular types of work in the forest industry. Those who were members of a group were significantly more likely to report experiencing negative impacts as a result of the downturn (p=0.010). However, this differed substantially to the results for workers who had left the industry, discussed in Section 11.2.

Workers were also asked whether most of their friends lived in their local community, and the extent to which they believed friends or others in their local community might shift away as a
result of the downturn. Overall results related to this question are reported when the exposure of different communities to change is examined later in this report. However, these questions also provide some insight into whether disruption to social networks affects the extent to which people are impacted by events such as the downturn in the forest industry. Those workers who reported that some of their friends had shifted away or might shift away from the local community in the future as a result of the downturn were significantly more likely to report experiencing negative impacts as a result of the downturn (p=0.002). Similarly, those who reported that people in their local community had or might shift away as a result of the downturn were significantly more likely to report experiencing negative impacts as a result of the downturn (p=0.006). Harvest and haulage contractors, and to a slightly lesser extent those working in processing jobs, were more likely to report that most of their friends and family lived in their local community (p=0.006 and p<0.000 respectively) and that friends or other residents of their local community had or might shift away as a result of the downturn (p=0.005 and 0.004 respectively).

Antagonism towards the industry and its workers was often mentioned as an ongoing issue impacting workers, and a factor that made the downturn harder to cope with. One worker commented that:

[There’s] not a lot of sympathy in the community for the likes of us, being part of a negative industry. It’s kind of ‘You made your bed, you sleep in it’ sort of thing. (Worker #6)

This worker tended to cope with this by ‘gravitating to people who don’t criticise you’, indicative of how forestry conflict reduces social capital through reducing the strength and diversity of social networks.

In some towns, the greater number of people affected by the industry downturn multiplied the impact of the downturn, through affecting social relationships:

We’re a little town and we rely on timber, on our crops and our milk. It could be a little ghost town here for a while until we bring something in if the timber industry goes down. Everyone is a bit sadder. They are not their happy normal selves. Everyone’s going through their own situation. You find, instead of us out there enjoying ourselves when we get together, it’s more talk about what we are going to do. (Worker #7)

Social capital—forest industry

Of respondents to the worker survey (Figure 52):

- 31% felt they had support from others within the forest industry to help them through difficult times, while 33% disagreed
- 33% agreed that members of the Tasmanian forest industry help each other out in difficult times, while 30% disagreed
- 42% agreed that the downturn in the forest industry has reduced the amount of support available to them from their colleagues and local community, while 8% disagreed.

These results were somewhat correlated with experience of impacts of the downturn: those who did not feel they had support from others in the forest industry or that members of the industry help each other out in difficult times were more likely to report negative impacts as a result of the downturn, although in both cases the result was significant at the 5% rather than 1% level (p=0.026 and 0.027 respectively).
Of respondents, 32% reported being a member of a forest industry organisation, while 68% were not. Forest and plantation managers were most likely to report being a member of an organisation (48%, with the Institute of Foresters of Australia and Timber Communities Australia (TCA) the most common membership reported), followed by those employed in processing facilities (36%, mostly reporting membership in the CFMEU and TCA), harvest and haulage contractors (24%, mostly reporting membership in the Tasmanian Forest Contractors Association and TCA), silvicultural contractors (24%, TCA), and other workers (17%). Those who were members of forest industry organisations were somewhat more likely to report that the downturn had a moderate or large negative impact on them, with a mean index of impact of 2.6 (where a higher number indicates greater impact) compared to 2.3 for those who were not members of an organisation.

Based on reported levels of membership of forest industry organisations, it appears to be people who have jobs that are not specific to the forest industry (e.g. accounting, human resource management, sales) but are working for a forestry company who are least ‘linked in’ to the forest industry via member organisations. Contractors are much less likely than those employed in sawmills or other processing facilities to be members of organisations as well. This has implications for reaching people via industry organisations, with many workers not regularly receiving information or support via industry organisations.

As discussed before, a person’s social networks at home and amongst friends are often strongly interconnected with those of their workplace. The extent to which workers had friends or family working in the industry was explored to identify the extent to which their social networks depend on the industry, and hence are likely to be impacted by change in the industry. Most forest industry workers have relatively few members of their immediate or extended family working in the industry. Most (74%) reported that no or very few of their immediate family work in the industry and 66% that none or very few of their extended family do. Of the remainder, only 8% reported that half or more of their immediate family, and 11% that half or more of their extended family, work in the industry. Workers were much more likely to have friends working in the forest industry, with only 22% reporting that none or very few of their friends work in the industry, 44% that a few do, and 34% that half or more do.
Those who reported that a higher proportion of extended family or friends work in the industry were significantly more likely to report the downturn had a moderate or large impact on their lives (p=0.001 in both cases). This may reflect that harvest and haulage contractors—who were more likely to report being negatively impacted by the downturn than other workers—were significantly more likely to have a high proportion of family and friends working in the forest industry compared to other groups. Similarly, those working solely in native forests were significantly more likely to have family, and to a lesser extent friends, working in the industry.

**Socio-demographic characteristics**

Socio-demographic characteristics were explored to see if they correlated with extent of impact. Several of these characteristics are explored in other sections (e.g. a person’s level of education, a socio-demographic characteristic, was considered part of their human capital). Gender, age and family structure are examined here.

ABS data from the 2006 Census of Population and Housing were analysed to identify the age distribution of the forest industry workforce compared to the Tasmanian forest industry as a whole (Figure 53). Workers employed in pulp and paper manufacturing, and to a lesser extent those in sawmilling, were older than the average for the labour force. Those employed in silvicultural contracting and secondary wood product manufacturing were younger than the average.

The majority of survey respondents were aged 40–59 years (58%) and male (83%), similar to the overall make-up of the workforce. Those who worked in the native forest sector were older on average than those working in the plantation sector, with an average age of 46 compared to 42. Age was not, however, significantly associated with differing experience of impact of the downturn. Women were less likely to report the downturn had negative impacts on them than men (p=0.023).

Just over a quarter of respondents (27%) had no children, while 43% had one or two children, and the remainder three or more. However, 45% reported that they had no children financially dependent on them, and 21% only one child financially dependent, while the remainder of respondents had two or more financially dependent children. Almost half (49%) had no other people financially dependent on them, while 45% had one other person financially dependent on them and only a small proportion had two or more non-child dependents. Those who had one or more people financially dependent on them were significantly more likely to report the downturn had negative impacts on them than those with no dependents (p=0.012).

The majority of respondents (79%) were currently married or in a de facto relationship, while 12% were never married or de facto, 8% separated or divorced, and 0.4% widowed. There were no significant differences between those working in different parts of the forest industry, or in extent of impacts reported, based on marital status.
Capacity to adapt to change—attachment to place

A range of factors may influence a worker’s ability to adapt successfully to change. These include their access to human, financial and social capital, discussed above. In addition, their capacity to adapt may be constrained by considerations such as family commitments (discussed in the previous section on socio-demographic characteristics), and by the extent to which they are dependent on or attached to the community they live in, or to their work in the forest industry.

The relationship between attachment to place and impacts was explored by examining whether people who reported being more attached to their local community (as reported in the subsequent section on exposure of communities to change), or who had lived longer in their local community, reported greater impacts as a result of the downturn. There was no correlation between the extent of impact of the downturn in the industry and either attachment to or rating of local community as a place to live. However, workers who had lived in their local community for longer were somewhat more likely to report the downturn having a negative impact on their lives (p=0.031).

These issues were emphasised in some interviews. One worker whose husband also worked in the industry talked about how ‘devastated’ her husband would be if he had to leave the community where he grew up:

If we don’t [earn an income here] we’ll have to leave Smithton. We’ll probably have to go to the mainland and work in the mines which I know would kill my husband. He’s a born and bred Smithton person. He would really be devastated. I’m adaptable. I wasn’t born here. (Worker#7)

Another worker talked about preferring to change industries before leaving his community, despite a strong attachment to his industry.

There are opportunities outside of the state. But we don’t want to move. That’s it. Our quality of life has been marvellous where we are. We’re making a dent in our mortgage. You know, we’re settled in schools and what not. [I’m] not against moving if it came to that, but resisting it strongly kind of thing. (Worker#6)
Attachment to forest industry

A person’s level of attachment to working in the forest industry is another factor sometimes hypothesised to affect the extent to which they are impacted by events such as a downturn in the industry. This theory is based on the idea that people who are more culturally embedded in the industry have greater difficulty coping with changes that threaten their ability to continue working in the industry, as working in the industry contributes significantly to their construction of their own identity and sense of self-worth. This was examined through a series of questions examining whether workers who reported having high attachment to the industry, or who had a longer history working in the industry or family history of work in the industry, reported greater impacts as a result of the downturn.

The large majority of workers reported being strongly or very strongly attached to their work in the forest industry (71%), with only 10.1% reporting they were ‘only a little attached’ or ‘not attached’. Harvest and haulage contractors and silvicultural contractors were more likely than other industry workers to report feeling strongly or very strongly attached to their work in the industry, while ‘other’ workers—who often work in roles involving skills not specific to the industry—were least attached, followed by those employed in processing jobs (p=0.009). However, level of attachment was not strongly correlated with extent of impact reported of the downturn.

In interviews, many workers talked about being saddened or disappointed at losing their industry either because of the extent of the changes or because they have to leave:

> Things have slowed down in the last three years or so, I’ve really kind of questioned whether, after 20 years in an industry, do I need to make a career change? Which of course brings a whole load of, you know, soul searching and wondering. ‘Has it all been a waste?’ I think a sense of loss is probably a good way of describing it. (Worker#6)

Attachment was also evaluated by asking respondents whether they agreed with the statement ‘I will work in the industry as long as possible because I like working in it’. Of respondents, 70.6% agreed with this statement, while 11.2% disagreed with this statement. Harvest and haulage contractors and silvicultural contractors were more likely to agree with this statement than other types of workers (p=0.001); as were those who worked in native forests compared to those who work in the plantation sector (p=0.001). Those who agreed with this statement were significantly more likely to report the downturn had a negative impact on them (p=0.001).

Family history of work in the industry was not significantly correlated with the extent of impacts of the downturn reported. The majority of forest industry workers had no family history of work in the forest industry, with 55% indicating they were the first generation to work in the industry. Of the remainder, 20% reported they were the second generation to work in the industry, 16% that they were the third, and 9% that between four and six generations of their family had been employed in the industry. Harvest and haulage contractors, and those working in processing, were more likely than other types of workers to report that multiple generations of their family had worked in the forest industry (p=0.005). Those working solely in native forests were significantly more likely to report a multiple-generation history of employment in the forest industry than those employed in the plantation sector (p=0.001; Table 12).

Almost half of respondents had worked between 10 and 29 years in the industry (50%), while 24% had worked less than 10 years and 26% more than 30 years. Those who had worked more years in the forest industry were more likely to report the downturn had negative impacts on them, although the result was significant only at the 5% level (p=0.031). Those who worked in the
plantedation sector typically had a shorter history of working for their current employer compared to those working in the native forest sector, with those in the native forest sector reporting an average length of time working for their current employer of 12 years compared to 8 years for those in the plantation sector.

Most forest industry workers had spent most or all of their working life employed in the forest industry (87%), with only 23% reporting they had spent only ‘some’ of their working life in the industry. Those who reported spending most or all of their working life in the industry were significantly more likely to report experiencing negative impacts as a result of the downturn (p=0.002). Harvest and haulage contractors were more likely than others to report that most or all of their working life had been spent in the forest industry; and processing workers were least likely to (p<0.000).

The majority (more than 60%) of workers had worked fewer than 10 years in jobs outside the forest industry, with almost 40% having worked fewer than 5 years in any employment outside the industry. Table 13 summarises the types of jobs workers had typically held outside the forest industry. Where respondents listed more than one type of job, the first job listed was used to categorise them. There were 47 respondents who had more than one type of previous employment.
Table 12: Family connections to industry by sector and type of work

<table>
<thead>
<tr>
<th>Sector of forest industry</th>
<th>Type of work in the forest industry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native forest</td>
</tr>
<tr>
<td>Immediate family</td>
<td></td>
</tr>
<tr>
<td>None/very few</td>
<td>68%</td>
</tr>
<tr>
<td>Few</td>
<td>15%</td>
</tr>
<tr>
<td>Half to most</td>
<td>17%</td>
</tr>
<tr>
<td>Extended family</td>
<td></td>
</tr>
<tr>
<td>None/very few</td>
<td>52%</td>
</tr>
<tr>
<td>Few</td>
<td>30%</td>
</tr>
<tr>
<td>Half to most</td>
<td>18%</td>
</tr>
<tr>
<td>Friends</td>
<td></td>
</tr>
<tr>
<td>None/very few</td>
<td>21%</td>
</tr>
<tr>
<td>Few</td>
<td>39%</td>
</tr>
<tr>
<td>Half to most</td>
<td>39%</td>
</tr>
</tbody>
</table>
Table 13: Type of employment prior to forest industry employment

<table>
<thead>
<tr>
<th>Industry in which workers were previously employed</th>
<th>Number of respondents that listed industry first</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>18</td>
</tr>
<tr>
<td>Construction</td>
<td>13</td>
</tr>
<tr>
<td>Professional services</td>
<td>12</td>
</tr>
<tr>
<td>Hospitality</td>
<td>10</td>
</tr>
<tr>
<td>Mining</td>
<td>10</td>
</tr>
<tr>
<td>Fishing and aquaculture</td>
<td>10</td>
</tr>
<tr>
<td>Manufacturing (general)</td>
<td>9</td>
</tr>
<tr>
<td>Transport</td>
<td>8</td>
</tr>
<tr>
<td>Retail</td>
<td>7</td>
</tr>
<tr>
<td>Public service (policy, administration)</td>
<td>7</td>
</tr>
<tr>
<td>Education/childcare</td>
<td>7</td>
</tr>
<tr>
<td>Defence force</td>
<td>6</td>
</tr>
<tr>
<td>Metal work</td>
<td>6</td>
</tr>
<tr>
<td>Scientific research</td>
<td>5</td>
</tr>
<tr>
<td>Mechanical services</td>
<td>4</td>
</tr>
<tr>
<td>Finance (e.g. bank)</td>
<td>4</td>
</tr>
<tr>
<td>Butcher/meat industry</td>
<td>4</td>
</tr>
<tr>
<td>General tradesman</td>
<td>3</td>
</tr>
<tr>
<td>Electrician</td>
<td>3</td>
</tr>
<tr>
<td>Baker</td>
<td>3</td>
</tr>
<tr>
<td>Earthworks</td>
<td>2</td>
</tr>
<tr>
<td>Other (e.g. odd jobs, storeman, air traffic controller, legal, engineering)</td>
<td>11</td>
</tr>
<tr>
<td>Did not specify</td>
<td>88</td>
</tr>
<tr>
<td>Total respondents</td>
<td>250</td>
</tr>
<tr>
<td>Number who had more than one type of job prior to working in forest industry</td>
<td>47</td>
</tr>
</tbody>
</table>

Certainty about the future

The extent to which workers felt certain about the future of the forest industry was sometimes strongly correlated with the extent of their experience of impact. Ninety per cent of respondents felt that the future of Tasmania’s forest industry is highly uncertain; those who experienced greater negative impacts as a result of the downturn were significantly more likely to agree the future was uncertain (p<0.000). In addition, 45% agreed with the statement ‘if offered a job outside the industry right now, I would take it’, while 27% disagreed, something that interviewees described as a view emerging as a result of uncertainty about the future of the industry.
When asked more specific questions about the future, a similar pattern emerged. Of respondents, 15% felt confident they would still have their job in five years time and 37% that they would still have their job in one year, while 61% were not confident they would have their job in five years and 39% in one year. Those with less confidence were significantly more likely to report the downturn had negative impacts on them (p<0.000 in both cases).

One worker described how, despite trying to cope, he had been left feeling ‘unsure’ about the future:

> It’s basically the winds of change are blowing and it’s an unstoppable kind of change coming through. And [I’m] feeling a bit of a casualty in the whole thing. And at the same time trying to be proactive and having a sense of opportunity that may unfold. But also, kind of, feeling a bit unsure. (Worker #6)

The lack of certainty is restricting the ability of many workers to plan for their futures:

> They (politicians) come down and talk to us [about] all these great things, but no one will write it down in black and white. No one is saying you definitely have a job. So, when you are in that limbo it’s very hard to plan forward, for anyone. (Worker#7)

**Policies regarding future of the industry**

A person’s views about the fairness of policies affecting the industry may influence their ability to cope with change, and the extent to which they feel negatively impacted by change, with a sense of injustice sometimes associated with a greater experience of negative impact.

Of respondents, 45% disagreed with the statement that ‘if implemented, the Tasmanian Forests Statement of Principles will be good for Tasmania’s forest industry’, while 20% agreed and 36% indicated they neither agreed or disagreed with this statement. Those who strongly disagreed with this statement reported a higher negative impact of the downturn than other respondents (a mean of 2.6 compared to around 2.3 for all others). Those employed in processing and growing/managing forests were more likely to disagree with this statement than other workers (p=0.011).

Interview participants reported quite mixed views on the Principles Statement and its potential impact, although a common thread for many people was the desire for both a sustainable industry and stewardship of forests. One worker talked about both agreeing and disagreeing with the Principles Statement:

> I agree with some of it. I don’t believe we should be harvesting the old-growth forest. [Although] a lot of this old-growth forest has actually been logged two or three times. But I really see some really big trees come in sometimes and I get really sad. I think how come they couldn’t leave them there? I really think we should be conserving a lot of our areas for our children in the future but I really think we can also be a viable industry. [Some companies] are not really concerned about what they’re going to leave behind, whereas [my company’s] quite the opposite. They understand, they’ve harvested the same areas three times. Just because they’ve been so selective, done the right things, those forests are regenerated. (Worker #7)
Another who described the *Principles Statement* as ‘utter crap’ talks about the personal impact of the proposed changes:

I do forestry because I care about it. It’s my career choice rather than something I have to do. And I try to do it ethically and that involves environmental sustainability ethics, but also human ethics. So I guess I do take it personally … You need to actually achieve a triple-bottom-line result. And if you pay too much attention to the economic, then you tend to throw away the environmental or the social. And I’m seeing that happen here and that’s not right… I’m driven by the environmental side of it. And if I lose that, if I can’t achieve that, then there’s no point. *(Worker #2)*

A third worker talked about being unhappy with decisions in the industry over the last 15 years and looked forward to a change:

I think it will be a good thing if they change the way it’s been run. Like for the last probably fifteen years, I haven’t been happy the way the industry’s been going. I think they have probably lied to us a fair bit. They said that we were a sustainable industry and we could all see that it wasn’t a sustainable industry the way it was going. I think the downstream processing, that’s got to be a good thing, but I think that they left that probably 20 years too late too. Like the veneer mills they have just brought online, they probably should have been online 20 years ago. The pulp mill, I don’t know. It’s six of one, half a dozen of another there. *(Worker#10)*

One consequence of uncertainty about the future of the industry, and lack of confidence in policies, was a change in workers’ views about whether they would encourage others to work in the industry. Overall, 60% of respondents would not encourage young people to work in the forest industry as a career, while 41% would. While the response to this question did not differ significantly depending on whether a person worked in the native forest or plantation sector, it did differ depending on type of work: while 62% of silvicultural contractors, 45% of those employed in growing and managing forest and plantation, 45% of those employed in other occupations, and 40% of those employed in processing would encourage young people to work in the industry, only 27% of harvest and haulage contractors would. Those who reported the downturn had a negative impact on them were significantly less likely to indicate they would encourage young people to work in the industry *(p=0.005)*.
11.2 Workers who had left employment in the industry since 2008

During the downturn in the forest industry since 2008, a large number of forest industry workers had left jobs in the industry. Workers who had left a job in the forest industry since 2008 (referred to from this point as ‘ex-workers’) were asked many of the same survey questions as those currently employed in the industry. However, they were also asked a number of questions aimed at understand the impacts that leaving a job had on them, how successfully they had coped with the change, and what assistance strategies would be useful for them in obtaining new employment.

