

Environmental Health Officer Workforce Review

Report prepared for
the Food Safety Unit,
Department of Human Services



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Executive Summary

This project was commissioned by the Food Safety Unit within the Department of Human Services, Victoria. The project is a response to concerns that Victorian local government, particularly in rural areas, were experiencing increasing difficulty in employing and retaining qualified Authorised Officers/Environmental Health Officers (AO/EHOs).

The project was designed to provide information on the AO/EHO workforce and to identify skills and knowledge required to adequately enforce the Food Act. It also provided an opportunity to investigate possible training pathways and options for managing workforce skills and knowledge.

The project was undertaken in two broad phases.

- Phase 1: Developing a picture of the workforce including the possible workforce in the short-, medium- and long-term.
- Phase 2: Investigating skills and knowledge requirements for Victorian Food Act administration and enforcement.

These phases include qualitative and quantitative data collection. Phase 1 involved surveys of AO/EHOs and local government managers of EHOs, as well as focus groups with EHOs. Responses were also received from a small group of EHOs who had left the role in the past 12 months.

Phase 2 involved mapping training pathways for EHOs and to access skills and knowledge for the contemporary and future roles. Models for managing workforce skills and knowledge were also identified.

The project found that:

- this is a workforce in transition, with a shift to a younger, more feminised workforce;
- EHOs are largely employed on a full-time, permanent basis, but non-standard employment arrangements may be a feature of the future workforce given the changing demographics;
- the EHO role covers a range of functions, but their main activity is administration of the Food Act; and
- while EHOs are generally satisfied with their job, there is a poor fit between their expectations of aspects of the role and their levels of satisfaction. The areas of poor fit are: support or recognition of the role, career opportunities, pay and conditions and mentoring and development

The project analysed workforce mobility and projections for the short-, medium- and long-term. It found that while longevity in the role is a characteristic of the profession there is a lot of mobility within the workforce.

This is a tight labour market with indications of little change over time. The supply of graduates is unlikely to meet future demand for graduates in the short- to medium-term. The long-term view is less clear, but given the risks associated with the role and the lag-time required to become skilled for entry to the workforce early intervention is recommended and the number of people aging out of the workforce.

Recommendations

Supply and demand for EHOs

The projected workforce suggests a probable imbalance between the likely demand for EHOs and the possible supply of qualified personnel in the system. Strategies need to: attract people to the role and ensure that new entrants have requisite skills.

Recommendations

1. Establish a register of EHOs who are available for both short-term and longer-term appointments.
2. Explore options to support rural and remote councils to recruit EHOs. This could include supporting targeted traineeships or cadetships for students from rural areas.
3. Support councils to target recruitment campaigns and strategies to attract qualified EHOs back from retirement, career change and family leave.
4. Work with training providers to support targeted recruitment campaigns aimed at attracting both school leavers and mature age entrants.

Profile of the EHO role

Satisfaction of EHOs is affected by the extent to which they feel that the value of the EHO role is recognised and supported by their council. Many EHOs feel marginal to the business of local government and that their role is held in low regard within broader council services.

Recommendations

Explore options to raise and promote the profile of EHOs.

5. Support councils to effectively promote value-adding features of EHO services to food businesses and the wider community.
6. Link with related projects to promote careers in local government and remote and rural areas to specifically feature options for a career as an EHO.

Improved support for EHOs

A related issue is the extent to which EHOs perceive that they have support from their council in conducting their work. EHOs reported that the politics of councils interfered with their ability to enforce legislation. They also cited the need for mentoring and administrative support to assist their effectiveness in the

role. This would build on existing networks such as those facilitated by REHOs and the AIEH.

Recommendations

7. Promote training in staff development, leadership, management and advocacy of the EHO role as part of ongoing professional development for team leader and co-ordinator positions.
8. Develop and formalize existing mentoring networks, particularly in rural and remote areas. Build on existing networks to provide a more formalized mentoring arrangement, particularly for young, sole operators.

Consistency in enforcement

Stakeholders acknowledge that lack of consistency in approaches to enforcement is a source of frustration to EHOs, industry and DHS alike.

Recommendation

9. Explore approaches to improving consistency across councils.

Job design

The EHO role is characterised by diversity in activities and an expanding range of functions. EHOs report that risk management requires that they play an educative and supportive role in supporting food businesses. Some reported a tension between regulatory and educational roles and also identified resources constraints and workload pressures as impediments to fulfilling the educative role.

A strategic approach to job design is needed to address changing job roles, manage EHO expectations of the role and to take advantage of the increased skills and knowledge of new entrants.

Recommendation

10. Explore approaches to enhancing the business support role of EHOs and associated resourcing requirements.
11. Undertake further research into EHO job design to provide local government with a range of practical job models and job design guidelines. The purpose of this exercise would be to set out a range of possibilities, recognizing that there is currently and will continue to be diverse approaches to job design.

Such work should take account of the issues raised by this project including options for restructuring work within existing EHO job profiles as well as the possibility of creating structured job pathways through development of a technician role and also career progression to middle and upper management roles. This would also require consideration of related training requirements and pathways.

Training and development

Analysis of surveys and focus group responses highlighted a range of issues related to professional development and training needs of EHOs. These issues included: the quality and depth of training; targeting managers' and coordinators' training needs; facilitating career development; flexible delivery; and planning and coordination of professional development.

Recommendations

12. Promote the role of EHOs to potential entrants to the profession. This includes providing information on likely job opportunities in local government for course entrants.
13. Explore opportunities for structured training to address higher order technical skills and knowledge relevant to EHO roles. This builds on existing post graduate courses and should support structured career pathways for EHOs to develop fields of technical specialisation.
14. Investigate scope to identify units to meet both entry level and professional development training needs to support flexible, recognised points of entry to the training system.
15. Explore flexible delivery modes of training applicable to both entry level training and ongoing professional development.
16. Identify, develop and/or promote training to meet the identified skill gaps.
17. Promote professional development opportunities appropriate to deepening skills of more senior EHOs and managers, particularly in skills required for staff support and mentoring.

The following recommendations relate to supporting and fostering the professional skill base of the EHO workforce.

18. Explore the development of a network of technical specialists who could take a role in providing specialist expertise to other councils and in mentoring other EHOs.
19. Identify, schedule and communicate a professional development schedule. This should be undertaken in consultation with other PD providers and with EHOs to ensure that their needs in terms of content, scheduling and receiving advance notice are met.
20. Provide information and guidance to EHOs relating to their role in assessing whether a food business complies with the skill and knowledge requirements specified in food safety legislation.
21. Conduct stakeholder consultation to support the establishment of a robust and effective professional development scheme

Food handler training

The skills and knowledge of food handlers is a related area of interest. Food handlers may know what to do, but may not demonstrate correct food handling practice. It is important that

food businesses have the capacity to design and monitor systems and procedures to instruct food handlers on what to do and to ensure that they do it.

The quality of training is also an issue, particularly the need for assessment to take full account of specific workplace food handling requirements.

Recommendations

22. Investigate the suggestion that food proprietors undertake food safety training as a condition of entry to the industry.
23. Provide support to businesses to improve food safety management systems.
24. Examine options to monitor and manage both the quality and currency of food handler skills and knowledge.
25. Provide information and guidance to EHOs relating to their role in determining whether a food business complies with the skill and knowledge requirements specified in food safety legislation. Such advice should cover how to confirm:
 - that relevant competencies have been achieved and can be demonstrated in the relevant work context.
 - the systems or methods in place to transfer information to food handlers on their roles and responsibilities.
 - the systems in place to ensure that food handler skills and knowledge is appropriate to the work responsibilities.

Managing workforce skills and knowledge

Professional certification schemes in other professions provide models for managing the skills and knowledge of EHOs for administering the Food Act.

These schemes are diverse, but have some common elements: they typically offer professional certification or registration to practice in a given field which builds on attainment of a relevant qualification; and most require members to undertake professional development to maintain competencies and most also define a professional code of conduct.

Recommendation

26. Establish a workforce data base. This would require that councils provide regular reports to DHS on workforce data. This project has mapped the demographics of the EHO workforce at a point in time. The real value of this work is to use it as a template to develop an ongoing workforce data base that can be used to monitor and track the workforce is tracked over time. Such a data base would provide workforce planners in DHS and local government with the necessary information to make informed decisions. It would support local government to more systematically benchmark their staffing profiles. It would also be a useful resource to training providers to support their planning processes. Data base users need to be consulted on the specific content of reports which could include:

- numbers of EHOs by position
 - nature of employment contract and hours of work
 - labour turnover
 - budget allocation for workforce development
 - council projections for EHO numbers for their next planning period.
27. Stakeholders investigate the establishment of a robust & effective professional development scheme.

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1. Introduction

In summary:

- ❖ The project examined
 - Nature and demographics of the existing EHO workforce in Victoria and what it might look like in the future (next 10 years)
 - Skills and knowledge required to administer the Victorian Food Act
 - Possible training pathways to acquire these skills and knowledge, and
 - Options for managing workforce skills and knowledge.

This project was commissioned by the Food Safety Unit within the Department of Human Services, Victoria. The project is a response to concerns that Victorian local government, particularly in rural areas, were experiencing increasing difficulty in employing and retaining qualified Authorised Officers/Environmental Health Officers (AO/EHOs).

The project was designed to provide information on the AO/EHO workforce and to identify skills and knowledge required to adequately enforce the Victorian Food Act. It also provided an opportunity to investigate possible training pathways and options for managing workforce skills and knowledge.

This project takes place in the context of similar studies conducted in other states in Australia including South Australia¹ and Queensland² and internationally³. A number of related projects were concurrently undertaken in Victoria including a project to identify short term professional development support needs of AO/EHOs and a project to evaluate food safety supervisor Requirement of the Victorian Food Act.

The outcomes of this project will be used to provide information about:

- workforce shortages in the near future (next 10 years)

¹ EHO Workforce Review Working Group (2004) Environmental Health Officer (EHO) Workforce Review, 2004. Adelaide: Department of Health.

² Morton Consulting Services (2004) Public Health Workforce in Local Government: Functions, Skills, Recruitment and Retention. Brisbane: Queensland Health.

³ Employers Organisation for local government Society of Environmental Health (2002) *Environmental health workforce survey, 2002*. London: Employers Organisation for local government Society of Environmental Health

- the environment facing local government when recruiting staff to enforce the food act
- the issues EHOs identified they face in their work environment
- the potential barriers to Victorian Food Act enforcement in the future
- a range of potential strategies which could be utilised to plan for an adequate and trained workforce to administer the Victorian Food Act into the future.

Method

The project was undertaken in two broad phases.

- Phase 1: Developing a picture of the EHO workforce across all functions, and secondly identifying the projected EHO workforce requirements for the next 10 years
- Phase 2: Investigating skills and knowledge requirements needed in the administration of the Victorian Food Act.

These phases include qualitative and quantitative data collection as described below

Phase 1

Phase One of the project provides a detailed picture of the characteristics of the AO/EHO workforce and identifies factors shaping the role of AO/EHOs under the Food Act, now and into the future.

Surveys were developed to collect information on:

- AO/EHO Demographics
 - Age and gender
 - Location
 - Employment history/length of service
 - Employment arrangements
 - Qualifications
 - Further training / professional development
 - Salary levels
- AO/EHO Job profile
 - Recruitment requirements and experience
 - Retention issues
 - Job design / time allocation
 - Job satisfaction
 - Career aspirations
 - Support and assistance provided
 - Surveys

Survey development and distribution

The target population for data collection in Phase One was AO/EHOs in local government. Two principle survey instruments were developed:

- Survey 1. AO/EHOs (Appendix 1). These were distributed to 286 AO/EHOs.
- Survey 2. Local Government Managers of AO/EHOs (Appendix 2). DHS distributed this survey to all local governments in Victoria.

The surveys were developed after:

- reviewing recent EHO labour market studies and related data collection instruments;
- consulting with the client and key stakeholders through the Project Reference Group to refine the specific information sets required by the project;
- developing survey content and designing the survey instruments; and
- piloting the survey instruments with target users and making adjustments according to the feedback received.

A number of survey questions requested information on potentially sensitive issues. A website was established to allow survey respondents to access and complete the survey anonymously. This method was selected to encourage open and honest responses, to counteract possible resistance to responding and/or overcome the likelihood that respondents would anticipate preferred answers.

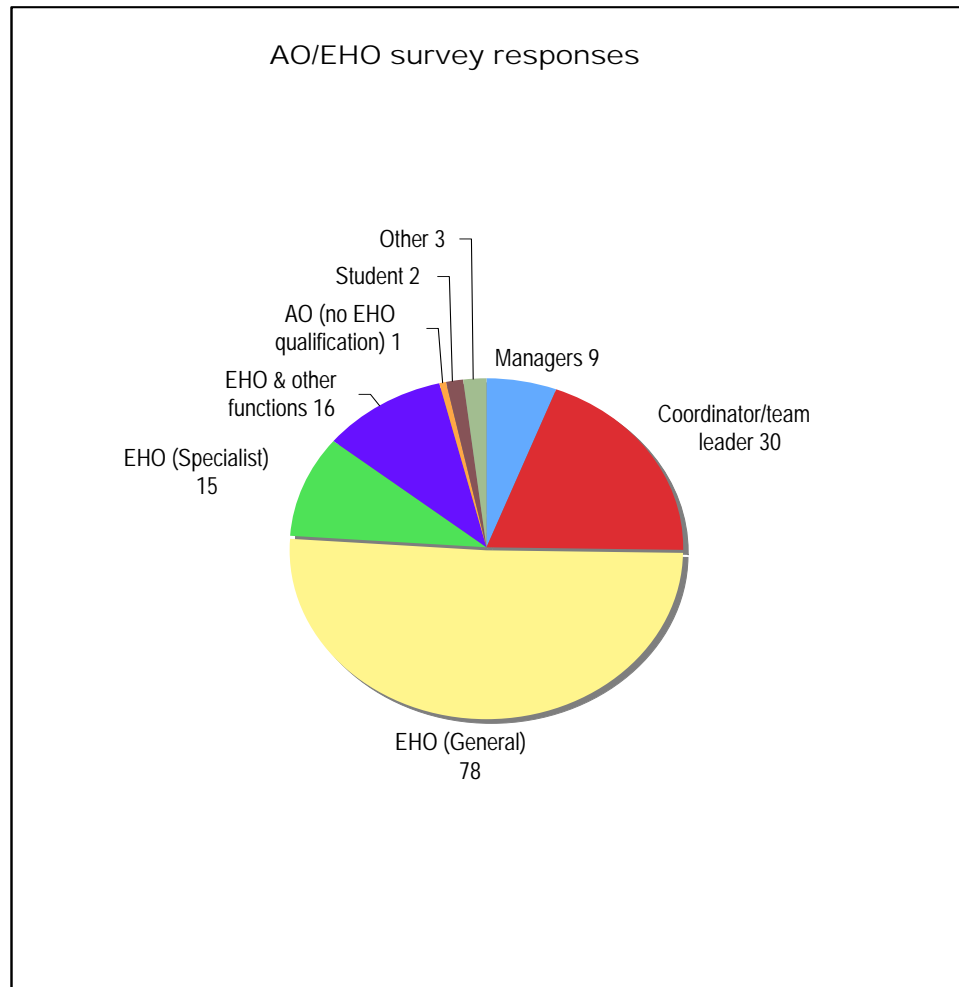
DHS notified EHOs and EHO managers of the survey via email using the DHS contact list. Some people had difficulty accessing the website. As a result the option of completing and returning the survey by email or fax to the consultant (ensuring their anonymity) was also provided.

The project took the following steps to maximise the response rates to both surveys:

- extended the deadline for responses
- DHS posted reminders on Vicfin
- worked closely with Regional Environmental Health Officers (REHOs) who played a vital role by actively encouraging both EHOs and managers to respond
- in regions where there was a particularly low response to the manager survey, selected phone interviews were conducted.

The project aimed to achieve, at a minimum, a response rate of 35% of EHOs and councils within each region.

Figure 1 Survey responses to the AO/EHO survey

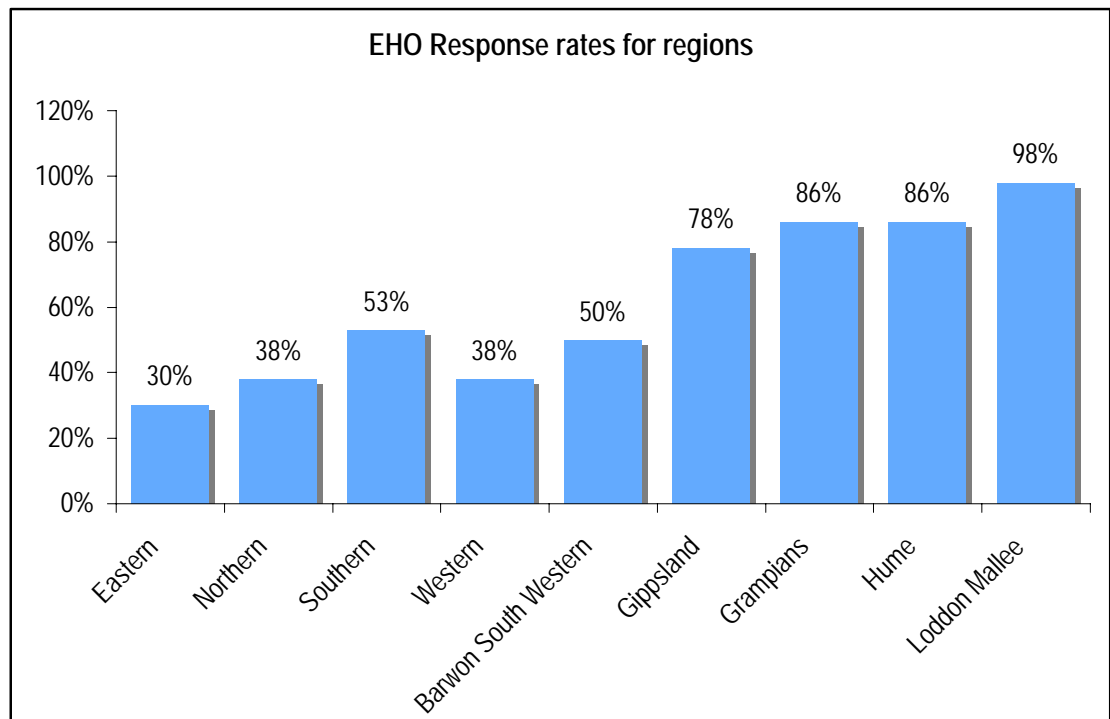


Responses to Survey 1: AO/EHO Survey were received from 154 AO/EHOs providing a response rate of 54% overall. This response rate exceeded the quota of 35%. The quota was set above the rate of 30%. This is based on an assumption that over 1/3 responses provide a reasonable basis for generalisation to the broader AO/EHO population from a survey of this type.

At a regional level, responses exceeded the quota (35%) for all but Eastern region (30%) and were received from across the range of EHO roles (Figure 1). The response rate for Eastern region suggests that responses are likely to be understated for this region. Appendices 1 and 2 provide the raw data for both surveys.

EHOs in regional areas responded at a greater rate (78%) than did those in metropolitan areas (41%), each of which exceeds the quota

Figure 2 EHO response rates by region



Responses to Survey 2: Responses were received from 54 managers of AO/EHOs. This represented a response rate of 69% of Councils. The councils represented in these responses employed 79% of the EFT AO/EHO workforce. The response rates for Hume (33%) and Eastern (43%) regions were lower than for other regions, but as they represented over a third of the councils in these regions they provide a sufficient basis to generalise from. Councils of all sizes are reflected in the response population.

Table 1 Response rates by council clusters

Cluster	Responses	
	N	%
Very large metropolitan	8	67%
Large metropolitan	13	93%
Medium metropolitan	3	75%
Regional	5	100%
Large rural	6	86%
Medium rural	6	40%
Small rural	9	45%

The size of councils was seen to be an important factor in analysing the composition of the workforce. Councils were classified into clusters according to their size and location (Appendix 3). The basis of the classifications used was derived from an Auditor General's report⁴. The quota of 35% response rate was achieved for each council cluster (Table 1). Analysis by cluster rather than region is preferred as response bias is not a

⁴ Auditor General Victoria, 2002, *Management of Food Safety in Victoria*, Government Printer, Victoria

factor. Babbie suggests that '*a demonstrated lack of response bias is far more important than a high response rate*⁵

Early leaver survey

A third survey was developed to target responses from AO/EHOs who had left the role in the previous 12 months (Appendix 4). Initial plans to distribute the survey via local councils proved unsuccessful. An alternate strategy was to seek assistance from the Australian Institute of Environmental Health (AIEH) who agreed to distribute the survey to their member list. This resulted in five responses. An additional response was received from a recent leaver who contacted the project directly. Responses to this survey provide anecdotal data on the views of this group and reinforce the issues raised through the AO/EHO survey responses.

Focus groups

A series of focus groups were conducted to collect qualitative information. REHOs provided advice on the most appropriate locations and timing of the focus groups and played a critical role in organizing and encouraging participation. Selection of locations was designed to ensure geographic spread and to encourage participation from all areas of the State. DHS also posted information on Vicfin to advise EHOs of focus group schedules. Given the number of meetings EHOs were being requested to attend, efforts were made to combine with existing meetings where practical to reduce the demands on EHO's time. Focus group attendance was impressive – both in terms of the numbers and the contribution with many rural group participants travelling considerable distances to participate. See Appendix 5.

Workforce projection

The project described the possible future EHO workforce. The approach considered:

- the context for workforce growth including broad demographic and economic change
- projected demand for EHOs in the short-, medium- and long-term, and
- possible sources of supply of EHOs to meet demand.

The approach to determining the projected workforce for EHOs employed three different approaches. Each of these provided a different viewpoint on the possible future workforce. The approaches employed statistical modelling of data on industry and occupations; a broad view of economic trends and broad replacement demand; and the results of the local government managers' survey.

⁵ Babbie, E. R. (1973) *Survey research methods*. Belmont: Wadsworth Publishing.

Phase 2

Phase 2 provides a detailed picture of the issues surrounding EHO's administration of the Victorian Food Act – specifically focussing on the skills and knowledge required for this work.

The purpose of Phase 2 was to:

- Identify the skills and knowledge necessary to administer and enforce food law in Victoria now and in the future.
- Consult consumers of EHO services to ascertain their needs regarding AO's/EHO services related specifically to the Victorian Food Act now and in the future.
- Review changes in food handling training over the last 5 years, the changes in the level of knowledge of food handlers relating to their practices, and the impact this advancement has on the tasks AO's/EHO's may be required to perform in the future.
- Investigate and map current AO's/EHO's training and other relevant courses against skill and knowledge requirements to administer the Victorian Food Act.
- Investigate current ongoing training available to AO's/EHO's and outline the range of learning pathways for this workforce, including the recognition processes accompanying these.
- Investigate a range of existing models used to monitor workforce skills and knowledge from other sectors to identify aspects of these models which could prove useful in addressing AO's/EHO's workforce issues and assist in managing a workforce to administer the Food Act in Victoria.
- Review of the literature relating to existing models of managing the Food Safety workforce in other States and territories in Australia and Overseas.

The data collected in Phase 1 was drawn on to address aspects of Phase 2. Additional data was collected via:

- a dedicated session attended by EHOs and EHO managers to provide input on skills and knowledge requirements of EHOs. (Appendix 6).
- a phone survey with consumers of EHO services (Appendix 7).
- literature reviews: food handler training reports; local and overseas models for managing workforce skills and knowledge.
- desktop search of training programs relevant to AO/EHOs.

Detailed discussion of methodology is provided in the relevant report sections.

Report structure

The report is structured around the broad themes that emerge from the work of the project. Each section draws on the range of data collected throughout the project.

Ch 2. Demographics

Ch 3. Recruitment, mobility and retention

- Ch 4. Job satisfaction and career satisfaction
- Ch 5. Job design
- Ch 6. Training & development
- Ch 7. Future labour projections
- Ch 8. Training pathways to support skills and knowledge to administer the Victorian Food Act
- Ch 9. Models for managing workforce skills and knowledge

2. Demographics

In summary:

- ❖ This is a workforce in transition
- ❖ It is shifting to a younger, more feminised workforce
- ❖ EHOs are largely employed on a permanent, full-time basis,
- ❖ Non-standard employment is likely to increase in the future.

This discussion draws on two data sets. The local government managers' survey data provides an overview of the workforce size. More detailed demographic information is provided by the EHO survey. Basic demographic data provided in this chapter covers the following features of the AO/EHO workforce employed in local government:

- Workforce distribution by role and location
- Age and gender
- Work contract arrangements and hours of work
- Remuneration

Other survey findings are reported throughout the remaining body of the report.

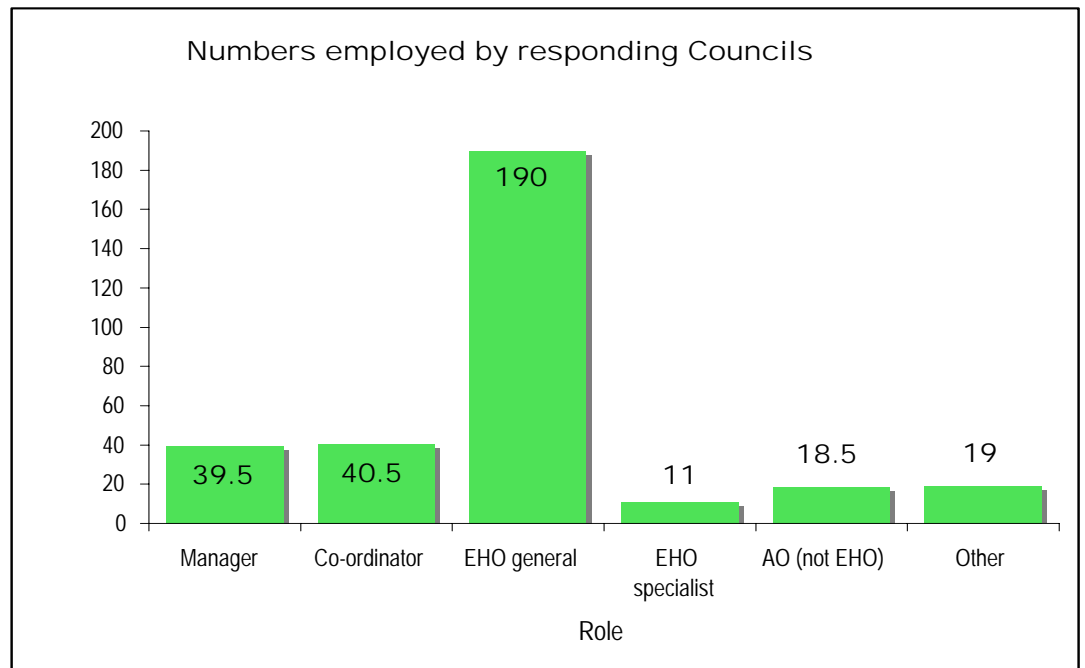
The workforce

Current workforce

Councils responding to the Managers' survey employ 219 effective full time (EFT) EHOs. Of these, 28% employed were an AO (not qualified as EHOs), which represented 18.5 (EFT) positions. These AOs primarily undertook Tobacco Act surveillance and managed Health Act complaints. Some also worked on: Food Act surveillance (49%); immunisations (43%); Health Act assessment (22%); and EPA programs (27%).

Nineteen employees were classified as 'Other'. The description of these positions overlaps directly with those of AO/EHOs and also includes specific functions such as combined local laws functions (mosquito and pest control) and acoustic engineering.

Figure 3 Number of EHOs employed by responding Councils by role

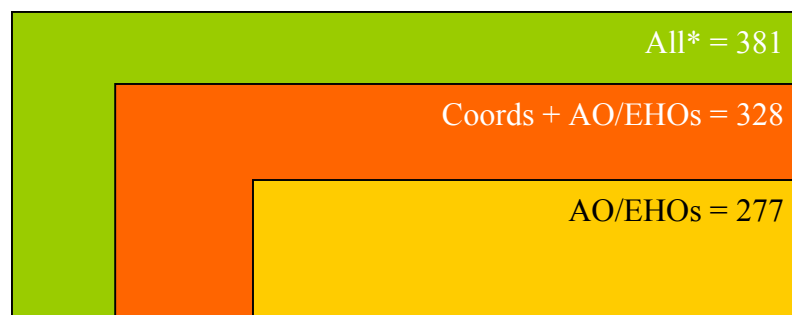


The estimate of the total current workforce is based on the survey responses provided by managers. Where no response was received, information provided by the regional EHOs (REHOs) was used to develop an estimate of the size of the total EHO workforce in local government (Figure 4).

