Regional Sustainability Initiatives: The Growth of Green Jobs in Australia

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Introduction

There is no doubt that one of the fastest growing international industry 'sectors' is environmental goods and services. The size of the annual global environment market is estimated at around A$1,000 billion (Department of Industry, Science and Resources 2000, p21).

There are many cases of extraordinary growth in 'green jobs' in recent years. For example, worldwide demand for organic agricultural produce has grown 20% every year for the last 10 years, and is anticipated to grow from US$11 billion in 1997, to US$100 billion by 2006 (McCoy and Parlevliet 1998). Data presented in the Sustainable Energy Policy Green Paper (Department of Primary Industries and Energy 1996) predicts the world demand for renewable energy to grow by 82% in the period 1990 to 2020.

This article reviews the current state of knowledge about green jobs in Australia. It draws some initial conclusions about what is likely to ‘drive’ worldwide green job generation in the foreseeable future, and then reviews recent work that examines the implications for Australia. The main focus, however, is a recent Western Australian industry survey undertaken to determine the current nature, and future potential, of green jobs in that State. The article concludes with a range of policy recommendations for Government.
What is a ‘Green Job’?

Defining what is meant by the term 'green job' can be a complex methodological issue. Some examples have been provided in the 1994 “Green Jobs in Industry Research Report” including:

- is a recycling plant that emits air pollution a producer of green jobs?;
- is an aluminium smelter that dramatically reduces waste sent to landfill, yet contributes large emissions of greenhouse gases, a producer of green jobs?; and,
- are all jobs associated with 'ecotourism' green jobs? ACF/ACTU (1994)

Clearly the answers are not straightforward. Given these problems, the simplest definition of a green job may be one which 'reduces the negative impact made on the environment, relative to the status quo'. This broad definition would allow green jobs to be thought of as occurring across a spectrum from innovations that reduce the environmental impact of traditionally 'dirty' industries (as in the aluminium smelter example), to jobs that are entirely new and have been initiated primarily to address specific environmental problems. In its report, the ACF/ACTU defines this latter-mentioned category as 'environment industries'. In this article we will use the term 'green jobs' to mean those that reduce the negative impact made on the environment.

International Drivers of Green Job Generation

New industrial development is catalysed by the 'push' of government regulation, and the 'pull' of the market. Both of these catalysts are, in turn, strongly influenced by the quality and quantity of the natural resource base. Medium-term projections for population and consumption indicate an intense pressure on the natural resources that fuel international economic performance. Conservative scenarios developed by the UN Environmental Programme in 1997 as part of the first Global Environmental
Outlook study, indicate that the combined impact of population growth, consumption intensity, depletion of non-renewable resources, urban growth, conversion of natural lands and pollution, will have a radical influence on the structure of economies (UNEP 1997).

The implications for employment can be summarised as follows (UNEP 1997, Annandale1999):

- more employment in alternative energy supply and energy efficiency, as a consequence of non-renewable resource depletion and the need to respond to climate change;
- more employment in intensive agriculture as a means of meeting food demands and stopping the expansion of land needed for growing food;
- more employment in alternative transport techniques as a consequence of growing cities and declining non-renewable fuels;
- more employment in preserving the integrity and quality of land and water resources, and repairing degraded resources. Both of these new areas of work will be generated as a consequence of increased demand for both types of resource;
- more employment in resource renewal as a consequence of continued demand for materials; and
- more employment in the recycling and re-use of materials as a consequence of the continued rise in material consumption.

Relatively little primary research has been undertaken in Australia that examines the role played by the green jobs sector. The next section reviews the most significant recent work.
What do we Know About Green Jobs in Australia?

The wave of interest in environmental issues that began in the late 1980s resulted in a number of research projects in developed countries during the 1990s, focused on the employment potential of the green sector.

Some of these reports were based on macroeconomic modelling. Perhaps the best Australian examples of this type of work include the 'Environmental Sciences Research and Development Market Analysis' report (Industry Policy Consultants Pty Ltd 1998), and the 'Investing in Sustainability' report (Department of Industry, Science and Resources 2000). The latter estimated a domestic environmental industry market of A$8.6 billion in 2000, with a predicted growth rate of 3% a year, and with direct nationwide employment of 127,000.