Workers who had left jobs voluntarily and involuntarily were included in the study. While involuntary redundancy is the type of change in employment most commonly associated with a downturn in the industry, the downturn has also led to higher rates of voluntary exit from the industry. Those who had left jobs voluntarily were included as many of these workers left jobs due to the uncertainty of the future of their work in the forest industry. Their experiences are therefore highly relevant to understanding impacts of the downturn, and the downturn was often the deciding factor in choosing to leave a forest industry job they felt was insecure for a different opportunity that was more secure or otherwise more attractive, with five interview participants commenting on this. For some, the decreasing workload was disincentive to stay:

> So really as the cash flow dropped so did the work load…There were three of us working at that time but there’s now two… I’d put my hand up as I was the oldest out of those three guys. (Ex-worker#7)

Negative perceptions surrounding the industry and the downturn were also a deciding factor in choosing to leave:

> The forest industry’s had … nothing positive coming out of any of it. If you ask me I’d say it’s all negative. One thing’s shut down, and [they] turn more people off, contractor’s gone broke. You know it’s been very negative for quite a long time and that gets to you after a while. (Ex-worker#7)

Others saw retiring early as a better option than staying in a situation where redundancy was a likely possibility, either for themselves or others:

> When I found out that there was going to be a lot of jobs on the line I just said to the boss, ‘If anyone wants to go I’ll put my name up for redundancy.’ Because a lot of the young blokes have their houses to pay off and families to feed, so I put my hand up to go into semi-retirement. (Ex-worker#3)

11.2.1 Characteristics of study participants

In total, 124 ex-workers completed a survey, and nine of these also participated in a qualitative interview.

Of the 114 respondents to the ex-worker survey who answered questions regarding whether they had left their job voluntarily, 65% had left a job involuntarily (e.g. through being made redundant when the business they worked for closed), and 35% voluntarily. Reflecting the nature of ex-workers that workers who could be reached relatively easily, just over half of respondents to the ‘ex-worker’ survey had worked in a job involving the plantation sector (53%), 29% in jobs involving both native forest and plantations, and 18% in the native forest sector. The high proportion of people who had worked in a job reliant on plantations reflects that a large number of surveys were sent to ex-workers who had been employed in plantation-based processing businesses that had closed down or reduced their workforce, while it was harder to identify
contact details for workers who had left jobs in the native forest industry, many of whom were employed in harvest and haulage contracting firms.

The majority of respondents to the ‘ex-worker’ survey (65% of 117 people who responded to the question) had left a job in processing (e.g. sawmilling), while 13% left a job involving growing and managing native forest or plantation, 15% in harvesting, 8% in haulage, 6% in roading, 7% in silviculture and 15% in exporting timber products. The total adds up to more than 100% as some people were employed in jobs involving more than one of these activities. The distribution of types of jobs is relatively similar to the distribution of job losses in recent years, with a large proportion of employment loss in the industry occurring in the processing sector.

When the primary role they were involved with was identified, 9% had been principally involved in growing and managing forest and plantations in the forest industry job they had left; 21% in harvest, haulage and roading contracting; 62% in processing or export; 4% in silvicultural contracting; and 4% in other activities as shown in Table 14.

**Table 14**: Characteristics of respondents by role in industry

<table>
<thead>
<tr>
<th>Number of survey respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growing and managing forest</td>
<td>10 8.1</td>
</tr>
<tr>
<td>Harvest, haulage and roading contracting</td>
<td>24 19.4</td>
</tr>
<tr>
<td>Processing/export</td>
<td>73 58.9</td>
</tr>
<tr>
<td>Silvicultural contracting</td>
<td>5 4.0</td>
</tr>
<tr>
<td>Other</td>
<td>5 4.0</td>
</tr>
<tr>
<td>Total (n)</td>
<td>117 94.4</td>
</tr>
<tr>
<td>Non-respondents to question</td>
<td>7 5.6</td>
</tr>
</tbody>
</table>

Of respondents to the ‘ex-worker’ survey, the majority (91%) had left full-time jobs in the forest industry, while only 9% had worked part time. This is similar to the overall proportions of full-time and part-time employment in the industry, with Schirmer (2010) reporting that 83% of workers were full time, 5% were part time and 12% casual.

Respondents had worked anywhere from one year to more than 40 years in the forest industry, with only 19% having worked less than 10 years in the industry, and 26% having worked 30 or more years in the industry.

The nine ex-workers interviewed were a diverse group of people, with the time they had spent in the industry ranging from 3 to 32 years. They had all received a redundancy payment. Six had been made redundant involuntarily. Five had retired or semi-retired (even if they were five, ten or more years younger than retirement age) and, of these, three had taken voluntary redundancies. Four remained unemployed (and were still seeking work) at the time of the interview, while six out of nine had done some work since their redundancy. Three felt that the work they had was insecure.
11.2.2 Impacts of the downturn

Impacts of the downturn on ex-workers are examined in two parts. First, the nature of changes in employment since leaving their job are examined, with analysis of whether and how workers have found new employment and factors assisting them to do this, as well as what has happened to those who have not found (or in some cases not sought) new employment. Second, the impacts of losing their job, and the impacts of the downturn more broadly, on these workers are examined.

Have ex-workers found new jobs?

To understand the impacts of losing a job, and how loss of employment in the industry has impacted more broadly across Tasmanian communities, it is essential to identify what happens to workers once they leave employment in the industry. Outcomes for workers were identified using several methods which were compared to provide a comprehensive understanding of whether and why workers who leave jobs in the industry find new employment.

First, forest industry businesses were asked whether they knew what had happened to workers who had left their employment, as part of the survey of businesses conducted during the study. Currently operating processors were able to provide information on 124 workers who had left their employment since 2008. Of these workers, a large proportion (46%) had found new work outside the forest industry, while 26% were reported to have found new work in the forest industry. A quarter had found their new jobs in workplaces located some distance from the local area. In total, 29% were reported not to have found new work, with 15% of these unemployed and the remaining 14% retiring or having other circumstances involving not obtaining new employment. Contracting businesses (including both currently operating businesses that had downsized their workforce and some businesses that had closed altogether), provided data for a further 179 employees. In the contracting sector, workers were somewhat more likely to be unemployed and less likely to have found new work outside the forest industry, as can be seen in Figure 54.

In addition, two processors who had closed provided less detailed data on employment outcomes for their workforce, identifying whether workers had (i) found new work, (ii) were unemployed and looking for work, or (iii) had retired. When these were combined with data from the survey, data was obtained for a total of 608 workers who had left a job in the forest industry, shown in Figure 55. This shows a relatively consistent picture across the industry: somewhere around 65–68% of workers who had left jobs have found work since leaving the industry.
Figure 54: Status of ex-worker employment since leaving forest industry employment—based on responses of survey respondents

Figure 55: Status of ex-worker employment by sector—based on all data received for the study
In addition to obtaining data from employers, respondents to the ex-worker survey were asked if they had found new work. In total, 66% reported they had found a new job since leaving their previous job in the forest industry, while 34% had not. This result is very similar to the proportion reported by businesses, suggesting that respondents to the ex-worker survey were relatively representative of ex-workers across the industry more broadly.

Of the 74 respondents who reported having found new work since leaving their previous job in the forest industry, the large majority (85%) had found jobs outside the forest industry, typically involving different tasks to those they had undertaken in their previous work in the forest industry (Table 15). This was similar to the proportion reported by forestry businesses as having found new jobs outside the industry. This suggests that most have had to learn new skills and make considerable changes to find new employment.

A total of seven respondents reported having had to move to a new town for their new job (10%). With such a small number reporting having moved, no analysis was undertaken of the location of old versus new towns. The majority of these seven lived either in Smithton (or nearby towns) or Scottsdale (or nearby towns), while only one had lived in Launceston and one in Hobart prior to shifting to a new location for their new job. A higher proportion—a quarter of respondents—indicated their new job was located outside their local community, indicating many are commuting long distances to their new employment.

Table 15: Employment situation since leaving the industry (n=74)

<table>
<thead>
<tr>
<th>Employment since leaving industry</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>I found new work in the forest industry, doing a similar job to the one I left</td>
<td>6.8</td>
</tr>
<tr>
<td>I found new work in the forest industry, but it involves quite different tasks to my previous job</td>
<td>8.1</td>
</tr>
<tr>
<td>I found a new job outside the forest industry, doing a similar job to the one I left</td>
<td>2.7</td>
</tr>
<tr>
<td>I found a new job outside the forest industry which involves different tasks to my previous job</td>
<td>75.7</td>
</tr>
<tr>
<td>I was already doing some work in another industry/job and was able to pick up more work in this area</td>
<td>6.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The types of employment ex-workers reported they had shifted into since leaving forest industry jobs are summarised in Table 16. Where respondents listed more than one type of job, the first job listed was used to categorise them. Of respondents, 54 had worked in more than one type of job since leaving the forest industry.
Table 16: Type of employment ex-workers have had since leaving the forest industry

<table>
<thead>
<tr>
<th>Industry of employment since leaving forest industry</th>
<th>Number of respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>14</td>
</tr>
<tr>
<td>Agriculture</td>
<td>12</td>
</tr>
<tr>
<td>Transport</td>
<td>12</td>
</tr>
<tr>
<td>Manufacturing (general)</td>
<td>10</td>
</tr>
<tr>
<td>Mining</td>
<td>7</td>
</tr>
<tr>
<td>General tradesman</td>
<td>6</td>
</tr>
<tr>
<td>Finance (e.g. bank)</td>
<td>5</td>
</tr>
<tr>
<td>Science</td>
<td>5</td>
</tr>
<tr>
<td>Hospitality</td>
<td>4</td>
</tr>
<tr>
<td>Retail</td>
<td>4</td>
</tr>
<tr>
<td>Baker</td>
<td>3</td>
</tr>
<tr>
<td>Metal work</td>
<td>3</td>
</tr>
<tr>
<td>Maritime</td>
<td>3</td>
</tr>
<tr>
<td>Professional services</td>
<td>2</td>
</tr>
<tr>
<td>Public service (policy, administration)</td>
<td>2</td>
</tr>
<tr>
<td>Fishing and aquaculture</td>
<td>2</td>
</tr>
<tr>
<td>Defence force</td>
<td>2</td>
</tr>
<tr>
<td>Butcher/meat</td>
<td>2</td>
</tr>
<tr>
<td>Forest industry (manufacturing)</td>
<td>1</td>
</tr>
<tr>
<td>Forest industry (other)</td>
<td>1</td>
</tr>
<tr>
<td>Education/childcare</td>
<td>1</td>
</tr>
<tr>
<td>Other (e.g. storeman)</td>
<td>3</td>
</tr>
<tr>
<td>Did not specify type of employment</td>
<td>20</td>
</tr>
<tr>
<td>Total respondents</td>
<td>124</td>
</tr>
<tr>
<td>Worked in more than one type of job since leaving the forest industry</td>
<td>54</td>
</tr>
</tbody>
</table>

The length of time it took to obtain a new job varied from less than one month to 26 months. The average time was similar whether a worker had left their job voluntarily (4.3 months) or involuntarily (4.2 months). The large majority—61%—found new work within two months, while 19% took longer than six months to find new employment.
Respondents who had not found a new job since leaving their previous employment in the forest industry were asked why they had not found a new job. They were able to provide multiple reasons. Of 44 respondents to this question:

- 14 had been actively seeking work in their local area but remained unemployed
- 9 had been actively seeking work some distance away, but remained unemployed
- 4 were seeking work in the forest industry
- 10 were seeking work in industries other than the forest industry
- 17 were not actively seeking a new job as they retired when they left their forest industry job
- one respondent was not actively seeking a new job as they were currently undertaking further training/education
- 15 were not actively seeking a new job for other reasons. Chief amongst these were that they were temporarily or permanently disabled due to physical or mental illness (7 respondents), were choosing to have time off before seeking a new job (3 respondents), felt they could not find work if they sought it (3 respondents), or were now full-time carers for family members (e.g. children, disabled relatives) (2 respondents).

The process of finding new employment

In interviews, workers discussed factors they found helpful in finding new work, and some of the barriers they had experienced. In general, the factors noted to be most helpful in finding work were having work available locally and social networks, as well as having access to training (discussed further in subsequent sections).

Workers found new jobs more easily if work was available locally, with many commenting on the importance of finding a job within a reasonable travelling distance, and which allowed them to stay living in their community. One participant, when asked what was needed for members of his family to stay in the area, replied:

Well jobs to start with. If they’ve got no jobs they’re not going to stay here. (Ex-worker#4)

Several of the ex-workers who found new work had done so through their social networks and prior contacts. For example, one was given work by his neighbour, a second was approached by a previous employer, and a third felt he had been able to get a job through a job search and training company:

...because they knew me…I probably got a start a lot easier than any, because they knew what I was like. (Ex-worker#2)

This suggests that having strong social networks forms an important part of gaining new employment, particularly for those workers who have little experience in formally applying for jobs, or find applying for work with strangers challenging or intimidating.

The factors that hindered interview participants in gaining new employment were a lack of support, lack of available work, their own confidence and self-perceived ability to find work, and the costs of looking for and travelling to new employment.
Participants felt that they were hindered by a lack of support when seeking new employment, reflecting the lack of support indicated by survey respondents (discussed in the next section). One participant who has been unemployed for an extended time was frustrated, and explained:

I’m not real happy with the system. You know you get enrolled with these job net centres and half of them, they don’t do their job properly. They’re supposed to find you work. (Ex-worker#1)

Government support mechanisms were also considered difficult to deal with:

I registered [with Centrelink]....And they said we’re not helping, not until the 25th of April. (Ex-worker#8)

One of the most important factors discussed by interview participants was concern about whether they could find secure, full-time, permanent employment. This was thought to have stopped some people from taking a voluntary redundancy:

I think the guys that have stayed that didn’t put up their hands for redundancies, are the guys that probably wouldn’t have been able to find something so they’ve just, you know, stayed. (Ex-worker#5)

Some felt that the only jobs they could find were low paying, providing little additional income to that obtained from government benefits:

I’m spending like five thousand a year [from $36 000] in travelling costs. You know, you’re better off on the dole, but I wouldn’t do that, you know, it just doesn’t really add up, does it? (Ex-worker#8)

One of the main barriers some participants had experienced was the cost of obtaining new employment, particularly of travelling to available jobs. A lack of local employment meant that some could not find employment that suited their skills, or had to travel some distance to commute to jobs that did:

I’ve got skills which I can’t find a job to use for (Ex-worker#1)

...at my age I want to be home every night (Ex-worker#2)

...being a family man, it’s a bit far to travel (Ex-worker#1)

One ex-worker who was driving up to two hours each way to his new job commented on the impact on his home life:

I’m working long hours plus travelling and they [my kids] don’t get to see me. (Ex-worker#8)

Even when there was willingness to travel, work might not be available within a feasible travelling distance. For example, one job agency offered the same participant work in the north-west of Tasmania, several hours drive from where he lived in the north-east:

I said well I’ve got a family to support and they said ‘Oh well there’s a painter looking for someone at Wynyard’. And I said ‘You know how far away that is?’ I said ‘I’m not travelling all the way out to Wynyard’. (Ex-worker#8)

Workers often felt they could not easily find work because they had the wrong skills or characteristics. In particular, age was considered to be a considerable barrier to finding work. Three factors were linked to age. Firstly, there was a strong perception that ‘nobody wants to employ an old person’ (Ex-worker#2), with workers believing employers would not want to employ an older person. Older age was also considered to make it more difficult to retrain:
It’s a hard slog when you turning 65 to start training yourself again. *(Ex-worker#4)*

Secondly, some participants felt they were hindered by declining health. One participant chose to take a voluntary redundancy because:

> Well, me knees and that were mucking around. I was getting to a stage where I didn’t know if I was going to be able to continue working. *(Ex-worker#4)*

He also felt he didn’t have many opportunities for work because:

> Once your health starts to go you can’t do anything else, you can’t sit in an office. *(Ex-worker#4)*

Some of the participants felt they, or others, did not have the necessary skills to apply for a job. In some cases this referred to the skills required to do the required tasks, for example, one participant highlighted that his wife, who needed to find employment, had never worked and had ‘no skills’ *(Ex-worker#1)*. In other cases, the skills they needed were more specific, such as those required to apply for work. As one participant explained, when they and others at the mill were told they would need to prepare a résumé:

> One bloke looked at me, he’s been there twenty-five years, and he said ‘what’s a résumé?’ *(Ex-worker#8)*

Applying successfully for a job was also linked to confidence. For example, a lack of confidence was highlighted by one participant who felt he didn’t have the confidence to put himself forward, so a job interview would be very challenging for him:

> I haven’t got the confidence to push myself to do it or I couldn’t sell myself to you. I couldn’t go to you and say, ‘I can do this, I can do that’, sort of thing. I know in my mind I could, but after you interviewer me, you’d say, ‘He’s no good’. *(Ex-worker#2)*

Costs which constituted a barrier to finding work were those associated with looking for work such as training (i.e. obtaining requisite machinery tickets or qualifications). The issue of getting machinery tickets was important to many, and a barrier, because as one participant commented:

> I can do most things, but as you know nowadays you got to have a ticket for everything. *(Ex-worker#2)*

The cost of tickets can be prohibitively expensive, with one participant reporting that he had spent approximately $1000 on tickets since leaving the forest industry.

In addition to out-of-pocket expenses, participants also referred to the loss of income they could experience if they chose to take on new training opportunities. For example, while one participant *(Ex-worker#1)* was willing to take on an apprenticeship, saying ‘I don’t care if I have to start from the bottom again’, but felt that the low level of income was not sufficient for someone of his age (50s): ‘The wages drop. You’re more or less getting what the first-year apprentice is getting’.

The costs of looking for work were noted to be another barrier, particularly while living on a low income. The costs associated with finding new employment include the cost of phone calls and petrol, which can be significant given the financial pressure under which some participants are in, as one participant explained:

> Our phone bill is $300 every month because of all the phone calls I’ve had to ring up for jobs. The dole doesn’t cover none of that. *(Ex-worker#1)*

> Even when you’re looking for work you got to run round. That costs money for petrol. *(Ex-worker#1)*
Assistance measures accessed

Various forms of assistance have been offered to ex-workers to help them cope with their job loss and to find new employment. Of respondents, 93 reported being offered and/or using some type of assistance since leaving their forest industry job:

- 33 were offered assistance preparing a CV or résumé and 23 used this assistance
- 58 were offered a redundancy and 21 reported taking this up
- 18 were offered unemployment benefits and 10 reported using them
- 24 were offered retraining opportunities and 19 used them
- 23 were offered financial planning advice and 23 used it
- 11 were offered psychological counselling and 4 used it
- 15 were offered employment/career referral services and all 15 used them
- 5 were offered relocation assistance and 1 used it
- 3 others reported receiving other types of assistance.

These results suggest that while a majority of ex-workers had been offered some form of assistance (over three-quarters), most had been offered at best one or two forms of assistance.

When asked about the effectiveness of the assistance they had received, respondents rated redundancy payments, retraining opportunities and financial planning advice the most effective forms of assistance received, with 58%, 43% and 39% of respondents respectively reporting these as effective forms of assistance. Psychological counselling, employment referral services and unemployment benefits were most likely to be rated ineffective, with 64%, 63% and 59% of respondents respectively rating these as ineffective. Some caution is needed in interpreting these responses, with relatively small numbers of respondents reporting on effectiveness (a consequence of the small proportion of respondents who had accessed each type of assistance).

Interview participants’ responses were consistent with this data. Some interviewees identified assistance to get machinery operator tickets, and training to gain other qualifications as good ways to support people to reskill and gain new employment.

For interviewees, redundancy payments have been were the most consistently offered and received form of support. In some cases, this was extremely helpful:

- It was an opportunity for me to pay my house off...I own me motor home and me house and I think it’s 10 weeks now before I get my old age pension. So it’s virtually set us up ready for retired life. (Ex-worker#4)

For others, a lack of awareness about how the payment would affect unemployment benefits meant that people had often ‘used’ the payment—either to pay into mortgages, to cover household living expenses, to give to relatives, and in some cases to buy luxury items—only finding out later that they were expected to use the payment to cover their living expenses for a set period prior to becoming eligible for unemployment benefits. This meant that some were left in a stressful financial position without access to the funds.