The total workforce is estimated at 381, including managers, coordinators, EHOs, AOs not holding an EHO qualification and those nominated in the 'other' category.

There are inconsistencies in the way EHO numbers are recorded by councils. Some councils view the co-ordinator/team leader position as a distinct role while a number of smaller councils have combined EHO and co-ordinator, and in some cases managers, positions. This estimate of the current workforce is likely to be slightly overstated.

Figure 4 Estimated size of the total workforce for EHOs



Who is in the workforce? Age and gender

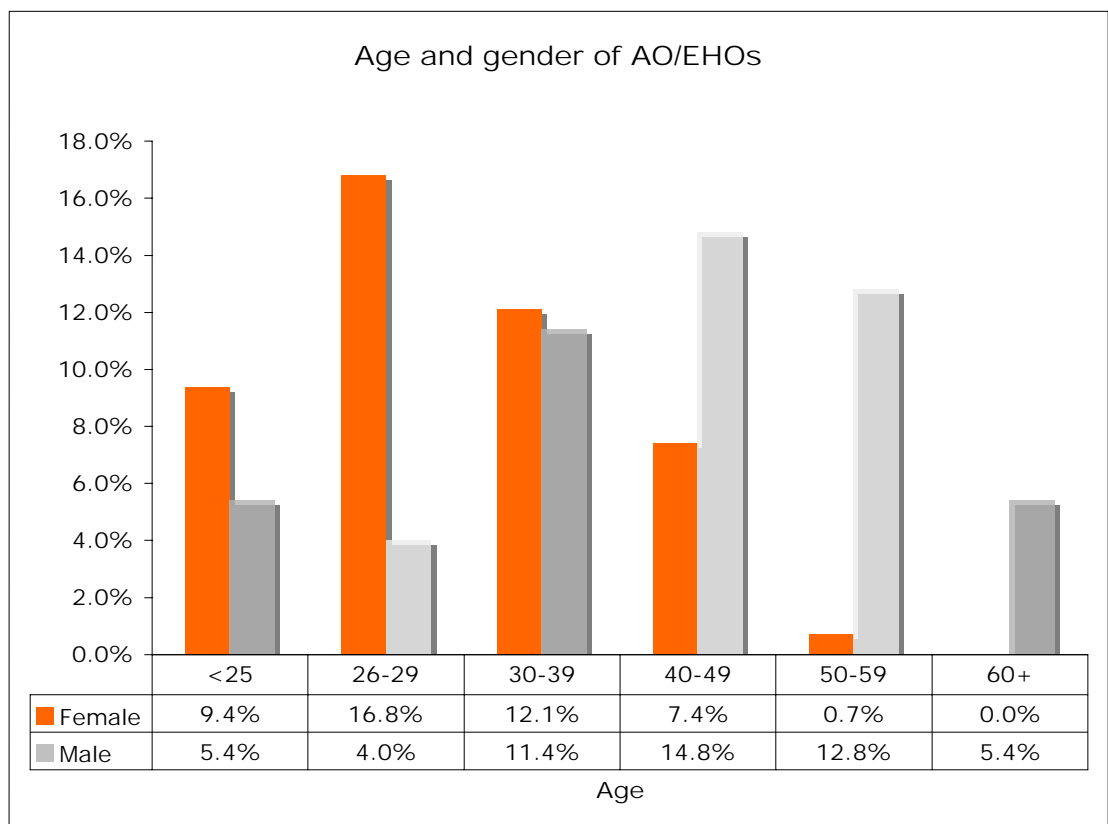
The description of workforce demographics below is based on the sample of EHOs who responded to the AO/EHO survey.

The data from the AO/EHO survey shows two distinct populations in the EHO workforce - young females and older males. This suggests that the workforce is in a period of transition toward a younger and more feminised profile.

Females represent 46% of the workforce, but occupy 65% of the positions for younger AO/EHOs (aged less than 40). Males occupied 54% of the workforce and 35% of the employment pool of those under 40 years. They represent 80% of the workforce aged over 40. Given the general trend in the workforce to young females occupying new positions and greater proportion of female students in training, it is likely that as older males exit the workforce the relative proportion of females to males is likely to increase.

The trend towards further feminisation of the workforce is also indicated by the gender profile of students in their final year of study, the majority (75%) of whom were female in 2004⁶.

Figure 5 Age and gender profile of respondents to the AO/EHO survey



⁶ Interviews with training providers (Swinburne and LaTrobe Universities).

Feminisation of the workforce has implications for the stability of the workforce, particularly as 83% of the female workforce is aged under 40 and within the age groups most likely to leave for family reasons.

Replacement need is also driven by retirements from an occupation. A high proportion of the workforce (41%) is aged 40 and over. The majority of these AO/EHOs are male (80%). The South Australian study found that 49% of EHOs in their state were aged over 40⁷ and this is significantly higher than for Victoria.

While there is no compulsory age of retirement, the trend both locally and internationally is towards advancing the retirement age. The age at which most people can access pension benefits is 65 years. The proportion of the EHO workforce that are likely to reach that age in the next five years is 5.4%. All of these EHOs are male. Those eligible for early retirement at age 55 in the next five years are also largely male (18.2% or nearly one in five EHOs). Only 0.7% of female EHOs are aged over 5 years.

Attrition from the profession may be an issue for those who have been in the workforce for long enough to reach the peak of the pay scale and promotion opportunities as EHOs and may seek alternative pathways for career advancement. These are most likely to be in the 30 to 49 year old age group, which represents 45.7% of EHOs, mainly male (26% of EHOs).

Where do they work?

Responses were received from AO/EHOs across large and small councils in both metropolitan and regional Victoria. Of the EHO survey respondents, 51% worked in metropolitan councils. This contrasts with the distribution of the total EHO workforce where 72% work in metropolitan councils. This may suggest an understatement of responses for metropolitan Councils.

⁷ Environmental Health Service (2004) *Environmental Health Workforce Review 2004*, Adelaide: Department of Health.

Figure 6 Respondents by region of employment



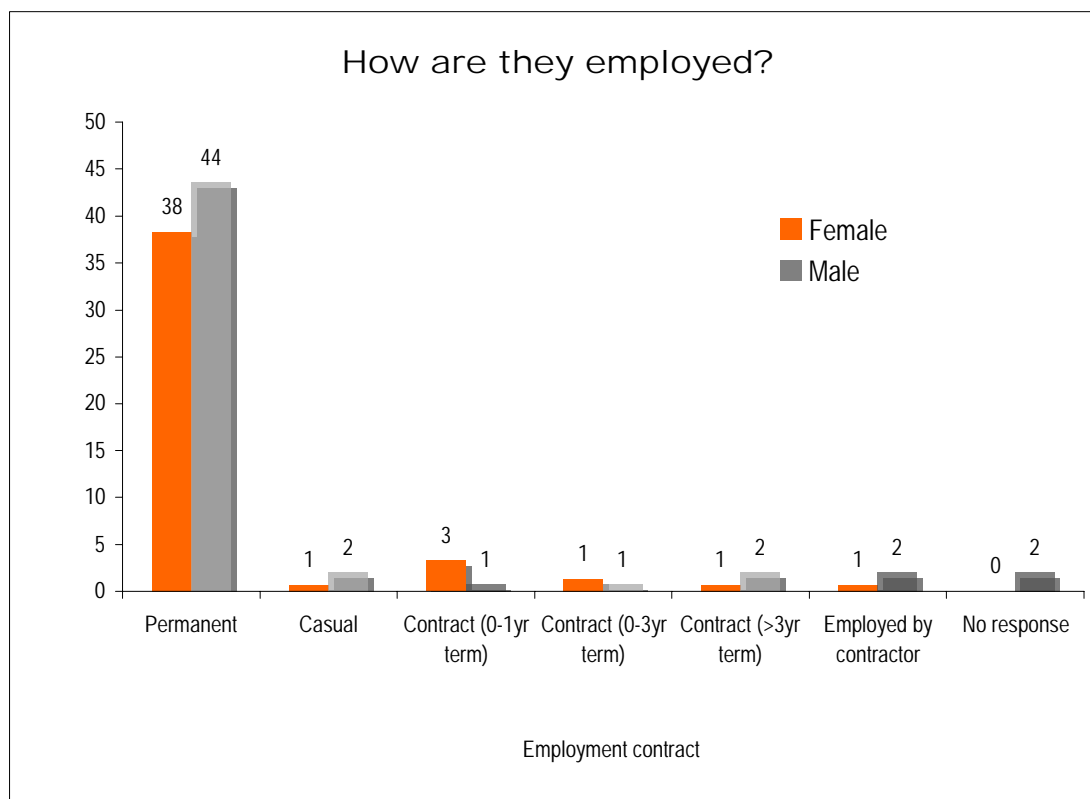
How are AO/EHOs employed?

The majority (83%) of responding councils report that they employ EHOs directly. The remaining councils reported that they either purchase EHO services from another council or share a portion of EHO time with another council. Only one council reported purchasing services from a private contractor. This is likely to under-represent the numbers of contractors working in local government. A number of contractors attended the focus groups and reported that they worked across a number of councils.

The vast majority (84%) of EHOs are employed in permanent, full time positions. This is in marked contrast to general trends in the labour force where casualisation is increasingly common practice across the labour market⁸.

⁸ Marginson, S. (2000) *Changing nature and organization of work and the implications for VET in Australia*. Leabrook: NCVET.

Figure 7 Employment of EHOs by gender



Fixed term and casual contracts describe only a small proportion of employment arrangements according to survey data. Females were more likely to fill short-term (0–1 year) contract positions. However, males were more likely to be employed by an external contractor or to work on a casual basis than were females.

The trend in the Australian labour market is to casual and part-time employment⁹. This information together with focus group feedback suggests that demand for non-standard employment is likely to increase. Some managers in survey responses provided information on how they intend to meet this demand. Of those managers who said more positions would be created, a small portion of these new positions anticipated that these would be part-time (9%) and 15% planned to use contract services. These together (24%) still represented the smaller portion of anticipated job growth. Thirty five percent anticipated creating additional full time positions. Thirteen percent of managers suggested they would recruit AOs or others not trained as EHOs to fill these roles.

⁹ Hall, R., Bretherton, T. and Buchanan, J. (2000) *Its not my problem: The growth of non-standard work and the impact on vocational education and training in Australia*. Leabrook: NCVET.

Table 2 How managers expect to increase the number of required AO/EHO positions

Strategy ¹⁰	%
Creating additional full-time, permanent positions	35%
Creating short-term and/or limited contract positions	0%
Creating part-time positions	9%
Creating a shared position with another Council	0%
Purchasing contract services as required	15%
Recruiting qualified AOs who do not hold an EHO qualification	4%
Other	9%
employ students	2%

What hours do they work?

Family friendly work arrangements were reported to be very important to EHOs, yet only 12% of the workforce worked less than full-time. The most common 'family friendly' arrangements reported were flexibility to schedule hours and provision of rostered days off. In some cases, these arrangements were offered on the provision that the existing workload was achieved.

There is a statistically significant relationship between hours of work and gender (slightly less than $p < .05$)¹¹. That is, men work longer hours than do women, possibly because they are more likely to occupy senior positions.

Part-time positions were more likely to be held by women (75%). Men aged over 50 held the remaining part-time positions (25%). Focus group respondents together with comments received via the survey explained that some men return to work as EHOs after retirement and that this is often on a part time basis. One EHO in this position explained that he was approached by council to return to the role because of difficulties they had in finding appropriately qualified and experienced staff.

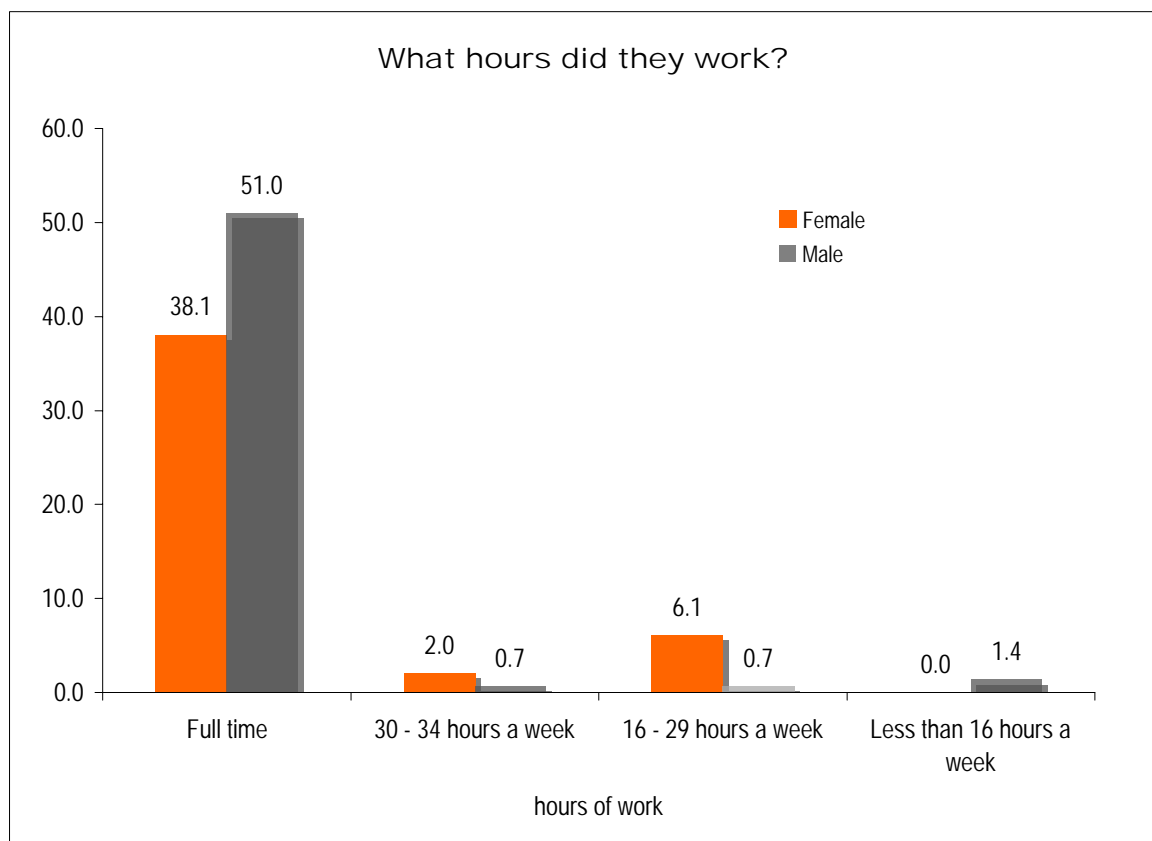
¹⁰ The data includes those who provided multiple responses

¹¹ Data was analysed to determine whether there were statistical relationships between key variables of:

- age and employment, work hours or salary;
- gender and employment type, work hours or level of job satisfaction; and
- council cluster and employment type, work hours or job satisfaction

Results are reported in Appendix 14.

Figure 8 Hours of employment for EHOs



Three key drivers of change are likely to affect the nature of employment contracts.

- the trend to increased numbers of young women in the AO/EHO workforce is likely to result in increased demand for part-time employment from those who are seeking more family-friendly work arrangements.
- the distribution of males in the older age groups approaching retirement age. Possibility for these men to also seek part time work after their retirement.
- focus groups suggested that there is a trend toward 24/7 service¹² to coordinate with the operating practices of business. Aligning EHO work hours to correspond with the working time of businesses in the local government area would require a shift in contractual arrangements that affect hours of work and may require increased non-standard work arrangements.

How much are they paid?

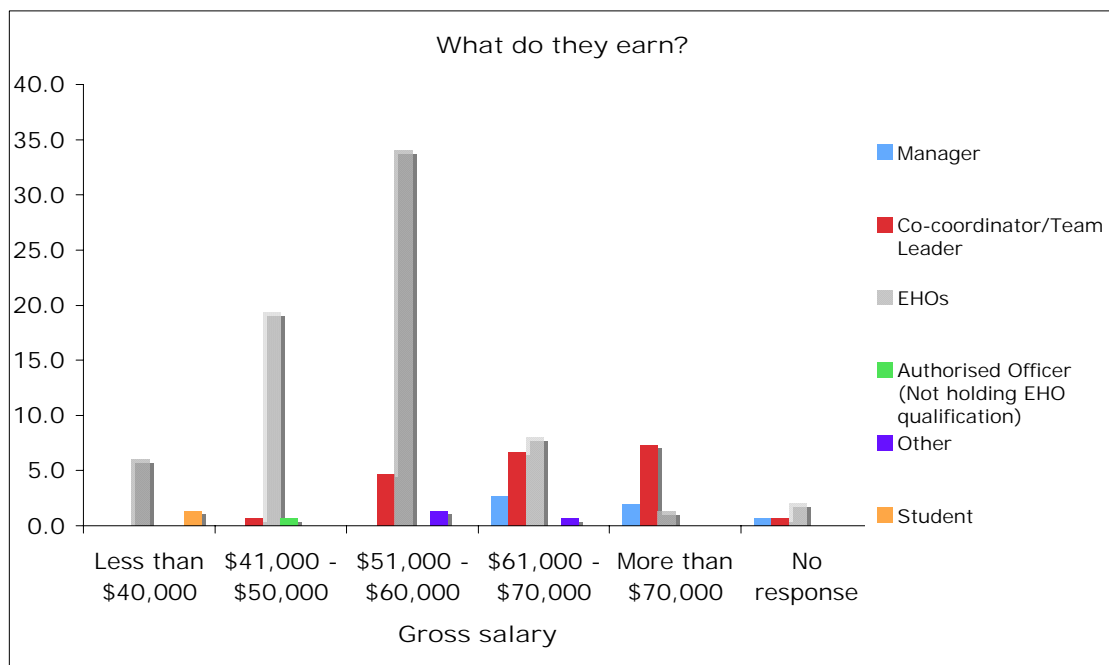
Remuneration is concentrated in the salary bands from \$41,000 to \$60,000. There is a statistical relationship, but not a

¹² 24/7 service describes service availability 24 hours a day, seven days a week.

statistically significant one ($p < .05$) between salary and age group. This is to be expected as younger workers are in junior positions that offer lower wages.

In survey responses, pay and conditions were reported to be very important by 48% of EHOs compared to only 36% who reported that they were very satisfied with this aspect of their work contract. Focus group participants suggested that AO/EHOs are reasonably satisfied with their level of remuneration. New entrants particularly felt that their salary was fair. On the other hand, more senior EHOs were most likely to be dissatisfied with pay. This was explained by the fact that higher salaries are used to attract new EHOs, sometimes directly into band 6, and this provides limited scope to differentiate pay to reflect experience and responsibility.

Figure 9 Gross salaries of AO/EHOs



Salary alone is only one aspect of the remuneration package. EHOs and managers cited use of a car and mobile phones for personal use as important conditions provided for within salary packaging. In some cases – particularly in rural areas, failure to offer these additional benefits was cited as a barrier to attracting and retaining EHOs.

Summary

In summary, this is a workforce in transition. It is shifting to a more feminised workforce. As older males exit the workforce the profile of females will increase.

EHOs are largely employed on a permanent, full-time basis. Given the general trend in the labour market to casual and part-time employment, non-standard employment is likely to increase.

Three key drivers of change are likely to affect the nature of employment contracts.

- the trend to increased numbers of young women in the AO/EHO workforce is likely to result in increased demand for part-time employment from those who are seeking more family-friendly work arrangements
- the distribution of males is toward older age groups approaching retirement and those who have limited further opportunities for advancement
- the trend toward 24/7 service to coordinate with the operating practices of business and associated contractual arrangements for hours of work.

3. Recruitment, mobility and retention

In summary:

- ❖ Labour shortages, flows of new entrants, intensification of workload and associated increases in overtime suggest that this is a tight labour market
- ❖ Longevity in the role is a characteristic of the profession
- ❖ The workforce is highly mobile within the profession
- ❖ Image and professional development are key issues for attracting and retaining EHOs.

Recruitment

Councils that reported filling an EHO vacancy in the last 12 months were asked to provide information on how long it took to fill vacancies. Generally vacancies were filled within a short time with some exceptions. Thirty eight percent of the councils filled positions in less than a month and 43% filled vacancies within one to three months of advertising. However, 11% reported positions that remained unfilled for over three months. Of the four councils taking longer than three months to fill positions, three were in regional Victoria.

While experience on the time taken to recruit differed, in general most councils are able to fill EHO positions but this was qualified as illustrated by the comment of one manager below:

*You can fill positions, but you have no real choice.
You have to take whoever you can get.*

Most councils use existing networks to recruit staff. They commented that general newspaper advertisements were of limited value. A number use a local government employment website (national) and the AIEH also advertise positions by circulating emails of available jobs to their members. The main strategies councils reported to attract AO/EHOs were: pay and conditions (26%) and flexible work arrangements (29%).

While it appears that the overall labour market for EHOs is tight, some councils are experiencing a labour shortage. This supports the findings of a similar report conducted in South Australia¹³ that the problem is more commonly associated with rural location.

¹³ Environmental Health Service (2004), Op cit.

Difficulty filling professional positions in rural areas is documented in other research on the workforce for the Health sector¹⁴. In exploring the nature of labour supply it is important to distinguish between a labour shortage across the state and imbalances between available positions in specific regions.

Much of the focus group comments regarding labour recruitment related to rural and regional challenges. This could have been partly due to the fact that most focus groups were conducted in regional locations (5 out of 9 focus groups). The focus groups discussed existing strategies as well as ideas on how to increase future recruitment and these included:

- providing rent subsidies/living away from home allowance
- providing work for partners of EHOs
- promoting lifestyle (possibly combining with other government campaigns to promote rural work opportunities)
- providing traineeships/cadetships targeting rural entrants. (This is supported by research on recruitment of other para professionals that confirms that students recruited from rural areas are more likely to take up a rural appointment¹⁵.)
- promoting rural placements for industry based learning (IBL) contingent on offering rental assistance.¹⁶

Other possible strategies include:

- Attracting qualified EHOs from alternative labour markets overseas/interstate.
While this is an option, it has serious limitations and is not recommended. Tight labour markets are reported for EHOs both locally¹⁷ and internationally¹⁸. Poaching of skills is also a strategy that builds no internal capacity to manage and foster a labour market and creates ill will. There are also jurisdictional differences in the way the EHO role is structured that need to be addressed.
- Attracting people in Victoria with existing qualifications back into the role.
This is a relevant strategy given the demographics of the workforce. Target groups would include retirees and people on/returning from parental leave. This could be supported by flexible models of job design.
- Given the high proportion of EHOs in the middle aged group it is important to consider retention issues and strategies to reduce the likelihood of them leaving.
- Developing pathways into the profession that build on existing relevant skills and knowledge.

¹⁴ Mahnken, J., Condon, C., Nesbitt, P. and Duffy, E. (2004) *Regional students to rural graduates. A study into factors influencing regional nursing student return to rural practice*. Rowville: Victorian Universities Rural Health Consortium.

¹⁵ Op cit

¹⁶ These suggestions are consistent with the findings of a number of studies on recruitment and retention to rural professions.

¹⁷ Environmental Health Service (2004), Op cit

¹⁸ Employers Organisation for local government Society of Environmental Health (2002), Op cit

This option is further explored in the chapter on training pathways.

- Targeting recruitment campaigns. In addition to attracting young people to the role, a number of EHOs identified maturity as an essential characteristic of an effective EHO.

Mobility

The research provides a picture of the level of mobility within the EHO workforce.

Thirty-one councils employed one or more new EHO in the past 12 months, which accounted for 57 positions, or one in five positions. The majority of these came from another local government in Victoria, or from study to their first EHO job.

The main barriers to filling vacant EHO positions were reported:

- lack of suitably qualified (30%)
- lack of experienced (28%) applicants
- council location (20%)
- competition for available applicants from other councils (19%)
- inability to offer a sufficiently attractive salary (15%).

Labour turnover data collected from the surveys also reflected those leaving existing positions in councils. Thirty councils reported one or more people leaving an EHO role in the previous 12 months, representing 50 positions (18%). There were more jobs filled (57) than positions vacated (50). There is no information on whether this is a result of councils' capacity to meet demand by creating new positions, or whether the positions were vacated in the preceding year.

Those exiting their jobs provide further information on mobility in the profession. The main reasons for staff turnover reported by councils were:

- seeking better career prospects (9)
- left for family reasons (7)
- retired (4).

Managers also reported that 30% of those vacating their position moved to an EHO position in another local government in Victoria. This is in contrast to the high number of AO/EHOs (60% of those thinking of leaving) reporting that they intended to leave the EHO position entirely, with only 11% reporting that they'd go to another EHO position in a local government in Victoria.

Information on motivation to leave the profession comes from the recent leavers survey of EHOs who had left the role in the last 12 months. Six recent leavers responded to the recent leavers survey. Given the small number of respondents, this information is used here to help explain why people left. It is consistent with the EHO survey findings and focus group feedback which explained the main reasons given for leaving the EHO profession were lack of appropriate level of support and recognition for the role and lack of career opportunities.

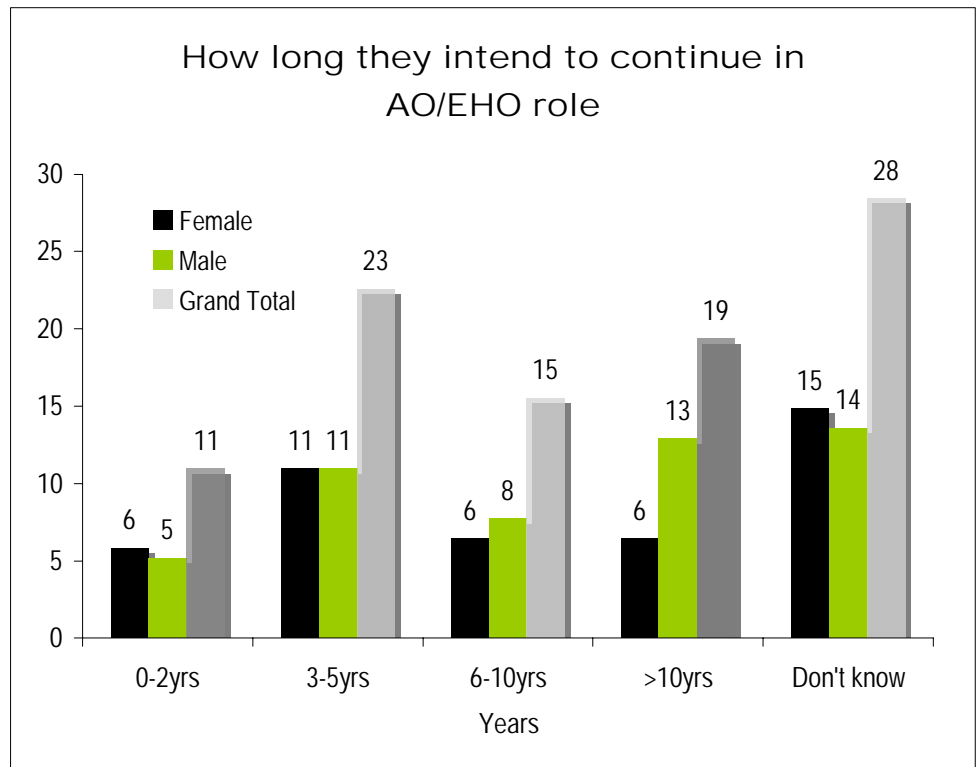
The managers' responses indicated that there is considerable churn in the system. That is, 57 new appointments to replace 50 departures. This constitutes turnover in nearly a third of EHO positions in Victoria. Together with the very high proportion of EHOs contemplating leaving the profession entirely, this provides a strong indication of potential change in the workforce. This information needs to be taken into account in estimating future workforce needs.

What are EHO's career intentions?

Longevity in the role is a common attribute of the members of the profession. Many EHOs (43%) have worked in the profession for over ten years and a further 24% have worked as an EHO for six to ten years. Many have worked with their current employer for over six years.

Most of these EHOs (40%) worked in another local government in Victoria prior to their current job, while 33% entered the profession through their current job. For 22% of the EHOs this was their first job.

Figure 10 Years that AO/EHOs intend to continue in their current job



EHOs were asked to indicate how many years they expected to continue working in an EHO role. One in three respondents (34%) said they expected to leave within the next five years (Figure 10).

