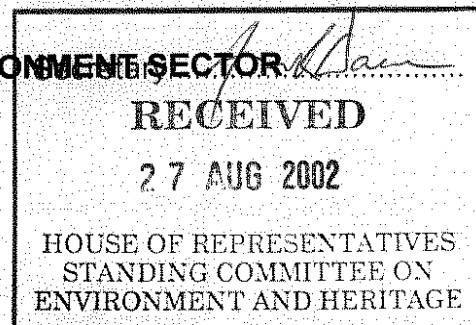


**HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON  
ENVIRONMENT AND HERITAGE**

**INQUIRY INTO EMPLOYMENT IN THE ENVIRONMENT SECTOR**  
**AUGUST, 2002**

Submission by –  
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The focus of our submission is the term of reference -  
"Current status and future requirements for an appropriately skilled workforce"

There is no doubt that the environment sector has been an increasingly important area of economic activity and employment. Internationally the experience in the USA confirms this Bezdek (2001), and in Australia the same pattern has been established. The 1990 report by Industry and Occupational Studies Section undertook a brief survey in Victoria to assess the extent of employment in the field of environmental science (which was broadly defined). More recently the 2001 'Report on Victoria's Environmental Management and Renewable Energy Industries' identified the evolution and growth potential in these environmental areas (SAVI, 2001). In other states there have been similar audits of environmental industries, for example the 2000 audit of the Environment Industry in Tasmania (Department of State Development, 2000). At the national level McGill et al. (2002) have assessed the growth potential of the renewable energy industry. In parallel the data assembled by the ABS in its surveys of local government expenditure has indicated the growing role that the environmental services have.

All this information shows that the trend for an increasing need for environmental goods and services, and the proposals of the ABS to undertake regular surveys of the environment industry is confirmation that the field is well established.

For some 30 years there has been considerable activity in environmental education through both the formal education sector, and through the community. Within the formal sector, environmental education has had an ongoing base in both primary and secondary schools, but one that has seen a spasmodic support by education departments and governments. A case in point is the establishment in the late 1980s of the Victorian Environmental Education Council, with its associated environmental education strategy for Victoria, and the abolition of both in the mid 1990s.

However, most of these environmental education activities have by-passed the tertiary sector.

We argue that this has been a fundamental failing of understanding of how employees are educated, and of education policy. Specifically, no matter how much emphasis an area of learning is given in the early years of education, if it is ignored at the tertiary level, where students are 'immersed' in the discipline of their profession, then the students will reasonably conclude that it is not important. So, the students end up gaining no insight into, in our case, the environment. Yet, as importantly, they gain the

impression that they should not bother with the area. (Surely this is the logic behind why we continue to emphasise English literacy throughout tertiary education.) As troublesome, these students will develop a culture that the environment is irrelevant, and take this into their employment, serving to imbibe new recruits with the same ideas.

For the maintenance of a workforce that is educated about the environment, and more importantly one that is capable of significant future contributions to the environmental industry and to environmental improvement, tertiary education can no longer ignore the role it has. Specifically, the curricular of tertiary education must be renewed if adequately resourced graduates are to emerge to support the potential of the environmental industry.

To their credit, State governments occasionally make reference to the need for tertiary institutions to play their role in environmental education; eg the environmental education strategies of Victoria and NSW. The Commonwealth government also took a limited step in this direction in its 1992 National Strategy for Ecologically Sustainable Development. In 2000 the Commonwealth Minister for Environment promoted a National Action Plan, titled Environmental Education for a Sustainable Future, which contained broad directions for maintaining past initiatives in environmental education (Environment Australia, 2000). Along with the Plan has been the establishment of the National Environment Education Council. Also, the Plan promoted the better integration of environmental education principles into mainstream education, including tertiary. This has been a welcome beginning, however, two years on it is difficult to see what has been happening.

In parallel to government interest, tertiary institutions have made their own moves. Undergraduate and postgraduate programs have been operating in Australia since the mid 1970s. Over this time their number has grown to over 700 and on the Environment Australia (2002) database these are listed in 17 categories (covering the many variations of the natural sciences and the social sciences).

Without some recent research it is difficult to know how effective these programs are in producing graduates who will be able to contribute to an expanding environmental industry. In terms of numbers of graduates, they are probably delivering only a small number of employees – research in the early 1990s indicated that the numbers of students in the programs were small, perhaps averaging 20 graduates per year from each program, when fewer than 100 programs were in evidence (Thomas, 1993). A subsequent survey in the mid 1990s identified over 150 programs, with a majority being in the sciences (Cosgrove and Thomas, 1996).