- A lot of people was under the impression I think, that you get your redundancy, pay the house off and then you get the dole, but it doesn’t work that way. (Ex-worker#2)
They said we’re not helping, not until the 25th of April. And I said what are my kids supposed to eat? They said ‘That’s not our fault, you had that money, you should’ve been looking after it’. But, I thought I was looking after it because I was only spending it on our general living costs. (Ex-worker#8)

Most reported few, if any, other forms of assistance offered:

I think there’s only one woman there that handed out a card, [and said] ‘If you have, you know, any problems or anything –’ she’s really only a counsellor. And I never ever went to her, but I did—some months after—I did have a bit of a half nervous breakdown. (Ex-worker #2)

One ex-worker reported that referring ex-workers to an agency was the extent of support offered:

They said, ‘Look, if you want to go, there’s some agencies, some federal agencies, not Centrelink, but... if you need to get a job or you need to find out about your rights, you know, go there.’...I mean, [my company] really, in that respect really didn’t do anything much as regards to counselling, or saying, ‘Here’s a job agency. They’ll prepare a CV for you’ (Ex-worker#5)

Another ex-worker commented that he would have expected some counselling to be offered given what he and his co-workers were experiencing:

At that time I was thinking since it was two or three weeks after they told us we was being made redundant, no one had come down and offered any counselling of any kind. And I thought, here we are, we’re all stressing out. (Ex-worker#8)

For many, the interviews were the first opportunity to talk to someone about what they were experiencing:

You know, they [the company] didn’t offer any [assistance/support]. And well if they should or shouldn’t have I don’t know. You’re there one day and you’re gone the next. That’s the same for most companies. But you’re the first person that’s actually talked to me about—[Interviewer: How you’re doing and stuff?] Stuff like that. (Ex-worker#7)

Many acknowledged the need for more assistance, and commented on the risks associated with people being without support:

I’ve still kept in touch with some of my close work mates here. They are going through the same thing now. What can people say? ‘You’re redundant’—You’ve got to live with that.... I think if you were struggling financially it’d be vital. Because, you know, people commit suicide and do all sorts of things—because they think there’s no way out. (Ex-worker#7)

Most reported being dissatisfied with the support they had received:

I’m not real happy with the system. If they want people to work, they should get back to you. Not leave you hanging in the lurch. (Ex-worker#1)

One ex-worker did receive a higher level of service than he expected when a recruitment agency staff member offered support that included counselling:

Probably the best assistance I’ve had has been the recruitment agency, the guy I’ve been talking to there. I mean I’ve probably met with him half a dozen times over the last four or five weeks. But to be honest, we haven’t yet really got into the looking at job stuff yet. He’s really ... more about, ‘How are you feeling? What are you doing? What are your thoughts? What do you want to do?’ and helping me deal with the mental side
of no longer working after twenty years. And that’s been invaluable. It’s meant that I haven’t had to put pressure on my wife or friends and family. (Ex-worker#9)

There also seemed to be a real need for more effective communication about what support was available. In one instance, one participant spent a significant amount on retraining only to find out later that there was financial support available for this that he hadn’t heard about. This participant spoke about finding out about this oversight, commenting that the union representative seemed to have spoken to everyone but him.

Interviews suggested that support strategies should not rely on people voluntarily seeking counselling. There is stigma attached to mental illness and it can be difficult for people to get good support from their social networks. One ex-worker spoke about how ‘I bottle my problems’, noting that he would not talk about his issues because ‘...when you’re stuffed in the head, everyone just says, “He’s a nut case. Stay away from him”’. Instead, counselling may be more effective if offered more directly, or if there were some follow up:

Yeah I suppose looking back in hindsight she (counsellor) could have done a follow-up, rang you up and come and visited. (Ex-worker#2)

**Characteristics of new employment**

Having identified that many workers who have had sought employment have had found new jobs, the next step in analysing impacts was to identify how the new employment compared to their old employment in the forest industry.

A majority (66%) of respondents to the ex-worker survey reported that their income in their new employment was lower than previous employment with 13 (17%) reporting their income was the same and the same number reporting higher income as shown in Table 17.

<table>
<thead>
<tr>
<th>Current level of income compared to previous income is...</th>
<th>Number of survey respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower</td>
<td>51</td>
<td>66.2</td>
</tr>
<tr>
<td>About the same</td>
<td>13</td>
<td>16.9</td>
</tr>
<tr>
<td>Higher</td>
<td>13</td>
<td>16.9</td>
</tr>
<tr>
<td><strong>Total (n)</strong></td>
<td><strong>77</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Perceptions of the conditions (e.g. hours) of the new employment were more evenly spread with 22 (29%) reporting better conditions, 25 (33%) about the same and 28 (37%) worse than in previous employment as shown in Table 18.
Table 18: Current working conditions compared to previous employment

<table>
<thead>
<tr>
<th>Current working conditions compared to previous employment</th>
<th>Number of survey respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better</td>
<td>22</td>
<td>29.3</td>
</tr>
<tr>
<td>About the same</td>
<td>25</td>
<td>33.3</td>
</tr>
<tr>
<td>Worse</td>
<td>28</td>
<td>37.3</td>
</tr>
<tr>
<td>Total (n)</td>
<td>75</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Respondents to the ex-worker survey who had found new employment were asked how many hours they currently work per week, and how many hours they would choose to work if they had the option of choosing their hours. Of those who reported having work, hours worked were reported on average to be 39.4 per week, with the hours reported ranging from zero to 76 hours.

Of 67 respondents to the question, just over a quarter (27%) would work their current hours, while almost half (46%) would prefer to work less hours per week, and 27% would prefer to work more hours per week, as shown in Table 19. Most of those who wanted to work more hours per week reported working part-time hours in their current job, while those wanting to reduce hours typically reported working more than 35 hours per week.

Table 19: Hours respondents would choose to work

<table>
<thead>
<tr>
<th>Would prefer to work 10 or more hours less per week</th>
<th>Number of survey respondents</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Would prefer to work between 1 and 9 hours less per week</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>Would work same hours</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>Would work 1–9 more hours</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Would work 10 or greater more hours</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Total (n)</td>
<td>67</td>
<td>100</td>
</tr>
</tbody>
</table>

Respondents who had found new employment since leaving their previous work in the forest industry were also asked whether they were more or less satisfied with various aspects of their new job compared to their old job. When mean scores of responses were analysed, on average respondent’s’ new jobs were less satisfactory than their previous jobs in the forest industry in the following ways: amount of income received (an average score of 2.37 out of a possible 5 indicates most respondents were less satisfied with the income from their new job compared to their previous job), the time spent working to make a living (2.48), job security (2.59), and stress of the job (2.71). Aspects they were most satisfied with were the sense of accomplishment achieved (3.17 out of 5 indicating a majority of respondents achieved the same or slightly more sense of accomplishment from their new job compared to their old job), the people they talked to and worked with (3.15) and the challenge involved in their new work (3.08). However, respondents were less likely to rate their new job as being more satisfactory on any dimension than to rate it as
less satisfactory, indicating that the shift to a new job has, on the whole, resulted in either a similar level of job satisfaction or a decrease in job satisfaction.

Interviews helped to explain this further. Of those interviewed who had sought full-time employment since leaving the industry, most felt insecure in their new job. This suggested that gaining employment does not necessarily mean that the person no longer experiences impacts of losing their forest industry employment. For some, a lack of available employment has meant taking jobs that are part time, less secure, lower paid, further away from home or have more difficult working conditions than their previous employment.

Several have not been able to find the full-time secure employment that they want:

I’ve got very little faith in keeping my job where I am now in the future. I think it’s very, very, very dicey. (Ex-worker#2)

The lack of job security also contributed to a loss of morale:

If you knew you were going to get the sack next week, would you be so dedicated? You’d say stuff it, wouldn’t you? (Ex-worker#2)

In some instances, jobs that appeared to be full time and secure later turned out not to be. This impacted ex-workers more where they had made the decision to leave their full-time job three months before their workplace closed in order to find a more secure job:

I got promised a job at another place and that fell through because it worked out they only wanted me while the other bloke’s on holiday, so I’ve been used, literally. (Ex-worker#8)

The next job that this ex-worker found was similarly insecure:

The first week I only worked four days, and they said, ‘I’ve got nothing for you today’. If I stayed where I was I’d still be at least getting paid. I was there three weeks and I only worked nine days out of the fifteen. I said ‘I can’t afford this’ (Ex-worker#8)

Lack of job security means that some ex-workers are willing to tolerate poorer working conditions (e.g. lower pay, more hours, higher costs of travel, poor management, and even less safety) just to have some work:

When and if I go full time, I’d only earn thirty-six grand for the year. And, I’m spending like five thousand a year in travelling costs (Ex-worker#8)

Other issues raised were experiences of poor management and safety issues in new jobs, although this was not raised by a majority of ex-workers.

11.2.3 Impacts of leaving work in the forest industry

Respondents were asked how leaving a job in the forest industry had impacted various aspects of their lives, shown in Figure 56. Some aspects of their lives had not changed much: the majority of respondents reported that their ability to talk to family and friends had not changed, while around half of respondents did not believe their personal pride, self-esteem, motivation or boredom levels had changed. However, for the latter four areas, more respondents reported a worsening than an improvement in these areas, with around 30% of respondents typically reporting the impacts were worsening.
Figure 56: Socioeconomic changes experienced by ex-workers as a result of the downturn

An index of impact was developed based on responses to questions about the impacts of leaving their job in the forest industry. The index of impact was calculated as the average score reported across the 11 dimensions of perceived impact, including impacts on finance and certainty (2 questions), on physical health (1 measure), on mental health (1 measure) on social interactions within the household and with friends (4 measures), and on personal sense of pride, self-esteem and motivation (3 measures). The index score ranged from 1 to 5, with 1 indicating that losing their job had had a large negative impact on their lives across multiple dimensions, and 5 indicating that it had a positive impact on their lives across multiple dimensions, while a score of 3 indicates little or neutral impact. Note that this is different to the index used for currently employed workers, where a higher score indicated more negative impact.

Ex-workers were also asked how recent changes in the forest industry had affected their lives (rather than the more specific event of losing their job). They provided similar responses to those regarding the impact of the loss of their jobs, with family income, spouse stress, personal stress, personal income and job security reported as having worsened by many respondents (although not always a majority). Results are shown in Figure 57.
Figure 57: Socioeconomic impacts experienced by forest industry workers as a result of the downturn

A larger proportion of ex-workers experienced worsening of personal stress (47%), less certainty about the future (59%), and increased financial stress (64%), with these the areas most likely to have worsened. However, 34% of respondents reported a lessening of personal stress, indicating that for a significant proportion of people, leaving their job had had a positive impact on this aspect of their life. The only areas in which more ex-workers reported an improvement rather than a worsening of their lives were in time spent with family and friends, which 39% reported had improved; and health, with 31% reporting some improvement compared to 26% reporting a worsening of their health as a result of losing their job.

Interviews similarly showed that many had experienced positive impacts from losing their forest industry employment. These included redundancy payment, time to spend with family and on leisure activities, and moving to a more positive industry.

As noted previously, redundancy payments were very positive for some:

I walked out with a year’s salary basically plus my long service. So I thought, ‘Well, that’s better than a kick in the teeth’. So away I went. (Ex-worker#7)

I was made redundant, but because of the way the industry was travelling; I was going to go anyway. So this was just like a bonus. (Ex-worker#5)
For some, not working, or having less work, meant that they could spend more time with their family. One participant who now spends nearly all his time with his family says:

And I’m enjoying life! I was going through the questionnaire and I can understand why people [would feel negative]…yeah, but, I love life! So it’s great at the moment [since leaving work] (Ex-worker#5)

Another participant spoke of the extra time he had to spend on leisure activities:

What I tend to do now instead of going fishing or shooting over the weekend when everybody else does, I tend to go and do it through the week when nobody else does. It has actually been an improvement because you got it for yourself. The boat ramp is empty on a Wednesday. (Ex-worker#7)

Taking life at a slower pace than when working was also noted as a benefit:

I’ve found too that I’ve slowed down a lot. You know, when you tend to rush because you know you’ve got a timeframe and a deadline. I just don’t do that anymore. Which is good. (Ex-worker#7)

One participant who took part-time work outside the industry spoke of enjoying the change:

[My new sector of employment] is very different to the forest industries. That’s refreshing. You know, you haven’t got those same… they’re different people you’re dealing with. Different issues. It’s more positive, you know... (Ex-worker#7)

In addition to the positive impacts, interview participants spoke of the negative impacts of leaving their forest industry employment. Negative impacts were most commonly linked to financial stresses, lifestyle, and mental health, which affected not only workers but also their families.

Interview participants commonly spoke about the financial impacts of their redundancy, and in most cases, unemployment or underemployment. Financial impacts were experienced in cases where the family had trouble paying for general living expenses or had debts that they were unable to pay off:

Even with redundancy I couldn’t pay... I wasn’t able to pay my bills with that (Ex-worker#1).

Financially, that’s just stressful, I suppose, because you always stress whether you’re going to pay your bills and put food on the table. (Ex-worker#8).

Several participants also felt that their lack of secure work meant they were unable to borrow money from the bank. These examples also highlight that the financial impacts are felt by all members of the family.

Three factors that contributed to financial stress were that redundancy payments had to last an extended time, and often did not cover all the participant’s expenses; new employment was often casual or part time and so did not provide the same level of pay; and many participants did not have a high level of savings or superannuation:

The timber industry didn’t start their super[annuation] plan till later on, about 1976 I think it was. And it didn’t give us time really when you’re on a small wage. (Ex-worker#4)
Some participants have used, or hope to use, their savings to pay their mortgage or for daily expenses. In some cases this was a positive choice (e.g. one participant had paid off his mortgage by using superannuation), while for others it was negative:

I’ve applied for a hardship form from our Super to get money out of that to pay for it [debts] Really, you shouldn’t have to do that. (Ex-worker#1)

Redundancy had several negative impacts on people’s lifestyles. For example, due to the financial strain they were feeling, one participant explained that:

When you’re working, you can afford to go out, afford to ... go to pictures and that. Now we can’t. (Ex-worker#1)

Other impacts included not seeing the people they used to because they did not work together or people had moved away. Unemployment was also associated negatively with boredom by one participant who explained:

I get bored real easy. I got to find things to actually keep me occupied [otherwise you’re just] sitting around here twiddling your thumbs and waiting for calls. (Ex-worker#1)

For those who had found new employment, the timing of the employment could also be an issue, for example, weekend work took time away from being with their family.

Participants had experienced a range of negative mental health impacts ranging from a sense of loss or injustice at their job loss to depression. When first made redundant, participants described feeling shock, surprise, and injustice:

I didn’t expect to get told to leave. (Ex-worker#1)

[I had been told] you’ve got a job for life here, you know. You’ll never have to look for another job again. (Ex-worker#8)

Job loss also affected people’s pride and sense of self. Most interview participants described feeling a sense of pride and attachment to their work and were affected by their loss of employment even if they had taken a voluntary redundancy:

I guess your self-esteem. You know, I went through a bit of rough patch for a while. (Ex-worker#7)

Several other factors had also contributed to a longer term sense of injustice. These factors were linked to how people felt they were treated, with some feeling their views about forest management were not listened to, or that forestry practices such as log export had cost them their job. The financial issues described above had also contributed to a sense of injustice:

It goes in one ear and out the other. She (the premier) doesn’t want to know anything. (Ex-worker#4)

One of the key issues when they were first made redundant was uncertainty and fear of not finding new work. The most extreme example of this was a participant who explained ‘I did stress and panic because I’m like that, I think, “Oh hell, where am I going to get another job from?”’ (Ex-worker#2). This led to subsequent mental health issues, for which the worker sought professional help, but had difficulty accessing such help.
The frustration accompanying losing work also impacted workers’ families. For example, a long-time unemployed participant explained:

It makes me depressed. ... It’s put me down. I get real like down in the dumps, because you can’t get any work. It affects my wife because I take it, I take it out on me wife. I get angry with her. I get angry with the kids. (Ex-worker#1)

An important impact was associated with the transition from being employed to being unemployed. Regardless of whether or not people successfully adapted to the changes in their situation, they talked about experiencing some difficulty in this ‘transition’ phase, such as the shock of being made redundant (described earlier), or the difficulty of finding work, also discussed earlier.

In some cases the issue is not necessarily finding a job, but transitioning into retirement, with a number of ex-workers choosing to retire rather than seek new work. This may be practically and financially feasible, and therefore not associated with financial stress. However, even in these situations, it involves some impact of transition, some of which was related to retiring earlier than they had planned:

It takes a bit of adapting to. You still wake up at five o’clock in the morning because you’re used to that. So it’s a fair impact, and I have had to readjust, you know. I mean, I’m probably pretty lucky that I’m a bit older because you… you got to think of yourself, “Well, this is going to come to me in next few years anyway.” So I’ll just do it a little bit earlier. (Ex-worker#7)

Even when financial matters were secure, there were still significant adjustments that needed to be made to cope with the loss of income:

I had a couple of properties. When I was first made redundant, I sold them. With my super, I’m okay. I didn’t really want to sell them but I did because I thought well, you know, I’m not working and I got to be realistic. (Ex-worker#7)

Several factors that helped in this situation were being able to ‘keep busy’, and having:

The inner strength to deal with most of those sorts of things … And think of trying to turn a negative into a positive. (Ex-worker#7)

These results show the high variability in impacts of losing a job on different people: while negative impacts were more commonly reported by both survey respondents and interview participants, particularly in terms of stress and financial problems, some clearly experienced a reduction in stress and improvement in health and time to spend with family, while others experienced significantly negative financial, lifestyle and mental health impacts.

To further explore impacts of the downturn and losing employment on participants’ lives, survey respondents were asked how satisfied they were with various aspects of their life, and the importance of different aspects of their work was analysed to identify if being more attached to their employment was associated with differing levels of impact.

In relation to overall life satisfaction, on average, respondents to the ‘ex-worker’ survey reported being either neutral or slightly satisfied. They were most dissatisfied with their financial situation, with a mean score of 2.85 out of a possible 5 indicating an average response of ‘slightly dissatisfied’, followed by feeling part of their community (3.15). They were most satisfied with their personal relationships (3.65) and their family’s health (3.49), followed by their standard of
living (3.37). Full responses are shown in Figure 58, with each response from ‘dissatisfied’ to ‘satisfied’ shown rather than the mean score reported here.

![Figure 58: Satisfaction of ex-workers with different aspects of their life](chart)

Those who reported that losing their job had had a more negative impact on their lives (as measured by the index of impact) were significantly less satisfied with all aspects of their lives (p<0.000 for all except personal relationships [p=0.003] and feeling part of the community [p=0.002]).

Respondents were then asked whether different aspects of their lives were worsening or improving at the moment, including their life as a whole, their standard of living, their financial situation, what they are currently achieving in life, their health and that of their family, their personal relationships, and the extent to which they felt a part of their community. They were most likely to report that their financial situation and standard of living were worsening, followed by their sense of feeling part of their community. For all other measures, the responses were more evenly distributed.

11.2.4 Vulnerability to future change: factors influencing the experience of impact

As was the case with workers currently employed in the industry, the extent to which ex-workers were impacted by the changes associated with the downturn varied, with a number of factors likely to have influenced their experience of impact. These were analysed to better understand variance in the impacts of the downturn, with this analysis then providing a basis for assessing the vulnerability of workers in the industry to future change in the industry. A number of factors may influence whether an ex-worker has experienced greater or lesser impacts as a result of their loss of employment. These include whether they left their employment voluntarily or involuntarily; the nature of their forest industry work; the personal resources an individual has to draw on (their human and financial capital); the support they feel they have access to from others in the broader community and their industry (their social capital); their socio-demographic characteristics; and
their ability to adapt to change, affected by things such as their attachment to place and dependence on and attachment to their work in the forest industry.

**Leaving work voluntarily or involuntarily**

Workers who had left their job involuntarily were significantly more likely to report negative impacts than those who left their jobs voluntarily, for most aspects of their lives except their personal motivation and time spent with family. Mean scores for each group are shown in Table 20.

**Table 20: Impacts as reported by those made redundant voluntarily and involuntarily**

<table>
<thead>
<tr>
<th></th>
<th>Voluntary redundancy</th>
<th>Involuntary redundancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (lower score indicates negative impact)</td>
<td>Number of survey respondents</td>
</tr>
<tr>
<td>Personal stress</td>
<td>3.59</td>
<td>39</td>
</tr>
<tr>
<td>Certainty</td>
<td>2.97</td>
<td>39</td>
</tr>
<tr>
<td>Financial stress</td>
<td>2.84</td>
<td>38</td>
</tr>
<tr>
<td>Personal pride</td>
<td>3.33</td>
<td>39</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>3.31</td>
<td>39</td>
</tr>
<tr>
<td>Health</td>
<td>3.42</td>
<td>38</td>
</tr>
<tr>
<td>Motivation</td>
<td>3.18</td>
<td>39</td>
</tr>
<tr>
<td>Talking with family and friends</td>
<td>3.31</td>
<td>39</td>
</tr>
<tr>
<td>Household stress</td>
<td>3.32</td>
<td>38</td>
</tr>
<tr>
<td>Family time</td>
<td>3.44</td>
<td>39</td>
</tr>
<tr>
<td>Boredom</td>
<td>3.16</td>
<td>38</td>
</tr>
</tbody>
</table>

When those who left a job voluntarily were compared to those who left a job involuntarily, there was a significant difference in the mean impact index, with those who left their job involuntarily having a mean index score of 2.43, indicating overall negative impacts, versus a score of 3.18 for those who left a job voluntarily, indicating a neutral to very slightly positive impact on average for the latter group of workers (p<0.000).