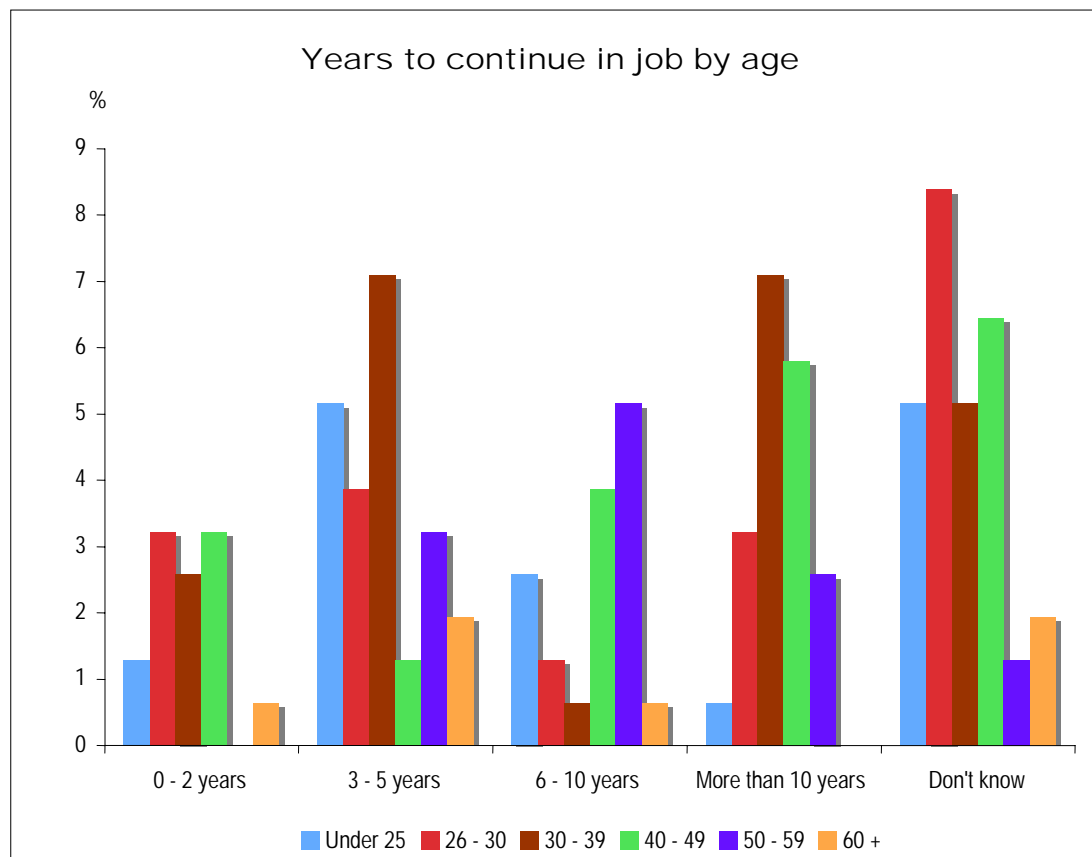
Of those thinking of leaving their job (not necessarily in the next five years), most (60%) EHOs selected one of three reasons:

1. to retire
2. to leave for family reasons
3. to work in a role other than as an EHO.

Only 8% (8 respondents) said that they would move to an EHO role in another local government in Victoria.

Males were more likely to see themselves as having a long-term place as EHOs (over 6 years). Just over twice as many men (13) as women (6) said that they would continue in the EHO role for more than ten years.

Figure 11 Years intended to continue in an EHO role



Older EHOs were more likely to take a long-term view of their continued participation in the profession. A high proportion (52%) of those intending to stay in an EHO role beyond five years were aged over 40 years. In contrast, EHOs aged under 40 account for 58% of the workforce and were over-represented in those intending to leave within the next five years with sixty nine percent reporting this intention.

Retention strategies

Professional development (78%) features strongly among the strategies currently used by councils to retain staff. Other strategies mainly involve pay and conditions (61%), mentoring and support (54%) and family friendly work arrangements (41%).

Survey and focus group responses provided specific suggestions on how to improve retention:

- expand opportunities for secondments both within and outside local government.
- resolve issues that undermine or frustrate EHOs as part of the set of measures needed to retain people in the profession.

- promote the role of EHO and
- addressing the powers available to EHOs to support enforcement.

Comments from EHOs who had recently left the role reinforced the importance of these issues.

Recommendations supporting staff retention are explored in more detail in the chapters on job satisfaction and job design.

Summary

The labour market for EHOs is a complex mix of increasing demand and limited supply for services that characterise a tight labour market. There is considerable churn within the system as individuals move from one position to another, although often staying in the profession for a long time.

The nature of the labour market requires that councils have a range of strategies for recruiting and retaining EHOs. Key strategies for recruitment and retention include addressing the image of the profession and provision of professional development.

In some cases the shortage of EHO is contained to regional areas which find it difficult to attract EHOs.

Recommendations

1. Establish a register of EHOs who are available for both short-term and longer-term appointments.
2. Explore options to support rural and remote councils to recruit EHOs. This could include funding targeted traineeships or cadetships for students from rural areas.
3. Support councils to target recruitment campaigns and strategies to attract qualified EHOs back from retirement, career change and family leave.
4. Work with training providers to support targeted recruitment campaigns aimed at attracting both school leavers and mature age entrants.

4. Job satisfaction and career aspirations

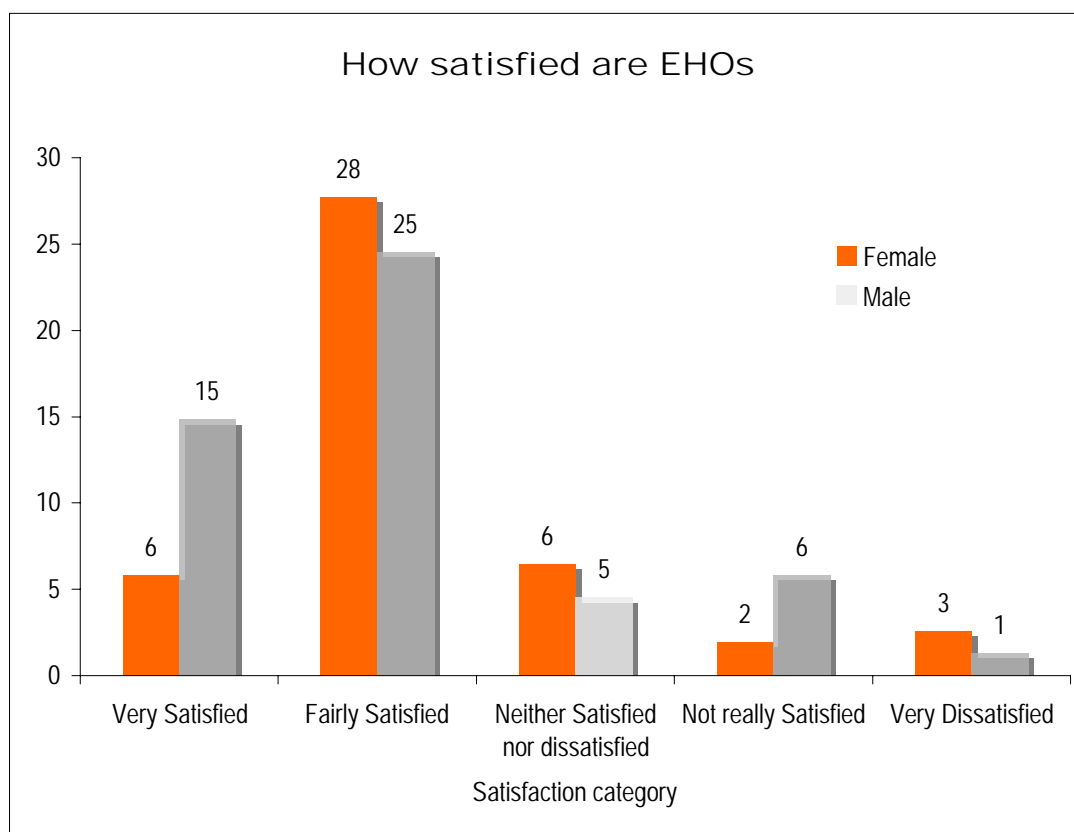
In summary:

- ❖ The majority of the workforce are satisfied with their job
- ❖ Women are less satisfied than men
- ❖ The greatest satisfaction gaps relate to support and recognition, career opportunities, mentoring and development, pay and conditions.

Satisfaction

Job satisfaction is an important consideration when evaluating the nature of job roles and the future shape of a workforce.

Figure 12 AO/EHO satisfaction ratings



EHOs report a high level of satisfaction with their job. Three quarters of the survey respondents were either very or fairly satisfied with their job.

I am happy with my job. I get to work across a good range of areas and spend time in and

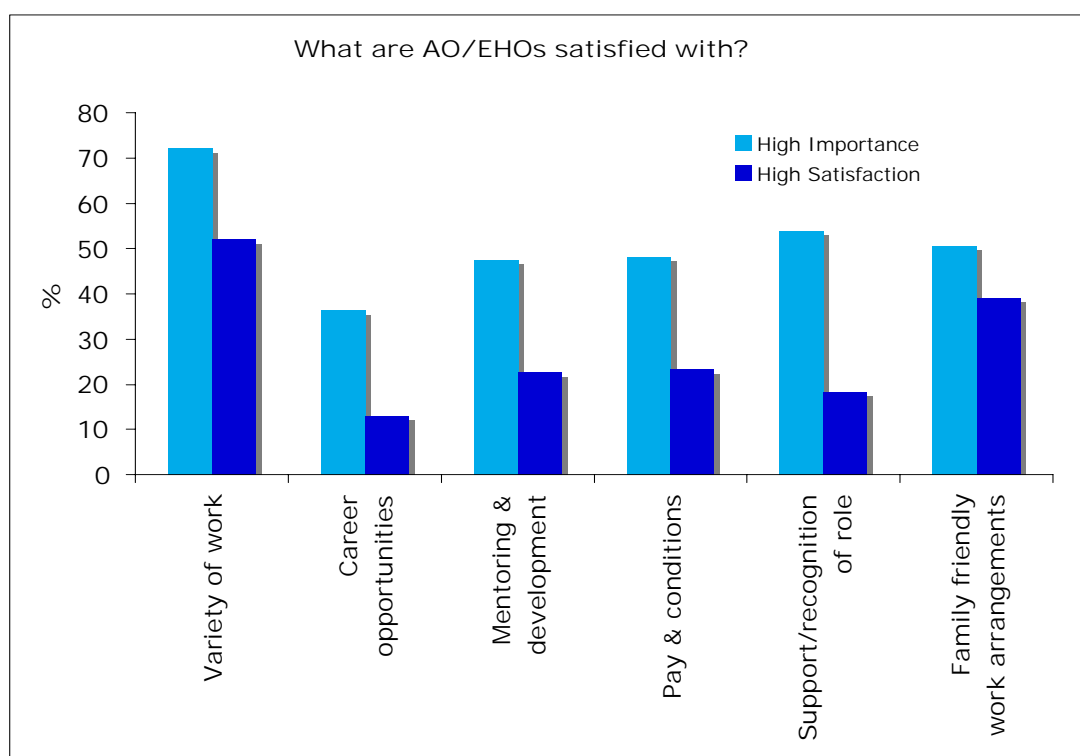
out of the office – and it is very flexible. My managers also give me a lot of flexibility and opportunities for professional development. (EHO survey response)

Women were more conservative than men in their response. They were more likely to report that they were ‘fairly’ rather than ‘very’ satisfied. The relationship between job satisfaction and gender is statistically significant ($p < .05$).

Women in EHO roles are younger than their male counterparts. Younger workers in the broader labour force are more likely to be mobile in the workforce and to have aspirations for career advancement¹⁹. Women’s lower levels of satisfaction may reflect higher career aspirations of these younger EHOs. Support for this observation theory is found in evidence that women hold 47% of EHO jobs, but only 19% of management, team leader and co-ordinator roles.

Anecdotal feedback from focus group participants provided a view of career pathways for some older male EHOs. Focus group participants reported that, in the past, entrants were often from trade or other inspectorial backgrounds. The role represented a career pathway for this group and they accordingly enjoyed positive perceptions and high levels of satisfaction.

Figure 13 Areas of satisfaction



¹⁹ Brown, B. L. (2000) *Career mobility: A choice or necessity*. ERIC Digest No 191.

There is a mismatch between EHOs expectations of the various areas of their work and their levels of satisfaction.

Figure 13 looks at aspects of the job and compares those rating the aspect as highly important with those rating it as highly satisfied. Variety of work and support and recognition of the role are the most highly valued job satisfiers. Based on the size of the gap between expectations and satisfaction, neither of these areas are well satisfied (although 50% of respondents were highly satisfied with job variety). The levels of satisfaction are particularly low for support/recognition of the role. The largest gaps between expectations and satisfaction ratings related to support and recognition and career opportunities.

Satisfaction with the level of support provided to assist in conducting the role should not be confused with satisfaction with recognition of the role. In response to a separate question on whether EHOs receive adequate support to perform the role, 42% reported that they did not. The most commonly cited factor related to lack of administrative support. In contrast, the issue of support and recognition relates to the extent to which the work of EHOs is supported and valued by their councils and managers.

My experience has shown that this field of employment is generally not recognised as being as valuable as it is, from within councils, other professional bodies and from the general public. The level of responsibility and skill involved is underrated, people have little understanding of the variety of tasks involved and there is very little recognition for work well done.

On the issue of career opportunities, just under a third of EHOs rated career opportunities as of high or very high importance. Only 13% of EHOs indicated that they were highly or very highly satisfied.

There are limited opportunities for career advancement as there are few senior positions within the profession. For career advancement you generally have to move away from Environmental Health.

Satisfaction gaps were also reported for mentoring and development and pay and conditions. Less than half of EHOs rating these features as highly important indicated that they are highly satisfied. It is interesting to note that pay and conditions did not feature strongly in focus group discussions except to the extent that it is directly related to dissatisfaction with career opportunities. The exception related to comments from some rural areas where lack of provision of a car was seen as an impediment to being able to attract and retain people in the profession.

Focus group discussions provided further explanation of the factors influencing job satisfaction. Job satisfaction was influenced by a range of issues including the recognition and support for the role and the extent to which EHOs feel that they are able to 'make a difference'. These issues are discussed below.

Profile of the EHO role

Local government executives only want to know you if they are entertaining friends and want to know where to dine.

Role perception was a consistent theme in focus group feedback, reinforcing the survey findings about lack of satisfaction with the support and recognition of the role. The following issues were raised in focus group sessions:

- EHOs feel marginalised from council business: Lack of recognition for the EHO role within council was a source of frustration with many EHOs reporting that they feel marginalised from the business of local government. Some managers in focus groups cited changes that occurred as a consequence of council amalgamations as weakening the relationship between EHOs and council. Where the environmental health department previously reported direct to council, most now have no direct line of reporting²⁰. The profession was also held in low regard within the broader context of council services according to a number of EHOs:

'Councils resent having us – they have to have us but they don't want us. (EHO)

'What we do isn't sexy - we don't raise revenue.' (EHO)

'Unless there is an outbreak, no-one wants to know us. When things go wrong, it's us who are in the firing line.' (EHO)

- EHOs feel vulnerable to councils' concerns for efficiencies: Like other areas of local government, environmental health operates in an environment of scarce resources. Many EHOs believe that a lack of awareness of the role of EHOs in mitigating risk is not well understood by elected officials and council managers and that this undermines the ability to attract resources. Others suggested that council managers are well aware of risk issues and that resource allocation reflects management's assessment of risk across the range of council responsibilities.

A number of EHOs identified the need to develop capacity to advocate more effectively on behalf of the profession.

²⁰ Focus group discussions.

- EHOs feel that they have limited influence: The position of environmental health within the council structure and the roles allocated to environmental health officers differed significantly. This influenced the extent to which EHOs felt they could influence wider planning and policy directions. These issues are further addressed under the heading of job design.
- The EHO label is poorly understood: The term 'Environmental' Health Officer creates confusion about the role. This is reflected in criticisms voiced by some younger EHOs attending focus groups. Some said they undertook training with false expectations about possible outcomes. Managers in focus groups also suggested that ambiguity of the role title also undermined the capacity to effectively market the role. For example councils often engage people in roles such as environmental officer or offer environmental services, neither of which relate to the role of the EHO. Debate about the nomenclature applied to this field of work is an ongoing theme. Given feedback it is clear that this issue remains unresolved.

These are some of the difficulties that EHOs report in relation to their role. EHOs also provide positive examples of how the EHO role might be addressed. For example, Some councils are promoting the profile of EHOs with business and the wider community through initiatives such as star rating of food businesses. While these initiatives receive a mixed response they reflect the efforts of EHOs to promote the value-adding features of their role. Initiatives to recognise and reward good performance in food safety were welcomed and encouraged by one industry body responding to the EHO service user survey.

This issue is also taken up in the Victorian Competition and Efficiency Commission (VCEC) **report**.²¹ This report highlighted scope to more adequately report food safety information and noted the more extensive reporting practices of councils in other countries including Canada and the United States. While comments in the VCEC report relate to wider reporting issues, more robust, publicly transparent reporting by councils against their statutory obligations would serve to raise and promote the profile of EHOs. It is noted that DHS has already established a working group with the Municipal Association of Victoria to investigate options to improve administration of the Food Act.

Focus group participants suggested that awareness of the nature of the EHO role, prior to entering the profession was likely to influence job satisfaction as new entrants are more likely to have realistic expectations of what the role will entail.

Overseas examples provide models for councils to assist the public profile of EHOs. In countries such as the UK the professional body for EHOs, the Chartered Institute of Environmental Health (CIEH) plays an active role in promoting the

²¹ Victorian Competition and Efficiency Commission, *Draft Report, Regulation and Regional Victoria: Challenges and Opportunities* State of Victoria, January 2005

profession using strategies such as high profile press coverage of environmental health related issues, promotional materials to attract new entrants to the profession and undertaking strategic research projects²². This organization receives funding from local councils to perform this role.

Recommendations

Explore options to raise and promote the profile of EHOs.

5. Support councils to effectively promote value-adding features of EHO services to food businesses and the wider community.
6. Link with related projects to promote careers in local government and remote and rural areas to specifically feature options for a career as an EHO.

Support for EHOs

As stated above, EHOs reported dissatisfaction with the extent to which councils supported them in the conduct of their job through obstacles affected their ability to perform the role and this was also impacted by limited available resources. This issue had a number of elements:

- Experience varied widely with some EHOs reporting that they are well supported by their councils (53.9%). Others in focus groups reported frustration with political agendas interfering with their ability to enforce legislation. This usually related to lack of support to pursue prosecutions.

Council are sensitive about complaints. They don't want to be seen as the bad guys. That means we don't get much support.

- Management and mentoring support. The level of management and mentoring support was identified in the survey results and further commented on in focus groups, particularly as it relates to younger sole practitioners in rural and remote areas. A second issue relating to management and mentoring identified through focus groups was that younger team leaders with limited experience were seen as less capable of providing effective support and mentoring to team members.
- Administrative support. Of EHOs reporting a lack of support to carry out their role (42%), lack of administrative support was the most frequently cited issue (26%). A number of councils are experimenting with the use of handheld PDA devices to reduce some of the administrative burden on EHOs and allow aspects of this function to be performed on site. These initiatives are being supported by a project currently being conducted by DHS.

Recommendations

7. Promote training in staff development, leadership, management and advocacy of the EHO role as part of

²² Chartered Institute of Environmental Health, www.cieh.org.uk

ongoing professional development for team leader and co-ordinator positions.

8. Develop and formalize existing mentoring networks, particularly in rural and remote areas. Build on existing networks to provide a more formalized mentoring arrangement, particularly for young, sole operators.

The ability to 'make a difference'

A number of issues raised under the heading of job satisfaction related to frustration about the capacity of EHOs to effectively fulfill their role. This included a discussion of workload, consistency, enforcement options, and food handler training.

Issues around food handler training are discussed in detail in the training and development section. Only a small proportion of EHOs (3%) reported a decline in the level of food safety skills and knowledge of food handlers over the last five years. However, frustration with the continued lack of skills and knowledge displayed by food handlers was consistently raised in the focus group discussions. .

The following discussion summarises comments from focus group sessions.

Workload

Workload is a fundamental issue in EHO satisfaction and effectiveness.

Food law requires assessment not just enforcement. It's much more than just inspecting. You need to find out how they're doing things ... and be able to justify your decisions. (EHO)

I can't do as good a job as I'd like to since the more time I spend with one proprietor, the further I get behind. (EHO)

I am not able to perform my role properly as there is simply too much work to do so a lot of work does not get done. Since there is not as much pressure for food inspection as for some other tasks, that is often one of the first areas to go. (EHO)

As discussed above the role of EHOs is changing and becoming more demanding. Councils are moving to providing 24/7 service to reflect business practices of food premises, which requires changed hours of work for EHOs. EHOs also report an increasing level of involvement in additional functions of emergency management (38%), public health planning (31%) and needle-syringe management (29%).

Managers identified activities where they expect changing legislation could result in an increased workload for EHOs. These included enforcement of tobacco legislation, Health Act enforcement, environmental protection legislation and asbestos management and noise and air pollution, waste water management and drinking water regulation. While diversity of the role is a factor contributing to job satisfaction, intensity of the role can adversely affect the way EHOs feel about their work.

Statutory inspection responsibilities of EHOs that are part of recent changes in food law are also associated with an increase in workload for EHOs according to both EHOs and EHO managers. A finding of the survey of EHO service users reinforces this point. Industry bodies confirmed that as industry becomes more informed about their responsibilities for food handling, they need more rather than less support.²³ Councils are responding to this expectation in a variety of ways including plans reported by a number of council managers to implement a 24/7 service model.

Consistency

Lack of consistency in approaches to enforcement is as much a source of frustration to EHOs as to industry and regulators²⁴. Examples cited by EHOs on the issue of consistency related to implementation of the Food Act and included inconsistent practice in registering and inspecting temporary food premises and variation in interpretation of methods of compliance. It is acknowledged that promoting consistent practice across 79 councils is a complex process. However EHOs in focus groups said that they wanted DHS to take a leadership role in supporting councils to explore options for consistency and understand the costs of inconsistent practice in terms of both business and staff morale.

Recommendation:

9. Explore approaches to improving consistency across councils.

Enforcement options

The capacity to make a difference is a key source of satisfaction for EHOs. In this context the limited range of enforcement options provided in the Food Act (prosecution or seizure of food) were cited as undermining job satisfaction.

It's like hitting your head against a brick wall – you go back to the same places over and over and nothing changes.'

A number of EHOs supported the option of introducing on-the-spot fines to address issues that did not warrant the effort and

²³ All five industry bodies responding to the survey identified the lack of EHO resources meant that EHOs were not able to allocate sufficient time to support industry in implementing food safety legislation.

²⁴ Focus group discussion.

expense of preparing a case for prosecution yet provided some penalty for non compliance. This was not a unanimously supported option. Concerns were expressed that given a risk-based approach, issues are often not clear cut and it may not be appropriate to resort to spot fines.

A related issue was the extent to which this would undermine the educative role of the EHO. There is already a tension for some EHOs between their role as educator and enforcer.

Notwithstanding these reservations, there was general support to explore the circumstances in which spot fines would be an appropriate option on the understanding that this option would only be actioned where efforts to educate and promote appropriate action had failed. Some suggested a three-stage warning process as a model.

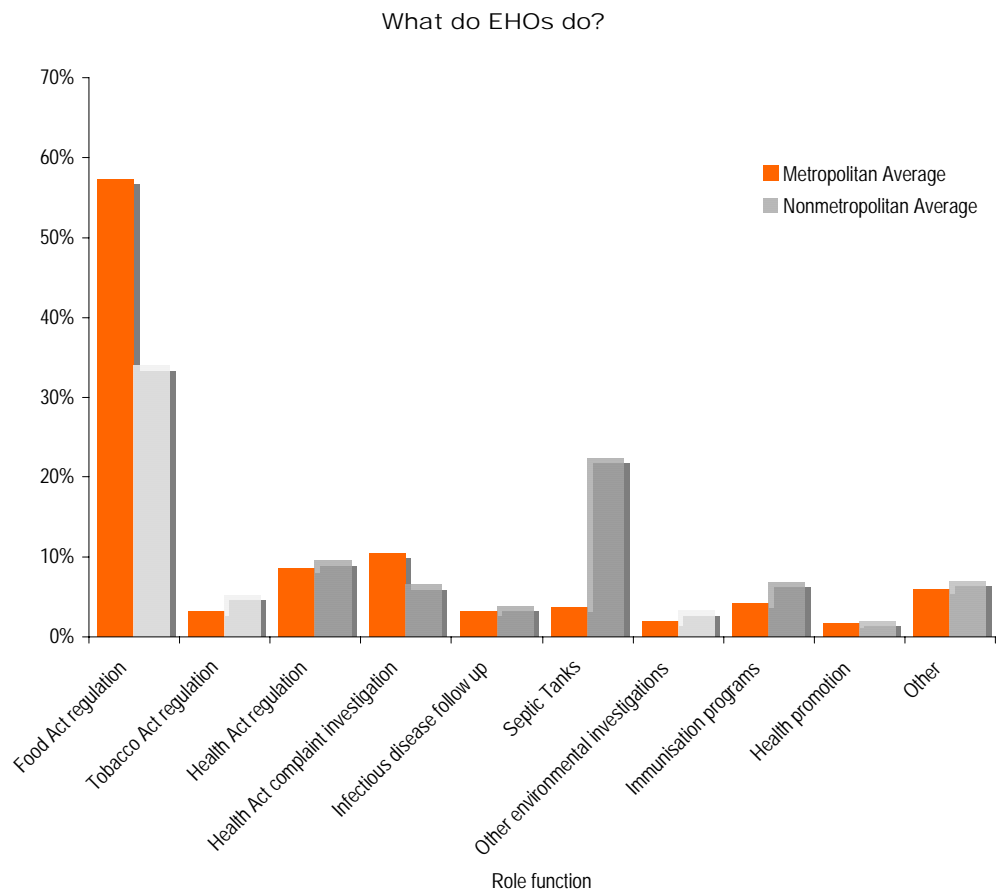
5. Job design

In summary:

- ❖ Variety of work is highly valued by EHOs
- ❖ While the EHO role covers a range of functions their main activity is administration of the Food Act
- ❖ Legislative change is the key driver of job design, and there is pressure for role expansion, eg. environmental issues, educative role, 24/7 hours of work
- ❖ A more strategic approach to job design is needed to address changing job roles and to take advantage of the increased skills and knowledge of new entrants.

There is considerable variation in job design across councils. In general, EHOs in non-metropolitan councils tend to carry out a more diverse range of activities than their counterparts in metropolitan councils²⁵. This pattern is reflected in the statistics showing estimates of time spent undertaking EHO activities (Figure 14). There were a number of EHOs in the larger non-metropolitan councils who, like their metropolitan counterparts, reported a high degree of task specialization.

Figure 14 Role functions of AO/EHOs



As shown in Figure 14, Food Act regulation accounted for the largest share of work activity for EHOs in both metropolitan and non-metropolitan areas, representing 57% of their work in metro regions and 34% of their work in nonmetropolitan areas. The allocation of time to food in metropolitan councils is even more marked when looking at EHO responses from very large metropolitan councils who allocated on average 70% or more of their work role to this activity.

In addition to reporting on time allocated to core EHO functions, 45% of EHOs reported that they performed other roles. A number of these related to management and team leader activities. Of those reporting undertaking roles other than as an EHO, the most common additional roles were in the areas of: emergency management, public health planning and needle syringe management.

Table 3 Additional roles performed by EHOs

Role	%
Emergency management	38.3%
Public health planning	31.2%
Needle-syringe management	29.2%
Contract management	25.3%
Waste/recycling management	7.1%
Clean up campaigns	5.2%

Note: A number of respondents selected more than 1 additional role.

Other activities reported in the focus group sessions included involvement in planning issues. While many EHOs reported being excluded from planning matters, others were actively involved in working with planners to build public health interests into the design of council activities.

The picture that emerges on job design is one of diverse responses. There is, and will continue to be, considerable variation in the job structure of EHOs across local governments.