While these reports provide a good overview of the growing position that the environmental sector takes in the Australian economy, they do not allow any conclusions to be made as to the relative employment performance of the sector. This problem has been addressed by recent primary research that is based on detailed questionnaire surveys directed at business managers.

The most comprehensive Australian example of this kind of research is the 'Green Jobs in Industry Research Report' which was based on a post-out, Australia-wide questionnaire responded to by 560 employers (ACF/ACTU 1994). The report presents useful statistical data on the performance of the environment sector in the early 1990s, along with a range of case studies outlining business successes. The most important findings are summarised in Table 1.

<Table 1 near here>
Table 1 shows that the survey respondents consistently reported, and predicted, future growth of green employment inside their organizations. What this table does not show is that whole firm employment during the study periods (1988 to 1993 and 1993 to 1995) was decreasing. In other words, green employment in the surveyed organizations was increasing as a proportion of the whole. In fact, green employment grew from 12% of whole firm employment in 1988, to 21% in 1993.

The Sustainable Energy Industry Association published two nationwide surveys of its members in 2000 and 2002. An annual growth rate in total direct employment in the order of 12% per annum was expected for the sustainable energy sector between 1999/2000 and 2000/01 (Sustainable Energy Industry Association 2000). In practice a growth rate of a little over 3% was recorded in this period and in the following year but this was expected to increase to around 6% between 2001/02 and 2002/03 (Mark Ellis and Associates 2002). The total value of the industry in 1999/2000 was in the order of $8 billion and was expected to rise (Sustainable Energy Industry Association 2000).

These findings were generally consistent with ACF/ACTU (1994) forecasts for the sustainable energy sector. Employment trends for other types of green jobs in Australia since 1994 are not available.

**The Green Skills Inc. Survey of 2002**

Research into the state of the environmental industry sector in WA has been undertaken over the last 7 years by the Western Australian Department of Education and Training (Annandale 1999). In 2002, the Department contracted Green Skills Inc. to produce a primary research report aimed at surveying the existing state of the environment sector in WA, and predicting the short-term rate of growth.
The report (Green Skills Inc. *et al* 2002) was based on a survey of 351 organisations, 251 of which were classified as 'environmental sector organisations' by way of their inclusion on the Department of Education and Training's Enviroworks Database (available at: [http://www.training.wa.gov.au/access/content/enviroworks-database.htm](http://www.training.wa.gov.au/access/content/enviroworks-database.htm) accessed 20/02/03). The other 100 were 'general business' organisations selected randomly.

To some considerable extent, the design of the survey instrument was influenced by the ACF/ACTU Green Jobs in Industry report. As with the 1994 report, a key purpose of the survey was to ascertain employment levels and trends.

The survey results make it absolutely clear that environmental employment trends are much more positive than are 'other business' employment trends. Table 2 indicates the extent to which this is the case in relation to the comparison between surveyed environmental sector organisations and the general business sample.

<Table 2 near here>

As can be seen, there is a consistent increase in employment of environmental workers in environmental sector firms, even as 'all workers' in the same firms have been declining. This means that environmental workers are increasing as a proportion of total workers inside environmental sector organisations. Table 2 also indicates the contrast with the general business sample, where significant decreases in employment have been experienced, and are expected for the next 5 years.

The difference in expectations for employment in the 2002-2007 period between the public and private sectors is stark. For example, full-time ‘all workers’ are expected to decrease by 36% in the public
sector, but increase by 77% in the private sector. For full-time environmental workers, projections are for a decrease of 14% in the public sector, and an increase of 82% in the private sector. This observation is consistent with the ongoing shift of employment away from the public sector as a result on contractions in public spending in recent times.

The trends identified in the Green Skills Inc. 2002 survey tie in well with outcomes from the 1994 ACF/ACTU Green Jobs in Industry report. Table 3 presents some comparisons.

Both studies indicate a considerable increase in actual environmental worker employment, and a parallel expected increase for an upcoming time period.