Those who left their jobs involuntarily were also significantly more likely to report being dissatisfied with their life as a whole, their financial situation, their personal relationships, and the extent to which they felt a part of their community, compared to those who had left their jobs voluntarily.

**Nature of forest industry work**

Those who had worked in contracting jobs reported a higher level of negative impacts (with a mean index of impact score of 2.6 and 2.1 for harvest and haulage and silvicultural contractors respectively) compared to those who had left jobs in growing/managing forests and plantations (3.2), and to a lesser extent those who had left jobs in processing (2.7). However, the small numbers involved in some groups means that the differences identified were not statistically significant.
**Human capital**

Human capital refers to the resources an individual has to draw on to help them achieve their goals in life, including their education, psychological outlook, and financial resources. This section focuses on aspects of human capital related to a person’s confidence in their own skills and abilities, and the extent to which they have attained formal skills and educational qualifications.

First, ex-workers’ confidence in their ability to adapt to change was examined (Figure 59). Respondents who had a greater reported negative impact as a result of losing their job were significantly more likely to (p<0.05 in both cases):

- disagree that they have the resourcefulness to handle unforeseen situations
- agree that they can’t cope with any more change.

This suggests that personal psychological outlook is highly correlated with the extent of negative impact experienced, consistent with theories regarding the factors influencing a person’s vulnerability and capacity to adapt to change.

![Figure 59: Ex-workers’ confidence in their own ability to adapt to change](image)

Levels of training and skills may also affect a person’s capacity to adapt to change. Of respondents who reported how they had learned their forest industry skills (a total of 116):

- 33% reported they had taught themselves skills
- 13% had been taught forest industry skills from a family member

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3 Totals add up to more than 100% as respondents could identify more than one way they had learned skills.
• 78% had learned skills through on-the-job training
• 35% had learned skills through formal courses such as TAFE, an apprenticeship or a university course.

Three groups of respondents were compared: those with formal skills training through a course; those with skills gained through work experience, and those who gained skills in others ways. There was no significant relationship between the method of obtaining skills and index of impact score; the same result was found when respondents were split into two groups (those with formal training in forest industry skills and those without). The level of impact experienced by ex-workers was therefore not associated with their level or type of training in forest industry skills.

Educational attainment more generally can also have a bearing on capacity to adapt. The majority of respondents reported having no formal educational qualifications beyond high school, with 7% reporting that primary school was their highest level of education, 30% had not gone beyond the fourth year of high school, and 37% had a high school certificate as their highest qualification. Of the 26% who had a qualification beyond high school, the majority had a TAFE diploma. No significant differences in impacts or in satisfaction with their life overall were reported by those who had differing levels of educational attainment.

However, while not a statistically significant difference, those who had a higher level of education were more likely to have found a new job since leaving their old job in the forest industry. 58% of those who had an educational attainment of fourth year high school or less had gained a new job since leaving their old one, compared to 68% of those with a high school education and 73% of those with a post-high-school qualification. Therefore the results do indicate that those with higher levels of formal educational attainment are more able to adapt to change in terms of gaining new employment.

A person’s attitude to work can also influence how they experience the impacts of losing work. When analysed to see if impacts of losing work varied depending on how important various aspects of their work were, no significant relationships were found. However, the extent of the impacts experienced did have some relationships with the level of satisfaction with current work (since leaving the industry), suggesting those who were more impacted by losing their job continued to be affected through lower satisfaction in their current job.

Ex-workers were asked the same questions as currently employed workers regarding the importance of various aspects of their employment in the forest industry. In general, workers felt the following aspects were most important to them:

• having a good balance between work and home life (4.56 out of a possible 5)
• long-term job security (4.50)
• interactions with other people in the workplace (4.33)
• fair and consistent management of the forest industry (4.31)
• ability to exercise independent control over their work (4.24)
• having stimulating and challenging work (4.23).
The least important aspects of work were:

- interactions with the public related to their job (3.75)
- working with forests and/or wood products (3.79)
- being a part of the forest industry (3.79)
- being able to work outdoors (3.86).

The low rating of the latter aspects likely reflects the sample of responses received, with the majority having been employed in processing of wood products rather than jobs involving more direct outdoors work or contact with the public.

Those respondents who had found new work since leaving their previous job in the forest industry were asked how satisfied they were with various dimensions of their job. On average, the 71 people who responded to this question reported being least satisfied with:

- their income (a mean score of 2.47 out of a possible 5, with 5 being highly satisfied and 1 being highly dissatisfied)
- the amount of time spent working to make a living (2.66)
- their level of job security (2.69)
- the level of stress they were under due to their work (2.92).

They reported being most satisfied with:

- the people they talked to and worked with in their job (3.58)
- the feeling of worthwhile accomplishment achieved from their work (3.50)
- the amount of challenge in their work (3.48)
- support and guidance received from others in their workplace (3.36).

Those who were more satisfied with the support and guidance received from others in their workplace were significantly more likely to report being satisfied with their life overall, and also had a lower reported index of impacts (reporting less negative impacts as a result of losing their previous job), although the small sample involved meant the result regarding the index of impacts was not statistically significant.

**Financial capital**

The financial capital available to ex-workers was evaluated by examining income earned, ability to meet costs of living, and financial assets in the form of housing.

The majority of survey respondents had individual income of between $40 000 and $79 999 in financial year 2009–10 (55%), while 31% earned less than $40 000. Household incomes were relatively similar. Actual level of individual or household income was not significantly correlated with the extent of impacts reported or with satisfaction with life.

Respondents were asked to evaluate whether their household income was adequate to cover debts and living costs, and provide any extra for spending on things such as holidays. Responses to this question were significantly correlated with impacts and satisfaction with life: those who reported their income as not sufficient to cover living costs and debts reported a higher level of negative impacts as a result of losing their job (p=0.000), and lower satisfaction with life (p=0.047),
compared to those who reported their income was adequate to cover debts and living costs with some money left for spending on additional items. This indicates that absolute level of income is not as useful a measure as examining the net household income position after taking into account the different levels of debt and cost of living incurred by different households. Households with lower net income after paying debts and living costs are more vulnerable to experiencing negative impacts as a result of changes such as losing a job.

Of respondents, 8% were renting housing, 37% were paying off a mortgage, 51% owned their house outright, and 4% reported having a different housing situation. The higher proportion who owned their house outright likely reflects the age of most respondents, with those older than 50 more likely to have paid off a mortgage. In total, 14% reported their housing situation had changed since leaving their job in the forest industry, with 8% of these reporting a negative change, 6% a positive change and others a neutral change. The three changes most commonly reported were moving house, paying a house off using a redundancy payment, or having difficulty meeting housing repayments. Those who were paying off a mortgage reported more negative impacts as a result of leaving their job in the forest industry (average index of impact of 2.6) compared to those who were renting (2.9) or owned their house outright (2.8), although with the small sample sizes involved the differences between groups were not statistically significant.

Social capital—friends, family and broader community

As noted in a previous section, the term ‘social capital’ refers to the relationships and networks that exist within a community, which help to facilitate cooperative action and the sharing of ideas and resources (Nelson et al. 2007). A reduction in social capital may reduce the ability of ex-workers to adapt successfully to change.

Ex-workers’ access to social capital in the form of trusted networks of friends, family and broader community was explored through a number of survey questions. Respondents had high variability in their access to different forms of social capital, although there were some commonalities across most ex-workers. In general, results were similar to those for currently employed workers, described earlier in this report.

Respondents who had a greater reported negative impact as a result of losing their job were significantly more likely to disagree that they could access a lot of support from others in their local community (p<0.05) (Figure 60). This suggests that access to social capital in the form of support from social networks in the local community is highly correlated with the extent of negative impact experienced, consistent with theories regarding the factors influencing a person’s vulnerability and capacity to adapt to change.

Membership of community groups is sometimes considered a useful indicator of a person’s level of social capital, with higher levels of membership and activity in these groups an indicator of a person with strong social networks and hence support.

In total, 62 respondents reported being members of some type of community or sporting group (including sports, school, civic, religious, hobby and emergency services groups), while 61 did not. The most common groups that respondents reported membership of were sporting groups (40 respondents), hobby groups (16), emergency services groups (10), civic groups (7), religious groups (2), school groups (2), and other types of groups (8).
Those who were a member of any type of group reported a lower level of negative impacts of losing their job (based on the index of impact) compared to those who were not members of groups, with the mean index of impact 2.77 for members of community groups and 2.36 for those who were not members. This result was significant at the 5% level (p=0.042). This suggests that community group membership is significantly correlated with impact, suggesting that some types of social capital are associated with improved capacity to adapt to change and lower vulnerability to change. However, membership of community groups was not associated with lessened impact for currently employed workers, meaning that any relationship is complex.

When analysed to identify if views about the community were correlated with the extent of impact experienced as a result of leaving their job in the forest industry, or their self-reported level of satisfaction with their life overall, the following significant relationships were identified:

- Those who were confident they could find another job in their local community also reported a higher level of satisfaction with their life overall (p=0.001)
- Those who did not feel that friends had shifted away, or might do so, as a result of the forest industry downturn also reported a higher level of satisfaction with their life overall (p= 0.026)

This suggests that social networks in the forms of friends and family are highly important for helping a person adapt to change.
**Social capital—forest industry**

Respondents who reported greater negative impacts as a result of losing their job were significantly more likely to agree that the downturn in the forest industry has reduced the amount of support available to them from their colleagues (Figure 61, p<0.05). This suggests that access to social capital in the form of support from social networks in the forest industry is highly correlated with the extent of negative impact experienced, consistent with theories regarding the factors influencing a person’s vulnerability and capacity to adapt to change.

Of workers who had left a job in the forest industry, 60% reported having been a member of a forest industry association prior to losing their job. The most common memberships reported were of the Construction Forestry Mining and Energy Union (CFMEU) and Australian Manufacturing Workers Union (AMWU), reflecting the high proportion of ex-workers who had been employed in processing jobs; followed by Timber Communities Australia (TCA), the Institute of Foresters of Australia (IFA), and the Tasmanian Forest Contractors Association (TCFA).

Of those who had been members, 23% reported continuing their membership after losing their job, while 77% did not continue their membership. Those who did continue their membership were significantly more likely to report that losing their job had a negative impact on them (p=0.030; the average index of impact for those who maintained membership was 2.27 compared to 2.84 for those who discontinued membership). Those who maintained membership were also significantly more likely to report feeling strongly attached to their work in the forest industry (p=0.042). While there are several potential explanations for this correlation, one is that those who experience greater impact maintain membership as a way of seeking support during difficult times, something reported by some qualitative interview participants.

Respondents were asked about the extent to which their friends and families work in the forest industry—a question intended to identify the extent to which their social networks are interlinked with the forest industry and hence potentially likely to be disrupted by change to their employment. They were asked to indicate whether none, very few, a few, about half, most, or almost all of their immediately family, extended family and friends worked in the industry:

- 28% reported that anywhere from ‘a few’ to ‘most’ of their immediate family work in the industry, although of the 28% the majority reported ‘a few’ rather than most/almost all.
34% reported that between ‘a few’ and ‘most’ of their extended family worked in the industry; similarly, the majority of these reported ‘a few’

44% reported that a few of their friends worked in the industry, while an additional 28% reported that half or more of their friends worked in the industry.

This suggests that for around a quarter of those in the forest industry, family history of employment means that there are close social ties to the industry, while for more than half, a significant proportion of their broader social circle are employed in the industry.

When the extent of social dependence was compared with the index of impact and respondents’ self-reported satisfaction with their life as a whole, no significant relationships were identified, with the extent of family and friends employed in the forest industry not correlated with the extent of self-reported impact of leaving a job in the forest industry or their self-reported level of overall wellbeing.

Socio-demographic characteristics

Socio-demographic characteristics were explored to see if they correlated with extent of impact. Several of these characteristics are explored in other sections (e.g. a person’s level of education, a socio-demographic characteristic, was considered part of their human capital). Gender, age, and family structure are examined here.

The majority of ex-workers were 50 years or older (60%) while only 5% were aged under 30. The majority (86%) were male. No significant differences were found in the extent of impacts reported by respondents of different ages or genders as a result of losing their job, or in their level of satisfaction with their lives overall. However, those aged 30–39 were more likely to report negative impacts as a result of losing their job, with an average index of impact of 2.4 compared to 2.6 or above for all other age groups. Those reporting the lowest negative impacts were the age group 40–49 (average index of impact = 3.0), followed by those aged over 60 (2.9) and those aged under 30 (2.8). Those aged 50–59 had an average index of impact of 2.6.

Almost half of respondents (48%) had no household members who were financially dependent on them, while 24% were financially responsible for either a child or partner, and 28% were responsible for two or more people. While many reported having a number of children, a large proportion of respondents reported their children were not financially dependent on them (which reflects the age of the majority of respondents). Those with one or more people financially dependent on them were significantly less likely to report a high level of satisfaction with their life (p=0.050). No significant relationship was found between index of impact and number of dependents, although the mean score of impact indicated a higher average negative impact for those with more people financially dependent on them, something that may be significant if a larger sample had been obtained, and which indicates higher vulnerability amongst those who have financially dependent children or other family members, particularly if there are two or more people financially dependent on them.

The majority of respondents were currently married or in a de facto relationship (83%), while 7% had never been married or in a de facto relationship, 10% were separated or divorced, and 1% were widowed. While the sample was too small to identify significant relationships, those who reported being divorced or separated did report more negative impacts of losing their job, with an average index of impact of 2.3 compared to 2.7 for other groups, and lower satisfaction with their life overall (2.6 compared to 3.0 for other groups). This does suggest that those who are divorced or separated will experience more negative impacts as a result of losing their job, or that being
separated or divorced is one of the negative impacts experienced (some respondents noted on their surveys that they had divorced as a direct consequence of losing their job).

**Capacity to adapt to change—attachment to place**

In addition to factors already discussed, ex-workers’ capacity to adapt may be constrained by considerations such as family commitments (discussed in the previous section on socio-demographic characteristics), and by the extent to which they are dependent on or attached to the community they live in, or to their work in the forest industry.

The relationship between attachment to place and impacts was explored by examining whether people who reported being more attached to their local community (as reported in the subsequent section on exposure of communities to change), or who had lived longer in their local community, reported greater impacts of losing their employment.

The majority of respondents reported being strongly or somewhat attached to the community they live in, while only 11% reported a very strong attachment, and 17% little or no attachment. Little or no attachment was most likely to be reported by those living in Latrobe or outside Tasmania, while strong or very strong attachment was most commonly reported by those living in Burnie, Circular Head, Dorset, George Town, Kentish, Launceston, Meander Valley, Northern Midlands, and West Tamar.

While attachment to place and a respondent’s rating of the local community they live in were highly correlated (those with stronger attachment being more likely to rate their community a good or very good place to live), no correlation was found between (i) attachment to community, (ii) rating of community as a place to live, (iii) the number of generations a person’s family had lived in the community, and either (i) the extent of impact of losing a job, or (ii) overall personal wellbeing reported by a respondent.

Those who reported they did not expect to be living in the same town in five years time reported a significantly lower level of overall wellbeing (measured as their level of satisfaction with their life overall) compared to those who did expect to be living in the same town in five years time (p=0.035).

**Attachment to forest industry**

As discussed, a person’s level of attachment to working in the forest industry is another factor sometimes hypothesised to affect the extent to which they are impacted by events such as a downturn in the industry. This was examined through a series of questions examining whether ex-workers who reported having high attachment to the industry, or who had a longer history of time spent working in the industry, or who have a family history of work in the industry, reported greater impacts of losing their employment.

Of respondents, 44% were the first generation to have worked in the forest industry, while 56% had a family history of more than one generation working in the industry (30% involving two generations, and 26% three or more generations). This indicates that a significant proportion of those employed in the industry have a family history of employment in the industry. No significant relationship was found between extent of family history of employment in the industry, and overall satisfaction with life or index of impact.
Respondents had worked anywhere from one year to more than 40 years in the forest industry, with only 19% having worked less than 10 years in the industry, and 26% having worked 30 or more years in the industry. Length of time employed in the industry was not significantly correlated with either self-reported impact of leaving a job in the industry, or respondents’ self-rated level of satisfaction with life. While it is often suggested that length of time employed might reduce adaptive capacity, with those employed for longer more vulnerable to change in an industry, these results suggest this is not the case for forest industry workers. Several reasons were suggested for this in qualitative interviews: those who had worked longer in the industry often had less debt and fewer dependent family members (reducing vulnerability to change), and/or received a larger redundancy payment, potentially ‘cancelling out’ the negative aspects of having been highly dependent on the industry for employment for most of their career; while younger people were considered more able to find employment in other industries and believed to often have higher levels of formal education, again typically believed to be associated with higher adaptive capacity.

A majority of respondents had spent most or all of their working lives employed in the forest industry (77%). Similar to number of years spent working in the industry, no significant correlation was found between the proportion of working life spent employed in the forest industry and either (i) the extent of impact experienced as a result of losing their job or (ii) satisfaction with life.

In relation to their attachment to the industry, 52% of respondents described themselves as strongly or very strongly attached to working in the industry, while 26% reported being only a little attached or not attached. Level of attachment was somewhat correlated with overall satisfaction with life: those who reported a stronger attachment to working in the forest industry had a lower self-rated satisfaction with their life compared to those who reported less attachment to working in the industry (p=0.005), suggesting the possibility that the impact of losing their job had a greater impact on the lives of those with higher attachment.

Of 116 respondents, 66% said they would not encourage young people to work in the forest industry as a career, while 34% said they would. The two groups did not differ significantly in terms of the impacts leaving their job had on their lives, or their level of satisfaction with life overall.
12 Exposure of Tasmanian communities to change in the forest industry

While this study did not examine the vulnerability of different communities to change, or the socioeconomic impacts of the downturn on communities, it was possible to identify the Tasmanian communities most exposed to change in the forest industry. A community was considered to be more exposed to change if it:

- had higher dependence on the forest industry as a source of employment, and/or
- was experiencing rapid decline in employment as a result of the downturn.

In addition, some analysis was undertaken of the extent to which different communities depend on the native forest versus plantation sectors, given that many changes proposed for the forest industry in the near future focus on one or the other sector.

Some questions asked of forest industry workers as part of the study provided a further understanding of how exposed communities are to change, with workers asked a number of survey questions that provided an idea of whether they were likely to migrate out of the community they lived in if they left their work in the forest industry. These questions focused on identifying how attached people were to living in their local community.

For the purposes of this study, a ‘community’ was defined as a local government area (LGA). This is not always a particularly meaningful boundary, with many people identifying strongly with particular towns or localities within an LGA. However, it was the smallest region for which the data collected could be reported.

12.1 Dependence of different communities on forest industry employment

The dependence of different communities on forest industry employment was examined in two ways: by identifying the total number of people employed in the forest industry in different LGAs, and the proportion of the employed labour force employed in the industry.

Table 21 summarises total employment in the forest industry over time in different LGAs (including those employed in managing, harvesting and processing wood from Tasmanian forests and plantations).

Figure 62 and Figure 63 show the percentage change in employment over (i) 1996 to 2006 based on ABS data, and (ii) 2006 to 2011 based on Forest Industry Survey data, for different LGAs.

Over the longer term, employment trends have varied significantly in different LGAs. While employment fell in most LGAs between 1996 and 2006, it grew in others. There is a range of reasons for these trends, including the closure of some sawmills and other processing sites, improvements in technology reducing labour requirements at other sites, establishment of new

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4 Note that in the figures in this section, where possible the exact data for each LGA are written as well as using thematic shading of maps to indicate the magnitude of employment, dependence on the forest industry, or change in these. In some cases not all labels could be included on the map, however.
processing sites in a small number of locations, and substantial change in the contracting sector in some LGAs associated in particular with expansion of the hardwood plantation sector. No single trend can be identified across all LGAs during this period.