Figure 15 Schematic summary of EHO job design

High Level	Portfolio management Planning/Risk management	Planning/Risk management
Low Level	Narrow range – technical focus	Diverse range – technical focus
	Specialised Functions	Diverse Functions

Job design for EHOs relates to a range of factors: geographic coverage of their work, complexity of activities, job variety and workload. These features of EHO job design are described below.

Geographic coverage

The most common approach to task allocation was based on geographic area. Typically EHOs are allocated an area to manage. In larger councils EHOs may also specialize in a particular core activity such as Food Act surveillance, health/tobacco, waste water management and infectious disease management.

Job variety

Job variety is a highly valued feature of job design. Some councils achieved this by allocating diverse activities to EHOs. Others

structured the role around specialization in an activity but achieved a level of variety through access to portfolio management, project work and job secondments.

The importance placed on variety of work did not mean that EHOs were not happy to specialise. Even those who spent 100% of their time doing septic tank work or Food Act related work reported that these work roles could still provide variety in terms of job structure. They were in and out of the office, on the road, working face to face with proprietors and other clients as well as office-based work. Many EHOs reported that they value the level of autonomy they have to organise and manage their own work. For many the variety achieved by the nature of the job was valued in addition to placing importance on the breadth of work undertaken.

Outsourcing more routine activities

Some councils differentiate levels of complexity of activities. In focus groups, some managers explained that less complex/lower risk activities were sometimes contracted to external service providers, undertaken by AOs not holding an EHO qualification (including local laws officers) or by students. Common examples included contracting of less complex nuisance complaints and enforcement of the Tobacco Act; immunization programs, low risk food premises inspections. In describing these arrangements some managers talked of contracting whole activities, for example immunisation. Others distinguished levels of complexity, choosing to contract the less complex aspects of a given area of responsibility. Other factors identified by managers that influenced their decision to contract service provision included the need for specialist services. An example was contracting in services of an acoustic engineer as part of managing nuisance complaints.

People who did not hold an EHO qualification and who undertake aspects of the EHO role occupied 37.5 EFT positions within responding councils. Some are dedicated specialists such as acoustic engineers. Most duplicate EHO functions. This suggests a need which is not being fulfilled by available EHOs. A number of EHO managers expected the use of non-EHO qualified AOs to increase in response to workload intensification, availability of qualified EHOs and resource constraints.

Portfolio coordination responsibilities

Some councils allocated responsibility to EHOs to manage a portfolio area. Portfolio managers were typically EHOs responsible for a breadth of EHO core activities and in addition, played a co-ordination role in the nominated area. Portfolios differed according to the characteristics of the local government area. Common examples included food, health/tobacco, waste water and infectious diseases. Portfolio examples were more reflective of specific LGA demographic needs and included markets, special events management, emergency management, diversity and education.

Workload

The issue of workload was discussed under the heading of job satisfaction. How this issue is managed will also shape options for job design. The future design of EHO jobs will be influenced by expectations of the role and the council management and resource allocation to the role.

The following features of the job were identified by EHOs as contributing to workload pressure:

- Breadth of work activities
- Intensification of work
- Expectations of the EHO role by business and the wider community
- Anticipated trends

Breadth of work activities

While variety of work is a factor that contributed to job satisfaction, if associated with work intensification, it can equally lead to dissatisfaction. A number of EHOs and managers identified new areas of work as placing increasing demands on EHOs. The area of environmental management and specifically management of waste water was highlighted as an area that would continue to grow in both metropolitan and non-metropolitan councils.

Some EHOs and managers²⁶ flagged the possibility that future workload allocations could be at the expense of Food Act administration. As one EHO explained:

It's about the squeaky wheel. You've got big developers pushing for septic inspections; you've got people complaining about the neighbours. No-one is going to harass you to do a food inspection (unless it's a transfer).

Intensification of work

Tight financial constraints and increasing expectations of the role were seen by many EHOs as translating into work intensification. EHOs, managers in focus groups and EHO service users also cited the trend towards providing services over a flexible span of hours with many councils moving towards 24/7 service provision. This was most often raised by larger metropolitan councils and councils in high tourist areas. There is also a noted increase in the numbers of temporary food premises (particularly in tourist areas), markets and special events. These developments will have a significant impact on EHO hours of work as most operate outside normal working hours.

²⁶ This input was provided in additional written comments from managers responding to the survey and from both manager and EHO input to focus group discussions.

Expectations of the EHO role by business and the wider community

The project sought feedback from industry bodies that represent users of EHO services to gain an industry perspective on expectations of the role. All industry bodies who responded²⁷ recognized the value adding role played by EHOs. When asked how well EHOs meet the challenges they face in their work, there was a consistent theme to the responses from industry:

EHOs are not able to allocate sufficient resources and time, short of necessity, to businesses.

(Industry body – user of EHO services)

Badly. Industry wants to work with EHOs but we need more time with them.

(Industry body – user of EHO services)

They are doing as well as they can, but they are under-resourced.

(Industry body – user of EHO services)

Increasing levels of food handler skills and knowledge were identified by some EHOs as a factor contributing to workload pressure. While most EHOs reported no change to their work role associated with food handler training, where there was a perceived impact it was more likely to imply an increase in workload. This was associated with a better informed client base with increased expectations of support.

The more businesses know, the more questions they have. If anything, it adds to our work.

Feedback from peak industry bodies reported earlier confirms that industry has increased expectations of the role of EHOs. The issue of diversity was specifically cited as a factor contributing to the need for EHOs to spend more time with food proprietors to support effective implementation of food legislation.

Food business education and support has long been an aspect of the EHO role. However as food handler skills have increased there has been a shift in expectations that EHOs will spend more time in supporting business to apply food safety standards in their business. Anecdotal feedback suggests that this has increased the average time required to conduct a food business inspection from around half an hour to around 2 hours. EHOs and EHO managers suggested that if they are to play an effective role in supporting businesses, the issue of resourcing will need to be considered. Arrangements such as the funding attached to service agreements associated with the implementation of the Tobacco Act could

²⁷ See Appendix 6 for list of industry respondents

provide a useful model to be further explored for application to the EHO support function.

Anticipated trends

In addition to commenting on factors influencing the current EHO role, EHO managers were asked to comment on what changes they expect for the role over the next five years. The majority (69%) expect further changes to occur. Most see that changes will continue to be driven by changes to legislation and they expect these changes will impact on workload, cost and liability allocation (between state and local government). A number support the need to design jobs that are more interesting and satisfying although there are very different views about how this could be achieved.

Recommendation

10. Explore approaches to enhancing the business support role of EHOs and associated resourcing requirements.

A number of managers in focus groups commented on the challenge of meeting workload demands in the context of scarce resources. Some suggested that one option to assist them manage workload issues would be to remove the requirement to conduct annual food inspections and allow councils to determine inspection schedules based on assessment of risk.

EHO workloads vary considerably between councils. This is appropriate as there needs to be flexibility to recognize the different features and demography of the local government area. A number of managers participating in focus groups pointed out that there were previously mandated staffing levels based on population. While focus group participants agreed that this was too limited and simplistic as a measure, some suggested that councils would be assisted by the establishment of a database available to provide information on issues such as workload and staffing levels. This would support councils to more effectively benchmark their resource allocation to environmental health.

Both managers and EHOs suggested factors that could be taken into account by such a data base. They suggested that such an indicator should allow for comparative information including population, registered premises, complexity (eg transient population/tourist numbers, culturally and linguistically diverse population [CALD]), geographic spread, whether the role is performed by a solo operator or as a member of a team which has implications for administrative load.

This recommendation is addressed by the earlier recommendation to establish a labour force data base and echoes a similar proposal from the Auditor General report:

Councils establish a formal framework to assist in determining their resource requirements, including consideration of optimum caseloads for environmental health

officers and the time necessary to adequately undertake their food safety obligations.²⁸

Discussion

Job design has been a consistent theme throughout this project. While the qualifications held by EHOs have been upgraded (from Diploma to Degree), job design has been revised on an ad hoc basis and in many councils it is likely that there has been no significant change to the structure of job models to take advantage of increased levels of skills and knowledge of recently graduating EHOs.

Given the reported mismatch between job expectations and current job design, councils face a number of possible responses. It is recognized that a number of councils are actively pursuing one or a number of these options. The options include:

Status quo - Leave jobs as they are and recognize that relatively high labour turnover will continue to be a feature of the EHO workforce. This approach accepts that some people entering the profession will only remain in the role for a relatively short time. This response would be assisted through active succession planning and career counselling to assist EHOs to make the transition to other career pathways.

Redesign the role - Redesign the work role to provide for increased variety and to take advantage of the range of skills and knowledge of EHOs. This may involve developing the role to overlap with some related disciplines such as health planning and development decisions, health strategy and planning and health education and promotion. These areas could provide alternate career pathways with appropriate training. However the intention of this recommendation does not envisage EHOs taking over primary responsibility for these areas but recognises the scope for more effective interaction between these professional roles. According to EHO feedback in the survey response on other activities performed by EHOs, this option is already being taken up to a greater or lesser extent by a number of councils. It would also be important to consider how training and development pathways can support this option.

Technician pathway - Consider the option of developing a structured pathway for a technician who would address aspects of the EHO role under supervision. Such an option would partly address the workload issues associated with annual food inspections. This option is currently in place in a number of councils but there is no minimum qualification specified. Such a role has been proposed by the AIEH although details of how the role would be structured are at an early stage of development. Further work is required to explore whether councils would be likely to engage technicians with limited authority, to ensure that this option was not used to undermine the qualified EHO skill base

²⁸ Ibid, p68

and to determine appropriate minimum qualifications to support such a role.

Specialist pathway - At the other end of the professional scale, the primary opportunity for advancement (however limited) is to move to team leader or managerial roles. EHOs cite the shift to a risk-based approach to managing health and food safety as introducing scope to develop a technical progression pathway. This occurs to some extent through senior EHO positions and personal interest to specialize in a particular field. Examples provided by focus group participants included specialisation in management of waste water management and specialist aspects of food handling such as manufacturing processes. These arrangements could be more formally developed and recognized. This option is discussed further in Chapter 7 on training and development.

Employer of choice - This option involves identifying job satisfaction drivers other than, or in addition to, job content. Examples include remuneration, flexible hours and related family friendly job features, professional development opportunities, opportunities for secondments or project work. Although councils are regarded as reasonably family friendly, a review of the nature of employment contracts and hours of employment in this study suggested that there is considerable scope to enhance family friendly work arrangements. The increasing drive towards 24/7 hours of operation provides both an opportunity and a challenge to structure hours to suit both the needs of employees and of business.

Recommendation

11. Undertake further research into EHO job design to provide local government with a range of practical job models and job design guidelines. The purpose of this exercise would be to set out a range of possibilities, recognizing that there is currently and will continue to be diverse approaches to job design.

Such work should take account of the issues raised by this project including options for restructuring work within existing EHO job profiles as well as the possibility of creating structured job pathways through development of a technician role and also career progression to middle and upper management roles. This would also require consideration of related training requirements and pathways.

6. Training & development

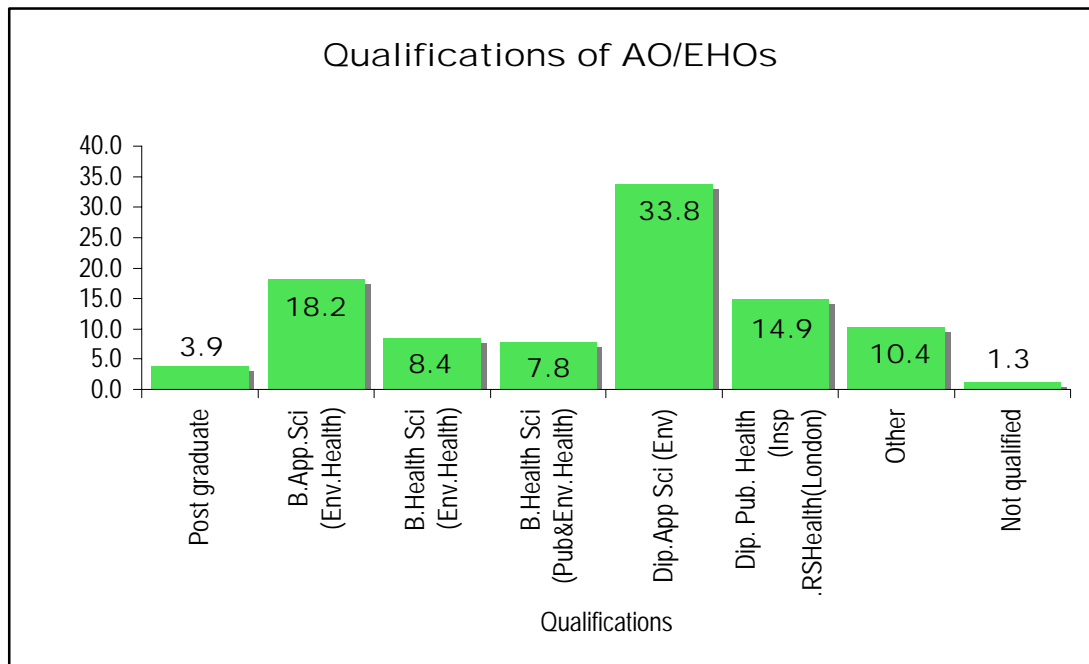
In summary:

- ❖ Professional development is critical to the currency of skills and knowledge
- ❖ Most EHOs are satisfied with their entry level training and highly value work placement experience to develop an applied understanding of the role
- ❖ A number of specific training gaps were identified including inadequate training to address the needs of managers and co-ordinators
- ❖ Concerns about training quality and breadth were raised
- ❖ Greater flexibility and a strategic approach to designing and coordinating professional development is required.

Entry level qualifications

AO/EHOs are a highly qualified profession relative to the general population. Their qualification profile is driven by mandated qualification requirements as a condition of entry to the profession. Swinburne University of Technology trained 62% of survey respondents. The Diploma of Applied Science (Environment) is the main qualification of AO/EHOs (33.8%), followed by the Bachelor of Applied Science (Environmental Health) (34%), and the Diploma for Public Health Inspectors Royal Society of Health (London) (15%). The qualification profile of the workforce largely reflects the age at which EHOs entered the profession.

Figure 16 Qualifications held by AO/EHOs

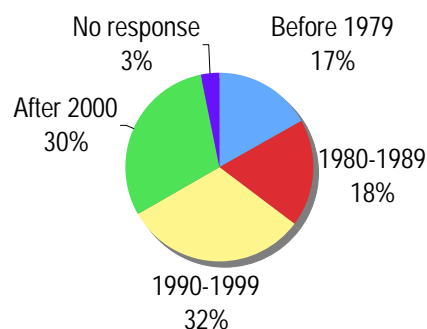


EHOs who have recently qualified are most likely to have current skills and knowledge, in the technical and legislative areas. This is the case for the 30% of EHOs who were awarded qualifications within the past five years.

Thirty five percent of AO/EHOs graduated over 15 years ago, with 17% graduating prior to 1979. While experience on the job builds depth of skills and knowledge, currency of competence is likely to be an issue for those who have not undertaken regular professional development over the period since graduation, particularly in knowledge areas such as legislation, that have undergone significant change in recent years.

Figure 17 Year of graduation for AO/EHOs

When did AO/EHOs graduate?



How satisfied are EHOs with entry level training?

Irrespective of when they completed their entry level training, more than half (53%) were completely satisfied that this training adequately prepared them for the job. A further 40% believed that training partly prepared them. Comments received by survey respondents and in focus groups highlighted the importance of work experience in building the required skills and knowledge. A high value was placed by many EHOs (30%) on structured work experience as part of entry level training arrangements as illustrated by the comments of one EHO:

(Work experience) was the best part of the course. It's when you really learn what the job's about.

Managers in this industry have high (and possibly unrealistic) expectations about the work readiness of new graduates. As one manager expressed it:

For the money we pay, we expect them to hit the ground running.
EHO Manager

While structured work placement is valuable to develop applied learning, new graduates in any profession require support and mentoring before they are capable of operating effectively and independently. The perceived lack of support and recognition reported by EHOs and further comments received in focus groups on mixed levels of management support and mentoring suggests that some councils may need to consider their internal processes for fostering and developing the skill base of new graduates.

Gap between job image and job reality

A common issue raised in the focus groups on entry level training related to the gap between expectations of course outcomes and the reality of the job. In part this was associated with the reference to 'Environment' in the title of both the role and related qualifications. Some EHOs attending focus groups described entering training with expectations that the course would lead to much broader work options and a number talked of feeling 'duped'. Others took a different view, praising the course as interesting and rewarding but expressing frustration at not being given opportunities to apply a lot of what was learned. As one EHO put it:

I didn't do four years at uni to take samples and inspect shops.

Frustration with the gap between expectations and realities of the job is closely related to issues of job satisfaction and job design. The supply of a breadth of competency through training does not necessarily lead to job design that takes advantage of skills and

knowledge by applying them to the role. Two distinctly different views emerged on the match between qualifications and the job role. The previous quote reflects the first view, suggesting that EHOs are over-qualified for routine sampling and inspecting functions. The alternate view is that although some EHO work is routine, EHOs also need a depth of technical knowledge to effectively identify and assess risks and related control methods. This is seen by some EHOs as even more essential given the shift to a risk-based approach to hazard management and the litigious environment in which EHOs operate.

Councils adopt different approaches to job design according to their assessment of risk. Anecdotal information provided through managers focus groups suggest that the most common approach is to allocate responsibility for all functions within a geographic area. Some councils distinguished between work on the basis of complexity, allocating less complex work to less experienced EHOs or to AOs not qualified as EHOs and referring more complex work to more senior EHOs.

While there is undoubtedly scope to improve the match of course content to professional requirements, the challenge is to concurrently address the issue of job design. Otherwise responses to address the gap are likely to see a narrowing of the skill base which in turn constrains opportunities for flexible skill-based job design.

Focus group participants also noted differences in course content of entry-level qualifications. While differences were noted between the two providers offering training in Victoria, more striking differences were cited between courses offered in different states. In focus groups, some EHO managers suggested that EHOs transferring from other states should be required to do 'top up' training to acquaint themselves with the features of the role and legal framework operating in Victoria. This issue is discussed further in the Chapter 8 on training pathways.

Focus groups also discussed the structure of EHO qualifications which are fixed courses with very little scope to select subjects or units. While some argued for the option of specialising in a chosen field, others were strongly of the view that at entry-level, it is appropriate to introduce EHOs to the breadth of subjects. The option of specialising in a chosen area is further explored in the following discussion on professional development.

Ongoing professional development

Currency in the role is critical for all professionals. Maintenance of skills and knowledge is addressed by professional development activities. Just over nine out of ten EHOs (91%) attend professional development throughout any given year. EHOs attend professional development sessions once or twice (40%) or three to four times (32%) a year. The professional development sessions are typically conducted over one day (57%) or 1-2 days (18%).

As noted by a number of respondents, there is a difference between short information sessions and more in-depth professional development. The vast majority of professional development reported by EHOs falls into the former category.

The main providers of the professional development were the DHS Food Safety Unit and AIEH. Of EHOs who provided information about main providers, 56% nominated DHS Food Safety Unit and 48% nominated AIEH (some EHOs selected multiple providers). The other main providers identified included training provided in-house by councils (11%), formal training through a range of universities and TAFE Institutes (8%), training provided by LG Pro (8%) and specialist, private provider courses (4%). A number of specific specialist providers were identified including:

- Whitehead & Associates Environmental Consultants (wastewater specialists)
- Municipal Association Victoria
- Australian Defence Forces
- Australian Water Authority
- Government departments/agencies including Environmental Protection Agency, Department of sustainability and environment, Department of primary industries

The main motivations for attending professional development were:

- Training is relevant (57%)
- Training assists career progression (41%)
- Training leads to an accredited outcome (10%).

The motivation to maintain skills and knowledge tends to be driven by EHOs rather than being a requirement of the job. Only 8% of EHOs reported that they attended professional development on the request of their manager.

Two thirds (64%) of EHOs experience difficulties attending professional development. The main barriers to attending training were: Availability of relevant training in the area (25%) and time (20%).

Additional comments further emphasised difficulties associated with travel time and cost, particularly for rural and regional EHOs. Comments were also received about the need to schedule and communicate training opportunities in advance and to suit participants who may need to travel distances to attend.

Training and development: Issues summary

A number of themes to emerge from the data collection are not new. They reinforce issues raised in previous studies and underline the need for action. In 1999 the National Environmental Health Strategy (NEHS) stated:

There is an on increasing need for EHOs to concentrate on areas of specialty, such as food safety or waste management.

Common themes are reflected in the NEHS Implementation Strategy²⁹. The strategy highlighted the need for: development of mechanisms for regular updating of training for environmental health officers (EHOs) to ensure continued relevance (of skills and knowledge)³⁰.

Comments from focus group participants identified the following issues relating to training and professional development:

Quality of training

Focus group participants expressed concerns about the variable quality of training delivery. Survey responses rated accredited training outcomes as providing limited motivation to attend professional development training. However in focus groups a number of EHOs stressed the need to ensure greater consistency and confidence in the standards of professional development on offer and identified accredited training as one way to achieve this outcome.

Depth of training

The lack of depth of available professional development was discussed. Current PD is relevant and appropriate to updating knowledge on specific issues such as legislative requirements. In addition to these one or two day sessions, some EHOs are undertaking further qualifications, typically in management fields or in qualifications that will provide a transition to alternate employment opportunities.

What appears to be missing from the current suite of PD offerings is the opportunity to develop technical depth within the field of environmental health. Based on input to this project some suggestions for professional development activities included

- policy development
- water management
- food processing.

In addition to specialising in higher order technical content, some EHOs suggested that professional development in specialised skills and knowledge could respond to demographic characteristics such as a working with culturally and linguistically diverse (CALD) communities, vulnerable populations and food manufacturing. In focus group discussion EHOs suggested that these fields of study

²⁹ *National Environmental Health Strategy* (1999), Department of Health and Aged Care, Commonwealth of Australia

³⁰ Commonwealth Department of Health and Aged Care, *Proceedings of the Environmental Health Symposium on Education, Research and Workforce*, July 2000, Commonwealth of Australia, p15

could build on skills and knowledge developed in undergraduate training.

There are currently EHOs who have developed a personal interest and specialty in a particular area. There is scope to formalise and recognise this advanced knowledge and skills to provide career progression within the profession. Such a development would also provide an opportunity to formalise the mentoring networks available to support less experienced EHOs – a need identified by EHOs in both the survey and focus groups. For example EHOs with advanced expertise in a field could be listed on a register to be available as an expert advisor to other councils and to provide mentoring support to other EHOs. This builds on and strengthens the existing informal networks currently in place.

Target PD to senior EHOs and managers

Comments were received on the target of professional development programs. According to some, programs are typically pitched to less experienced EHOs. Those in management roles have few opportunities to advance their skills and knowledge.

The following comment was received from a survey respondent commenting on an aspect of training need for this group:

There is no mentoring program for more experienced EHOs to pass on their knowledge to younger EHOs. I was an EHO for many years and no one took the time to teach me much at all. It wasn't until I came out to the country that someone took me under their wing and showed me the ropes.

Focus group participants suggested that the issue of adequate staff support and mentoring was exacerbated by the relatively young age profile and lack of experience of some team leaders.

Multiple points of entry

A number of the recommendations throughout this report relate to strengthening career options and pathways. Training provision plays a critical role in facilitating these arrangements. The option of creating a technician role, employing an EHO transferring from another state, or supporting the updating of skills in a given area relies on the availability of training relevant to skill needs. In addition consistent cross-recognition and articulation arrangements would be critical. Training should support multiple entry points. This needs to be facilitated by clearly identifying and aligning relevant training to particular aspects of skills and knowledge.

The structure and design of training can facilitate or undermine this objective. For example, if the goal is to update knowledge of legislation, this will be more readily achieved if legislative content is covered in discrete, dedicated units rather than spread across a

number of different units. This would allow the individual to select relevant training without needing to undertake additional training that may not be required.

Modes of training delivery

A significant challenge facing providers of both entry level training and professional development is that EHOs are a relatively small target population. It will always be difficult to achieve viable class sizes. Flexible delivery options could provide a partial solution to these challenges. Specific suggestions raised in focus groups included on-line delivery supported by a network of mentors. Training providers need to be involved in the further exploration of these options, including the issue of resource implications.

Guidance on professional development requirements

The lack of clear guidance on the nature and level of professional development required or expected by employers for career advancement was raised as a concern by EHOs. They see robust professional development arrangements as underpinning the credibility of the profession. Options for managing the professional skill base of the workforce are further explored in Chapter 9.

Recognition

Some EHOs suggested that professional development training should be accredited. As discussed earlier, the EHO workforce is highly mobile. It is therefore important that whatever training they undertake can also be recognised in a future workplace. This is often not the case with in-house training. EHOs in both survey responses and focus groups were strongly motivated by the relevance of training however in focus groups, they gave strong support to the need for a more formalised system of professional development and saw that accredited training that could build towards a recognised outcome should form part of this system.

Schedule and promote professional development events

A number of comments were received relating to lack of effective planning and co-ordination of professional development. Advance notice of a professional development diary and appropriate scheduling would assist EHOs, particularly those who need to plan travel arrangements in order to attend.

Specific training gaps

Specific suggestions were received from EHOs during the surveys and focus groups on areas to be covered or more extensively addressed by training. Survey respondents and focus group participants often made no distinction between entry level and professional development when identifying skills and knowledge gaps. Comments were based on perceived lack of skills and knowledge or their direct training experience. Identification of gaps could indicate that:

1. the subject area is not adequately addressed by existing training
2. there is a lack of awareness of available training
3. training is available but there is a lag time in training uptake

The following list presents gaps and is ordered to provide an indication of the level of priority placed on each topic as identified by EHOs.

- Prosecutions
- Negotiation/conflict resolution/assertiveness
- Communication / education / advocacy
- Waste water (including septic tanks)
- Letter writing (inspections)
- Food Safety Standards (including an understanding of food handler requirements)
- Risk management (including legal framework and responsibilities)
- Emergency management
- Noise & air pollution
- Asbestos
- Food processing
- Laboratory procedures
- Terrestrial environmental management (soil, land capability, geology)
- Basic engineering – building design
- Strategy development/lobbying
- Local government – structure/politics
- Liaison with media
- Professional development for more senior EHOs and/or managers:
- Business planning/Budgeting
- Professional support mentoring skills (for co-ordinators/team leaders)

Recommendations

12. Promote the role of EHOs to potential entrants to the profession. This includes providing information on likely job opportunities in local government for course entrants.
13. Explore opportunities for structured training to address higher order technical skills and knowledge relevant to EHO roles. This builds on existing post graduate courses and should support structured career pathways for EHOs to develop fields of technical specialisation.

14. Investigate scope to identify training to meet both entry level and professional development training needs to support flexible, recognised points of entry of the training system.
15. Explore flexible delivery modes of training applicable to both entry level training and ongoing professional development.
16. Identify, develop and/or promote training to meet the identified skill gaps.
17. Promote professional development opportunities appropriate to deepening skills of more senior EHOs and managers, particularly in skills required for staff support and mentoring.

The following recommendations relate to supporting and fostering the professional skill base of the EHO workforce.

18. Explore the development of a network of technical specialists who could take a role in providing specialist expertise to other councils and in mentoring other EHOs.
19. Identify, schedule and communicate a professional development schedule. This would be undertaken in consultation with other PD providers and with EHOs to ensure that their needs in terms of content, scheduling and receiving advance notice are met.
20. Provide information and guidance to EHOs relating to their role in assessing whether a food business complies with the skill and knowledge requirements specified in food safety legislation.
21. Conduct stakeholder consultation to support the establishment of a robust and effective professional development scheme.

A number of related recommendations are addressed in Chapter 6 on Models for managing workforce skills and knowledge.

Changes in EHO work environment

Food handler training

The focus of this chapter has been on skills and knowledge issues related to EHOs. EHOs have also identified the importance of food handler skills and knowledge in achieving safe food outcomes. This section reviews changes to the approach in food handler training over the past five years and considers the impact of food handler skills and knowledge relating on the tasks EHOs are required to perform both now and in the future.

Changes in food handler training: Legislative context

Australia's food safety legislation has undergone fundamental change. Legislative reforms have ushered in a risk-based approach to food safety in place of the earlier prescriptive regime. The Council of Australian Governments (COAG) Food Regulation Agreement, December 2002, outlines the process by which all states and territories will amend food legislation to support a common approach and adopt the Food Standards.