The other issue is whether these programs are all delivering graduates to an environmental industry, or are primarily focused on educating people in a traditional disciplinary field, and adding a limited environmental understanding. In some situations this may be satisfactory, as there are situations where employees are needed having disciplinary skills, with an appreciation of environmental management. However, this is most unlikely to be satisfactory where we are in the process of developing the environmental industry and require creative employees, well versed in the systemic nature of environmental issues and management possibilities.

Then how do tertiary institutions ensure they are providing graduates with an environmental literacy, so that their graduates will be active participants in the environmental industry?

Since the early 1990s there have been moves world-wide to establish environmental education across the curriculum of tertiary institutions. One of the early approaches has been for universities to sign agreements or declarations like the Talloires Declaration. Many of these declarations focus on the day-to-day operations of the institutions, encouraging a reduction in resource consumption and waste. However, many also propose that the institutions' curricula ensure that all students are educated about the environment, and are encouraged to take a role in reducing environmental impacts in their personal and professional lives. During the late 1990s the emphasis on environmental literacy was broadened to embrace the principles of sustainable development, and the language in these agreements has moved to sustainability education, or similar.

In Australia some six universities have signed the Talloires Declaration. However, our research of less than two years ago indicated that universities across Australia, whether or not they were signatories of Talloires or other declarations, had not achieved anything that could be identified as curricular for environmental literacy, or sustainability education. A similar but more extensive study coming from University of Melbourne indicated similar results. There were certainly many instances where individual courses (subjects) in environment and/or sustainability were taken by students in specific programs (or departments), and may be offered as electives to other students. However, this does not constitute a situation where graduates from non-environmental programs are going to be confident contributors to the environment industry.

Generally when we want to see change we look towards the establishment of a policy to direct the change. Some Australian universities have taken this road for environmental literacy. Signing a declaration like Talloires provided direction, as does the inclusion of environmental literacy in graduate capabilities, or in a teaching and learning strategy. The words are often worthy expressions of intent, however, without well-resourced actions to back them up little happens.

Examples of serious programs to introduce environmental literacy can be found overseas. In the USA at Tufts University and the Georgia Institute of Technology, resources have been provided for staff development, so that staff are assisted with advice and materials to make the revisions in their teaching to incorporate environmental literacy (Thomas, 2002). However, without this there is little chance of any real change occurring.

Our experience of many years teaching in tertiary institutions bears this out. In particular, two studies at our university in the mid to late 1990s demonstrated the point. The studies aimed to have several programs introduce environmental literacy into one or more courses in the programs (Thomas, 2002). During the period of the studies creative work was undertaken by the staff and some course changes were initiated. However, even with staff who were 'on side' and motivated, and where there was policy level support for curriculum change, nothing changed over the medium term – there were too many other requirements on the staff, and they could not continue with an activity that was not given priority by their peers or by the university.

A key aspect of the failure of the studies to generate real change was the lack of staff development support to:

- . assist academics to see how they could broaden the understanding of their subjects to establish an environmental context for their teaching
- . facilitate the inclusion of environmental examples and situations into traditional disciplinary based teaching
- . assist academics to locate related teaching materials and resources in the vast pool of environmentally related resources, and identify the most useful
- . provide academics with a network of peer support to assist them when they were developing the details of their courses, and to provide a 'sounding board' for discussion and evaluation of the new courses.

In summary, the current status related to "an appropriately skilled workforce" is that there are a reasonable number of graduates working and contributing to the environmental industry. The output of the environmental programs at Australian universities is probably sufficient to maintain a small-scale industry. However, with the continuing trend for industry growth (to work on Australia's environmental problems, and to contribute to the potential export of environmental goods and services) we are likely to see a dearth of competent professionals who can both keep up with the known needs of the industry, and be innovative enough to contribute to future needs.

To date universities and government have show little interest in promoting environmental education across the curriculum of universities. To meet the future requirements of the environment industry, universities, with government support, will have to take their commitments to agreements such as the Tallories Declaration more seriously. They will have to support their policies with resources to positively promote staff development, instead of thinking it may happen by 'good luck' as curriculum is changed for other reasons.

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