From 2006 to 2008, employment grew in most (but not all) LGAs, driven in particular by some expansion of processing facilities, a short-term increase in native forest harvest volumes, and expansion of establishment of hardwood plantations.

**Table 21:** Forest industry employment by LGA, 1996 to 2011, based on place of residence of workers

<table>
<thead>
<tr>
<th>Local government area</th>
<th>Employment in forestry, logging and wood and paper manufacturing—Australian Bureau of Statistics Census of Population and Housing</th>
<th>Employment in forest industry (as defined in this report)—Forest Industry Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Break O'Day</td>
<td>118</td>
<td>115</td>
</tr>
<tr>
<td>Brighton</td>
<td>111</td>
<td>112</td>
</tr>
<tr>
<td>Burnie</td>
<td>516</td>
<td>315</td>
</tr>
<tr>
<td>Central Coast</td>
<td>273</td>
<td>246</td>
</tr>
<tr>
<td>Central Highlands</td>
<td>78</td>
<td>57</td>
</tr>
<tr>
<td>Circular Head</td>
<td>231</td>
<td>248</td>
</tr>
<tr>
<td>Clarence</td>
<td>123</td>
<td>203</td>
</tr>
<tr>
<td>Derwent Valley</td>
<td>465</td>
<td>348</td>
</tr>
<tr>
<td>Devonport</td>
<td>335</td>
<td>288</td>
</tr>
<tr>
<td>Dorset</td>
<td>486</td>
<td>441</td>
</tr>
<tr>
<td>George Town</td>
<td>39</td>
<td>85</td>
</tr>
<tr>
<td>Glamorgan–Spring Bay</td>
<td>160</td>
<td>116</td>
</tr>
<tr>
<td>Glenorchy</td>
<td>239</td>
<td>220</td>
</tr>
<tr>
<td>Hobart</td>
<td>109</td>
<td>188</td>
</tr>
<tr>
<td>Huon Valley</td>
<td>213</td>
<td>219</td>
</tr>
<tr>
<td>Kentish</td>
<td>85</td>
<td>79</td>
</tr>
<tr>
<td>Kingborough</td>
<td>78</td>
<td>172</td>
</tr>
<tr>
<td>Latrobe</td>
<td>153</td>
<td>122</td>
</tr>
<tr>
<td>Launceston</td>
<td>665</td>
<td>737</td>
</tr>
<tr>
<td>Meander Valley</td>
<td>161</td>
<td>260</td>
</tr>
<tr>
<td>Northern Midlands</td>
<td>149</td>
<td>147</td>
</tr>
<tr>
<td>Sorell &amp; Tasman</td>
<td>86</td>
<td>98</td>
</tr>
<tr>
<td>Southern Midlands</td>
<td>80</td>
<td>57</td>
</tr>
<tr>
<td>Waratah–Wynyard</td>
<td>257</td>
<td>230</td>
</tr>
<tr>
<td>West Coast</td>
<td>35</td>
<td>25</td>
</tr>
<tr>
<td>West Tamar</td>
<td>169</td>
<td>179</td>
</tr>
</tbody>
</table>

1The ABS data differ from Forest Industry Survey estimates for several reasons: They are based on a person’s ‘place of enumeration’ on Census night, whereas FIS data are based on the location a worker lives in; the ABS does not include a number of haulage workers and many silvicultural contractors in their definitions of those employed in forest-industry-related jobs; and the ABS randomise some data to preserve confidentiality. FIS data should be considered more accurate than ABS data for these reasons.

2The FIS data provided here is based on a worker’s place of residence, rather than where they work.
From 2008, the trend has been for substantial loss of employment in the industry in almost all LGAs, with no growth. This trend has been so strong it has occurred across all LGAs despite the variability in types of forest industry jobs, reflecting that the downturn has impacted both the native forest and plantation sectors, and almost all types of jobs in the industry.

Based on rate of job loss, many (if not most) LGAs in Tasmania have been exposed to the impacts of the downturn in the forest industry since 2008. However, the rate of job loss does not necessarily provide an understanding of total impact on the community, as a community with only a small number of forestry workers may lose a large percentage of their forest industry employment but experience relatively little impact on the broader community, while another which has a large number of forestry workers and loses a smaller proportion of them might experience greater impact.
Figure 62: Change in forest industry employment, 1996–2006—ABS data
Figure 63: Change in forest industry employment, 2006–2011—Forest Industry Survey data
While the data above examines employment by place of residence, Figure 64 and Figure 65 compare the number of forest industry workers who live in different LGAs and the number who work in different LGAs, giving an idea of whether some workers live in one LGA and commute to another for their work. In Tasmania, most forest industry workers live in the same LGA as their workplace. However, in the case of contractors, this does not provide a useful picture of work travel, as contractors typically travel long distances to work in different forest and plantation areas, with their business often managed from their home.

While the total number of people employed is a useful measure of dependence, and in particular can assist in identifying the extent of assistance likely to be needed in different localities to support workers and families impacted by the downturn, it does not provide a basis for comparing the extent of change in different localities. To do this, the proportion of the employed labour force working in the forest industry was identified. There are some limitations to this analysis: labour force estimates for the Census years of 1996, 2001 and 2006 are drawn from the Census, while those for 2010–2011 are drawn from the Small Area Labour Markets data series; the latter estimates a labour force up to 15% larger than the Census estimates for some LGAs and hence the proportion of the labour force estimated to work in the forest industry cannot be readily compared for 2006 and 2011.

Figure 66 and Figure 67 show the proportion of the employed labour force dependent on the forest industry in different LGAs in 2008 and 2011. Figure 68 shows the change in proportion of the labour force dependent on the forest industry between 2008 and 2011.

The LGAs with greatest exposure to change in the forest industry were identified, based on their (i) total dependence in terms of proportion of labour force working in the industry, and (ii) rate of decline in forest industry employment. The LGAs most exposed to change are (in order of exposure, with all of the following having had more than 4% of their labour force working in the industry in 2008, and having lost more than 50% of employment in the industry since that date):

- Dorset
- Central Highlands
- Glamorgan–Spring Bay
- Derwent Valley
- Southern Midlands
- Circular Head
- Waratah–Wynyard
- Burnie
- Kentish
- Huon Valley
- Meander Valley.

Launceston, although having a very large number of jobs lost, has a large labour force and hence does not have the same level of exposure to change as the LGAs listed above.
Figure 64: Forest industry employment in different LGAs, 2011—based on location of workplace

Data source: Forest Industry Survey; ABS Census of Population and Housing, 2006
Figure 65: Forest industry employment in different LGAs, 2011—based on where workers live.
Figure 66: Proportion of the employed labour force dependent on the forest industry, 2008

Data source: Forest Industry Survey - ABS Census of Population and Housing
Figure 67: Proportion of the employed labour force dependent on the forest industry, 2011
Figure 68: Change in proportion of the employed labour force dependent on the forest industry, 2008–2011

Data source: Forest Industry Survey. ABS Census of Population and Housing

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Socioeconomic impacts of forest industry change
12.2 Dependence on different sectors of the forest industry

Figure 69 to Figure 72 show how dependent different LGAs are on the native forest and plantation sector. Those with greater dependence on one or the other should be considered more exposed to experiencing impacts from changes in that sector.
Figure 69: Number of people employed in the native forest sector, May 2011—based on location of workplace
Figure 70: Number of people employed in the plantation sector, May 2011—based on location of workplace.
Figure 71: Proportion of employed labour force employed in the native forest sector, May 2011—based on location of worker’s residence.
Figure 72: Proportion of employed labour force employed in the plantation sector, May 2011—based on location of worker’s residence

12.3 Mobility of residents: attachment to place and other factors influencing mobility

Respondents were asked a series of questions about their connections to their local community, and the extent to which change in the forest industry affected their social networks in their local community. Of respondents to both the worker and ex-worker surveys (responses from the two surveys were combined when analysing data regarding their local community):

- 57% were not confident that they could find a new job in their local community, and only 22% were confident that they could. (the remainder were neither confident or unconfident)
- 23% would be happy to shift to a different community to find a new job, while 59% would not be happy to shift to a different community
- 55% would find it very difficult to leave their local community if offered a job that required them to live somewhere else, while 28% would not find it difficult
- 68% agreed that most of their friends lived either in their local community or nearby
- 63% agreed that most of their family lived in their local community or nearby
- 56% agreed that some of their friends living locally had either already moved away, or might move away, due to the current downturn in the forest industry
- 70% agreed that some people had moved away, or might move away, from the local community due to the downturn in the forest industry
- 57% believed their community to be highly dependent on the forest industry.

Perhaps reflecting that many children are no longer financially dependent, 61% of respondents said they had no children attending local schools, while 18% had one child attending a local school, and 21% had more than one child attending a local school.

Most respondents had lived in their local community for more than 20 years, with only 17% having lived in their local area for less than 10 years, and a further 22% for 10 to 19 years. 31% had lived in their local area for 30 years or more. Almost half were the first generation to live in the local area (44%), while 41% had lived in their local area for three or more generations. In total, 23% did not expect to be living in the same community in five years time.

There were no significant correlations between the nature of a person’s work in the forest industry (whether they worked in the native forest or plantation sector; or in contracting, processing, etc.) and their level of attachment to their local community or rating of it as a place to live.

Harvest and haulage contractors, and to a slightly lesser extent those working in processing jobs, were more likely to report that most of their friends and family lived in their local community (p=0.006 and p=0.000 respectively); that friends or other residents of their local community had or might shift away as a result of the downturn (p=0.005 and p=0.004 respectively); and that their community was highly dependent on the forest industry.

Different LGAs were analysed to identify if forest industry workers appeared more or less likely to migrate out of the LGA if they lost their job in the forest industry. Table 22 shows responses to a number of questions identifying characteristics that may be associated with migration of a person out of a community in response to change. LGAs which appeared more likely to experience out-migration are highlighted in grey shading for each aspect examined. Based on the
number of areas in which an LGA appeared likely to experience out-migration, the following LGAs are those from which workers are likely to migrate if they experience loss of employment:

- Dorset
- Hobart
- Central Coast
- Glenorchy
- Huon Valley.

Three of these LGAs are in Hobart or its surrounding suburbs, where workers typically feel less attached to living in a particular location, and are more mobile. However, Dorset and Huon Valley are rural areas that appear particularly vulnerable to change. Interestingly, Circular Head and Glamorgan–Spring Bay—which have high dependence on the forest industry and are also largely rural LGAs—appear to have lower likelihood of out-migration in response to forest industry change.
Table 22: Analysis of factors influencing likelihood of migration out of a community in response to forest industry change

<table>
<thead>
<tr>
<th>LGA</th>
<th>Proportion of respondents who reported that they:</th>
<th>Of respondents:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>...felt their community is an excellent or good place to live</td>
<td>...felt strongly / very strongly attached to their community</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>40%</td>
</tr>
<tr>
<td>Bake O'Day (n=5)</td>
<td>100%</td>
<td>40%</td>
</tr>
<tr>
<td>Brighton (n=7)</td>
<td>71%</td>
<td>0%</td>
</tr>
<tr>
<td>Burnie (n=26)</td>
<td>89%</td>
<td>62%</td>
</tr>
<tr>
<td>Central Coast (n=12)</td>
<td>92%</td>
<td>33%</td>
</tr>
<tr>
<td>Central Highlands (n=3)</td>
<td>100%</td>
<td>33%</td>
</tr>
<tr>
<td>Circular Head (n=40)</td>
<td>85%</td>
<td>77%</td>
</tr>
<tr>
<td>Clarence (n=9)</td>
<td>67%</td>
<td>53%</td>
</tr>
<tr>
<td>Derwent Valley (n=9)</td>
<td>89%</td>
<td>44%</td>
</tr>
<tr>
<td>Devonport (n=15)</td>
<td>87%</td>
<td>27%</td>
</tr>
<tr>
<td>Dorset (n=49)</td>
<td>78%</td>
<td>65%</td>
</tr>
<tr>
<td>George Town (n=7)</td>
<td>72%</td>
<td>43%</td>
</tr>
<tr>
<td>Glamorgan–Spring Bay (n=10)</td>
<td>90%</td>
<td>50%</td>
</tr>
<tr>
<td>Glenorchy (n=12)</td>
<td>75%</td>
<td>8%</td>
</tr>
<tr>
<td>Hobart (n=17)</td>
<td>82%</td>
<td>18%</td>
</tr>
<tr>
<td>Huon Valley (n=17)</td>
<td>71%</td>
<td>53%</td>
</tr>
<tr>
<td>Kingborough (n=11)</td>
<td>80%</td>
<td>66%</td>
</tr>
<tr>
<td>Latrobe (n=3)</td>
<td>100%</td>
<td>36%</td>
</tr>
<tr>
<td>Launceston (n=40)</td>
<td>83%</td>
<td>40%</td>
</tr>
<tr>
<td>Meander Valley (n=19)</td>
<td>89%</td>
<td>58%</td>
</tr>
<tr>
<td>Northern Midlands (n=36)</td>
<td>100%</td>
<td>83%</td>
</tr>
<tr>
<td>Outside Tass (n=3)</td>
<td>100%</td>
<td>33%</td>
</tr>
<tr>
<td>Southern Midlands (n=7)</td>
<td>100%</td>
<td>70%</td>
</tr>
<tr>
<td>Waratah–Wynyard (n=11)</td>
<td>91%</td>
<td>46%</td>
</tr>
<tr>
<td>West Tamar (n=6)</td>
<td>86%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Note: LGAs with small numbers of respondents are shown in italics with grey text as they were not analysed to identify likelihood of migration, with the small number of respondents making this type of analysis of low usefulness. Cells shaded in grey indicate LGAs where survey responses indicate a higher likelihood of migration in response to change in the forest industry. No valid responses to these questions were received from workers living in the West Coast, Sorell or Tasman LGAs, and so they are not included in the table.
13 Vulnerability, exposure and capacity to adapt to future change

The results of the study were used to assess the vulnerability of forest industry businesses and workers to further change. While vulnerability varies considerably from business to business, and among individuals, it was possible to identify differences in the typical level and types of vulnerability of different groups, and these are examined in this section. The assessment reported here should be understood as representing an average: for example, if a particular group of workers is identified as being more vulnerable in some dimension, this does not mean that all workers in that group are highly vulnerable, but that there appear to be a greater proportion who have characteristics making them highly vulnerable compared to other types of workers.

For forestry businesses, the vulnerability of the following groups is compared:

- Small vs medium/large processors (noting that small businesses are dominated by native forest sawmillers, while medium and large processors include those undertaking a wider diversity of activities including downstream processing)
- Harvest and haulage, silvicultural, roading contractors, nurseries and other contractors
- Businesses dependent on native forests vs plantation (broken down by whether they are processors or contractors).

For forest industry workers, the vulnerability of the following groups is compared:

- those employed in different types of work (processing, contracting, etc.)
- those employed in jobs dependent on native forests versus plantations.

Vulnerability was evaluated on a number of dimensions. Where possible, characteristics that do not overlap were selected, to avoid ‘double counting’ factors associated with higher or lower vulnerability. However, it is possible that various dimensions act as proxies for each other—for example, forest workers in some types of jobs typically have higher educational attainment, and if those jobs are associated with lower vulnerability to change it is difficult to identify if it is the nature of the work involved, or the higher educational attainment, that is responsible. The analysis undertaken for this study could identify correlation rather than causation; further work is needed to better identify the causal mechanisms associated with particular vulnerabilities.

A group is rated as more vulnerable than average (i) if they were significantly more likely to show the characteristic indicating vulnerability compared to other groups using statistical tests of significance, or (ii) where sample sizes were too small to enable statistical analysis, if there was strong indication of differences between groups. To reflect the qualitative nature of some of this assessment, vulnerability was assessed as falling into one of three categories: low, medium or high vulnerability to change. This was then translated into a score for each category of vulnerability, with total vulnerability being considered the sum of scores for each category. The vulnerability scores were based on a total maximum score of 10, with a higher score indicating higher vulnerability.

There are a number of limitations to this analysis. For example, the scores of vulnerability assigned give equal weighting to each dimension of vulnerability measured, and the small samples enable only a broad assessment. Despite these limitations, the analysis does provide a useful indication of not only overall vulnerability to change, but also the areas in which businesses and workers are most vulnerable—and on which strategies to focus in order to reduce vulnerability and mitigate negative impacts of change. This assessment should be used to identify key areas of vulnerability to which such policies can be targeted.
13.1 Forest industry businesses

Vulnerability was assessed for the following dimensions for forest industry businesses, based on analysis of the factors associated with greater impact of the downturn and hence considered to be the best indicators of greater vulnerability to future change:

- **Business management**—more vulnerable businesses are those with higher levels of manager stress; and lower access to business and financial planning advice.

- **Markets and finance**—more vulnerable businesses have high debt-to-revenue ratios, lower profit (or are making a loss), and low access to finance.

- **Certainty about the future**—more vulnerable businesses have lower confidence in their ability to operate their business into the future, and rated lack of security of access to forest resources in the future as a moderate or large barrier to adapting to change.

- **Social capital**—more vulnerable businesses don’t feel they have sources of support in their local community, rarely meet with managers of businesses similar to theirs, and don’t receive support from organisations representing their industry.

- **Thresholds of change**—more vulnerable businesses were defined as those that were more vulnerable to closing or downsizing their business in response to loss of current business activity, while less vulnerable businesses were those that felt able to develop new business activities within or outside the forest industry if a loss of business activity occurred. In addition, businesses more sensitive to changes in costs of wood inputs were rated more vulnerable to change (defined as those for whom wood input costs make up a high proportion of business spending).

- **Barriers to adaptation**—more vulnerable businesses were defined as those whose business infrastructure, exposure to rising business costs, and ability to shift to utilising different wood inputs presented barriers to adapting to future change.

In addition to these characteristics, businesses with less dependence on the forest industry for their business activities are overall considered less vulnerable to change, as are those who have a greater diversity of business activities. These characteristics are not included in the tables below, but in general reduce exposure of any type of business to change, and hence its vulnerability, with vulnerability a function of exposure to change and a business’s sensitivity and ability to adapt to that change.

Processing businesses of different sizes had a similar overall level of vulnerability, with a score of 7.8 out of a possible 10 for small businesses employing less than 20 people, and 7.7 for those employing more than 20 people (Table 23). However, the areas in which these different types of processors are most vulnerable vary considerably: small processors are more vulnerable to change due to lack of business planning advice, sensitivity to key thresholds of change such as changing costs of inputs and loss of business activity, and difficulty adapting infrastructure; while medium/large processors are more vulnerable than small processors in the following ways: having high debt levels and low profitability, feeling a lack of support from the local community, and having limited ability to utilise different wood inputs, with small processors more able to draw on private native forest resources as they require smaller volumes that can potentially be supplied from private native forests.

Harvest and haulage businesses are much more vulnerable to change than other types of forest industry contractors, with an average score of 8.5 compared to 6.8 for silvicultural contractors and less than 6 for other types of contractors (Table 24). They are highly vulnerable in all aspects
measured except social capital. Silvicultural and roading contractors, meanwhile, are highly vulnerable in some ways—particularly financial viability for silvicultural contractors—but are more highly adaptable to change than harvest and haulage contractors, largely because many (but not all) businesses operating in these types of work are readily able to seek work in other industries.

Businesses dependent on native forests are more highly vulnerable to change than those dependent on plantations, and those working in both native forests and plantations are least vulnerable, indicating that business diversity reduces vulnerability (Table 25).