Food Safety Standard 3.2.2 (3) sets out the skills and knowledge requirements of food handlers. In the section on food handling competencies it outlines the following requirements:

Persons undertaking or supervising food handling operations must have:

1. skills in food safety and food hygiene matters; and
2. knowledge of food safety and hygiene matters, commensurate with their work activities.

Victoria is one of the leaders in implementing legislation in line with the COAG agreement³¹. In 1997 the Victorian Food Act (1984) was amended to reflect core elements of the Food Safety Standards. Most significantly it introduced the requirement for all food businesses to develop food safety programs. These amendments also mandated an approach to addressing the issue of food handler skills and knowledge by requiring food businesses to nominate a Food Safety Instructor. Section 19G of the Food Act 1984 provides the following definition:

A food safety instructor is a person who, in relation to a declared premises or vehicle:

- *knows how to recognize, prevent and alleviate the hazards associated with the handling of food at, or from, that premises or vehicle; and*
- *knows which food safety competency standards apply, and how they apply, to the handling of food at, or from, that premises or vehicle; and*
- *has the ability to train other people to safely handle food at, or from that premises or vehicle.*

A 'food safety competency standard' means a food safety competency standard approved by a relevant State, national or international statutory or regulatory body.

The interpretation of 'food safety competency standard' in practice resulted in considerable variation with diverse training programs being offered by both public and private; RTOs and non-RTO training providers.

Further amendments to the Victorian Food Act in 2001 clarified the position by nominating the Australian National Training

³¹ The Council of Australian Governments (COAG) Food Regulation Agreement, December 2002, outlines the process by which all states and territories will amend food legislation to support a common approach and adopt the Food Standards.

Authority (ANTA) as the standards body and renamed the Food Safety Instructor as the Food Safety Supervisor. In effect, this means that a Food Safety Supervisor (FSS) must attain a statement of attainment in the relevant competency standard/s which can only be issued by a Registered Training Organisation. This change was supported by requiring mandatory nationally accredited competency standards³². The FSS is responsible to ensure that other food handlers handle food safely. There is no formal requirement that food handlers other than the FSS achieve a statement of attainment in accredited units of competency related to food safety.

Participation in food handler training

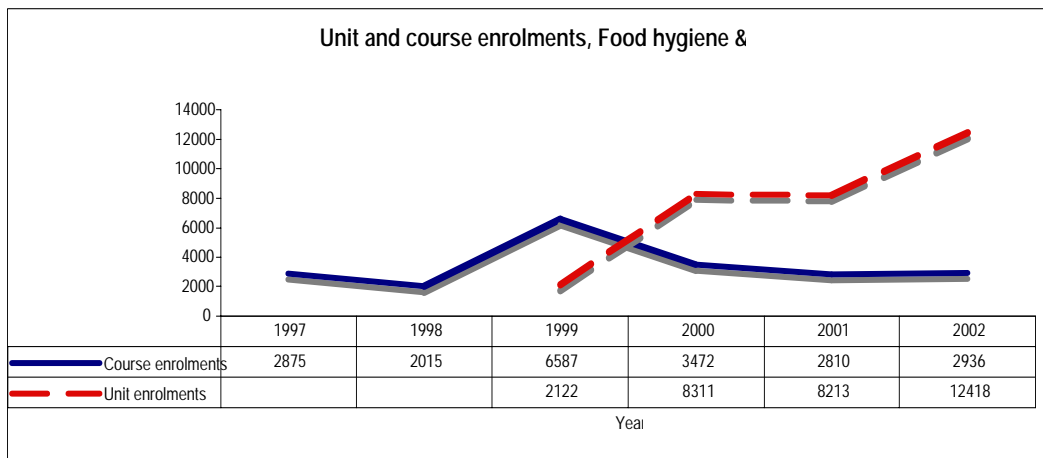
Data provided by the Office of Training and Tertiary Education (OTTE) shows that participation in food handling and hygiene programs has fluctuated over the past four to five years (Appendix 9).

Training statistics were provided by the Office of Training and Tertiary Education (OTTE) for enrolments in courses and units relating to food handlers. The courses are typically dedicated courses for food handlers and/or food safety supervisors. Units included units from food processing, tourism and hospitality and retail training packages. These units may have been undertaken as single only units or as part of an industry qualification. The data spans a period of transition in the training system from units based on state curricula to units based on national units of competency from national Training Packages. For this reason tracking individual course enrolments is less instructive than looking at overall trends.

Over the period for which data was available there is a steady increase in enrolments. Over the same period the average student contact hours (SCH) per course have also increased. Over the period, 1997 to 2003, the average student contact hours (SCH) per enrolment in food handler courses grew from 7.36 to 13.08 SCH. Between 1999 and 2002 average SCH per unit increased from 15 to 33 hours.

³² The minimum competency standards are listed on the DHS website

Figure 18 Enrolments in Food handling Training – 1997³³ to 2002



Impact of changes to food handler training

The following discussion of the impact of these changes draws on:

- Studies commissioned by the Food Safety Unit to gauge the levels of food handler skills and knowledge
- Survey responses from EHOs
- EHO comments in focus groups

Review of studies into skills and knowledge of food handlers

Studies into the level of skills and knowledge of food handlers have been conducted at both national³⁴ and state level.

The National Food Handling Benchmark 2000/2001 provides a snapshot of levels of awareness and knowledge of food handlers as well as reporting on actual food handling practices by food businesses. This project reported a relatively high level of awareness and knowledge of basic safe food handling practices in food businesses although it noted that theoretical knowledge did not always match practice. It also found that businesses with written food safety programs were more likely to demonstrate correct food safety procedures than those with no written program.

In Victoria the Training Baseline Study was undertaken in 2002³⁵. This project set out to test the hypothesis that senior staff possess a higher level of knowledge of correct food safety procedures but that this knowledge was not consistently passed on to junior staff working under their supervision. The methodology involved face to face surveys with 583 food business staff representing employees across the range of food handling business types. The

³³ Note that statistics for selected modules were only available from 1999.

³⁴ Australia New Zealand Food Authority (2001) *National Food Handling Benchmark 2000/2001: Evaluation report series No 1.*, ANZFA December.

³⁵ Adept Research (2002) *Training baseline study*, Melbourne: Department of Human Services.

project supported the hypothesis and found that junior staff in fast food outlets were most vulnerable to making a mistake through ignorance. The report made a number of recommendations around promoting and strengthening the role of senior staff in providing food safety training to others in the workplace. Among the recommendations was a call to raise awareness of Food Safety Supervisors and senior staff of their responsibility to educate others in the workplace; set minimum training standards; provide induction training for food handlers and back up ongoing training by leading by example and providing effective mentoring.

A follow-up survey was conducted in 2004. The project reported significant increases in overall awareness of food safety but also found that there was a significant decline in some aspects of food safety knowledge. It is interesting to note that significant knowledge gaps were also identified by the National Food Handling Benchmark Study 2000/2001. However unlike the Victorian projects, the national study included both a survey targeting food handlers and an observation component carried out by EHOs. It reported that:

It should be kept in mind when considering the low levels of awareness of specific technical information reported in the CATI (computer-assisted telephone interview) survey, that the EHO survey found that safe practices were being implemented. (p iv)

This observation points to a distinction between food handler skills and knowledge and food management systems and procedures. The methodologies used to measure levels of skills and knowledge provide a snapshot of the ability of food handlers interviewed to remember specific food safety information and parameters. Of equal relevance in determining safe food outcomes is the capacity of food businesses to establish and manage systems and procedures to support safe food handling. This is confirmed by the findings of further qualitative research into food safety skills, knowledge and training conducted in Victoria:

A clear finding of this study was that best practice in food safety is not just a matter of effective knowledge transfer and 'good training'. It is also influenced by the 'corporate culture', accountabilities and systems and procedures in place.³⁶ (p 21)

³⁶ TQA Research, *Food Safety Skills, Knowledge & Training: Qualitative Research*, (June 2004) Food Safety Unit, Victorian Department of Human Services

EHO feedback on food handler skills and knowledge

The EHO survey asked whether EHOs had observed any change in the level of food safety skills and knowledge over the last five years. Over half (55%) EHOs said that food handler skills and knowledge had increased, 29% observed no change and 4% reported a decline.

This issue was further explored through the focus groups. In describing the impact of changes to training requirements (for the food safety supervisor) most EHOs agreed that the skills and knowledge of food handlers in the better performing food businesses had improved, as had the systems and procedures in place to support food safety. However no similar trend was seen in poor performing workplaces.

Views differed on the reasons for continuing poor practice. Some attributed this to a lack of skills and knowledge. Others claimed the problem was that although food handlers were aware of what was required, they were not able to implement safe procedures in the context of their workplace.

There was general agreement that poor management systems are an ongoing problem in many food businesses and record keeping was often cited as the example of this.

EHOs made a number of specific observations and recommendations relating to food handler skills and knowledge.

- All food proprietors and food handlers should be required to undertake formal training. They said that there is no minimum understanding of food handling on entry to the industry – either as a business proprietor or an employee. It also reflects a frustration that poor practices persist in spite of the FSS training requirements.
- Inconsistent quality of food safety training programs. The shift to mandating accredited training reflects a concern to address training quality issues. Notwithstanding this approach concerns were still raised about the quality of some food handler training. Examples were cited where the same competency was provided by training programs which ranged in length from less than a day to 3-4 days.
- Lack of policy/guidance on refresher training. The current requirement of Food Safety Supervisors is to achieve competence in nominated units of competency. A limitation of the competency system when applied to a dynamic work context is that it provides a one-off assessment of competence and gives no guidance on strategies to maintain the currency of competence.
- EHOs require guidance on training matters. A number of EHOs were unclear about their role and responsibilities to confirm both FSS and food handler skills and knowledge. Of those who commented on this issue in the focus groups, most indicated that they check to make sure the FSS holds a relevant statement of attainment; a few do a follow-up check

on knowledge by asking questions. Implications of food handler skills for EHO role and responsibilities

Summary and recommendations

The following comments summarise the key issues relating to skills and knowledge of food handlers. A number of the recommendations in this section overlap with and need to be reviewed together with the concurrent project to evaluate the requirements of FSSs. The findings of this project were not available at the time of writing.

- Relationship between levels of food handler skills and knowledge and correct/consistent food handler practice

The national benchmarking study found that a lack of food handler knowledge was not necessarily reflected in incorrect food handling procedures. Some EHOs found the converse to be true. That is, they expressed frustration that people might know what to do but still don't do it.

There is not necessarily a direct relationship between the level of skills and knowledge and correct food handling practice. In some cases, even where there was a lack of knowledge, the correct procedures were followed because they were supported by relevant instructions and/or procedures in the workplace. This points to the need not only to address food handler skills and knowledge but just as importantly, to ensure that food businesses have the capacity to design and monitor systems and procedures to instruct food handlers on what to do. This has implications for nomination of FSS competency requirements to cover both relevant food handling as well as an understanding of systems to manage and monitor work practices.

- Quality and relevance of food handler training and assessment

The issue of quality of training remains a concern. The nomination of ANTA as the standards body has only partly addressed this issue.

Delivery of formal training is typically constrained by the need to achieve viable class sizes. While the definition of competence encompasses both knowledge and ability to apply and demonstrate knowledge in a typical work environment, in practice assessment is often generic and not related back to the learner's specific workplace and food handling requirements. The Victorian Follow-up Survey in 2004 confirms this:

Interestingly, significantly more staff trained 'on-the-job' were aware that their organization held a temperature probe compared to those

*who held a diploma or TAFE Certificate.*³⁷
(Section 4.1)

RTOs operate under the Australian Quality Training Framework (AQTF) which is designed to maintain consistent, high quality training. There are a number of precedents where competency standards are required as a minimum but not sufficient criteria for entry to a profession or field of work. In some cases RTOs delivering training in the area must meet additional approval or quality requirements. Professional or licensing bodies may also require that skills are regularly re-assessed to support currency. The relevance of these models should be considered to support currency of skills of food handlers. Models for managing workforce skills and knowledge are further explored in Chapter 9.

- Advice to EHOs on training matters

This should cover advice on options to confirm that the appropriate competencies have been achieved and can be demonstrated and to check that systems are in place to effectively convey relevant food handling information to other food handling employees in the business. It should also cover advice on roles and responsibilities for ensuring that food handlers have the appropriate competencies and specifically the responsibilities of the food business proprietor.

Recommendations

22. Investigate the suggestion that food proprietors undertake food safety training as a condition of entry to the industry.
23. Provide support to businesses to improve food safety management systems.
24. Examine options to monitor and manage both the quality and currency of food handler skills and knowledge.
25. Provide information and guidance to EHOs relating to their role in determining whether a food business complies with the skill and knowledge requirements specified in food safety legislation. Such advice should cover how to confirm:
 - that relevant competencies have been achieved and can be demonstrated in the relevant work context.
 - the systems or methods in place to transfer information to food handlers on their roles and responsibilities.
 - the systems in place to ensure that food handler skills and knowledge is appropriate to the work responsibilities.

³⁷ TQA Research (2004) Op cit

7. Future labour projections

In summary:

- ❖ Workforce change is affected by competition for scarce resources in local government
- ❖ A range of contextual factors suggest growth in demand for EHOs
- ❖ Employment forecasts suggest a shortfall of EHOs in the short- and medium-term.

This section describes the possible workforce in the short-, medium- and long-term. The approach taken considered:

- the context for workforce growth including broad demographic and economic change
- projected demand for EHOs in the short-, medium- and long-term
- possible sources of supply of EHOs to meet demand.

Context of change

One of the distinguishing features of the workforce, along with other areas of local government, is the effect of competition for scarce resources.

The features of the context for staffing decisions include:

- policies of fiscal restraint: Councils operate within tightly constrained funding environments. The scope to increase fees and rates is extremely limited, particularly in drought affected and lower socio-economic areas. This results in greater concern for efficiencies in operation and resistance to expanding resources.
- The effect of significant workforce reductions associated with amalgamation in the mid-1990s: Councils report staffing reductions of between 1/3 and 1/2 in this period. Most of these councils have not returned to pre-amalgamation staffing levels.
- Cost shifting associated with the allocation of additional roles to perform council functions outside the EHO role without additional resources or tools.
- Intensification of work associated with changes to the EHO role driven by legislative change.
- Competition from emerging functions: The emerging demand for environmental management and increasing pressure for septic inspections and nuisance complaints in some areas could divert resources from other areas, such as enforcement of the Food Act.

Demographic characteristics and economic drivers of growth will influence demand for EHO services. The following section provides contextual information on population growth overall and within metropolitan and regional Victoria and broad industry growth forecasts.

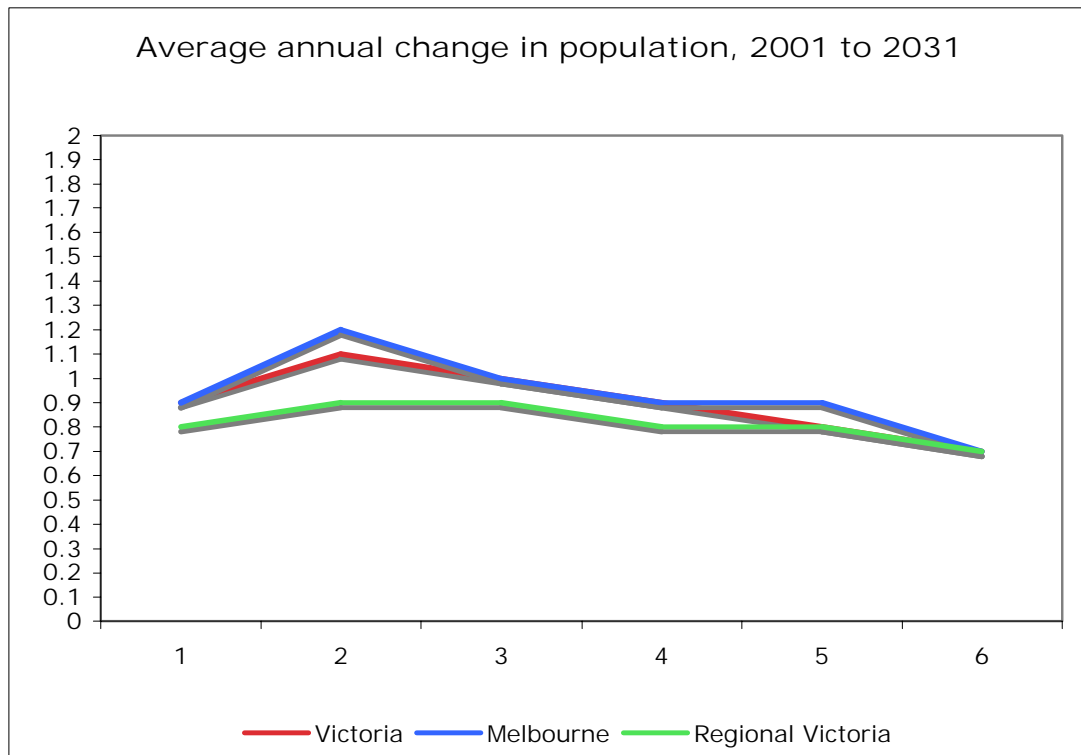
Demographic trends

The Victorian Department of Sustainability and Environment publishes population projections. These projections provide a picture of demographic change, which implies slowing job growth overall, due to aging baby boomers and a low unemployment rate in Victoria.

Table 4 Change in Population and houseHolds³⁸, Victoria 2001-2031

	2001	2006	2011	2016	2021	2031
Total population	4,804,726	5,077,209	5,331,614	5,574,755	5,810,560	6,225,477
Change in population						
Net	1,420,751	272,483	254,405	243,141	235,805	414,917
Average annual	0.9%	1.1%	1.0%	0.9%	0.8%	0.7%

Figure 19 Average annual change in population, 2001 to 2031

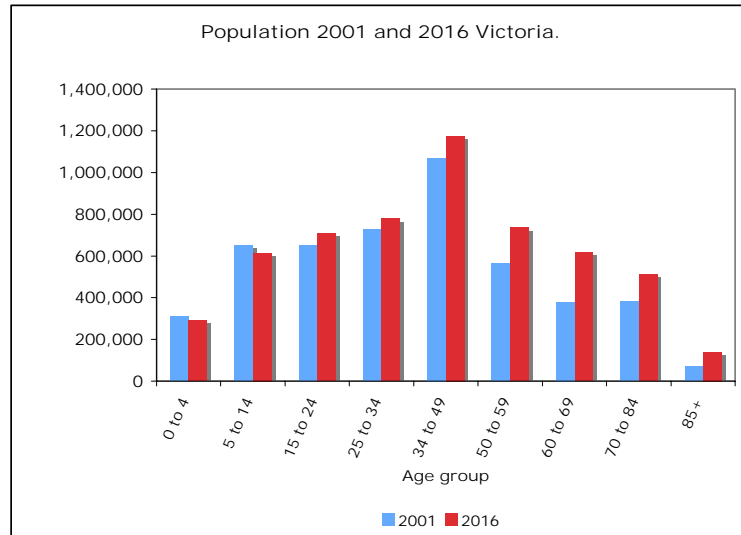


Victoria's population is projected to grow at the same rate as Australia's over the next 30 years. The rate of growth is expected

³⁸ Department of Sustainability and Environment (2004) Victoria in Future, 2004: Population Projections. Melbourne: Department of Sustainability and Environment

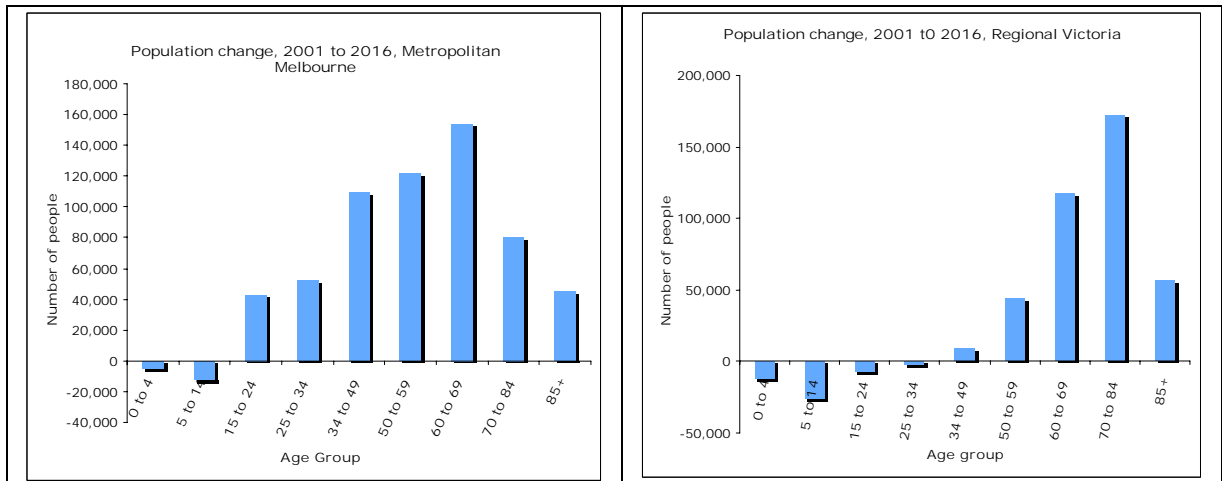
to slow during the period due to greater numbers of deaths and fewer births, with a steady state rate of overseas migration.

Figure 20 Population change by age group



The major demographic change is expected to be large increases in numbers of older persons, ie. population aging, who are likely to require increased growth in personal service areas and more specifically health services including accommodation and care facilities.

Figure 21 Population change, 2001 to 2016 in metropolitan and non metropolitan Victoria



Population changes in Victoria will vary by metropolitan and nonmetropolitan Victoria. Metropolitan Melbourne's population is projected to grow at a slightly faster rate than Victoria as a whole. This is due to a younger population profile and higher rates of overseas and interstate migration gain. In contrast, regional Victoria's projected growth rate will decline slightly to 2020. The pattern of change is due to increasing numbers of deaths being offset by increased migration from Melbourne.

Drivers of economic change

The industries driving growth in the decade to 2003 are likely to continue to drive the economy in the next decade, ie. construction, business services, community and health services, tourism, retail and recreation³⁹.

Tourism, retail and recreational services are likely to continue to lead growth, but tourism in particular is subject to external threats from terrorism and fluctuations in the \$A. However, tourism also benefits from rising consumer incomes. Output growth in the industry results in more jobs. Where these are located in the hospitality sector there are likely to be increased demand for food handling.

Community and health services are likely to become more prominent with the aging population. Aged care services in particular are likely to experience stronger demand. Some demand is likely to be directed to support of people in their homes, but increases in aged care accommodation and associated increases in staff engaged in food handling have implications for EHO services⁴⁰.

Summary of change drivers influencing the numbers or roles of EHOs

Drivers of change extend beyond broad population and economic projections. Change drivers are manifest in particular forms and configurations that have more specific implications for the EHO role and workforce. Table 5 summarises focus group input from both EHOs and managers on their perceptions of the change drivers affecting EHOs.

Table 5 Change drivers that are likely to influence the numbers and roles of EHOs

Drivers of Change	Issues	Implications
Context		
Regulatory context	Driven by legislative/policy frameworks eg. Food Act Health Act Review Tobacco Act Environment Protection Act Water management: waste water management plans; conservation; storm water etc; Asbestos Increased involvement in emergency management planning Noise/air pollution	Implications for both numbers and skill levels. Health Act review may require development of risk management plans Environmental management has been transferred to local government in some states. Similar moves in Victoria would have implications for job structure and workload in Victoria.

³⁹ Access Economics (2004) *Future demand for vocational education and training*. Canberra: Department of Education, Science and Training.

	<p>Immunisation – recent schedule changes</p> <p>Infectious disease regulations</p> <p>Drinking water regulation</p>	<p>EHOs have multiple accountabilities: local government, DHS, EPA, DSE, DVC</p>
Food safety	<p>Risk-based approach</p>	<p>Major paradigm shift – both for EHOs and food proprietors. Issues of skill gaps.</p> <p>As proprietors start to take up the approach there is more work involved in supporting / educating/reporting</p>
Patterns of food retailing and consumption	<p>Significant increase in all food premises and increasing diversity in the nature of premises including temporary food premises, markets, special events, wineries etc</p>	<p>Shift to 24/7 service; intensified workload including weekend and night work; ongoing frustration over consistency issues relating to temporary premises.</p> <p>Increased workforce flexibility and/or high rates of overtime</p>
Demographics	<p>According to Access economics, the pace of population growth will slow</p> <p>Population density in cities and rural growth areas is increasing (sea/tree-change phenomenon)</p> <p>Increase in cultural diversity</p> <p>In rural areas – growth of ‘sponge’ cities or rural centres is occurring at the expense of the viability of smaller, more remote towns.</p> <p>Low socio-economic areas/stressed communities</p>	<p>Increase in development/nuisance issues; sub-divisions resulting in development of marginal or inappropriate land for housing. Conflict between traditional land use and residents</p> <p>Increased pressure to inspect septics; more complex systems</p> <p>Additional time / skills required</p> <p>Increased need for involvement in planning issues</p> <p>Implications for EHO skills and workload.</p> <p>Smaller towns with declining and often poorly managed infrastructure present different risk factors.</p> <p>Increased reliance on council to resolve issues</p>
Increasing public expectations of the role	<p>Better educated, more demanding public</p> <p>Greater awareness of issues – food/ environment</p> <p>Intolerance of unsafe outcomes</p>	<p>Increased role as educator</p> <p>Increasingly open to challenge</p> <p>Some reported that businesses value the educative role of EHOs</p>
Constrained resources	<p>Revenue cuts (20%) made as part of council amalgamations.</p> <p>Perceived cost intensification for local government without appropriate tools and resources.</p> <p>Limited scope to increase revenue base.</p>	<p>Increasing competition for scarce resources between different functions of local government.</p> <p>Food related responsibilities may lose out to emerging work issues in environmental area.</p>

Manager surveys asked for information on the criteria used by councils to determine the number of EHOs required. Responses received reported the following factors were most commonly considered:

- number and type of registered premises. It is noted that particularly in heavy tourist areas, this can fluctuate significantly and creates challenges for aligning staff numbers to service need.
- demographic features – including fluctuating population bases associated with tourist areas
- number of complaints
- travel distances
- extent to which existing staff allocation meets minimum statutory requirements/inspection targets
- other indicators of workload such as the number of septic tank applications; immunization service requirements.

Some managers noted the difficulty of building in sufficient resource capacity to allow EHOs to effectively contribute to wider planning processes. Other factors cited as influencing staffing decisions included the availability of staff to fill positions and best value reviews⁴¹. To the extent that benchmarking is used, this tends to be an informal process of checking staff levels of surrounding councils. As one manager stated:

Care needs to be taken in deciding if the benchmarks are comparable. When considering another Council's operations it is important to know whether they are complying with the legislated requirements.

The projected workforce for EHOs

The earlier sections of the report have described the current workforce for EHOs who are employed in local government in Victoria. The project also considers the possible shape of the workforce in the future. This section describes the demand for EHOs in the short-, medium- and long-term.

The approach recognises that projecting the future is imprecise. It is best used as a starting point for thinking about what might happen in the future and how the system might respond.

⁴¹ The Best Value framework was introduced in 2000 and replaced compulsory competitive tendering. The framework is established under the Local Government Act and outlines principles to be observed by councils in the provision of services to the community. One of these principles relates to development of quality and cost standards. Councils are required to review services against the principles over a five year period and report annually on progress to the Department of Victorian Communities.