Private sector green employment in the ACF/ACTU survey increased by 70% from 1988 to 1993, and was expected to increase by 23% from 1993 to 1995. This compares with an increase of 147% between 1997 and 2002 for environmental sector private employers in the Green Skills survey, and a prediction of 82% increase for private green employment between 2002 and 2007. Overall, there is considerable consistency between the 1994 ACF/ACTU study and the Green Skills 2002 findings.

A high proportion of environment sector organisations (75%) agreed that the sector as a whole will grow substantially in the next 5 years, and 86% think that further growth is desirable. Combined with the expectations made for employment growth in their own organisations, these statistics provide strong evidence of the expansionary potential of the environmental sector.
Interestingly, a significant proportion of general business respondents agreed that the environmental sector would grow (48%), and that this growth was desirable (48%). This is a noteworthy response, because it is conceivable that this growth may come at the expense of the general business companies that are not environment sector-focused.

This optimism compares starkly with current Australia-wide surveys of business sentiment. For example, in the authoritative Australian Chamber of Commerce and Industry Survey of Investor Confidence for October 2002, 76% of interviewed firms claimed that employment in the medium-term was likely to be 'about the same' or 'lower'. In addition, the Western Australian Employment Outlook Report for July 2002 predicts an 'all industry' employment expansion of only 2.27% between 2001/2 and 2008/9 (Kenyon et al 2002).

Conclusions and Policy Recommendations

We would argue that the combination of macroeconomic modelling studies and primary research projects reviewed in this article provide a strong basis for policy recommendations.

First, the research studies introduced earlier make it clear that the growth in green jobs has been much stronger than in the general business sector over the course of the last 8 years. Stronger growth in the environment sector, and a more positive environment sector business sentiment, is predicted to continue in the upcoming 5-year period. We suggest that Government industry policy needs to fully recognise this growth in the 'new' economy, and that it should be substantially reoriented towards facilitating developments in the environment sector. It should also be recognized that technical skills developed within a strong domestic environment sector have valuable export potential.
Second, while the decrease in public sector environmental employment is being substantially offset by increases in the private sector employment, this 'transfer' is not necessarily direct. For example, many of the jobs lost from the public sector will be in areas that are regulatory in nature, or where there is no operating private market. An example of the latter would be bush regeneration/Landcare activities where there is little room for private sector activity. Hence, Government needs to commit to ongoing funding for some activities that will never become profit earning.

The environmental sector is an emerging industry that requires specific support. The Green Skills Inc 2002 survey respondents indicated that key limits to growth are lack of commitment, funding, legislation and enforcement. These can be substantially addressed by government agencies. The survey also identified training needs and skills shortages being experienced in environmental occupations. The environmental sector, and general business, identified similar occupations where a shortage of skilled or qualified workers has been experienced. The key occupations are: environmental health officer; environmental planner; hydrogeologist; environmental engineer; and landcare coordinator.

Employers identified that it was difficult for them to access training for a range of generic management and communication skills and in a wide range of more specific technical skills. The most common training identified as difficult to access were: bush regeneration skills; soil and water interactions in wetlands and for rehabilitation; management skills; flora and fauna identification; organic agriculture; environmental impact state preparation; environmental assessment and monitoring; and training in industry standards.

It is clear that the government training departments and registered training organisations need to be more adaptive to provide 'just in time' practical training to meet the demands of a rapidly growing
industry. Training is needed in both generic skills similar to all emerging industries, as well as specific environmental industry and occupation training.

Finally, the Green Skills Inc 2002 survey respondents were asked to comment on what 'drove' the generation of green jobs in their organisations. Table 4 presents the outcomes of this set of questions in relation to environmental sector organisations.

<Table 4 near here>

According to answers given to the third question in Table 4, it appears that the demands of regulation have only a small role to play in the generation of environmental sector jobs. Perhaps surprisingly, profit motive is also not considered to play a predominant role in an organisation's drive to establish green jobs. The strongest drivers of job creation in the environmental sector appear to be 'support for sustainable development practices', and 'adherence to environmental practices'. This seems to suggest that if the Government wishes to encourage the further development of green jobs, it should target the interest that organisations have in practical environmental and sustainable development activities.