Table 23: Vulnerability of small and medium/large processors to future change in the forest industry

<table>
<thead>
<tr>
<th>Vulnerability of different businesses resulting from the following:</th>
<th>Small processors</th>
<th>Medium/large processors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Business management (score out of 10)</strong></td>
<td>10.0</td>
<td>6.7</td>
</tr>
<tr>
<td>- Management stress</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>- Lack of access to financial and business planning advice</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Markets and finance (score out of 10)</strong></td>
<td>4.4</td>
<td>8.3</td>
</tr>
<tr>
<td>- High debt-to-revenue ratio</td>
<td>Low</td>
<td>Med/High</td>
</tr>
<tr>
<td>- Low/no profit or making loss</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>- Low access to finance</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td><strong>Certainty about the future (score out of 10)</strong></td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>- Low confidence in future viability</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>- Low security of access to resources</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td><strong>Social capital (score out of 10)</strong></td>
<td>4.4</td>
<td>5.6</td>
</tr>
<tr>
<td>- Low support from local community</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>- Low networking with other businesses</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>- Low support from forest industry organisations</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Thresholds of change (score out of 10)</strong></td>
<td>9.2</td>
<td>6.7</td>
</tr>
<tr>
<td>- Likelihood of closing/downsizing vs diversifying into new activities in response to change</td>
<td>Med/High</td>
<td>Med</td>
</tr>
<tr>
<td>- Sensitivity to change in cost of resource inputs</td>
<td>High</td>
<td>Med</td>
</tr>
<tr>
<td><strong>Barriers to adaptation (score out of 10)</strong></td>
<td>8.9</td>
<td>8.9</td>
</tr>
<tr>
<td>- Difficulty adapting business infrastructure</td>
<td>High</td>
<td>Med</td>
</tr>
<tr>
<td>- Rising business costs</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>- Low ability to utilise different wood inputs (native forest processors only)</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td><strong>Overall vulnerability score (out of 10)</strong></td>
<td>7.8</td>
<td>7.7</td>
</tr>
</tbody>
</table>
Table 24: Vulnerability of different types of business to future change in the forest industry

<table>
<thead>
<tr>
<th>Taxonomy (score out of 10)</th>
<th>Silvicultural contractors</th>
<th>Harvest and haulage contractors</th>
<th>Roading contractors</th>
<th>Nurseries</th>
<th>Other contractors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business management (score out of 10)</td>
<td>8.3</td>
<td>8.3</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>- Management stress</td>
<td>High</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Lack of access to financial and business planning advice</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Markets and finance (score out of 10)</td>
<td>8.9</td>
<td>8.9</td>
<td>3.3</td>
<td>6.7</td>
<td>4.4</td>
</tr>
<tr>
<td>- High debt-to-revenue ratio</td>
<td>Med/high</td>
<td>High</td>
<td>Low</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Low/no profit or making loss</td>
<td>High</td>
<td>Med</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td>- Low access to finance</td>
<td>Med/high</td>
<td>High</td>
<td>Low</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td>Certainty about the future (score out of 10)</td>
<td>5.8</td>
<td>10.0</td>
<td>6.7</td>
<td>5.8</td>
<td>6.7</td>
</tr>
<tr>
<td>- Low confidence in future viability</td>
<td>Med</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Low security of access to resources</td>
<td>Low/med</td>
<td>High</td>
<td>Med</td>
<td>Low/med</td>
<td>Med</td>
</tr>
<tr>
<td>Social capital (score out of 10)</td>
<td>7.8</td>
<td>3.9</td>
<td>6.1</td>
<td>6.1</td>
<td>6.1</td>
</tr>
<tr>
<td>- Low support from local community</td>
<td>Med</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
</tr>
<tr>
<td>- Low networking with other businesses</td>
<td>Med/high</td>
<td>Low</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Low support from forest industry organisations</td>
<td>Med/high</td>
<td>Low</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Thresholds of change (score out of 10)</td>
<td>5.0</td>
<td>10.0</td>
<td>3.3</td>
<td>3.3</td>
<td>6.7</td>
</tr>
<tr>
<td>- Likelihood of closing/downsizing vs diversifying into new activities in response to change</td>
<td>Low/med</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>- Sensitivity to change in cost of resource inputs</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Barriers to adaptation (score out of 10)</td>
<td>5.0</td>
<td>10.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>- Difficulty adapting business infrastructure</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>- Rising business costs</td>
<td>Med</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Low ability to utilise different wood inputs (native forest processors only)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Overall vulnerability score (out of 10)</td>
<td>6.8</td>
<td>8.5</td>
<td>5.2</td>
<td>5.6</td>
<td>5.9</td>
</tr>
</tbody>
</table>
Table 25: Vulnerability of businesses dependent on native forests and plantations to future change in the forest industry

<table>
<thead>
<tr>
<th>Business management (score out of 10)</th>
<th>Processors whose business activities depend on...</th>
<th>Contractors whose business activities depend on...</th>
<th>Both native forest and plantations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Native forest</td>
<td>Plantations</td>
<td>Native forest</td>
</tr>
<tr>
<td></td>
<td>10.0</td>
<td>6.7</td>
<td>8.3</td>
</tr>
<tr>
<td>Management stress</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Lack of access to financial and business planning advice</td>
<td>High</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>Markets and finance (score out of 10)</td>
<td>7.8</td>
<td>5.6</td>
<td>10.0</td>
</tr>
<tr>
<td>High debt-to-revenue ratio</td>
<td>Med</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td>Low/no profit or making loss</td>
<td>Med</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td>Low access to finance</td>
<td>High</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Certainty about the future (score out of 10)</td>
<td>10.0</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Low confidence in future viability</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Low security of access to resources</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Social capital (score out of 10)</td>
<td>5.6</td>
<td>3.3</td>
<td>5.0</td>
</tr>
<tr>
<td>Low support from local community</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Low networking with other businesses</td>
<td>Low</td>
<td>Low</td>
<td>Low/med</td>
</tr>
<tr>
<td>Low support from forest industry organisations</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>Thresholds of change (score out of 10)</td>
<td>8.3</td>
<td>6.7</td>
<td>8.3</td>
</tr>
<tr>
<td>Likelihood of closing/downsizing vs diversifying into new activities in response to change</td>
<td>High</td>
<td>Med</td>
<td>Med/high</td>
</tr>
<tr>
<td>Sensitivity to change in cost of resource inputs</td>
<td>Med</td>
<td>Med</td>
<td>N/A</td>
</tr>
<tr>
<td>Barriers to adaptation (score out of 10)</td>
<td>8.3</td>
<td>6.7</td>
<td>8.3</td>
</tr>
<tr>
<td>Difficulty adapting business infrastructure</td>
<td>Med/High</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>Rising business costs</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Low ability to utilise different wood inputs (native forest processors only)</td>
<td>Med</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Overall vulnerability score (out of 10)</td>
<td>8.3</td>
<td>6.5</td>
<td>8.3</td>
</tr>
</tbody>
</table>
13.2 Forest industry workers

Vulnerability was assessed for the following dimensions for forest industry workers, based on analysis of factors associated with more positive outcomes for workers who had lost their jobs (with this indicating lower vulnerability to change), and with lower reported impacts of the downturn for workers currently employed in the industry. Factors associated with more negative impacts for ex-workers and workers were considered to be the best indicators of greater vulnerability to future change:

- **Nature of forest industry work**: Workers employed in businesses with lower vulnerability to change are considered in general less vulnerable to change, as it is less likely their employment will be negatively impacted by change. In addition to this, the results of this study suggest that workers in particular jobs are better able to adapt to change than others, irrespective of whether the business they work for is more or less vulnerable to change. Workers involved in types of work associated with greater impacts in the downturn were therefore analysed to identify those considered more vulnerable to change. Two measures were used: dependence on different types of work (e.g. contracting, processing), and dependence of job on different forest types (native forest, plantation).

- **Human capital**: A person’s level of confidence in their ability to adapt to change by finding new employment or other factors, their reported psychological wellbeing (based on their reported level of stress, depression and anxiety), physical health, and level of educational attainment were all considered indicators of vulnerability.

- **Financial capital**: Workers who reported a decline in household income in recent years, and difficulty meeting their living costs, were considered more vulnerable to change.

- **Social capital—friends, family and broader community**: Workers who felt they had low support from their local community, that the community had a poor perception of the forest industry, and who had few friends and family living in their local community were considered more vulnerable to change.

- **Social capital—forest industry**: Workers who reported a lower level of support from others in the forest industry were considered more vulnerable to change. Membership of forest industry organisations was not considered an indicator of vulnerability, despite results showing that members are more likely to report negative impacts of change, as it is likely that those who report being strongly attached to the forest industry are more likely to become members of these organisations, and this indicator is used elsewhere to identify vulnerability.

- **Flexibility to adapt to change**: If a person had lower flexibility to adapt to change, for example via having limited ability to shift to a new location or high family commitments, they were considered more vulnerable to change. While high attachment to place and to the forest industry were also considered potential markers of flexibility to adapt to change, they were not included as they were not strongly associated with differences in workers’ experiences of impacts in the downturn. Variable results regarding the association between having a mortgage versus renting or owning a house outright meant that housing status was not considered a consistent indicator of vulnerability.
- **Certainty about the future**: A person’s perceived security of employment into the future was used as an indicator, with lower security of employment considered an indicator of high vulnerability.

- **Forest industry policy**: Workers’ levels of agreement with forest policy discussions currently underway were used as an indicator, with lower agreement an indicator of higher vulnerability to change.

Workers employed in harvest and haulage contracting are most vulnerable to change, followed by those in processing and silvicultural contracting (Table 26). Those employed in managing forests are least vulnerable to change. Key areas of vulnerability for harvest and haulage contracting workers are having low confidence in ability to adapt to change, relatively low levels of formal educational attainment, declining household income, a high attachment to the forest industry through working in it for a long time and having strong cultural attachment, and high attachment to their local community, reducing ability to successfully shift to new locations. Those employed in processing are vulnerable in somewhat different ways: they have very low levels of formal educational attainment, and have typically spent a long time working in the forest industry (usually most or all of their working lives) and in their local community. Silvicultural contractors, meanwhile, have low confidence in their ability to adapt to change, and strong attachment to working in the industry, as well as high current levels of stress, but on other measures are mostly better able to adapt to change and hence are less vulnerable than other types of workers.

Those employed in jobs dependent on native forests are more vulnerable to future change than those working in jobs dependent on the plantation sector, largely because they typically have fewer formal educational qualifications, and because they have a much stronger cultural attachment to working in the forest industry, and have spent a longer time working in it (Table 27).
### Table 26: Vulnerability of workers employed in different types of businesses to future change in the forest industry

<table>
<thead>
<tr>
<th>Vulnerability of different workers resulting from the following:</th>
<th>Processing</th>
<th>Harvest and haulage contracting</th>
<th>Silvicultural contracting</th>
<th>Forest growing and management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of forest industry work overall (out of 10)</td>
<td>6.7</td>
<td>10.0</td>
<td>10.0</td>
<td>6.7</td>
</tr>
<tr>
<td>- Nature of work overall</td>
<td>Med</td>
<td>High</td>
<td>High</td>
<td>Med</td>
</tr>
<tr>
<td>Human capital (out of 10)</td>
<td>6.3</td>
<td>8.3</td>
<td>7.5</td>
<td>3.8</td>
</tr>
<tr>
<td>- Level of confidence to adapt to change</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>- Psychological wellbeing (level of stress/depression/ anxiety)</td>
<td>Med</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>- Physical health</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
</tr>
<tr>
<td>- Educational attainment</td>
<td>High</td>
<td>Med/high</td>
<td>Low/med</td>
<td>Low</td>
</tr>
<tr>
<td>Financial capital (out of 10)</td>
<td>8.3</td>
<td>8.3</td>
<td>6.7</td>
<td>3.3</td>
</tr>
<tr>
<td>- Family income trend</td>
<td>Med</td>
<td>High</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td>- Ability to meet living costs with income</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td>Social capital—friends, family, community (out of 10)</td>
<td>6.7</td>
<td>6.7</td>
<td>5.6</td>
<td>5.6</td>
</tr>
<tr>
<td>- Support from local community</td>
<td>Low</td>
<td>Low</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Perception of forest industry by community</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Friends and family living in local community</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Social capital —forest industry (out of 10)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>- Support from others in forest industry</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
</tr>
<tr>
<td>Flexibility to adapt to change—employment (out of 10)</td>
<td>7.8</td>
<td>8.9</td>
<td>7.8</td>
<td>7.8</td>
</tr>
<tr>
<td>- Livelihood dependence on forest industry</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Attachment to working in industry</td>
<td>Med</td>
<td>High</td>
<td>High</td>
<td>Med</td>
</tr>
<tr>
<td>- Length of time working in industry</td>
<td>High</td>
<td>High</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td>Flexibility to adapt to change—family and community (out of 10)</td>
<td>8.3</td>
<td>10.0</td>
<td>5.8</td>
<td>5.0</td>
</tr>
<tr>
<td>- Number of dependents in household</td>
<td>Med</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Length of time living in local community</td>
<td>High</td>
<td>High</td>
<td>Low/med</td>
<td>Low</td>
</tr>
<tr>
<td>Certainty about the future (out of 10)</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
<td>3.3</td>
</tr>
<tr>
<td>- Security of employment</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
<td>Low</td>
</tr>
<tr>
<td>Forest policy (out of 10)</td>
<td>10.0</td>
<td>6.7</td>
<td>6.7</td>
<td>10.0</td>
</tr>
<tr>
<td>- Satisfaction with forest policy</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
<td>High</td>
</tr>
<tr>
<td>Overall vulnerability score (out of 10)</td>
<td>7.3</td>
<td>7.8</td>
<td>6.9</td>
<td>5.6</td>
</tr>
</tbody>
</table>
Table 27: Vulnerability of workers employed in jobs dependent on native forests and plantations to future change in the forest industry

<table>
<thead>
<tr>
<th>Vulnerability of different workers resulting from the following:</th>
<th>Native forests</th>
<th>Plantations</th>
<th>Both native forest and plantations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature of forest industry work overall (out of 10)</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>- Nature of work overall</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Human capital (out of 10)</td>
<td>7.1</td>
<td>5.4</td>
<td>5.4</td>
</tr>
<tr>
<td>- Level of confidence to adapt to change</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Psychological wellbeing (level of stress/depression/ anxiety)</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Physical health</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
</tr>
<tr>
<td>- Educational attainment</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Financial capital (out of 10)</td>
<td>7.5</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>- Family income trend</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Ability to meet living costs with income</td>
<td>Med/High</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Social capital—friends, family, community (out of 10)</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>- Support from local community</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Perception of forest industry by community</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Friends and family living in local community</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Social capital—forest industry (out of 10)</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>- Support from others in forest industry</td>
<td>Low/med</td>
<td>Low/med</td>
<td>Low/med</td>
</tr>
<tr>
<td>Flexibility to adapt to change—employment (out of 10)</td>
<td>8.9</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>- Livelihood dependence on forest industry</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Attachment to working in industry</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Length of time working in industry</td>
<td>High</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Flexibility to adapt to change—family and community (out of 10)</td>
<td>8.3</td>
<td>5.0</td>
<td>6.7</td>
</tr>
<tr>
<td>- Number of dependents in household</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>- Length of time living in local community</td>
<td>High</td>
<td>Low</td>
<td>Med</td>
</tr>
<tr>
<td>Certainty about the future (out of 10)</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>- Security of employment</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Forest policy (out of 10)</td>
<td>6.7</td>
<td>6.7</td>
<td>6.7</td>
</tr>
<tr>
<td>- Satisfaction with forest policy</td>
<td>Med</td>
<td>Med</td>
<td>Med</td>
</tr>
<tr>
<td>Overall vulnerability score (out of 10)</td>
<td>7.1</td>
<td>6.2</td>
<td>6.3</td>
</tr>
</tbody>
</table>
14 Discussion

The Tasmanian forest industry is undergoing substantial change. The size of the industry has dropped rapidly since 2008 when the downturn began, with employment falling by 50% and 3500 workers losing their jobs. The results of this study show that while many of these workers are finding new employment or choosing to retire, the downturn in the industry is having a range of negative impacts on forest industry businesses and the workers and families that remain dependent on the industry for their livelihood. These impacts include both financial and psychological impacts. The impacts are compounded by the ongoing impacts of the uncertain future of the forest industry, and the effects of this uncertainty on both businesses and workers. The impacts of the downturn, together with impacts of an uncertain future, increase the vulnerability of forest industry workers and businesses to future changes affecting the industry. These issues are discussed in the following sections, followed by recommendations for specific forms of support that can assist workers and businesses to leverage their own human and social capital to reduce negative impacts resulting from the downturn or from any future change in the industry. Finally, the need for further impact assessment work, and the role this study can play in such work, is outlined.

14.1 Impacts of the downturn

The downturn in the forest industry has led to a number of social and economic changes for businesses and the workers and families that depend on them. Both the nature of these changes, and the way they affect people’s lives, vary substantially for different businesses and workers. Key changes and impacts often identified by survey respondents and interviewees were: (i) changes in their financial situation which have had negative impacts on their lives, (ii) increased uncertainty about their future, which has had a range of flow-on impacts, (iii) feeling a sense of injustice or unfairness regarding current forest policy, which impacts on their wellbeing. Some groups are more likely to have experienced these impacts than others: harvest and haulage contractors and silvicultural contractors in particular have experienced substantial negative impacts, although the impacts described below have affected many workers across the forest industry, in both the native forest and plantation sectors.

14.1.1 Impacts of changed income and debt levels

The financial impacts of the downturn have been high, with around a quarter of those still working in the industry reporting their income is lower than that earned in 2008, and almost 70% that it is the same. With living costs rising since 2008, this means most workers remaining in the industry are financially worse off than they were in 2008. Workers who have left the industry, meanwhile, have often found new work, but this work typically pays a lower salary than that they had earned in the forest industry, with 66.2% reporting their new job paid less than their old job.

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5 In recent years, there has been a shift in the social impact assessment (SIA) field to separating social and economic changes from the impacts they have (see for example Vanclay 2001, Slootweg et al. 2001). For example, becoming unemployed is a socioeconomic change, but will have different impacts on workers depending on their individual circumstances. Here, we do not always distinguish between ‘changes’ and ‘impacts’, largely because participants in the study did not distinguish between the two.
For business managers, financial losses often go beyond a reduction in income, with many using their personal financial reserves to keep their business afloat, particularly harvest, haulage and silvicultural contractors.

The impacts of loss of income, and for many business owners a substantial increase in personal debt, vary substantially. The types of impacts discussed by interview participants included:

- family members seeking additional work to make up lost household income, often increasing stress for the family, and in some cases reducing time spent together as a family
- reduced ability to pay mortgages and other household costs, and reduced ability to take family holidays or in some cases to buy day-to-day essentials
- reduced ability to take steps such as purchasing a house or new car, and putting off large expenses including household maintenance
- substantial increase in stress as a result of reduced financial security.

14.1.2 Uncertainty about the future

Many workers reported that the certainty of their future employment had reduced substantially. This uncertainty, discussed further in the next section, affects workers and their families in a range of ways. Key amongst these are reduced ability to make decisions about the future, both about their work, and about their family (e.g. decisions about making significant purchases, children’s schooling, retirement plans, etc.). Some workers responded to this uncertainty by actively seeking new work that is more secure.

Businesses are also affected, with impacts including delaying business expenditures such as maintenance or replacement of capital equipment; putting on hold plans to invest in new activities and diversify the business, or to seek new markets; and reduced strategic planning for the future of the business.

14.1.3 Sense of injustice and unfairness

Many business managers and workers in the forest industry feel a strong sense of injustice about decisions made regarding the forest industry. This issue was raised repeatedly in interviews, with workers describing concerns about the nature of forest policy, and strong beliefs that unfair decisions were being made. In particular, many felt that they were part of a sustainable industry that was being unfairly criticised. Business managers felt that their investment in their business over many years was not valued or recognised, nor was the role their business played in the local economy. This sense of injustice was associated with increased stress and pessimism about the future; for example, survey respondents who disagreed with the ideas proposed in the *Principles Statement* were more likely to report feeling increased stress, anxiety or depression. The impacts of feeling unfairly treated are often long lasting, and reduce an individual’s ability to cope with future change.

A sense of injustice was not only expressed about the outcomes of decisions about forest policy, but about processes by which change occurs. The Tasmanian Forest Contractors Exit Package was criticised by several interviewees who felt that decisions made regarding who would receive funding were unfair. People who felt they were not represented by the parties involved in discussions regarding progressing the *Principles Statement* also often felt a strong sense of injustice, which heightened their anxiety about the future. Clearly, the process by which decisions
are made is as important as the outcomes achieved, a common finding of research into perceptions of fairness and justice (see for example Gross 2011).

14.1.4 Overall impacts of the downturn

It is difficult to fully characterise the impacts of the downturn, as they are many. People who experience ongoing loss of income, or see their income failing to keep up with living costs, can struggle in a number of ways. However, many study participants emphasised the challenges of facing an uncertain future, finding this more difficult to cope with than the reduced income they were experiencing because it made it impossible to plan for their future in a meaningful way, something associated with significant stress and anxiety.

14.2 Impacts of uncertain future of forest industry

The downturn in the forest industry has led to an uncertain future for many businesses and workers. However, when discussing the future of the forest industry, the major source of uncertainty resulted from the ongoing negotiations between ENGOs and forest industry members, with many study participants identifying this as a key source of stress for them. While this study does not specifically examine the impacts of changes to be made as part of the agreement reached in the Principles Statement process, it is important to examine how uncertainty about the future of the industry—which will remain until the implementation of the agreement signed on 24 July 2011 is underway and assistance strategies are delivered on the ground—has impacted both forest industry businesses and individuals.