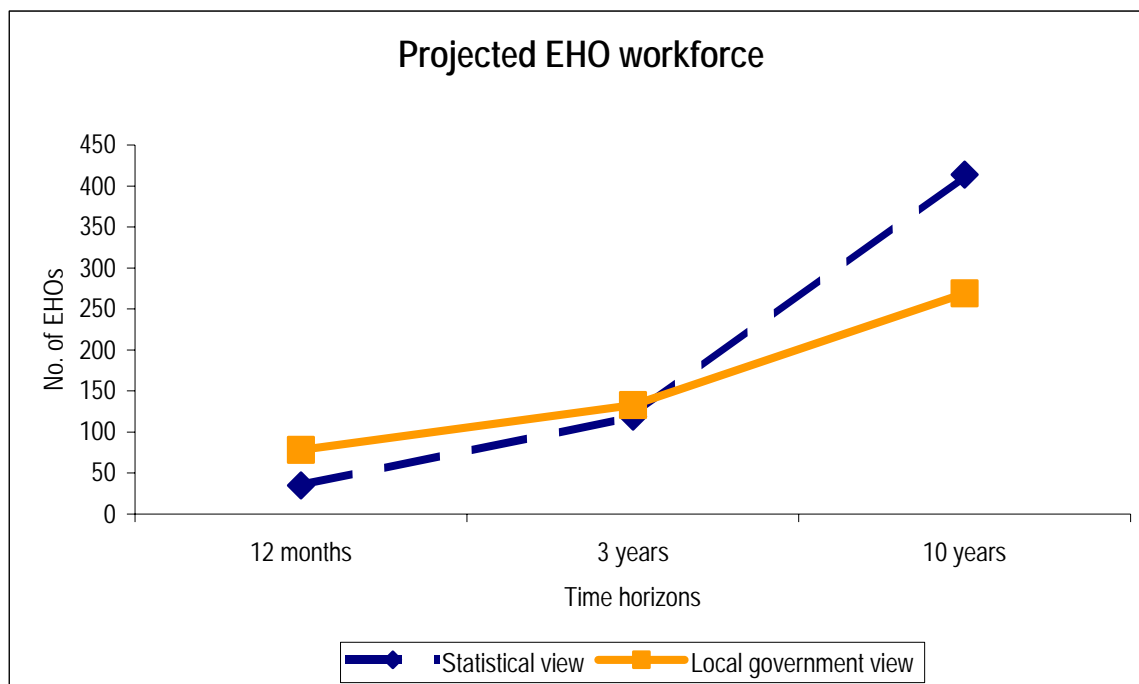
Three different approaches to projecting demand were used. These provide different viewpoints on the possible future workforce for EHOs. A more complete description of the approach is provided in Appendix 8.

- **Statistical view**
This model considers detailed data on industries and occupations to estimate future trends in employment. It also estimates how many positions are likely to need replacement due to people leaving their occupation. The model is based on the labour market forecasts produced by the Centre of Policy Studies (CoPS) at Monash University. It is applied to the known number of EHOs from the survey of local government managers of EHOs.
- **Broad economic view**
This model uses estimates of growth in employment across the whole economy and a broad estimate of replacement needs in professional occupations. The values used were taken from analyses produced by Access Economics⁴².
- **Local government view**
Local government managers were surveyed. They were asked to provide information on how many EHOs (EFT) they estimate that they'll need in 12 months, 3 years and 10 years. A survey of EHOs provided demographic information on the age of EHOs as well as their intentions to leave in 12 months, 3 years and 10 years. The findings of these surveys were applied to the actual numbers of EHOs in March 2005 to project the possible workforce.

The Broad Economic View produced very conservative projections which did not fit the known pattern of employment in the past twelve months. The projection for the next 12 months did not even approximate known vacancies. It was decided that this model was too conservative to be useful. The other two models fit known trends. Their projections are described below (Figure 22).

⁴² Op cit.

Figure 22 Comparison of the projected numbers of EHOs from two different approaches to modelling demand



These models are similar in that they both project growth in numbers of EHOs required in the next ten years. Local government views of the future appear to be more aspirational in the short-term, which probably reflects the pressure of need for EHO services in councils. In discussing approaches to measuring demand for public health services, labour force economists Hall and Mejia make a useful distinction between 'need' and 'demand'.

Need represents estimation based on professional judgment...of the number of workers or amount of services necessary to provide optimum standard of (service).

*Demand...refers to...the various types of health services that the population of a given area will seek **and has the means to purchase...***⁴³

It is likely that the short term projections by council relate more to an assessment of need than an indication that councils are likely to significantly increase spending on EHO services.

The statistical model starts at a lower base in the short term, but suggests more rapid growth overall.

⁴³ Cited in Riddout, L., Gadiel, D., Cook, K. and Wise, M. *Planning framework for the public health workforce: Discussion paper*, National Public Health Partnerships, June 2002, p15

What is interesting is that both models provide a similar view of likely need for EHOs in the medium-term.

Both models present a picture of increasing demand for EHOs over the next ten years. The question to be addressed by labour force planners is where will the growth come from? EHOs could come into the system from interstate or overseas. However, it can be assumed that the net gain would be nil as it is likely that just as many will come into the system as go out.

The primary source of labour force growth will continue to be supplied by graduates. The average numbers of graduates from tertiary programs over the past 3 years was 32 (2001-04). If Victorian graduates of the University of NSW, Hawkesbury Campus are included then there are an average of 34 graduates per annum.

It is likely that not all of these will enter local government. Providers estimate that on average 4 graduates per annum go to jobs outside local government, into further study or do not take-up employment on graduation.

The following table compares demand with likely supply from training assuming a steady state of graduates.

Table 6 Estimated demand and supply of new and replacement positions for next 10 years

Model	12 months	3 years	10 years
Statistical view	34.9	118	413.9
Local government view	78	133	269
Likely supply of graduates	28	84	280

Local government figures do not take account of the increasing feminisation of the workforce. The medium to long term figures are likely to understate the demand created by women leaving for family reasons.

Both views of the workforce suggest that in the absence of intervention the labour market will shift from the current tight labour market to a situation of labour shortage. That is, the supply of graduates is unlikely to meet future demand for graduates in the short- to medium-term. The statistical view suggests that this shortfall is likely to continue in the long-term, but this is not supported by councils' estimates. The 10 year estimates supplied by council managers may be unreliable as most council planning processes do not extend over this timeframe.

The significant decline in growth rate projected by local government managers also appears to be at odds with labour mobility data. Managers reported that of those EHOs who were considering leaving their current position, 60% reported that they intended to leave the EHO profession. Available demographic and economic forecasts as presented in the statistical view above,

tend to support higher rates of growth in the demand for EHOs than is reflected in the local government managers' projection.

Councils are already experiencing tight labour market conditions. If this develops further to become a labour shortfall, the lead time to supply qualified personnel is three to four years. The associated risks suggest that the statistical model may be more relevant in the longer term than the local government model.

Projections of the future workforce serve planning best when they are viewed as 'possible futures' rather than an accurate portrayal of the future. They provide an opportunity to challenge existing policy frameworks and to rehearse the range of policy settings to meet the challenges that this modelling poses.

Both models anticipate short and medium term shortfalls in the supply of EHOs. The evidence collected by this project suggests that strategies to respond to this labour shortfall must address three key challenges:

1. Attract people into the role.

Evidence collected on aspects of job satisfaction, labour turnover and career aspirations underlines the challenge facing local government to make EHO jobs sufficiently attractive to attract and retain people in the profession.

Rural and remote councils face added difficulties in attracting and retaining staff. That is, skills shortages may be due to 'recruitment difficulties' where "employers cannot fill vacancies in spite of an adequate supply of workers"⁴⁴

2. Ensure that new entrants have requisite skills.

The second challenge is to ensure that there is a pool of people available to fill these positions with the requisite set of skills and knowledge to perform adequately in the EHO role.

3. Retain existing workforce

One in three (34%) of respondents to the EHO survey reported that they intended to leave their current EHO job in the next five years. One in ten EHOs reported that they intended to stay in the role for only the next two years. Only 8% intended to leave to take a job in another EHO job within local government in Victoria.

The available statistics provide evidence of significant levels of churn within the EHO workforce and out of the workforce. This provides a challenge for councils to minimise the skill wastage to the system. Retaining the existing workforce should be a priority, particularly in a tight labour market.

⁴⁴ Shah, C. and Burke, G. (2003) *Skills shortages: Concepts, measurement and implications. Working paper No. 52*. Melbourne: Centre for the Economics of Education and Training. p. v.

The following chapters explore the dimensions and possible responses to these dual challenges. Both aspects of labour shortage are equally important and inter-related. For example, there is little value developing training pathways into a profession if no-one wants to do the job. To this extent, recommendations around job design, training and development, training pathways and models for managing workforce skills and knowledge are inter-dependent.

Recommendation

26. Establish a workforce data base. This would require that councils provide regular reports to DHS on workforce data. This project has mapped the demographics of the EHO workforce at a point in time. The real value of this work is to use it as a template to develop an ongoing workforce data base that can be used to monitor and track the workforce is tracked over time. Such a data base would provide workforce planners in DHS and local government with the necessary information to make informed decisions. It would support local government to more systematically benchmark their staffing profiles. It would also be a useful resource to training providers to support their planning processes. Data base users need to be consulted on the specific content of reports which could include:

- numbers of EHOs by position
- nature of employment contract and hours of work
- labour turnover
- budget allocation for workforce development
- council projections for EHO numbers for their next planning period.

8. Training pathways to support skills and knowledge to administer the Victorian Food Act

In summary:

- ❖ Fields of skills and knowledge required to administer the Food Act were identified. They are:
 - General underpinning
 - Contextual understanding
 - Information collection, analysis and application
 - Food science
 - Communication
 - Food law
 - Registration and inspection procedures.
- ❖ A number of pathways could be developed to support EHOs' skills and knowledge.

Earlier sections of this report have found that in the absence of intervention, there is likely to be a labour shortage for EHOs in the short and medium term. One of the recommendations to address this scenario is to take advantage and build on appropriate skills and knowledge that have already been developed that could support the EHO role. This section identifies the skills and knowledge requirements of EHOs related to administering and enforcing the Victorian Food Act and considers options for developing or sourcing these skills and knowledge requirements.

Method

The identification of possible training pathways for EHOs to undertake administration and enforcement of the Victorian Food Act involved two broad steps:

1. Identifying skills and knowledge requirements
 - Literature review to identify common activities, skills and knowledge of EHOs
 - Consultation and validation
 - Desktop analysis of position descriptions for EHOs

The information from Step 1 provided the basis to undertake Step 2.

2. Identifying possible training pathways
 - Mapping gazetted qualifications
 - Mapping related education and training pathways

1. Identification of skills & knowledge

A draft skills and knowledge outline was developed based on a review of literature⁴⁵ and EHO position descriptions. This generated a list of common activities conducted by EHOs.

EHO Core Activities: Victorian Food Act

The following core activities were identified as forming the food-related aspects of the EHO role:

- Policy development
- Food business registration
- Compliance assessments
- Inspections and response to non-compliance
- Sampling
- Investigation and reporting on complaints
- Maintaining records
- Preparing and carrying out prosecutions
- Food seizure
- Following up third party audits
- Responding to and investigating outbreaks
- Food recall follow up
- Promoting and educating food businesses and the community on food safety

Based on this list of activities, the main groupings or fields of skill and knowledge were identified.

⁴⁵ National public health partnership (June 2002) , Planning framework for the public health workforce' Discussion paper, Melbourne
National Centre for Environmental Health, Centres for Disease Control and Prevention
American Public Health Association (May 2001), *Environmental Health Competency Project*,
American Public Health Association, Washington

Fields of skill and knowledge

- General Underpinning
- Context
- Information collection, analysis and application
- Food science
- Communication
- Food law
- Registration and inspection procedures

While all fields are required to perform the role, the highlighted fields indicate those identified as fundamental to the work.

Feedback on both the core activities and the related fields of skill and knowledge was invited in the Phase 1 focus groups. The focus groups canvassed skill and knowledge issues across the breadth of EHO activities. In addition, a further targeted session was convened to address skill and knowledge issues related to the Food Act⁴⁶. This session was used to test and refine the approach and to provide practical, outcome-based descriptions of how each of the fields apply in an EHO work context. This allowed each field to be further described by detailed application/level descriptors.

Before finalising the list of skills and knowledge two issues needed to be addressed:

- the extent to which management skills should be addressed as a core EHO requirement; and
- whether to distinguish between skill and knowledge requirements of an EHO in administering the Victorian Food Act compared to the requirements of a technician role.

Management skills

A range of business administration and management functions are carried out by EHOs who advance to fill senior and/or co-ordinator roles. These include business planning, budget development, resource management and staff management and development. It was agreed that management level skills should be very broadly introduced but the detail is more appropriately addressed through targeted management training as an option within professional development.

Skills and knowledge requirements for a technician role

⁴⁶ See Appendices 5 and 6 for list of participants of both focus groups and skills and knowledge session.

The project received comment on the possibility of creating a technician role to undertake low risk aspects of the EHO function under direction. The creation of such a role could alleviate some of the workload pressures on EHOs and allow fully qualified EHOs to focus attention on more complex risk management activities. Current practice includes use of AOs who are not qualified as EHOs. The proposed AIEH certification scheme also provides for recognition of a technician role although related qualifications have not yet been specified. This option is discussed further in Chapter 6 on job design.

The impact of this issue on mapping of skills and knowledge was whether to identify levels applying to a technician role and to administering the Victorian Food Act. Exploratory discussions suggested that a technician responsible for food inspections would need to undertake sufficient food science training to support them to confirm a food safety risk level and to understand the specific risks associated with low risk food handling activities. However it was resolved that the project would only develop a detailed description of administering the Victorian Food Act. This decision reflects the mixed level of support for the proposal to create a technician role. Pending agreement on the value and functions of a technician role, skills and knowledge requirements then need to be identified and mapped.

The full skills and knowledge list identified to support EHOs in administering the Victorian Food Act is listed in Appendix 10.

Skills and knowledge covered by mapping

The full skills and knowledge list provides the basis against which courses relevant to EHOs were then mapped. However not all competencies are covered in the mapping process. There are a range of workplace specific units such as OHS and workplace induction and generic leadership competencies are listed as integral to the EHO role, they are not included in the mapping exercise.

Generic skills underpin all work activities. Examples include:

- English language, grammar and computer literacy
- Personal & professional conduct
- Time & resource management
- Personal learning & professional development
- Teamwork

These are integral to both work and learning. Universities are required to identify and develop graduate attributes or generic capabilities that all graduates attain regardless of the qualification

they undertake⁴⁷. A similar concept underpins the VET system through identification of generic key competencies. The development of these generic competencies is often integral to both the content and also the delivery of training. The mapping process based on the curricula content is therefore not suited to accurately map skills and knowledge of this type. A distinction was made between general ethical conduct (acquired as part of generic attributes) and specific understanding of ethical issues and codes of practice relating to EHOs. While the broader aspect of professional conduct is not included, ethical conduct and related codes of practice for auditing or inspecting functions relates to specific requirements and international standards and is therefore included in the mapping.

Occupational health and safety and workplace induction units are not mapped unless they are specific to the work environment or EHO job context. All training packages and university courses cover relevant aspects of safety, however safety and workplace induction are closely bound to the work context. For example, OHS units designed to address safety hazards for laboratory technicians will not address the breadth of OHS issues relevant to EHOs. Finally generic leadership units are also not included in mapping. The expectations are that at entry level, EHOs are introduced to broad concepts of organisational development and leadership but that these skills are more appropriately developed in detail by dedicated, post graduate programs and/or work experience.

2. Identification of training pathways

Having defined the skills and knowledge list, the second step was to identify training that could provide relevant pathways to obtain the skills and knowledge needed to administer the Victorian Food Act. Informal pathways already exist in the form of recognition arrangements offered by each training provider to students with relevant prior learning. The mapping identifies ways to a skilled workforce for Victorian Food Act administration. This project did not explore options for how such pathways could be structured. This would need to be the subject of further research engaging the current and potential training providers.

Identification of relevant qualifications

Environmental Health Officers are statutory positions. The definition of EHO in the Victorian Food Act refers to Section 30A of the Health Act (1958). This Act specifies that a person appointed as an EHO must hold a qualification declared by the Secretary of the Department of Human Services. These qualifications are listed in the Government Gazette.

⁴⁷ Higher Education Review Process, Striving for Quality: learning, teaching and scholarship, Article on Our Universities website www.backingaustraliasfuture.gov.au

Table 7

Gazetted courses currently provided:

Course Name	Course Provider
1. Bachelor of Public Health Public Health	LaTrobe University (Vic)
2. Bachelor of Health Science (Public & Environmental Health)	Swinburne University of Technology (Vic)
6. Bachelor of Environmental Health	Flinders University (SA)
3. Bachelor of Science (Environmental Health)	Curtin University of Technology (WA)
4. Bachelor of Applied Science (Environmental Health)	University of Western Sydney (NSW)
5. Bachelor of Science in Environmental Health	Griffith University (Qld)

The search for possible qualifications that deliver substantial aspects of the EHO role was influenced by a focus only on the responsibilities of EHOs in enforcing the Victorian Food Act and also by feedback from EHO feedback who stressed the importance of practical and applied training. The search was therefore directed at training provided in Victoria within a relevant professional context. This led to a focus on training offered for roles in either food-related or local government sectors. The search was limited to accredited training programs in the tertiary or Vocational Education and Training (VET) sector. This covers the vast majority of available relevant training. The following broad fields of study were identified. In addition to indicating the course field and type, the main providers of these courses in Victoria are also shown.

Table 8 Fields of Study Relating to EHO Role

Field of study	University	VET
Food science and technology*	Degree RMIT B App Sci (Food Technology and Nutrition) B App Sci (Consumer Science) Ballarat Uni B App Sci (Food Sci & Techn)/B of Mgt Deakin University B App Sci (Food Science and Nutrition) Bachelor or Nutrition and Dietetics Monash University Bachelor of Nutrition and Dietetics Executive Certificate in Food Business Management Victoria University Bachelor of Science Nutrition, Food and Health Science	Certificates IV and Diploma**
Food processing		Certificate IV and diploma in Food Processing
Commercial cookery		Certificate IV in Hospitality (Commercial Cookery)
Local Government		Selected units

* a number of courses combine food science and nutrition. In these cases, the food science aspect is most relevant to the Victorian Food Act enforcement.

** In Victoria Certificate IV and Diploma in Food Science and Technology has recently been reaccredited

Qualifications in food processing, commercial cookery and local government are recognized nationally under the Vocational Education and Training (VET) system. These qualifications are based on units of competency from nationally endorsed training packages.

In contrast curricula for tertiary qualifications are owned by particular universities. It is therefore necessary to map courses offered by each university separately.

In the case of both VET and tertiary programs, the qualifications allow some flexibility in selecting units that make up the qualification. For this reason it was necessary to identify and map specific units relevant to the role rather than whole qualification outcomes. Only units that directly addressed one of more specific fields of study were mapped.

Mapping method

The course information used to map VET courses was the national units of competency from the nominated training packages. Typically the unit content was used to assess relevance. The only exception was in the case of the local government unit LGAEHRR501B Implement council's responsibilities in food safety. The content of this unit appears to cover an extensive range of EHO responsibilities relating to enforcement of the Victorian Food Act. However the level of detail provided is extremely limited. Further investigation revealed that the training hours allocated for delivery of this unit total 40. Given this and the fact that there are no specified pre-requisites, development of the breadth of skills referred to in the unit would not be possible within the time allocation. For this reason the unit is rated as a 4 (indicating it is insufficient to meet requirements) even though if rated on unit content alone it would have been rated at 2 for some fields.

Information used to map tertiary courses was the publicly available unit/subject descriptions provided by each training provider on their website. This approach was used to map both gazetted and other courses. Only one exception was made for RMIT. The website only provides information for the current semester. It was therefore necessary to contact this provider directly for more detailed course information.

There are inherent limitations in relying on unit/subject descriptions as posted on the provider websites. This relates to the possibility that descriptions are insufficiently detailed, outdated or differ from actual training delivery. However the purpose of this mapping exercise is not to provide an exhaustive assessment of each unit or subject but rather to give an indication of the likely alignment of a given unit/s to the Victorian Food Act enforcement. Should the option of establishing such pathways be further developed, this initial mapping process could provide the basis for a more detailed exercise that would engage the relevant technical experts including training providers who would provide further detail on their training programs.

The approach to mapping gazetted courses provides a greater level of detail on the nature of alignment. Any items of skills and knowledge that do not appear to be covered by the course are specifically identified. This level of detail was examined as these courses are specifically designed to meet the needs of EHOs. It is recognized that while the skills and knowledge list describes the requirements of EHOs only as it relates to Victorian Food Act enforcement, these entry-level qualifications are designed to prepare students for a range of environmental health roles and develop skills across the breadth of environmental health.

The non-gazetted courses were mapped in less detail and provide a broad indication of units relevant to Victorian Food Act administration and enforcement..

The detailed maps are shown in Appendix 11 for gazetted qualifications and Appendix 12 for other training pathways.

The outcome of mapping the gazetted qualifications generally confirms observations made in focus groups that pointed to significant differences in course approach and emphasis.

Table 9 provides a summary of the mapping outcomes for selected units/subjects from non-gazetted qualifications. The following ratings are used to indicate the degree of alignment to administering Victorian Food Act related skills and knowledge requirements.

1. Directly and adequately covers the field.
 2. Mostly covers the field but may have minor gaps or need for customization.
 3. Covers the field and provides more extensive training than required.
 4. Covers aspects of the field but is inadequate/insufficient to address the needs of EHOs in this field.
- No number indicates no coverage.

Effectively a score of 1 or 2 indicates a reasonable fit with the skills and knowledge needs for Victorian Food Act administration and enforcement.

A score of 3 indicates that the skills and knowledge are covered but in more detail than required.

A score of 4 indicates the current unit content is not adequate to meet the need.

Table 9 Alignment of Courses with EHO Skills & Knowledge

Skills / Knowledge Field	RMIT – B App Sci (Food Technology & Nutrition)	Ballarat Uni B of Appl Sci (Food Sci & Techn/ B of Management)	Deakin Uni B of App Sci (Nutrition & Dietetics) B of Nutrition & Dietetics	Monash Uni Bachelor of Nutrition and Dietetics	Victoria University Bachelor of Science, Nutrition and Health	Bachelor of Applied Science (Consumer Science) @ RMIT University	Food Science & Technology Cert IV and diploma	Food Processing Training Package Selected Units	Local Government Training Package Selected Units	Commercial Cookery Cert IV
Context										
Public health system			4	4	4	4		4	4	
Political and economic context		4	4	4	4	2			4	
Ethical conduct		2		2		4		2		
Information collection, analysis and application										
Information collection and management		1	2		2	2	4	1		
Research methods	2	2	2	2	2	4	2	1		
Sampling methodology	2	3	2		2	2	1	1	4	
Technical & Applied Skills & Knowledge										
Food Safety	2	3	2	2	2	2	1	1	4	2
Food science	2	3	2	2	2	2	1	1		2
Chemistry	3	3	2	2	3	4	3	1		
Biology Micro-biology	3	3	3	2	3	4	2	1		
Toxicology	2	1	2	1	2	4	2	1		
Communication Skills & Knowledge										
Prepare and present information		2			2		4	2	4	4

Skills / Knowledge Field	RMIT – B App Sci (Food Technology & Nutrition)	Ballarat Uni B of Appl Sci (Food Sci & Techn/ B of Management)	Deakin Uni B of App Sci (Nutrition & Dietetics) B of Nutrition & Dietetics	Monash Uni Bachelor of Nutrition and Dietetics	Victoria University Bachelor of Science, Nutrition and Health	Bachelor of Applied Science (Consumer Science) @ RMIT University	Food Science & Technology Cert IV and diploma	Food Processing Training Package Selected Units	Local Government Training Package Selected Units	Commercial Cookery Cert IV
Exchange information		2		4	2			2	2	4
Establish and maintain effective relationships		2					4	2	2	4
Food safety promotion				2					2	
Food Law										
Interpretation/application of food law	2	2	2	2		4		2	4	
Legislative framework	4	2	2	2						
Scope of powers of AOs under the Food Act								2		
Legal responsibilities and liabilities of AOs										
Evidence collection								1		
Legal documentation/recording								4		
Court procedures										
Registration and inspection procedures										
Food premises registration	4								4	
Compliance check/inspection processes and procedures							4	4	4	

Each set of units offers different strengths. The following discussion summarises these strengths and weaknesses of mapped units against the main skills and knowledge fields.

Context

This field covers a variety of skills and knowledge, much of which is generic. None of the units adequately address public health and only the Bachelor of Applied Science, (Consumer Science) at RMIT substantially addresses the political context.

Information collection, analysis and application

This field covers accessing relevant information sources, research and sampling methods. All food science courses and the food processing units cover this field although specific sampling techniques may not be explicitly addressed. Not surprisingly the local government and commercial cookery units are particularly weak in this area.

Technical & Applied Skills & Knowledge

This is the core technical aspect of EHO work relating to food. As would be expected, food science courses adequately or extensively cover this field. The food processing units are a direct match, reflecting the recent inclusion of food safety auditor competency standards in this training package.

The consumer science units and to a lesser degree, commercial cookery are weak in this field. The weakest alignment is with the local government units.

Communication Skills & Knowledge

Food science courses are not strong in this field. Where communication is included, it tends to be limited to communication of technical information. The notable exceptions are the combined Bachelor of Applied Science (Food Science & Technology) and Bachelor of Management offered by Ballarat University and the Victoria University Bachelor of Science, Nutrition and Health. It is noted that the delivery of most courses aims to develop broader teamwork and communication skills but these do not address the specific EHO requirements adequately.

The food processing units together with units from the local government training package are also closely aligned to this field.

Food Law

The only units that show a reasonably good fit with this field are from the Food Processing Training Package. A number of the food science programs offer an overview of food law but do not provide the level of detail required to administer the Victorian Food Act.

Registration and inspection procedures

This field is highly context-based and was not adequately addressed by the training examined.

Summary

Those with the least fit to the skills and knowledge requirements of an EHO related to administering and enforcing the Food Act are units from local government and commercial cookery. The closest fit is offered by the food processing training package units (AQF IV and diploma level), reflecting the recent addition of dedicated food safety auditor units. Food science, technology and nutrition courses provide a sound basis particularly in technical and applied skills. The Bachelor of Applied Science (Consumer science) offered by RMIT provided some coverage of a significant number of the skills and knowledge required. It is also noted that Degrees in Applied Science would address generic science underpinning the administration of the Victorian Food Act.

9. Models for managing workforce skills & knowledge

In summary:

- ❖ Professional certification schemes in other professions provide models for managing the skills and knowledge of EHOs for administering the Food Act
- ❖ These schemes are diverse, but have some common elements
 - They typically offer professional certification or registration to practice in a given field which builds on attainment of a relevant qualification
 - Most require members to undertake professional development to maintain competencies and most also define a professional code of conduct.

A number of recommendations made in this report relate to effective management and maintenance of the skills and knowledge base of EHOs. A number of EHOs discussed the need for a professional certification scheme and this is further supported by the work of the AIEH in developing a proposed scheme⁴⁸.

This chapter identifies the main features of a number of professional certification schemes. It provides a description of the schemes covering EHOs in the United States of America and the United Kingdom together with an outline of features of the scheme proposed by AIEH. It also reviews features of professional certification schemes covering a range of professional groups in Australia. Two schemes covering whole professional groups were reviewed.

The certification relating to Chartered Accountants was chosen as EHOs referred to this scheme as a model held in high regard. The other professional scheme covering Building Surveyors and Inspectors was chosen because this professional group shares a number of characteristics with EHOs. That is many of their members work in local government, have legal enforcement responsibilities, have a statutory body regulating the industry, and have an association of similar membership size to EHOs.

48 In October 2002, Jim Smith and Thomas Tenkate (AIEH CEHP Working Group) put forward a draft "Implementation Management Strategy" for "Certified Environmental Health Practitioner(CEHP) & Certified Environmental Health Technician (CEHT) Schemes". The AIEH planned to pilot aspects of these schemes including the professional development component. The pilot was due to commence in 2004 but is yet to proceed.

Two more schemes were reviewed. These schemes provide models relevant to certifying specific competencies. Arrangements for recognition and maintenance of competence were considered for first aid and responsible service of alcohol. Where relevant the discussion also comments on specific aspects of other professional schemes to illustrate particular features. Appendix 12 presents a summary of the features of EHO-specific schemes and Appendix 13 summarises features of the other professional schemes reviewed.

Professional certification scheme features

Scope of the scheme

The focus of this discussion is on the features of a professional certification scheme that could support the management of the professional workforce for EHOs and assist in managing Food Safety in Victoria. While this is the focus for the purpose of this project, it does not suggest that a scheme should be restricted to such a narrow group. Most schemes broadly define their target membership base. In part this is necessary to support financial viability of the schemes.

Mandatory or voluntary

Some of schemes are mandatory in the sense that they are covered by legislation. Under the Building Act, 1993 building surveyors and inspectors must be registered with the Building Practitioners Board (BPB). The responsible service of alcohol certification is legally required of all those who serve and sell alcoholic beverages to the public.

In the UK the Chartered Institute of Environmental Health (CIEH) accredit and/or manage the examination procedures that are the basis on which EHOs attain a Certificate of Registration. While certification provided by other schemes was not a legal requirement, a high level of professional and industry recognition can elevate membership to a de facto mandatory requirement.