References


Table 1: Summary of Findings: ACF/ACTU Green Jobs Employer Survey 1994

<table>
<thead>
<tr>
<th>Green Employment Trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Total green employment in the 361 responding firms grew by 38% between 1988 and 1993, and was expected to increase by an additional 9% by 1995.</td>
</tr>
<tr>
<td>• Total green employment in the surveyed industries grew by 81% from 1988-93 and is predicted to grow a further 20% between 1993 and 1995.</td>
</tr>
<tr>
<td>• The average number of green jobs for the 249 employers existing in 1988 increased by 13% between 1988 and 1993 and was expected to increase by an additional 9% by 1995.</td>
</tr>
<tr>
<td>• 49% of employers’ green employment grew more than 20% between 1988 and 1993.</td>
</tr>
<tr>
<td>• 47% of all employers expected green employment in their workplace to grow by more than 20% between 1993 and 1995.</td>
</tr>
<tr>
<td>• Only 10% of employers expected to reduce the number of people employed in green jobs between 1993 and 1995.</td>
</tr>
<tr>
<td>• 32% of large employers (100+ employees) expected their green jobs to increase by more than 20% between 1993 and 1995.</td>
</tr>
</tbody>
</table>

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<tr>
<th>Role of Private Sector</th>
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<tr>
<td>• Private sector firms made up 70% of surveyed employers.</td>
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<tr>
<td>• 34% of private sector firms more than doubled their green employment between 1988 and 1993, while 14% decreased green employment in the same period.</td>
</tr>
<tr>
<td>• 59% of private firms expected green employment to grow by more than 20% from 1993 to 1995.</td>
</tr>
<tr>
<td>• 23% of private sector employers expected their green employment to increase by more than 100% by 1995.</td>
</tr>
</tbody>
</table>

The sample also reflects a young industry – 33% of private sector firms surveyed began operation between 1988 and 1993, employing on average 14 people in 1993.

Source: ACF/ACTU (1994)
Table 2: Percentage Changes in Total Employment for Surveyed Organisations

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Environmental Sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all workers</td>
<td>10% decrease</td>
<td>3% decrease</td>
</tr>
<tr>
<td>environmental workers</td>
<td>63% increase</td>
<td>15% increase</td>
</tr>
<tr>
<td><strong>General Business Sector</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>all workers</td>
<td>88% decrease</td>
<td>64% decrease</td>
</tr>
<tr>
<td>environmental workers</td>
<td>73% decrease</td>
<td>100% decrease</td>
</tr>
</tbody>
</table>
Table 3: Comparison of Environmental Worker Employment Trends Reported by ACF/ACTU and by the Green Skills 2002 Survey

<table>
<thead>
<tr>
<th>Study and period</th>
<th>Percentage change in employment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACF/ACTU: 1988 to 1993</td>
<td>38% increase</td>
</tr>
<tr>
<td>ACF/ACTU: 1993 to 1995</td>
<td>expected 9% increase</td>
</tr>
<tr>
<td>Green Skills: 1997 to 2002</td>
<td>63% increase</td>
</tr>
<tr>
<td>Green Skills: 2002 to 2007</td>
<td>expected 15% increase</td>
</tr>
</tbody>
</table>
Table 4: Drivers of Environmental Job Creation in Environment Sector Organisations

<table>
<thead>
<tr>
<th></th>
<th>Strongly agree (%)</th>
<th>Agree (%)</th>
<th>Neither/nor (%)</th>
<th>Disagree (%)</th>
<th>Strongly disagree (%)</th>
<th>Don't know (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our organisation creates jobs in the environmental sector because we support sustainable development practices</td>
<td>34</td>
<td>27</td>
<td>24</td>
<td>8</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Creation of environmental jobs helps to maintain profitability</td>
<td>17</td>
<td>24</td>
<td>33</td>
<td>14</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>We only employ people in environmental jobs because we are required to by law</td>
<td>1</td>
<td>7</td>
<td>22</td>
<td>26</td>
<td>40</td>
<td>3</td>
</tr>
</tbody>
</table>