Loxton et al. (2011, p. 45) emphasise that the impacts of any change often start at what is labelled the ‘anticipation stage’, where people know change is likely, but do not yet know the nature of that change:

Individuals, businesses and communities experience impacts from the time a potential change is proposed (Walker et al. 2000; Slootweg et al. 2001). These impacts occur as people begin to anticipate the change and what it could mean for them and then react to the proposed change. A common, and highly significant, impact during the anticipatory stage is the feeling of stress or fear caused by uncertainty surrounding a proposed change, which may be greater than the impacts themselves (Vanclay 2002).

The ongoing discussions about the Principles Statement, together with ongoing uncertainty about availability of markets for key products (particularly woodchips), and a suite of announcements of closures of key forest industry processors, mean that members of the Tasmanian timber industry have been in an extended stage of experiencing anticipatory impacts.

During this anticipation stage, businesses have been impacted negatively in a range of ways. These include having difficulty retaining existing workers, who are taking jobs in other, more secure industries when opportunities arise; and in attracting new workers to jobs in what is viewed as an insecure industry with an uncertain future. Some businesses reported low staff morale and motivation. Others had difficulty accessing finance, with lenders unwilling to finance activities of businesses that might not be operating in the near future. Managers reported being unable to make decisions about the future of their business, or to plan new activities. In many ways, the anticipation phase is self-fulfilling, as fear of further downturn in the industry leads businesses to hold off making investments or even regular activities such as machinery maintenance; which in turn leads to decreased spending, loss of employment, and further loss of confidence. Some businesses also reported that customers were sourcing their products from elsewhere, concerned...
about whether they would be able to access supply from Tasmania once decisions are made regarding access to publicly owned native forests.

The anticipation stage has a number of impacts on workers. As noted above, some are choosing to exit the forest industry to seek more secure work elsewhere, and uncertainty about the future is associated with increased anxiety, stress and depression.

It is essential that support be provided during the period of uncertainty to assist businesses and workers in coping with the high stress brought on by this stage. This is critical during the period in which those dependent on the forest industry identify how the agreement announced on 24 July 2011 will affect their future and how to respond to the changes that will occur in the industry as a consequence. The stress of an uncertain future has very real impacts on business viability, with many businesses experiencing reduced business activity as a result of uncertainty about the future, particularly those who supply equipment and maintenance services to the industry, and those who have lost customers. There appears to be ongoing loss of skilled workers from the industry, a concerning trend as loss of these workers will reduce ability of forestry businesses to adapt to changes in the industry in the future.

It is important to have clarity about the timing of decisions regarding the future of the industry, to help stem the ongoing decline in many businesses and to provide some ability for businesses and workers to plan for the future. The agreement reached on 24 July 2011 provides some certainty regarding the future of the industry, and hopefully its implementation will provide adequate clarity to enable planning for the future, and associated industry investment, to resume.

14.3 Vulnerability to future change

The vulnerability of forest industry workers and businesses to future change is an important consideration. Vulnerability refers to an individual’s or business’s capacity to adapt to change, with high levels of vulnerability likely to result in a high level of negative impact resulting from change, and similarly, low levels of vulnerability resulting in low levels of negative impact resulting from change.

Some businesses and workers are more vulnerable to change than others. While it is useful to identify this, it does not necessarily provide an understanding of how best to reduce vulnerability. To do this, it is essential to understand in what ways different groups are vulnerable: the nature of vulnerability varies considerably across the forest industry, with workers and businesses vulnerable to change in different ways. For example, small businesses are highly vulnerable to increased costs of inputs, and are more likely to close if they experience rapidly rising costs or loss of access to timber resources. They also have less access to business and financial planning advice than larger businesses, reducing their ability to diversify their business into new activities in response to change. Meanwhile, medium businesses are more likely than smaller businesses to have high debt levels, which makes them more sensitive to the impacts of reduced revenue, rising business costs, or any other factors impacting profitability; and reduces their ability to access finance as part of responding to change, something that is likely to reduce their ability to respond by diversifying into new business activities. In the forest industry workforce, meanwhile, both harvest and haulage contractors and processing workers are highly vulnerable to change. In the case of harvest and haulage contractors, their high dependence on and attachment to the forest industry, combined with often experiencing significant negative impacts from the recent downturn (affecting both their personal finances and wellbeing) and relatively low levels of formal educational attainment, all increase vulnerability. This suggests a need for providing assistance that reduces the financial stress faced by those in the contracting sector, as well as addressing the
psychological stress of change in an industry on which they are highly culturally dependent. Targeted skills training and assistance in the process of finding a new job are also essential for workers who have often not been employed outside the industry, and may not have had any experience in formally applying for a job. In the processing sector, meanwhile, vulnerabilities of workers are slightly different: they have very low levels of educational attainment, but more confidence in their ability to find new work and fewer indications of very severe psychological distress (albeit still having many workers indicating high levels of stress). A focus on skills training and assistance with the process of applying for employment may be most important to assist these workers.

The vulnerability analysis identified a number of critical ‘tipping points’ for forest industry businesses. Many sawmills will close if they lose residue markets, particularly woodchip markets, including those businesses that have continued operating at or close to capacity during the downturn, and which have strong markets for their sawn timber products. A loss of more than 20% of current wood supply would also tip many into closure, although the time period given to adjust to loss of supply is also important – a longer time period will enable businesses to diversify and plan alternative activities, reducing the likelihood of closure for some. In the contracting sector, harvest and haulage contractors are the most vulnerable to loss of business activity in the forest industry, as they have the lowest capacity to diversify outside the industry, with the nature of their capital equipment, as well as the limited financial capacity of many, reducing the potential for this type of response to change. Other contractors are better able to diversify their activities within and outside the forest industry.

Given this variability in vulnerability it is important to carefully design support mechanisms and policies to target the specific vulnerabilities of different groups. This can best be achieved through strategies that build the human and social capital of businesses and workers, providing them with the resources and skills to adapt successfully to change.

14.4 Assisting businesses and workers to adapt to change

The provision of structural adjustment assistance by State and Commonwealth governments is a common practice in Australia in situations where an industry faces significant structural adjustment, or in long-term exceptional circumstances such as prolonged drought (McColl & Young 2005). Structural adjustment packages, also referred to as mitigation measures, have been implemented several times in response to significant changes in the forest industry, particularly to assist the industry to adjust to reduced access to publicly owned native forests for timber harvest (see Loxton et al. 2011). A number of lessons have been learned from these experiences about assisting businesses, workers and communities to adapt to change. These are not reviewed in detail here, with Loxton et al. (2011) providing a comprehensive overview. Instead, the findings of Loxton et al. are drawn on to make specific recommendations for reducing the negative impacts of the downturn and current period of uncertainty on forest industry businesses and workers. The recommendations below focus on identifying the types of assistance most likely to reduce social and economic impacts of the downturn, and future change, on businesses, workers and communities dependent on the forest industry. This assistance may include payments made to businesses that lose contracted rights to resources harvested from native forest, something that has formed a part of several previous structural adjustment packages in the forest industry, as well as in other industries where the government grants a right to access natural resources, such as the fishing industry. We focus on understanding whether and how such payments, as well as other strategies that aim to reduce negative impacts, can reduce the overall cost of change in the forest industry for those impacted by it. Strategies for assisting communities are not reviewed in detail,
as this study did not identify adequate detail to fully identify which approaches would be optimal, although some key findings are drawn on to make preliminary recommendations.

The findings of this study highlight that workers and businesses are already utilising the resources they have at hand to adapt to change. Many workers are successfully finding new work, although this work is often lower paid and less secure than their previous jobs. Some—but certainly not a majority—of businesses are identifying new business opportunities. However, while eventual outcomes may be positive, there is considerable scope to reduce the short- to medium-term negative impacts of loss of employment, falling business activity, and difficulty downsizing or restructuring businesses; as well as to improve longer term outcomes such as the overall quality of new jobs workers who leave a forest industry job are employed in.

First, given the rapid rate of decline in the industry, assistance is needed immediately to reduce the extent of flow-on impacts from the current extensive decline in business activity. Reducing negative impacts on businesses and workers through measures that support them to continue some form of economic activity (whether it is within or outside the forest industry) can substantially reduce flow-on impacts to others in the Tasmanian economy. To achieve this, timing is critical with assistance needed now, rather than at some time in the future when many workers and businesses have ‘tipped over’ their threshold of change. Once ‘tipped’, workers and businesses potentially face long-term unemployment, and increased household or business debt, making it increasingly difficult for them to successfully adapt to change by finding new work, or developing new business activities within or outside the forest industry.

Structural adjustment assistance should focus on providing support that leverages the existing resources of those affected by change—in other words, which helps people to make best use of the skills and resources they already have. To do this, support measures need to go beyond simple financial packages to specific groups. An integrated package of measures is needed that focuses on building the capacity of forest-industry-dependent businesses, workers and communities to adapt successfully to change. Focusing on capacity building ensures that support measures provide long-lasting benefits for those assisted, rather than addressing only short-term issues. While short-term assistance can be important, particularly to address the impacts of rapid change, and to prevent some negative impacts, thus preserving long-term capacity to adapt to change; providing only short-term assistance is often associated with repeated calls for assistance, whereas focusing on strategies that build long-term capacity to adapt to change can result in reduced need for assistance in the longer term and more successful change management. This approach is now well accepted in other industries; for example, the objectives of the National Drought Policy since 2005 have been to provide equitable, efficient and timely assistance that assists farmers to build their own self-reliance and facilitate early recovery. The same principles should be applied here: those affected by change in the forest industry should be provided fair and timely assistance that assists them to build their capacity to adapt successfully to change, rather than being prescriptive regarding the nature of that adaptation.

Packages in recent years have often focused on provision of financial grants to affected businesses and workers in cases where access to native forest wood supply is reduced, typically using a competitive application process (Loxton et al. 2011). While direct financial grants can be a component of a package of measures that successfully builds capacity to adapt to change, on their own such grants have several disadvantages. These include that workers and businesses are typically provided with little to no assistance to help plan for the optimal utilisation of grants received. In addition, the grants are often targeted narrowly at some groups while others who are also impacted by change are not eligible, leading to a sense of injustice amongst those affected by change, an issue raised repeatedly in interviews for this study regarding the recent Tasmanian
Forest Contractors Exit Package. Finally, being asked to compete for funding with others who are often part of the same social support network can result in conflict and division within groups who are already experiencing significant psychological distress, and loss of social support networks within these groups.

The Tasmanian Forest Contractors Exit Assistance Program was commented on by several interviewees, and some survey respondents also wrote notes about it on their survey. The primary positive feedback received regarding the package was that it enabled redundancy payments to be made to workers, improving their financial wellbeing substantially (access to redundancy payments was consistently identified by workers who had exited the forest industry, whether they exited as part of this program or through being otherwise made redundant, as critical to providing financial support through the consequent period of unemployment). However, concerns were raised about:

- the clarity of guidelines for applying and, in particular, communication regarding how applications would be evaluated and what factors would be used to select successful applicants, with some applicants inadvertently putting in ineligible applications due to difficulty interpreting guidelines and evaluation criteria
- the amount of money received, with some businesses reportedly still in significant debt after receiving the exit package and managers remaining under financial stress. In addition, businesses still had to try to find a way to shed excess capital equipment for which there is currently little to no market in Tasmania. At least two of those who received the grant reported they may still lose personal assets such as their house as the grants did not cover enough of their debts to enable them to keep their home
- concerns about the fairness of the process of selecting successful applicants, although some interviewees noted that this may result from the fact that there were many more applicants with potential eligibility than the available funding could service, and hence perceptions of unfairness likely resulted in part from there simply not being adequate funding to cover all those potentially eligible
- concerns about eligibility for assistance, particularly that roading crews were not eligible for assistance even if employed at the same business as harvest and haulage workers who were eligible; and that many other types of businesses were struggling but not eligible for assistance under the program.

Structural adjustment package measures that can successfully support capacity building and address key vulnerabilities of Tasmanian forest industry workers and businesses are recommended below. Emphasis is given to support measures that build capacity to build new economic activity irrespective of whether that activity involves the forest industry: in responding to change, it is best to encourage a diversity of activities rather than prescribing the types of industries into which workers and businesses might diversify.

### 14.4.1 Support measures for forest industry businesses

Business assistance may take one of two main forms. The first is assistance to develop a business to make use of new opportunities, including innovation, research and development to adjust to changing resources or markets. The other form of assistance is exit assistance, whereby businesses are paid to leave the industry. While not a form of assistance, when asked what types of support would be beneficial, many businesses owners replied that they needed security of access to forest resources, rather than financial support.
**Assistance to develop new business opportunities**

Forest industry businesses that are successfully adapting to change already are typically reporting that they are developing new business opportunities, within or outside the forest industry, as a way of adapting to the downturn. Those who have not adapted successfully typically report experiencing some kind of barrier to achieving this adaptation, such as lack of access to finance; difficulty restructuring their business due to issues such as inability to sell equipment that is highly specialised to the forest industry; and in some cases difficulty identifying business opportunities due to a strong cultural and business dependence on the forest industry. These results suggest it is important to provide support measures that enable and support businesses to seek new business opportunities, either within or outside the forest industry. This type of assistance can be highly cost-effective through supporting businesses to maintain employment, thus reducing the need to assist workers who have lost jobs, or to assist communities experiencing the impacts of out-migration of population as a result of business closure. However, assistance must be carefully targeted to ensure it results in investment in business activities that facilitate adaptation to change, rather than ‘propping up’ short-term continuation of existing unviable business activities. The types of assistance likely to be most effective are (i) enabling businesses to access finance through measures such as loan guarantees or interest rate subsidies, (ii) assisting business managers to identify new opportunities through providing access to financial and business planning advice, (iii) other measures such as marketing assistance which support a process of creative identification of alternative opportunities, and (iv) direct grants to supplement investment that supports development of new business activities, such as worker training, capital equipment, marketing etc. The latter can be provided indirectly through businesses payments intended to ‘buy out’ their contracted access to forest resources, which then provides the financial capability for that business to reorient their business activities to those that do not rely on that access. This type of grant will be more effective if accompanied by strategies aimed at helping a business identify and access those new opportunities, thus reducing the time and cost of adjusting to loss of access to forest resources, and reducing unemployment and other flow-on impacts of change.

Expansion of the Rural Financial Counselling Service (RFCS) to provide support to businesses (particularly smaller businesses that often lack access to business planning advice) to plan for their future would assist in this, but would require support for RFCS services to expand and to focus on forest-industry-specific issues. However, this should be targeted to those businesses that do not feel they have access to advice already, with many businesses indicating in this study that they already had access to business planning advice. Small businesses in the contracting and processing sector were least likely to access business planning and marketing advice and would be most likely to benefit from improved access to these services.

Consideration should also be given to providing further funding to organisations such as AusIndustry to enable them to increase their resources dedicated to identifying new business and marketing opportunities for forest industry businesses. This should be linked to industry consultation. Using this existing expertise is the most cost-effective approach to providing assistance.
We do not recommend that assistance packages specify the exact nature of business opportunities that should be targeted. Study participants suggested a number of business opportunities they felt should be pursued: some felt support for technology development within the forest industry would be most beneficial, while others suggested supporting workers and businesses to shift into new industries outside forestry. For example, some felt the fishing industry (particularly aquaculture) could provide employment opportunities for ex-forestry workers. The most effective approach is to support the innovation and ideas of those who need to make change happen, encouraging development of a range of new business activities rather than attempting to predict those which will be successful and supporting only one or two types of business development.

**Exit or downsizing assistance**

In some cases, providing exit assistance may be useful in helping businesses and workers adapt to change. This involves providing financial assistance to businesses to exit the forest industry or downsize operations. This type of assistance is essential for many contracting businesses that are in a position of high debt and for whom the impacts of the downturn include loss of resale markets for capital equipment, effectively preventing them from being able to exit the industry or downsize their business.

While it can provide valuable financial assistance, to be useful in terms of building capacity exit or downsizing assistance should be accompanied by measures that assist those exiting/downsizing to plan for new activities beyond their exit/downsizing. Without this, exit/downsizing assistance is typically associated with loss of employment for workers employed at businesses, and loss of business activity for upstream and downstream businesses that were previously linked in a supply chain with those businesses receiving exit or downsizing assistance. It can therefore exacerbate short-term impacts of the downturn unless accompanied by measures that support these groups in adjusting to change.

In particular, providing psychological counselling and financial planning advice may assist business owners who have exited but feel a sense of injustice at the way they had to leave an industry they felt strongly attached to, and who find it difficult to identify new opportunities beyond exiting the industry. Providing retraining and counselling services to workers who have lost jobs should also accompany provision of exit assistance, to reduce what otherwise may be substantial negative flow-on impacts from businesses exiting the industry.

**14.4.2 Support measures for forest industry workers and families**

The measures discussed below are designed to address the key vulnerability of many forest industry workers: lack of experience in working outside the industry resulting in low confidence and little experience applying for employment; low educational attainment; and for some, lack of financial resources.

**Employment referral services**

Many workers who have left the forest industry are successfully finding new employment. Their new jobs are most commonly outside the forest industry, and it takes some time for workers to find new jobs; in addition, many are taking on jobs which have lower wages than their forest industry job. Given the high portability of many forest industry skills, providing targeted employment referral services, with professionals who match workers to new industries where their skills are needed, can usefully ‘speed up’ the process of finding new employment for many workers. This needs to go beyond basic referral services to using specialists to seek interest from employers in a range of industries, particularly the types of industries in which workers are
finding employment. This would involve ongoing consultation with members of construction, mining, manufacturing and agricultural industries to identify job opportunities for workers who have exited the forest industry.

Training opportunities

Retraining opportunities are a common form of worker support, and can be a successful way of assisting people to find new employment. Interviews highlighted that people felt they needed training to boost their skills, but that it was important that they be trained for jobs that were readily available so they could use their new skills. Training should therefore be targeted to industries in which employment gaps have been identified, for example the mining industry, in which a number of forest industry workers are already finding employment. In some circumstances, workers may have a clear idea of the skills they need: several ex-workers interviewed for the study felt they were held back by their lack of computer literacy, for example. The form in which the training takes place is very important. Interview participants preferred to receive on-the-job training, particularly because this combined finding new employment with the training, and also meant that older employees who felt they took longer to learn skills were given the supervision they needed.

Providing training opportunities is important for workers who lose jobs in the industry, but can also assist those who remain in the industry, through providing skills needed to re-target and diversify the businesses they work in and hence assist them to adapt to change. Training can also provide a form of indirect peer support through bringing workers together who can then assist each other in adapting to change.

Training may be provided through existing initiatives (e.g. Centrelink) or development of new programs focused on the specific needs of workers in the forest industry. In some cases, training can be a matter of providing formal qualifications for skills workers already have, e.g. enabling workers to obtain a ‘ticket’ for skills they have learned on the job in their forest industry employment but have never formalised.

Assistance in applying for new work

Training should be combined with other forms of support that assist people to find a job. This may involve providing financial help such as assistance to cover costs of travelling to interviews, phone bills incurred in seeking work, or relocating to live in a new town where employment is available. These costs can be high in areas where there are few jobs available in the local area, and can increase the burden of household bills and other costs which are difficult to meet during unemployment. Interview participants also discussed the high costs associated with getting tickets, suggesting that financial assistance to obtain a ticket could be a significant way of supporting workers who leave the forest industry and are seeking employment in new industries.

Many forest industry workers have little to no experience in applying for jobs, and assistance in this process can be highly valuable. For example, this could include assistance to write a résumé, particularly important for people who have not needed to write one before, or who may not have good literacy, or to practice interview techniques to increase their confidence when applying for jobs. In some circumstances it may be useful to provide job-search businesses that provide these services with additional resources or training so they can cater to the needs of ex-forest industry workers.
Psychological and financial counselling

Workers experiencing high levels of stress, depression or other mental health issues have limited capacity to plan successfully and constructively for their future. Results from other studies, particularly in the farming sector and from downturns in other industries, suggest this type of stress is associated with higher levels of domestic violence, family break-up and other negative changes. Providing psychological support, as well as financial planning advice, can be highly beneficial. This can occur through formal mechanisms such as counselling services; however, psychological support in particular can be improved in a number of ways. One way is through supporting social networks and industry organisations that provide mechanisms for workers to share their experiences and support each other, and which provide opportunities for workers to interact and discuss their issues, rather than being isolated from each other. Given the high reluctance of many workers to access these types of assistance, it may be necessary to make accessing this assistance a requirement for eligibility for other forms of assistance, to provide it through training or other events, or as a packaged service together with employment referral or other services. Finally, supporting services which actively contact workers to offer support is a useful way of delivering support to those who, as part of their stress or depression, find it difficult to seek assistance; models such as the Rural Alive and Well (RAW) program provide a useful blueprint for this type of service. There is also a need for follow up, as it may take time for the full psychological and financial impacts to be felt, or for people to be willing to seek assistance. Provision of this assistance can occur through expansion of existing support already available, such as RAW and the RFCS.