The discussion here relates to whether the decision to become certified or registered under the scheme is mandatory or voluntary. A second aspect is whether the professional development component of the scheme is mandatory or voluntary. This is further explored in the section on professional development.

Management arrangements

Most of the schemes reviewed were managed by professional bodies. Where this was the case, some schemes made full membership of the professional body a pre-condition of registration whereas others provided a level of membership that allowed for registration only.

Regulatory schemes were managed by statutory bodies. For example, the Building Practitioners Board applying to building surveyors and inspectors is a statutory body responsible for administering a registration system and monitoring the conduct and ability of registered building practitioners. One of the benefits of this model is that it separates recognition arrangements from training provision and therefore avoids any potential for conflict of interest.

Registration/certification requirements

Levels of membership

All schemes nominate qualifications and/or other conditions required for the purposes of registration/certification. Schemes such as the one operated by the CIEH in the UK take a more active role in managing the examination process.

For some schemes, holding a specified qualification is sufficient. Other schemes distinguish levels of membership. Typically graduates can join as members but there are additional requirements to attain full membership status or certification. For example, the UK scheme provides the following levels of membership:

- Student Affiliate
- Associate
- Graduate
- Voting Member
- Fellow

In addition this scheme also provides the option of becoming an EHO generalist or specialist. Specialist fields include public health, food safety, housing, occupational health and environmental protection.

Progression to full/voting membership is accessed via the Assessment of Professional Competence (APC) scheme. The APC is an assessment of skills which have developed during practice and which are considered essential in enabling the technical knowledge and skills acquired during qualification to be applied in a professional manner. Typically this assessment is undertaken two years after qualification. The scheme involves three elements:

- a. The preparation of a case study, demonstrating some or all of the necessary skills
- b. the production of a log of professional practice, which reflects the nature and level of work undertaken during, at least the two most recent years of professional practice and
- c. a professional interview, with two assessors, structured around the case study and professional practice.

The proposed AIEH model provides for two levels of recognition – a technician level and a professional level. The professional level is intended to cover environmental health private practitioners, EHOs and environmental health specialists. Limited information was available on either entry level qualifications or professional development requirements for technicians or environmental health specialists. However the findings of this project indicate that these categories are relevant to the profession.

A number of draft models⁴⁹ have been developed by the AIEH to describe options for progressing from qualification-based membership to achieve certified EHO status. Like the UK model, these models propose progression based on attainment of a relevant qualification, structured work experience, and competence/professional practice assessment. It is noted that these proposals have not been implemented at this stage.

The accountant's scheme is based on a similar model. To become a Certified Practising Accountant (CPA), members must complete the CPA Program (within an eight year time frame) followed by three years' mentored experience working in the areas of accounting or finance. Once these components have been successfully completed within the required time frame, members are awarded CPA status.

Other models specify years of experience as a condition of attaining certification. For example registration as a Building Surveyor - Level 1, requires an approved degree or equivalent and three years of relevant experience. It is noted that there is a trend away from relying on time served in favour of defining competencies required. This approach recognises that simply occupying a position for a prescribed period is not sufficient to guarantee specific skills and knowledge outcomes.

Recognition of prior learning (RPL)

Recognition of prior learning is offered by a training provider issuing a qualification as an option for individuals who have previous training or experience. A number of other schemes also make specific provision for RPL. For example, the CPA scheme offers registrants the option of undertaking an accredited conversion course if they do not hold the specified qualifications.

Time-based certification

A number of schemes specify a period of time for which certification is valid. After this time the registrant must reapply and may need to undergo a full or partial re-assessment of competencies. Examples of schemes supporting this approach include certification of building inspectors and surveyors (12 months), certification of CPAs (3 years) recognition of first aid

⁴⁹ Tenkate, T., Smith, J., 2002, 'Development of a professional certification scheme for environmental health practitioners', in *Environmental health* Australian Institute of Environmental Health. 'Pathway of progression for Competence as an Environmental Health Officer', discussion paper developed by the Queensland Branch AIEH.

competencies (3 years). For responsible service of alcohol refresher training is recommended after 3 years but only compulsory for people working in bottle shops.

Other schemes relied on a rigorous professional development scheme to maintain currency of professional skills and knowledge. This is covered further below.

Ethical conduct

Most schemes make broad reference to a code of conduct or professional and ethical practice standards. Some schemes, for example building inspectors and surveyors, actively monitor compliance and non-compliance and this could lead to disciplinary action by the Building Practitioners Board⁵⁰

There are international standards outlined in ISO 19011:2002 'Guidelines on quality and/or environmental management systems auditing' that relate to personal attributes required of auditors. At the time of writing the development of a specific standard covering food safety auditing was in progress and it is anticipated that similar professional conduct standards will be reflected in this standard.

Professional development

Ongoing professional development is considered integral to the professionalism of most industries. Schemes covering EHOs in the UK and US specify participation in professional development as a mandatory requirement. In Australia the AIEH has a voluntary Continuing Professional Development Program, which has been in place for many years although it does not appear to be actively supported. There is little professional and employer recognition of the CPD activities and very limited information about this scheme on the AIEH website

Of the other professional schemes reviewed, professional development is a mandatory feature of the CPA scheme and is voluntary (though highly recommended) for building inspectors and surveyors.

Core and optional professional development

Most schemes recognise a range of learning activities under the umbrella of professional development (PD). However they commonly distinguish between core or required activities or training and those that are optional. This is achieved in different ways. For example, some schemes classify PD under different headings and nominate required hours from each category. Others weight different professional development activities.

⁵⁰ Building Commission & Building Practitioners Board (2002) *Continuing Professional Development for the Building: Industry Discussion Paper*, Melbourne: Building Commission.

Regardless of the approach used, the common intent is to not only require registrants to undertake professional development but also to identify which elements are essential while retaining a level of flexibility to select from a diverse range of learning activities.

Management of professional development

Most schemes require members to manage and record their own professional development. This is typically supported by recording guidelines and pro formas.

The Australian Library and Information Association (ALIA) provides a well developed example of this expectation. It has developed a kit for to support members in actively planning and pursuing their professional development.

The kit is designed to help the member analyse their professional development needs, set objectives for meeting their professional needs, gain input from line managers and build and maintain a comprehensive record of knowledge, skills and experience. The kit can be successfully completed independently, however members are encouraged to seek the assistance of a partner, mentor or participate in a facilitated workshop.

Snapshots of three professional development schemes

Appendices 12 and 13 provide summary details of all the schemes reviewed. The following snapshots briefly outline the key features of three professional schemes.

Chartered Institute of Environmental Health (CIEH) United Kingdom

The United Kingdom scheme operated by the CIEH offers a robust and comprehensive model which appears well regarded and well resourced. Certification as an environmental health practitioners requires attainment of a degree accredited by the Chartered Institute of Environmental Health. This is combined with work-based learning, confirmed by professional exams after graduation is the requirement for being awarded the Certificate of Registration. This is universally recognised as the professional qualification for an Environmental Health Practitioner. Certification is mandatory to become an EHP.

In addition, full membership to the CIEH is conditional on completing a minimum of two years of professional practice and passing the Assessment of Professional competence. This process incorporates elements of peer review.

The scheme provides for a number of levels of membership. To support maintenance of currency of professional skills, the Continuing Professional Development Scheme was introduced in 1992. Operating initially on a voluntary basis, it became mandatory for all but retired and student members in 1996. Each member of the Chartered Institute has a personal responsibility to maintain his/her professional competence and

the Institute invests considerable resources in assisting members to meet their commitment.

Australian Institute of Building Surveyors (AIBS) – Building inspectors and surveyors

The Australian Institute of Building (AIB) and the Australian Institute of Building Surveyors (AIBS) are prominent professional associations for the building industry. The AIB is predominantly comprised of building practitioners although it also includes building surveyors and building inspectors. AIBS on the other hand, represents 2,500 members and is the predominant professional association for building surveyors. Both schemes are summarised in Appendix 14 however for the purpose of this discussion, the scheme covering members of the AIBS provides the focus.

Membership to AIBS is open to three grades of applicants: Building Surveyor - Level 1, who must have an approved degree or equivalent and has three years of relevant experience, Assistant Building Surveyor - Level 2, who requires a diploma, advanced diploma or equivalent and who has two years of relevant experience and a Building Surveying Technician who has successfully completed Certificate IV under the Australian Qualifications Framework. Currently, only South Australia and Queensland provide for a Building Surveying Technicians (BST) which they are purportedly in the process of phasing out. These BSTs operate in an inspectorial role under supervision of the building surveyor and not in an enforcement role. In Victoria a similar role is performed by the Level 2, Associate Building Surveyor.

The scheme also makes provision for specialist accreditation that recognises specialised qualification and experience in a specific area/s of building surveying.

Ongoing professional development is a feature of the scheme. At present this is voluntary though moves are underway to make it mandatory and linked to annual registration across all registered building practitioner categories. New South Wales has already introduced a mandatory CPD program (2004) and it is believed that Victoria is not far behind. Changes to the Building Act 1993 are required to enable CPD to become a legal requirement.

CPA Australia

CPA Australia is a premier professional association offering first class accreditation. It achieves this through a comparatively rigorous and formulaic approach to membership certification and progression. There are essentially five membership categories: student, Associate (ASA) both with non-voting status, CPA, fellow and specialist. Associates must attend one of CPA Australia's member orientation workshops or complete CPA Australia's distance orientation program before they can advance to the first step of the CPA Program, preferably be completed within one year of joining. To become a Certified Practising Accountant (CPA), members must complete the CPA Program

(within an eight year time frame) followed by three years' mentored experience working in the areas of accounting or finance. Once these components have been successfully completed within the required time frame, members are awarded CPA status. Advancement may then be made to Fellow (FCPA) status. Fellow status is the recognition of the recipient's knowledge and experience and the contribution that the member has made to the profession. Fellows must have a minimum of 15 years' accounting or finance experience, and to have held a responsible position in accounting or finance for at least five years. Their achievements need to be recognised by divisional council. All active members, including Fellows, are required to fulfil continuing professional development (CPD) commitments of 120 CPD hours for accounting CPD on a triennial cycle. CPD hours are credited in a way similar to that of the building profession. Learning activities such as conferences, seminars, lectures, writing, technical meetings and the like, delivered in a multimodal fashion, all qualify for approved CPD. As with the building industry, participation in activities is capped.

A specialist designation has also been provided for and indicates that a member has achieved a level of competence higher than that of general practitioner. It requires that a member has completed an accredited post-graduate course in one of eight areas of specialisation, and who have had at least three years' experience in their chosen field. It can also be awarded to CPAs who have had at least five years specialist experience at an expert level in the past 10 years.

The comprehensive approach adopted by CPA for initial accreditation and ongoing professional development holds many advantages: its "CPA" designation has premier status in the profession, both nationally and internationally; the mentorship component recognises the value of industry experience, and the specialist category affirms specialist skills and experience.

Recommendation

27. Stakeholders investigate the establishment of a robust and effective professional development scheme.

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Appendix 1 AO/EHO survey responses

TOTAL AO/EHO RESPONSES 154

Q1. What is your role?

Role	n	%
Manager	9	5.84%
Co-coordinator/Team Leader	30	19.48%
EHO (General)	78	50.65%
EHO (Specialist) - Please specify below	15	9.74%
EHO and other functions - <i>Please specify below</i>	16	10.39%
Authorised Officer (Not holding EHO qualification)	1	0.65%
Student	2	1.30%
Other - Please specify below	3	1.95%
TOTAL Responses	154	100.00%

Specified specialist roles

Food safety	8	53.3%
Special events, markets, seafood	1	6.7%
Waste water planner	2	13.3%
Coordinate unit programs	1	6.7%

Other Roles

Community events coordination	1	
Greenhouse gas abatement	1	
Promotions	1	
Project management	1	
Health promotion	1	
Staff coordination & coaching	4	
Local Laws administration	1	
Municipal recovery manager	1	
Environmental officer	2	
Emergency management role	2	

Q2. Which age group are you represented by?

	n	%
Under 25	23	14.94%
26 – 30	31	20.13%
30 – 39	35	22.73%
40 – 49	33	21.43%
50 – 59	21	13.64%
60 +	8	5.19%
No response	3	1.95%

Q3. Gender

	n	%
Male	80	51.95%
Female	69	44.81%
No response	5	3.25%

Q4. What is the nature of your employment contract?

	n	%
Permanent	129	83.77%
Casual	4	2.60%
Contract (0 – 1 year)	7	4.55%
Contract (term 0 to 3 years)	3	1.95%
Contract (term over 3 years)	4	2.60%
Employed by contractor	4	2.60%
no response	3	1.95%

Q5. What hours do you work?

	n	%
Fulltime	134	87.01%
30 – 34 hours a week	4	2.60%
16 – 29 hours a week	10	6.49%
Less than 16 hours a week	2	1.30%
No response	4	2.60%

Q6. How long have you worked as an AO/EHO?

	n	%
0 – 2 years	20	12.99%
3 – 5 years	28	18.18%
6 – 10 years	37	24.03%
More than 10 years	66	42.86%
No response	3	1.95%

Q7. How long have you worked for your current employer?

	n	%
0 – 2 years	44	28.57%
3 – 5 years	40	25.97%
6 – 10 years	42	27.27%
More than 10 years	25	16.23%
No response	3	1.95%

Q8. What work have you done prior to this job?

	n	%
First appointment as an AO/EHO	35	22.73%
Another role in this local government	6	3.90%
Worked as an AO/EHO in another local government in Victoria	61	39.61%
Worked as an AO/EHO in another local government in another state or territory	14	9.09%
Worked in the private sector	7	4.55%
Worked as an AO/EHO for state/federal government	5	3.25%
Worked as an EHO overseas - (Please specify which country below)	1	0.65%
Other (specify)	18	11.69%
No response	7	

If you Selected 'Other', please specify

		% of 'Other'
Another local government in a different role		
	1	6%
Meat inspection	2	11%
Bank teller	1	6%
Clerical	2	11%
EHO in several local governments	2	11%
Home	1	6%
Student EHO at another Council	1	6%
Private family business	1	6%
Self employed	1	6%
Registered nurse	2	11%
Another local government in a different role		
	1	6%

Q9. What is your gross annual salary range (Including tax)?

	n	%
More than \$70,000	16	10.39%
\$61,000 - \$70,000	27	17.53%
\$51,000 - \$60,000	60	38.96%
\$41,000 - \$50,000	33	21.43%
Less than \$40,000	11	7.14%
No response	5	3.25%

Q10. Do you perform roles other than as an EHO as part of your current job?

	n	%
Yes	70	45.45%
No	78	50.65%
No response	5	3.25%
<i>Other roles</i>		
Management - range of council areas	11	
Team leader / coordinator / staff management - other areas	10	
Emergency management	10	
Quality management	5	
Contract management	3	
Waste/recycling management	3	
Clean up campaign	3	
Community events coordinator	1	
Public Health planning	2	
Needle/syringe management	6	
Local laws	4	
Animal control	1	
Health promotion	3	
Tobacco control	1	
Website development	1	
OH&S	3	
Immunisation	1	
Municipal recovery	5	
Fire prevention	2	
IT support	1	
Caravan park inspections	1	
Leisure planning	1	

Q11 Which roles do you perform other than those of an EHO as part of your current job?

	n	%
No other roles	39	25.32%
Contract management	17	11.04%
Waste/ Recycling management	11	7.14%
Public health planning	48	31.17%
Emergency management	59	38.31%
Graffiti control	0	0.00%
Needle-syringe management	45	29.22%
Clean up campaigns	8	5.19%
Other (specify)	21	13.64%

Q12. Estimate the percentage of your time spent on administering EHO activities.

	Average %
Food Act surveillance	46
Tobacco Act surveillance	4
Health Act surveillance	9
Health Act complaint investigation	9
Infectious disease follow up	3
Septic tanks	13
Other environmental investigations	3
Immunisation programs	5
Health promotion	2
Other (specify)	6

Nb. Adjusted to consistent percentage allocations of time

Q13. Do you have adequate support to carry out your role?

	n	%
Yes	83	53.90%
No	65	42.21%
No response	5	3.25%
<i>Other assistance needed:</i>		<i>% of 'No'</i>
Administration support	17	26.15%
IT systems	2	3.08%
Access to vehicle for Environmental Health	1	1.54%
More EHOs to cover workload	7	10.77%
Funding	4	6.15%
Support & information from team leader	1	1.54%
Management support when needed	4	6.15%
Policies & procedures	2	3.08%
DHS support to promote Food safety to Council	1	1.54%
Legislative tools	1	1.54%
Public awareness campaigns	1	1.54%
Approved waste water disposal systems	2	3.08%
Guidance from EPA on competence for serviceing sewerage treatment plants	1	1.54%
Training in groundwater protection & installation of effluent irrigation systems	1	1.54%
Infringement notices under the Food Act	1	1.54%
Council support	2	3.08%
More time	2	3.08%
Training and development	1	1.54%

Q14. What AO/EHO qualifications do you hold?

	n	%
Not qualified	2	1.30%
Diploma of Applied Science (Environmental Health)	28	18.18%
Batchelor of Applied Science (Environmental Health)	53	34.42%
Batchelor of Health Science (Environmental Health)	13	8.44%
Batchelor of Health Science (Public and Environmental Health)	12	7.79%
Diploma for Public Health Inspectors, Royal Society of Health (London)	24	15.58%
Post graduate qualification (specify)	6	3.90%
Other (specify)	15	9.74%
No response	1	0.65%

Post graduate qualification

Certificate IV in Investigative Services	1
Adv Dip Health Services (Environmental Health)	1
Bach Health Sci (Environmental Health)	1
Dip Biological Science	1
Assoc.Dip. Science (Laboratory Technician)	1
B. Science (Environmental Health)	2
Grad. Dip. Management	1
Masters in Business Administation	1
B. Public Health	4
B. App. Science	1
B. Science (immunology & microbiology)	1
B. Science (Monash)	1
Grad Cert (Environmental Health) - La Trobe	1
Dip. Frontline Management	3
B. Agricultural Science (Melbourne)	1
Cert of Weights and measures	1

Q15. When did you graduate?

	n	%
After 2000	46	29.87%
1990 – 1999	48	31.17%
1980 – 1989	28	18.18%
Before 1979	26	16.88%
No response	5	3.25%

Q16. Where did you do your training to become an EHO?

	n	%
Swinburne University of Technology	95	61.69%
La Trobe University	11	7.14%
William Angliss Institute of TAFE	20	12.99%
RMIT	4	2.60%
Interstate	17	11.04%
Overseas	3	1.95%
Post graduate qualification		0.00%
Other		0.00%
No response	4	2.60%

Q17. Do you consider that your qualifications adequately prepared you for your role as an EHO?

	n	%
Yes	82	53.25%
No	8	5.19%
Partly	61	39.61%
No response	3	1.95%

If you Selected 'Partly', please specify

	n	% of 'partly'
EHOs straight from training need on the job support / training	1	2%
Risk management	1	2%
Wastewater	7	11%
Policy & health planning & promotion	1	2%
The course needs to reflect the work	7	11%
Workbased learning/ field placement / cadetship	18	30%
Wastewater management	1	2%
Structure and function of local government	1	2%
Food Act & food safety standards	2	3%
Legal and letter writing	1	2%
Difference in legislation between states	1	2%
Septic tanks	1	2%
Areas other than food, eg. immunisation and septic	2	3%
Conflict resolution / negotiation	2	3%
Management	2	3%
Investigation & enforcement skills	1	2%
Communicable diseases	1	2%
Food processing	1	2%
PD to maintain currency	1	2%

Q18. Have you undertaken professional development/training activities since commencing work as an AO/EHO

	n	%
Yes	140	90.91%
No	7	4.55%
No response	7	4.55%

If you Selected 'Yes', to 18, what are the main factors that have motivated you to participate in professional development?

	n	% of 'Yes'
<i>Adjusted for multiple item choices</i>		
Managers request	13	9.29%
Time and location	11	7.86%
Relevant area of training	88	62.86%
Career progression	63	45.00%
Accredited outcome (either qualification or certificate of attendance)	16	11.43%
Ongoing development / currency	4	2.86%
Requirement of performance appraisal	1	0.71%
Personal interest	1	0.71%

If you have selected 'Yes' to 18, how regularly do you undertake professional development activities?

	n	% of 'Yes'
Less than a year	15	10.7%
Once or twice a year	62	44.3%
3 – 4 times a year	49	35.0%
Monthly	2	1.4%
Other	15	10.7%
No / alternative response	11	7.9%

If you have selected 'Yes' to 18, what is the typical length of the professional development you attend.

	n	% of 'Yes'
Less than a day	10	7.1%
One day	87	62.1%
1 – 2 days	27	19.3%
More than 2 days	17	12.1%
No / alternative response	13	9.3%

Q19. Who are the main providers of ongoing training and development programs that you have attended?

Adjusted for multiple selection of options

	n	%
DHS	77	50%
AIEH	66	43%
In-house	15	10%
LG Pro	11	7%
Uni/TAFE	11	7%
Specialist/private providers or consultants	5	3%
Other	7	5%
No response	17	11%

Q20. Are there factors that make it difficult for you to attend professional development?

	n	%
Yes	98	63.64%
No	45	29.22%
No / alternative response	11	7.14%

Q21. If you selected 'Yes' which factors make it difficult to attend professional development? Rank from 1 to 5, where 1 is the highest rank.

	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5
Relevant training/development not available in the area	38 24.7%	15 9.7%	15 9.7%	5 3.2%	14 9.1%
Cost of training is prohibitive	12 7.8%	24 15.6%	19 12.3%	13 8.4%	12 7.8%
No time to attend	30 19.5%	32 20.8%	11 7.1%	7 4.5%	4 2.6%
Not supported by employer	9 5.8%	8 5.2%	6 3.9%	25 16.2%	18 11.7%
Not interested	4 2.6%	2 1.3%	13 8.4%	12 7.8%	28 18.2%
Other - (Please specify below)	12 7.8%	10 6.5%	6 3.9%	2 1.3%	5 3.2%

Q22 What changes have you observed in the level of food safety skills and knowledge of food handlers over the last 5 years?

	n	%
Generally a higher level of skills and knowledge	85	55.19%
No change	45	29.22%
Generally a lower level of skills and knowledge	6	3.90%
Don't know	14	9.09%
No response	4	2.60%

Q23. How satisfied are you with your current job

	n	%
Very satisfied	32	20.78%
Fairly satisfied	83	53.90%
Neither satisfied nor dissatisfied	17	11.04%
Not really satisfied	12	7.79%
Very dissatisfied	7	4.55%
No response	3	1.95%

Q24. Of the factors listed below, how important are these? Use a 1 – 3 ranking:

1 = Most important or Most satisfied and

3 = Least important or Least satisfied

	Rank 1	Rank 2	Rank 3
Variety of work	111 72.1%	32 20.8%	7 4.5%
Career opportunities	56 36.4%	65 42.2%	25 16.2%
Mentoring & development	73 47.4%	55 35.7%	17 11.0%
Pay & conditions	74 48.1%	60 39.0%	13 8.4%
Support/recognition of the role	83 53.9%	54 35.1%	12 7.8%
Family friendly work arrangement	78 50.6%	49 31.8%	17 11.0%
Other (9 5.8%	2 1.3%	1 0.6%

Q25. Of the factors listed below, how satisfied are you with the way your current workplace delivers on them.
Use a 1 – 3 ranking:

1 = Most important or Most satisfied and
3 = Least important or Least satisfied

	Rank 1	Rank 2	Rank 3
Variety of work	80 51.9%	51 41.6%	15 10.4%
Career opportunities	20 13%	68 33.1%	51 9.7%
Mentoring & development	35 22.7%	79 51.3%	28 18.2%
Pay & conditions	36 23.4%	77 50.0%	30 19.5%
Support/recognition of the role	28 18.2%	70 45.5%	45 29.2%
Family friendly work arrangements	60 39.0%	64 41.6%	16 10.4%
Other	1 0.6%	5 3.2%	5 3.2%

Unrealistic expectations / workload	6	Lack of resources	1
Negative attributes of the role	1	Time spent on administrative tasks	1
Don't like regulatory role	1	Limited effect without penalties	1
Limited support	3	Work is too general	1
Inconsistency between officers	1	Want more work in environmental protection	1
No procedures	1	Staffing & retention issues	1
Application of legislation is poor	1	Little challenge in the Food Act	1
Pay and conditions	2	Good Employment conditions	1
Little recognition of worth	5	Opportunity to work on special projects	1
Politics	3	Flexibility & challenge	3
Little leadership	4	Educative role	1
Limited career progression	6	New & enthusiastic	1
Legislation unclear	1	Prefer part-time work	1

Q26. How many years do you expect to continue working in an EHO role?

	n	%
0-2 years	17	11.04%
3-5 years	35	22.73%
6-10 years	24	15.58%
More than 10	30	19.48%
Don't know	44	28.57%
No response	4	2.60%

Q27. If you are thinking of leaving an EHO role, what do you see as your next career move?

	n	% of those thinking of leaving an EHO role
Move to an EHO role in another local government in Victoria	8	8.33%
Move to an EHO role in another local government in another state	3	3.13%
Work as an EHO in state/federal government	6	6.25%
Work in a role other than EHO in local government	13	13.54%
Work in a role other than EHO outside of local government	19	19.79%
Family reasons	7	7.29%
Retire	19	19.79%
Don't know	32	
Other (specify)	21	21.9%
No response	26	

Appendix 2 Responses to the Local Government Managers' Survey

Total responses = 54

Q1 Respondent's role

	n	%
A manager and an EHO	46	85.2%
A manager but not an EHO	8	14.8%

Council's purchasing practices

Directly employs EHOs	45	83.3%
Shares portion of EHOs time with other Council/s	2	3.7%
Purchases service from another Council	1	1.9%
Purchases services from a private contractor	6	11.1%

Q2. Effective Full Time (EFT) EHO/AO positions in the Council (including any positions that are not currently filled)

Role	Number Employed	Number Vacancies [stated]
Manager	39.5	1
Co-ord/ Team leader	40.5	1
EHO Generalist	158	10
EHO Specialist (specify)	11	0
EHO Multiskilled	32	3
Authorised Officer (not qualified as an EHO)	18.5	1
Other	19	1

EHO Specialist areas

Septic tanks / waste water management
 Farm industry liaison officer
 Special events / contract management
 Nuisance complaints
 Part time health promotion & part time generalist

Other roles:

Student EHO;
 Mosquito monitoring [2]
 Septic follow-ups
 Nurse immunizers
 Food Act and safety administration [2]
 Swimming pool monitoring
 syringe disposal
 Food surveillance, premises inspection (Food Act)

3. Activities of employed Authorised Officers who are not qualified EHO's

	n	%
Food Act surveillance	8	14.8%
Tobacco Act surveillance	9	16.7%
Health Act assessment	4	7.4%
Health Act complaint investigation	12	22.2%
Environment Protection Act programs	2	3.7%
Immunisation programs	8	14.8%
Health promotion	2	3.7%
Other	8	14.8%
Assist Mosquito Monitoring [2]		
Swimming pool monitoring [2]		
Qualified acoustic consultant responsible for noise issues in the municipality		
All activities an AO/EHO would participate in except Immunisation & waste water local law officer		
Immunisation sessions		
School & monthly sessions		

4. How many EFT AO/EHO positions does your Council expect to have in?

	n
12 months	238.4
3 years	222.6
10 years	192

5. How many EFT AO/EHO positions were employed by your Council in the past?

	n
5 years ago	192.8
10 years ago	140.9

6. What criteria do you use to determine how many AO/EHO's you need to employ.

	n	%
Workload analysis & strategic planning, eg inspection criteria & benchmarking	27	50.0%
Ability to share resources	1	1.9%
availability of staff (general & specialist)	1	1.9%
Number of registered food businesses	21	38.9%
Peak business cycles, eg. linked to tourist season)	1	1.9%
Demand for septic tank compliance	1	1.9%
Ability to meet statutory compliance with Legislation & safety business plan	4	7.4%
Number of complaints	6	11.1%
Demonstrated risk management to Council	1	1.9%
EHOs to population	3	5.6%
Waste water system installations	1	1.9%
Budget	4	7.4%