Redundancy assistance

Redundancy assistance helps both businesses and workers: providing assistance to cover redundancy packages (or other financial grants) can enable businesses to shed workers and downsize rather than keeping workers on at reduced hours and income. This will enable workers to leave their employment with adequate resources to cover household costs for some time, so they can seek new work with less stress on their household during the unemployment period. This can significantly reduce personal and family stress and enable workers to plan more effectively for future work, and may reduce rates of out-migration from rural communities by providing opportunities for workers to consider starting their own business or to remain living in the local area for longer, rather than having to relocate to a new community for employment.

Workers receiving redundancy assistance would also benefit from receiving advice regarding planning for using their redundancy allowance, with some ex-workers interviewed for this study having difficulty identifying how long they had to rely on their redundancy payment before being eligible to receive unemployment benefits, and hence finding it challenging to identify how best to utilise their redundancy package. Financial planning advice, as well as advice regarding eligibility for different forms of government assistance and how receiving a redundancy affects this, would enable workers to plan more effectively for their own and their family’s future. In addition, while redundancy payments are a critical form of economic support, they should be combined with forms of support that help people find new employment.

Cost-of-living support

In addition to helping people to find new work, in the short term it is important to alleviate the impacts of loss of income that accompany loss of employment or underemployment. Assistance to help people meet their daily living costs can achieve this. Measures such as those used during the drought, in which support providers made vouchers available to farming families to help cover living costs, should be used as a template for this type of support.
**One-stop shops**

Workers and families who are experiencing negative impacts often have difficulty accessing existing government assistance, or assistance available from non-governmental organisations. This difficulty is often due to a lack of awareness of its availability, as well as due to reluctance to access it or difficulty completing administrative requirements such as forms. Ensuring workers are aware of existing assistance, and supporting people to access it, is important, particularly in an industry where many workers have never accessed government assistance. Providing ‘one-stop shops’ where workers, business managers and others impacted by the downturn can find information on how to access all types of assistance can reduce the often considerable stress associated with attempting to access assistance, as well as improving government coordination of assistance. The RAW program is currently funding a small amount of assistance that provides workers with linkages to a range of forms of support; this service should be expanded to provide a more comprehensive service that can reach more people affected by the downturn in the industry. Consideration should also be given to utilising support networks developed during the drought to provide support to farmers, with these networks able to be utilised to provide support to those struggling with the impacts of the downturn. In particular, the Rural Support Network, a network of social support services which originated as a program to assist those impacted by the recent drought, may be able to provide essential liaison services amongst the multiple support providers who form part of their network.

14.4.3 Support measures for communities dependent on the forest industry

Direct assistance measures are needed for forest-industry-dependent communities affected by the downturn. Assistance provided to businesses and workers may not always ‘trickle down’ to these communities, as workers may shift to new locations, leaving communities experiencing significant negative change with little or no assistance. The results of this study show that some communities have high potential for out-migration of population in response to decline in the forest industry (in particular Dorset and Huon Valley). Other communities may not experience substantial loss of population, but are highly vulnerable to rapid increases in unemployment as a result of the downturn in the forest industry. If workers are unwilling to shift elsewhere for new jobs, but cannot find work in the local community, a range of negative impacts are likely for that community. Glamorgan–Spring Bay and Circular Head are examples of communities where the latter outcome appears likely to occur.

In the short term, funding for community activities that assist in building community cohesion and social networking can be highly effective in assisting communities to address the negative impacts of decline in the forest industry. This can be as simple as funding for community events such as sporting events, community meetings, or community projects. While not addressing the longer term issues of needing to rebuild new business activities in declining communities, this type of activity can help maintain and build positive social capital needed for communities to later function effectively in responding to change. This type of support can be delivered through grants to community groups to enable them to build capacity to undertake such events, or to enable them to provide assistance to others in their community, utilising existing social networks to deliver support effectively. Further support can be provided to communities through strengthening existing services that provide assistance in difficult times: ensuring local residents have access to health and welfare services, and financial planning assistance, so that those affected by the flow-on impacts of loss of forest industry activity (such as workers at retail and service businesses that experience loss of business) can access adequate support. This may include supporting local community leaders who play a critical role in bringing the community together to develop new ideas and ways forward after experiencing loss of businesses and/or population.
The types of assistance most likely to build capacity in communities experiencing either out-migration or high unemployment are those which support communities to build new forms of business activity and social networks, to replace those lost when there is loss of forest industry employment and of local population due to out-migration. Capacity-building measures can include funding for regional development strategies that identify and target potential new business activities (outside or within the forest industry), and provision of funds to help attract new investment and develop these activities. Funding to support existing local initiatives and networks, thus providing additional support to existing activities, can be a particularly cost-effective approach.

14.4.4 Eligibility for assistance
In all cases, careful consideration is needed of the equity implications resulting from decisions about eligibility for assistance. As noted earlier, fairness of process is critical to reducing negative impacts of change, and concerns have been raised about the perceived fairness of eligibility criteria for the support packages recently provided to harvest and haulage contractors. As the results of this study clearly show, workers across all parts of the forest industry have experienced negative impacts of the downturn, not just in one sector (although not all workers in these sectors have been impacted). Targeting one sector and not others is unlikely to provide the type of capacity building support recommended, and a broader based package will be more successful in reducing flow-on impacts to the broader economy and communities.

Consideration should be given to extending eligibility for some forms of support beyond workers in the forest industry, to include their families. A common issue discussed by study participants was that the financial and family stresses associated with job loss meant that ex-worker’s partners or spouses were required to take on new jobs or increased hours. In some cases they either had not worked previously, or were no longer easily able to do their previous work, particularly if they were older people. These ex-workers’ partners or spouses felt they had very limited ability to obtain work due to living in a rural area, and having an few formal skills, which reduced their self-esteem and confidence.

14.4.5 Designing and implementing support measures
Effective structural adjustment assistance should:

- be designed together with stakeholders (i.e. involve end users in design to ensure assistance is well targeted and accepted by end users)
- be appropriately targeted to ensure equitable access to assistance by those impacted
- be provided early and continue to an appropriate time, with a staged approach used to ensure support is given during the anticipation period as well as when change is occurring
- be communicated effectively to intended recipients, with a targeted communications plan developed to ensure recipients have adequate access to information and support to help them apply for assistance and use it
- be transparent, with clear guidelines regarding how applications for assistance will be evaluated, and who is eligible for assistance
- leverage existing services and expertise, such as that developed to assist the farming sector during drought, as a way of most efficiently and effectively delivering support measures.
Much of the infrastructure and services required for providing assistance are already available in Tasmania, through programs such as the RFCS or support agencies. Where possible, existing resources and networks should be utilised and leveraged to deliver assistance to forest industry members, as this is the most efficient way of effectively delivering practical assistance. This requires providing funding to expand these services, or train service providers to deliver services to forest industry members.

Support packages must be accompanied by adequate investment in coordination and communication activities, to ensure that those eligible for assistance are (i) aware of the availability of assistance, and (ii) have the ability to access this assistance, including where necessary being provided help to fill in forms and given direct encouragement to take up assistance. Adequate investment in coordination and on-ground support is a crucial and often missing element of structural adjustment support (Loxton et al. 2011).

14.5 Further work

This study does not attempt to predict the likely impacts of the changes to Tasmania’s forest industry announced on 24 July 2011. The study gathered data that can be used to predict likely impacts of these changes, and identify how best to implement them to reduce negative impacts. Ideally, the information collected should be used in this way, with the understanding of the current state of forest industry businesses and workers analysed here used as a basis for predicting likely socioeconomic impacts of future change, and the likely flow-on impacts of any change to communities. To undertake a full community impact assessment, further work would also need to be done to assess the baseline condition of communities likely to be impacted by future change, and the flow-on impacts of change throughout the economy. These analyses were not possible within the resources available for this study.
15 References


Appendix 1: Detailed methodology

This appendix provides more detailed information on the methods used in the study, focusing on the conceptual framework underpinning the analysis undertaken for the study.

The field of socioeconomic impact assessment (SEIA), more commonly labelled social impact assessment, focuses on understanding how the implementation of policies, plans, programs and projects impact human communities, and developing strategies to mitigate negative impacts and to promote opportunities for positive change. The types of socioeconomic changes examined as part of an SEIA can be highly diverse, ranging from change in the mental and physical well-being of individuals to changing migration patterns and service provision in towns and communities; the quantity and quality of available jobs; income and economic activity; housing availability and value; and landscape amenity, culture and heritage values, amongst others.

An important distinction that needs to be made in any SEIA is the difference between a socioeconomic change, and the impacts that change has for different people. Any change, such as the extensive downturn in the Tasmanian forest industry occurring from 2008 through to the time of writing, will result in a range of what Slootweg et al. (2001) and Vanclay (2002) term ‘social change processes’. These may include socioeconomic changes such as shifts in the availability of employment, or migration of population. Many SEIAs focus on predicting and subsequently monitoring these changes.

How you experience a change depends on factors such as the nature of that change (e.g. loss of access to native forests), the socioeconomic changes this leads to, your awareness and attributions of causes of change, your personal circumstances, and other socioeconomic change happening at the same time. Socioeconomic change, and experiences of it, shift over time—and are affected by your responses to those changes. These linkages are shown in Figure 73.

As can be seen from Figure 73, socioeconomic changes and their impacts are two linked parts of a complex process of cause and effect, affected by many factors such as the choices a person makes about how to respond to a change and the extent and nature of the change. To understand these in the context of this study, it is necessary to examine:

- the nature of changes occurring in the forest industry, and the socioeconomic change processes they lead to, including the spatial distribution of these changes
- how different individuals, groups and businesses perceive and understand these changes
- how different individuals, groups and businesses respond to the changes, and their capacity to respond to further change, and
- the outcomes of this process of change and responses—in other words, the socioeconomic impacts of change on people’s lives.
The impacts will be complex, and may involve both negative impacts and some positive changes for some people—even when considering how a given person has been affected by change, they may identify that they have experienced some negative and some positive impacts, highlighting the complexity of understanding socioeconomic impacts.

For example, two people may lose their jobs in the forest industry and be impacted very differently by this. One may have had little attachment to their work in the industry, be financially secure, and have alternative work opportunities, and hence experience relatively little negative impact as a result of losing their job. The other may have had a strong social and psychological dependence on their work in the forest industry, have a high level of debt (e.g. a large mortgage and a young family to support), and feel they have few alternative employment opportunities. They are more likely to experience significant negative impacts as a result of losing their job. Therefore the same type of socioeconomic change (a downturn in the forest industry) has led to a similar social change process for each worker (loss of employment), but to very different socioeconomic impacts on each of their lives.

This example demonstrates the difference between socioeconomic change and socioeconomic impact. Throughout this study, wherever possible a distinction is made between these concepts. In reality, it is simpler to identify changes compared to impacts, and at some points only socioeconomic change is examined in this report due to a lack of available data on how these changes are experienced by different people. In other parts, it is difficult to distinguish between change and impact; this is pointed out where it is the case.

A wide range of methods can be used to understand both socioeconomic change and impact. In this project, the approach used draws on the traditional SEIA approach of identifying baseline trends, and impacts of the recent downturn (including how this has led to departure from baseline trends). The analysis of impacts of the recent downturn in turn forms part of the ‘baseline conditions’ that need to be considered in any future assessments of the impacts of proposed change to the Tasmanian forest industry.

In addition, this study examines the capacity of forest industry businesses, workers, and (to a lesser extent) forest-industry-dependent communities to adapt to future change in the industry. This, together with the analysis of long-term baseline trends and the impacts of the recent
downturn, provides a thorough basis for any subsequent work aiming to predict likely impacts of proposed future change to the Tasmanian forest industry.

The socioeconomic impacts of change in the forest industry affect many people. These include those directly dependent on the industry—workers employed in the industry, business owners and managers, and their families. It also includes many people who are indirectly affected by change in the industry, such as members of communities that have high dependence on the industry and who, despite not being employed in the industry, are affected by flow-on effects of change in the industry such as loss of jobs, population and social networks in their community, and associated stress and uncertainty.

While a full SEIA would ideally include analysis of all those who are directly and indirectly impacted by change in the forest industry, this study focuses on the former—forest industry workers and businesses, and the families of workers. Understanding how they are affected by change, and how they respond to it, is a critical step in understanding how other groups such as the broader community will be impacted by change. As this study did not have adequate resources to undertake a full impact assessment, a choice was therefore made to focus on those directly involved in the industry, as this data can subsequently be used to assist analysis of impacts of change on other groups, such as forest-industry-dependent communities.

Understanding baseline trends

Baseline trend analysis is a commonly recommended component of SEIA:

Baseline analysis typically involves profiling key social characteristics and trends in a given community prior to a change being implemented, with this analysis forming the basis for both initial prediction of potential social changes, and later monitoring of the social changes resulting from an impacting event. (Schirmer 2011: 383)

The use of the term ‘baseline trend’ can suggest that prior to an impacting event, there has been a long, steady set of trends in a community or industry that can be readily understood and analysed. This is quite different to the reality: in many cases there are no consistent long-term trends influencing an industry or community; and social and economic conditions change rapidly and often unexpectedly as a result of a number of factors. There are therefore important limitations to the use of baseline analysis on its own as a means of predicting impacts of change, as the impacts of an event such as reduced access to native forests, or a downturn in the forest industry, do not result in a simple ‘departure from the baseline’, but rather in a complex chain of responses that are influenced by baseline trends and interact with them. An understanding of baseline trends is therefore useful if undertaken in conjunction with analysis of the factors influencing how people, businesses and communities respond to an impacting event (in this study, the assessment of ability to adapt to future change).

For this study, baseline trends were separated into two groups:

- long-term trends in the forest industry and its workforce affecting the employment and spending generated by the industry, and the socioeconomic characteristics of workers: this analysis, referred to from this point as the ‘baseline trend analysis’, focuses on identifying socioeconomic changes in the industry since 1996, principally based on data from the ABS
- changes occurring in the industry since 2008, the period in which a significant and sustained downturn has occurred associated with extensive job losses, and the
socioeconomic changes and impacts resulting from the downturn (discussed in the following section).

The long-term baseline trend analysis focuses on the following areas:

- a brief history of change in the forest industry, including in the structure and type of businesses operating in the industry and the resources and markets they depend on and sell into
- change in the number and location of forestry businesses and workers over time, and factors influencing these changes
- change in key socio-demographic characteristics of forestry workers over time, including gender, age, level of formal training, income earned, and hours worked.

Assessing impacts of downturn

As described above, understanding the ability of those dependent on the Tasmanian forest industry to adapt to proposed future change in the industry requires analysing the socioeconomic changes and impacts of the recent downturn that has affected many forest industry workers and workers, and communities dependent on the forest industry.

This study examined the extent and nature of the following socioeconomic changes occurring as a result of the downturn:

- loss of employment in the forest industry (including distribution of employment loss by location, business and worker type)
- underemployment in the industry (as above)
- changes to business spending and activity
- migration of population.

These changes were assessed largely through direct survey of forest industry businesses and workers, described further below. This enabled identification of some of the flow-on social and economic changes associated with events such as loss of employment.

The impacts of these changes were assessed based on the results of quantitative surveys of forest industry businesses and workers, and of qualitative interviews with business managers, workers currently employed in the forest industry, and workers who had left the industry as a result of the downturn. Impacts included assessing how socioeconomic change had affected the wellbeing of business managers, workers and their families, and the material impacts of change on aspects of their lives such as their household income.

Assessing adaptive capacity and vulnerability to future change

To enable exploration of the capacity of those dependent on the forest industry to adapt to further change in the industry, as well as better understand the factors influencing how different groups have responded to the downturn occurring in the Tasmanian forest industry since 2008, this study drew on the extensive body of literature examining how humans adapt to change.
Adaptation can be conceptualised as:

a process, action or outcome in a system (household, community, group, sector, region, country) in order for the system to better cope with, manage or adjust to some changing condition, stress, hazard, risk or opportunity (Smit and Wandel 2006, p. 282).

Adaptation not only helps an individual or group cope with negative impacts of change, but also enables them to take advantages of opportunities that may arise as a result of this change (Gupta et al. 2010). Adaptation may involve finding ways of maintaining existing business and personal activities despite a change that threatens them, or it may involve a shift to completely new ways of living and acting that, while involving radical changes in people’s lives, enable them to achieve positive social wellbeing. Adaptation is not always a positive process: it does not necessarily result in a successful outcome for all and can have a mix of unevenly distributed positive and negative impacts (Tol 2005; Moser and Ekstrom 2010). The success of any given attempt to adapt to a changing situation will be defined differently by different people depending on their social values and viewpoints (Adger et al. 2009).

The extent to which an individual or group is able to adapt successfully to change depends on a number of factors. In recent years, studies of human adaptation in the field of socio-ecological systems theory have focused in particular on the vulnerability and adaptive capacity of humans, and how these influence the success of adaptation to change (Smit and Wandel 2006). These theories are based on the concept that the nature and type of impacts resulting from a given change depend on how a person responds to that change, and that key determinants of how a person responds to change are their capacity to adapt, and their vulnerability or exposure to change6. In addition, Williams and Schirmer (in review) and Yohe and Tol (2002) argue that the way a person understands or perceives the nature of change influences their response to it, and therefore needs to be understood.

There is extensive debate about the exact definitions and relationships between terms such as ‘vulnerability’, ‘adaptive capacity’, ‘exposure’ and ‘sensitivity to change’, and often considerable overlap in how these terms are defined (Preston and Stafford-Smith 2009). The way these concepts were defined for this study is outlined below.

For this study, vulnerability was defined as the extent to which a person or group is vulnerable to experiencing negative socioeconomic impacts as a result of change in the forest industry. Their vulnerability depends on their level of exposure to change, their sensitivity to that change, and their adaptive capacity (following Smit and Wandel 2006 p. 286):

- exposure to change was defined for this study as the extent to which a person depends on the forest industry (or particular sectors within it) for their individual and household livelihood
- sensitivity to change refers to the extent to which a person or group’s characteristics mean that they are likely to be significantly affected by change—in this case, that they will be significantly negatively impacted by a given type of change to the forest industry

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6 Some describe this as a person’s resilience to change, but there is considerable debate in the literature over the definition of social resilience, and its relationship to adaptive capacity and vulnerability. Given that many definitions of resilience overlap considerably with those of both vulnerability and adaptive capacity, this study focuses on the latter two concepts, drawing on resilience theories where they are relevant.
adaptive capacity refers to the resources people have that assist them to adapt to change, or which ‘empower social actors to respond to short- and long-term impacts either through planned measures or through allowing and encouraging creative responses from society both ex ante and ex post’ (Gupta et al. 2010, p. 461).

Sensitivity to change and adaptive capacity, despite being two differing (but highly interrelated) concepts, are in reality often measured using very similar indicators. Adaptive capacity is often measured based on identifying the resources people have available to them to help them adapt to change. These may include the human, social, technological and financial capital a person has, their access to natural resources, and the institutional and governance systems to which they are subject (Yohe and Tol 2002, Preston and Stafford-Smith 2009). The concepts of thresholds and ‘coping ranges’ are also important, as there may be a threshold beyond which a person’s resources do not enable them to adapt successfully to change, or a range of circumstances that are ‘adaptable to’ while others are not (Smit and Wandel 2006).

In this study, the concepts of sensitivity and adaptive capacity were measured using an expanded version of the ‘capitals’ approach, in which a person or group’s access to physical, financial, social, human and natural capital provides a window for understanding their adaptive capacity. Where this study differs from the traditional approach is that, rather than assuming that people are able to fully operationalise the different types of capital available to them, factors enabling or constraining this ability were examined, including how a person’s level of reported attachment to working in the forest industry, or living in a particular location, affects their ability to utilise the resources they have such as particular skills or qualifications.