7. If you expect to increase the number of AO/EHO's required by your Council, do you plan to fill this requirement by:

Adjusted for responses that chose several options

	n	%
Creating additional full time, permanent positions	19	35.2%
Creating short term and/or limited contract positions	0	0.0%
Creating part time positions	5	9.3%
Creating a shared position with another Council	0	0.0%
Purchasing contract services as required	8	14.8%
Recruiting qualified AO's who do not hold an EHO qualification	2	3.7%
Other	5	9.3%
... employ students	1	1.9%

8. How many people have started in an AO/EHO role in your Council in the previous 12 months to January 2005?

n
57

9. If you have recruited an AO/EHO position in the previous 12 months, how long did it take to fill the position?
31 Councils reported employing an EHO in the past 12 months

	n	%
Less than 1 month	14	50.0%
1 to 3 months	16	57.1%
3 to 6 months	2	7.1%
More than 6 months	2	7.1%
Not applicable / no response	3	10.7%

10. Of new starters, did they come from?

	n	%
Study – first AO/EHO job	13	24.1%
Another role within this Council	0	0.0%
Another local government in Victoria	15	27.8%
Another local government in another state or territory	3	5.6%
State or federal government	1	1.9%
Private sector	2	3.7%
Other	0	0.0%
Don't know	0	0.0%

11 How many people have left an AO/EHO role in your Council in the previous 12 months to January 2005?

n
50

12. If you had anyone leaving an AO/EHO role, where did they go?

	n	%
Left to work in a different job within this Council	2	6.7%
An AO/EHO role in another local government in Victoria	9	30.0%
An AO/EHO role another local government interstate	2	6.7%
To work in the private sector	1	3.3%
To become a consultant	0	0.0%
Left for family reasons	7	23.3%
Retired	4	13.3%
Other	6	20.0%
Don't know	0	0.0%
TOTAL	31	

13. If you had anyone leaving an AO/EHO position, which were the main reasons given for their decision?

	n	%
Family reasons	13	24.1%
Looking for greater level of support / recognition	0	0.0%
Looking for higher pay	9	16.7%
Looking for better career prospects	14	25.9%
Work closer to home	6	11.1%
More manageable work load	2	3.7%
Other	8	14.8%
Don't know	1	1.9%

14. What are the main barriers you face in recruiting EHO personnel?

For each of the factors listed, use a ranking of 1 - 3 where 1 is a minor barrier and 3 is a major barrier

	Major barrier [%]	Medium barrier [%]	Minor barrier [%]
Difficult to attract staff to Council location	15 27.8%	13 24.1%	12 22.2%
Lack of suitably qualified applicants	21 38.9%	11 20.4%	8 14.8%
Lack of suitably experienced applicants	17 31.5%	16 29.6%	9 16.7%
Competition from other local governments	10 18.5%	17 31.5%	8 14.8%
Competition from the private sector	3 5.6%	5 9.3%	23 42.6%
Unable to offer sufficiently attractive salary	8 14.8%	14 25.9%	14 25.9%
Other	5 9.3%	0 0.0%	4 7.4%

Other:

Attitude	3
Lack of graduates	1
Poor transportation in outer metropolitan areas	1
Technical skills	5
Unable to offer a satisfactory package, eg. car & salary	6
Lack of support to create positions from Council HR Department	2
Limited range of job roles	1
Limited experience	1
Skills & attitudes related to compliance role	1
Lack of career progression	1
Not willing to go to regional Victoria	2
Limited generic skills	1

15. If you have employed newly qualified EHO's recently, were you satisfied with their level of skill and knowledge

	n	%
Yes	18	33.3%
No	8	14.8%

Further skills or attributes required

Enforcement	2
Waste water management	1
Nuisance / health risk management	1
Maturity	1
Knowledge of septic tank systems	1
Breadth of experience	2
Practical, on the job experience	1
Work ethic	1
People skills	1

16. Are there any gaps in EHO skills/knowledge that you think need to be addressed?

	n	%
Yes	35	64.8%
No	10	18.5%
No response	8	14.8%

If 'yes', please provide details:

	n	% of 'Yes'
Process skills to assist food investigations, including knowledge of food production processes	1	21.9%
Communication / conflict resolution skills	10	28.6%
Mentoring program is needed	1	2.9%
Enforcing statutory legislation	9	25.7%
Rural / environmental, wastewater & Septic tank systems	8	22.9%
Consistency in Food & Health act inspections	2	5.7%
Report writing (grammar, spelling, inspection reports)	3	8.6%
Strategic / planning skills	6	17.1%
Investigation techniques	1	2.9%

17 What strategies or incentives does your Council use to attract AO/EHO's?

Adjusted for those providing multiple responses	n	%
Work placement programs	4	7.4%
Cadetships/Scholarships	1	1.9%
Flexible work arrangement	10	18.5%
Spouse employment	0	0.0%
Subsidised relocation costs	1	1.9%
Upgraded pay/conditions	14	25.9%
Other	9	16.7%
Unit reputation	1	1.9%
Packaging/use of a car	3	5.6%
Varied role	3	5.6%
Opportunity for post graduate training	1	1.9%
48-52 annual leave arrangements	1	1.9%
Professional development programs	2	3.7%

18. Please select any of the following strategies you use to retain AO/EHO's
Adjusted for those providing multiple responses

	n	%
Career planning	13	24.1%
Job design (please specify below)	12	22.2%
Pay and conditions	33	61.1%
Professional development	42	77.8%
Mentoring and support	29	53.7%
Family friendly work arrangements <i>(please specify below)</i>	22	40.7%
Other (please specify below)	10	18.5%
Package a car	2	3.7%
48/52	2	3.7%
admin assistance	1	1.9%
Team work & team development to reduce individual enforcement burden	1	1.9%
Assistance with housing & spouse employment	2	3.7%

19. Changes in Federal and State legislation as well as changes in local government have reportedly affected AO/EHO's jobs in the past 10 years. Do you anticipate any significant changes in the role/job content of EHO's in the next 5 years. If yes, describe below what these are likely to be.

	n	%
Yes	37	68.5%
No	14	25.9%

Please describe:

Increased range of roles - project management role to dominate	1	1.9%
Environmental management	2	3.7%
Grey water recycling/waste water management/septic tank systems	6	11.1%
Liability issues	1	1.9%
Cost shifting	1	1.9%
Increasing technical nature of food safety planning	1	1.9%
CALD issues	1	1.9%

Increased nuisance investigations	1	1.9%
Changes to Health Act, eg. infringement notices, immunisation schedules.	1	1.9%
Role is too narrow	1	1.9%
Increased educative role	1	1.9%
Emphasis on risk management	1	1.9%
Greater specialisation	1	1.9%
Greater emphasis on planning	2	3.7%
Increased reporting requirements to DHS - benefit from central management & regionalization	1	1.9%
Need improved food safety programs	1	1.9%
Increased workload - food safety, tobacco & immunization	4	7.4%
Increase in after hours work	1	1.9%
Aging workforce - loss of retirees	1	1.9%

Appendix 3 Council Clusters

CLUSTER	REGION	Council
Very large metropolitan	Eastern Region	Boroondara
Very large metropolitan	Western Region	Brimbank
Very large metropolitan	Southern Region	Casey
Very large metropolitan	Northern Region	Darebin
Very large metropolitan	Northern Region	Hume
Very large metropolitan	Eastern Region	Knox
Very large metropolitan	Western Region	Melbourne
Very large metropolitan	Eastern Region	Monash
Very large metropolitan	Northern Region	Moreland
Very large metropolitan	Southern Region	Mornington
Very large metropolitan	Eastern Region	Whitehorse
Very large metropolitan	Northern Region	Yarra
Large metropolitan	Northern Region	Banyule
Large metropolitan	Southern Region	Frankston
Large metropolitan	Southern Region	Glen Eira
Large metropolitan	Southern Region	Greater Dandenong
Large metropolitan	Barwon South West Region	Greater Geelong
Large metropolitan	Western Region	Hobson's Bay
Large metropolitan	Southern Region	Kingston
Large metropolitan	Eastern Region	Manningham
Large metropolitan	Western Region	Maribyrnong
Large metropolitan	Western Region	Melton
Large metropolitan	Western Region	Moonee Valley
Large metropolitan	Southern Region	Port Phillip
Large metropolitan	Southern Region	Stonnington
Large metropolitan	Northern Region	Whittlesea
Large metropolitan	Western Region	Wyndham
Large rural	Gippsland Region	Baw Baw
Large rural	Loddon Mallee Region	Campaspe
Large rural	Gippsland Region	East Gippsland
Large rural	Loddon Mallee Region	Macedon Ranges
Large rural	Barwon South West Region	Warrnambool
Large rural	Gippsland Region	Wellington
Large rural	Hume Region	Wodonga
Medium metropolitan	Southern Region	Bayside
Medium metropolitan	Eastern Region	Maroondah
Medium metropolitan	Northern Region	Nillumbik
Medium metropolitan	Eastern Region	Yarra Ranges
Medium metropolitan	Southern Region	Cardinia
Medium rural	Gippsland Region	Bass Coast
Medium rural	Barwon South West Region	Colac-Otway
Medium rural	Barwon South West Region	Corangamite
Medium rural		Delatite (Benalla 1;
Medium rural	Hume Region	Mansfield)
Medium rural	Barwon South West Region	Glenelg
Medium rural	Grampians Region	Horsham
Medium rural	Hume Region	Mitchell
Medium rural	Hume Region	Moira
Medium rural	Grampians Region	Moorabool
Medium rural	Barwon South West Region	Moyne
Medium rural	Gippsland Region	South Gippsland
Medium rural	Barwon South West Region	Southern Grampians

Medium rural	Barwon South West Region	Surf Coast
Medium rural	Loddon Mallee Region	Swan Hill
Medium rural	Hume Region	Wangaratta
Regional	Grampians Region	Ballarat
Regional	Loddon Mallee Region	Greater Bendigo
Regional	Hume Region	Greater Shepparton
Regional	Gippsland Region	La Trobe
Regional	Loddon Mallee Region	Mildura
Small rural	Hume Region	Alpine
Small rural	Grampians Region	Ararat
Small rural	Loddon Mallee Region	Buloke
Small rural	Loddon Mallee Region	Central Goldfields
Small rural	Loddon Mallee Region	Gannawarra
Small rural	Grampians Region	Golden Plains
Small rural	Grampians Region	Hepburn
Small rural	Grampians Region	Hindmarsh
Small rural	Hume Region	Indigo
Small rural	Loddon Mallee Region	Loddon
Small rural	Loddon Mallee Region	Mount Alexander
Small rural	Hume Region	Murrundindi
Small rural	Grampians Region	Northern Grampians
Small rural	Grampians Region	Pyrenees
Small rural	Barwon South West Region	Queenscliff
Small rural	Hume Region	Strathbogie
Small rural	Hume Region	Towong
Small rural	Grampians Region	West Wimmera
Small rural	Grampians Region	Yarriambiack

Appendix 4 EHO Recent leavers survey

No.	Question		
1 <input checked="" type="checkbox"/>	Which age group are you in?		
	Under 25		
	26-30		
	30-39		
	40-49		
	50-59		
	60 +		
2 <input checked="" type="checkbox"/>	Are you:		
	Female		
	Male		
3 <input checked="" type="checkbox"/>	What do you currently do?		
	Not in paid work or training		
	Undertaking further training	Course:	
	Work in an EHO role for another local government	Area/Role:	
	Work in a role other than as an EHO within local government		
	Work in the private sector	Industry sector/Role	
	Work as a consultant		
	Other		
4	What post-secondary qualifications to you hold?		
	Year	Qualification	Training Provider
5 <input checked="" type="checkbox"/>	How long did you work in an EHO role?		
	Less than 1 year		
	1 – 2 years		
	3 – 5 years		
	5 – 10 years		
	More than 10 years		

6 <input checked="" type="checkbox"/>	What were the main factors that influenced your decision to leave the EHO role? Rank these in order of significance where 1 is the lowest level of significance. You can use the same number more than once if appropriate.
	Family reasons
	Looking for greater level of support / recognition
	Looking for higher pay
	Looking for better career prospects
	Work closer to home
	More manageable work load
	Other / Comment
7 <input checked="" type="checkbox"/>	Do you intend to return to an EHO role in the future?
	YES
	NO
	Not sure
8	If 'yes', what factors would influence you to reconsider an EHO role?
9	This project is interested in how to attract and retain people in EHO role. Do you have any suggestions on how to do this? Comment:

Appendix 5 Focus groups

1. EHO FOCUS GROUPS

Metropolitan – Eastern & Southern (Box Hill 23/3)

Participating Councils:

Kingston City Council (5)
Knox City Council
Monash City Council (2)

Total EHOs 8

DHS REHOs:

Eastern Region
Southern Region

Metropolitan – Northern & Western (Moonee Ponds 4/4)

Participating Councils:

Bayside City Council
Darebin City Council (2)
Greater Geelong City Council
Macedon Ranges Shire Council
Mitchell Shire Council
Surf Coast Shire Council
Whittlesea City Council (2)

Total EHOs 9

DHS REHOs:

Northern Region
Western Region

Rural - Hume (Benalla 5/4)

Participating Councils:

Benalla Rural City Council
Indigo Shire Council
Mansfield Shire Council
Greater Shepparton City Council (4)
Rural City of Wangaratta Council
Wodonga City Council (2)

Total EHOs 10

Rural - Gippsland (Traralgon 7/4)

Participating Councils:

Bass Coast Shire
Baw Baw Shire Council
East Gippsland Shire Council
Latrobe Shire Council (2)
Mornington Peninsula Shire Council
Wellington Shire Council (2)
Former La Trobe City Council (now freelance)
DHS REHO Gippsland

Total EHOs 9

Rural - Loddon Mallee (Echuca 8/4)

Participating Councils:

Buloke Shire Council
Campaspe Shire Council (3)
Gannawarra Shire Council
Greater Bendigo City Council (2)
Mildura Rural City Council (2)
Mount Alexander Shire Council
Swan Hill Rural City Council (2)
DHS REHO Loddon Mallee

Total EHOs 12

Rural - Grampians (Halls Gap 12/4)

Participating Councils:

Warnambool City Council
Moyne/Warnambool
Horsham City Council
Yarriamback Shire
Hindmarsh and West Wimmera Shires
Mildura Rural City Council (2)
Southern Grampians Shire
City of Ballarat
Golden Plains Shire

Total EHOs 9

DHS REHO Grampians

EHOs Sub-Total

57

2. MANAGERS FOCUS GROUP

Metropolitan – Northern & Western Managers (Moonee Ponds 31/3)

Participating Councils:

Banyule City Council
Brimbank City Council
Darebin City Council
Maribyrnong City Council
Melbourne City Council
Melton Shire Council
Moonee Valley City Council
Whittlesea City Council (2)
Wyndham City Council
Yarra City Council

Total EHO Managers 11

DHS REHOs:

Northern
Western

Metropolitan – Eastern & Southern Managers (Dandenong 7/4)

Participating Councils:

Bayside City Council
Boroondara City Council
Cardinia Shire Council
Casey City Council (2)
City of Greater Dandenong (2)
Kingston City Council

Knox City Council	
Monash City Council	
City of Stonnington Council	
Whitehorse City Council	
DHS REHO Southern	Total EHO Managers 12

Rural – Loddon Mallee (Bendigo 18/4)

Participating Councils:	
Swan Hill Council	
Ballarat City Council	
Mildura City Council	
DHS REHO Loddon Mallee	Total EHO Managers 3

Managers Sub-Total 26

Total Managers & EHOs 83

Appendix 6 Advisory group: EHO skills & knowledge

<i>Member</i>	<i>Organisation</i>
Nandor Kovacs	Melbourne City Council
Brendon Garrett	Melbourne City Council
Geoff Fraser	Greater Dandenong City Council
Mira Antoniou	Kingston City Council
Ralph Mertins	Whittlesea City Council
Sam Salamone	Bayside City Council
Max Murphy	REHO Loddon Mallee
Noel Cleaves	DHS
Jodie Eden-Jones	DHS

Appendix 7 EHO service users

Industry bodies were invited respond to a structured phone interview canvassing views on factors in their industry shaping current and future demand for EHO skills and knowledge. Responses were received from the first five organisations listed.

1. Restaurant and Catering Association – Victoria
2. Catering Institute of Australia
3. Retail Confectionery and Mixed Business Association Inc
4. Council on the Ageing (Victoria)
5. Victorian Association of Bakers
6. Australian Retailers Association – Victoria
7. Australian Hotels Association – Victoria
8. Aged and Community Services Australia – Victoria
9. Hotel, Motel & Accommodation Association of Victoria
10. Master Grocers Association of Victoria Ltd

Industry bodies were asked to respond to the following questions:

1. What changes are occurring in your industry/sector that will influence the work of EHOs (effect on numbers and role)?
2. What is this likely to mean for the skill requirements of EHOs?
3. What challenges do EHOs face working in your industry?
4. How well do you think they address these challenges?
5. Can you suggest any changes that could equip EHOs to better address these challenges?
6. Do you see a value-adding role from EHO visits? If so, how do you see the role of the EHOs value adding to your business?

Appendix 8 Demand projections

This section addresses the shape of the EHO workforce in the future. It provides estimates of the demand for EHOs in the short-, medium- and long-term. The approach is informed by quantitative and qualitative data from econometric models and surveys of local government managers and of EHOs.

The approach examines the key influences on the development of the EHO workforce

- The numbers of estimated new jobs: Job growth, which is influenced by growth in the economy and changing roles of occupation
- Replacement rates for workers retiring from or leaving the occupation

Resource constraints to meet demand that result from a policy focus on efficiencies in expenditure on human resources in the public sector environment are recognised and examined in the evaluation of the findings of the analysis.

It is recognised that forecasting is an imprecise process. There are no crystal balls for predicting the future, but there are ways of anticipating possible futures to be evaluated against current knowledge. No one method provides absolute truths (CEDEFOP article). A range of approaches are applied to the data and evaluated to gauge possible changes in the size of the EHO workforce. The probable sources of supply are contrasted with this demand to evaluate the implications for workforce management.

AO/EHO Projections

Approaches to forecasting

Three approaches were used to develop possible projections. These projections are based on:

Model A: Disaggregated econometric modelling of growth in Environmental Health Officers based on analysis of industries and occupations.

Model B: Aggregated econometric modelling based on broad industry and occupation trends.

Model C: Local government estimates.

The findings from the models were validated against the knowledge and experience of the project reference group.

Model A: Econometric modelling – disaggregated approach

The occupation and industry analysis and projections prepared by the Centre of Policy Studies (CoPS), Monash University were used to develop an analysis of

Estimates of new entrants to the labour market (6-digit ASCO, Occupational and Environmental Health Professionals) for a ten year period. The CoPS year on year growth figures were applied to the known population of EHOs in 2005 to produce the following estimates.

Table 11 Model A1 applying CoPS models to the current EHO numbers

Element	Source	Short term (12 months)	Medium term (3 yrs)	Long term (10 yrs)
Current EHO numbers	277	277		
New jobs	Estimated employment growth – EHOs (CoPS model) using year on year growth rates applied to actual number of EHOs in 2004/5	+8	+28.4	+88.6
Replacement needs	Estimated replacement for retirements and losses to the system – EHOs (CoPS replacement estimates)	+26.9	84.9	325.3
	Projected numbers of EHOs	311.9	394.8	690.9

*Cumulative

Arguments for the projection:

The projected growth of 88 new jobs appears over 10 years appears to be reasonable across Local Governments in Victoria. While it might appear modest in other contexts, the constraints of policies for efficiencies in the public sector are likely to contain job growth.

Arguments against the projection:

The replacement estimates appear high relative to reported intentions of EHOs to change position and the age distribution of the workforce.

Conclusion:

The model is possible for employment growth, but may overstate replacement demand in the long term (as might be expected for long term projections)

Table 12 CoPS Year on Year employment growth rates applied to EHO numbers in 2004/05 and replacement figures

	2004-05 2005-06	2005-06 2006-07	2006-07 2007-08	2007-08 2008-09	2008-09 2009-10	2009-10 2010-11	2010-11 2011-12	2011-12 2012-13	2012-13 2013-14	2013-14 2014-15
No	277.0		285.0	292.5	305.3	315.4	322.3	330.6	341.8	353.5
Rate		2.88%	2.63%	4.4%	3.31%	2.17%	2.57%	3.41%*	3.41%	3.41%
Increase		8.0	7.5	12.9	10.1	6.8	8.3	11.3	11.7	12.1
New value		285.0	292.5	305.3	315.4	322.3	330.6	341.8	353.5	365.6

Replacement rates 1 year age cohorts, Vic percent per annum, 2005-6 to 2013-4

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Amount	277		303.9	335.0	335.3	367.4	368.8	405.8	406.8	452.5
replacement rate		0.0971	0.1025	0.1032	0.0965	0.1	0.1045	0.1031	0.1152	0.1152
Increase		26.9	31.1	31.4	32.3	33.5	38.4	38.0	46.7	46.9
New amount		303.9	335.0	335.3	367.4	368.8	405.8	406.8	452.5	453.7
		12 months		3 yrs						9yrs
		26.9		89.4						325.3

Model B: Aggregated modelling based on broad industry trends

The CoPS analysis is highly regarded at high levels of aggregation for industry and occupation. However, they lose accuracy as the level of disaggregation for industry increases. This affects the accuracy of occupational forecasts, which are derived from these.

*Forecast quality almost inevitably declines the greater is the level of detail, either by occupation or by region. It therefore becomes a matter of judgement as to the degree of reliance for planning and consultation purposes on a given level of detail.*⁵¹

Access Economics⁵² suggest that a more appropriate approach is to model at high levels of aggregation, ie. one-digit ASCO. "It is better to have less detail and be probably right, than to have less detail but with less confidence in the data"⁵³.

The following table describes employment growth and replacement demand at the one-digit ASCO level, ie. . It assumes a constant growth rate of 1.4% pa across the broad occupational category of professionals.

Table 13 New and replacement positions, Model B Aggregated projections

Element	Source	Short term (12 months)	Medium term (3 yrs)	Long term (10 yrs)
New jobs	EHOs in 2005	277	277	277
	Estimated employment growth – EHOs Access Economics estimates of overall employment growth for professionals (1 digit ASCO) of 1.4% pa	3.9	7.8	36
Replacement needs	Estimated replacement for retirements and losses to the system – EHOs Access Economics replacement estimates for professionals (1 digit ASCO) of 1.5% pa	4.2	11.7	39.2
	Projected numbers of EHOs	285.1	297.1	352.2

*Cumulative growth

Arguments for the projection

The model suffers less volatility than do disaggregated approaches

It accounts for broad industry and occupational trends

⁵¹ Access Economics (2005) *Improved forecasts of employment growth and net replacement rates: Summary report for the Office of Training and Tertiary Education*. Unpublished monograph, p. ii

⁵² Ibid

⁵³ Ibid

Arguments against the projection

The quantum of new jobs and replacement would not meet current vacancies.

Only 75 additional EFT for both growth and replacement does appear credible.

The smoothing of variation in the model masks possible changes in the workforce. While addressing the imprecision of forecasting it results in an overly conservative estimate.

Conclusion

The model is too conservative and is likely to understate demand considerably.

Table 14 Application of estimates of employment growth and replacement demand for professional occupations to EHO numbers

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Amount	277		280.9	284.8	284.8	288.8	288.8	292.8	292.8	296.9
Growth rate		0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
Increase		3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.1	4.1
New amount		280.9	284.8	284.8	288.8	288.8	292.8	292.8	296.9	296.9
		Yr 1		Yr 3						Yr 10
		+3.9		+ 11.7*						+36*

*nb. Cumulative

	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Amount	277									
Replacement rate		1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Increase		4.2	4.2	4.2	4.3	4.3	4.4	4.5	4.5	4.6
New amount		281.2	285.4	289.6	293.9	298.2	302.6	307.1	311.6	316.2
		Yr 1		Yr 3						Yr 10
		4.2		8.4*						39.2*

*cumulative

Model C: Local government estimates

Local government managers were surveyed. Responses were received from 68% of local governments. Managers were asked to provide information on how many EHOs (eft) they estimate that they'll need in 12 months, 3yrs & 10 years. They were also asked about the number of job vacancies and reasons for staff separating.

EHOs were also surveyed on their intentions to leave, their likely destinations in their future career and where they had worked previously. Information on the age of EHOs was also collected.

The sample of managers' estimates of jobs growth was extrapolated to the population of EHOs to estimate the likely employment growth and the information on job mobility and EHO age was used to derive estimates of replacement need. The findings are summarised in Table ___ below.

Table 15 Projections of employment growth and replacement demand based on local government managers' estimates.

Element	Source	Short term (12 months)	Medium term (3 yrs)	Long term (10 yrs)
New jobs	EHOs in 2005	277	277	277
	Local government managers' estimates of jobs required (eft) – additional	78	113	269
Replacement needs	EHOs likely to leave the system based on survey respondent intentions to leave		17 (11%)#	59 (35.5%)#
	Likely number of EHOs based on EHO population	13*	30*	98*
	Estimated no. qualifying for retirement at age 55years in the period	18.2	33.6	60.6
	Projected no. of EHOs	355	410	546

* extrapolated from surveys of managers in local government.

These are the basis for extrapolating from the survey sample to the population. The figures are not included in the total

Arguments for the projection

The model is based on professional understanding of the industry

The projected growth appears feasible in the medium term (next 3 years).

Arguments against the projection

The projected number is greater than growth in EHOs over the previous five years (an additional 88 eft in survey sample), which suggests that the figures are aspirational.

The aspirations for new personnel in the next 12 months is greater than losses the system in the past 12 months.

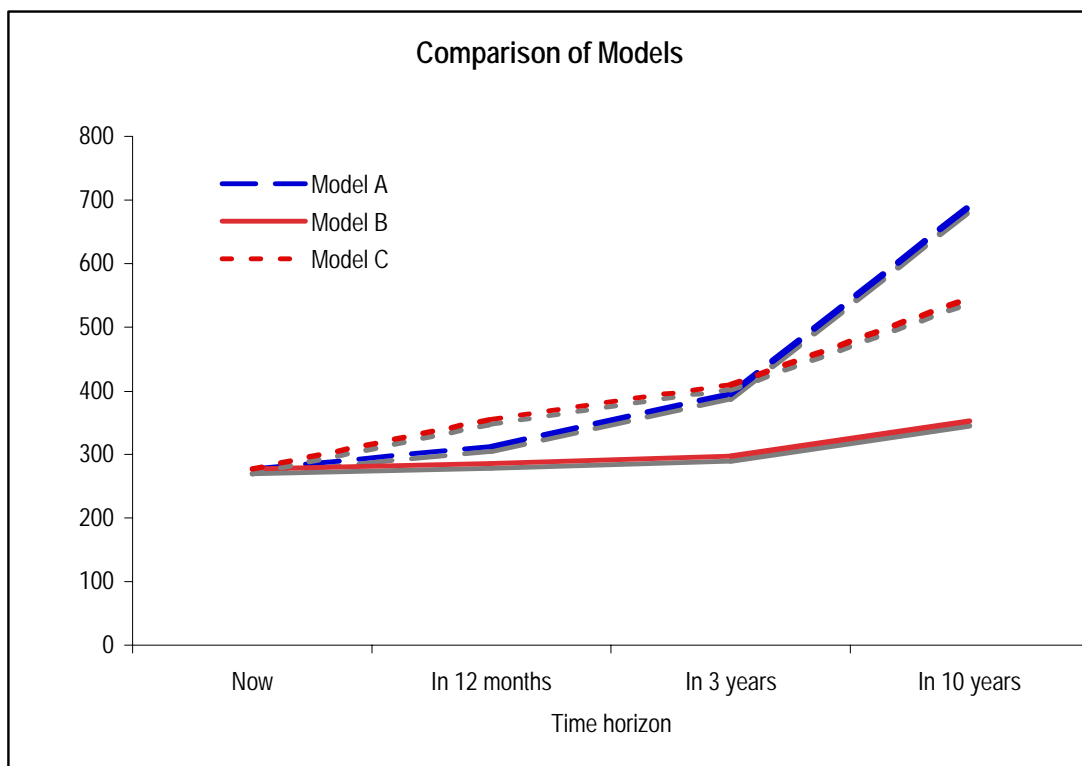
Perhaps the most significant caution is that the model is based on perceptions influenced by current demand pressure rather than a rational approach that takes account of a range of factors.

Conclusion

The preferred model is the Model A the CoPS model. This model provides a more rational and empirically tested approach than does the local government model. The adjusted CoPS model consistent with employment patterns and vacancies reported by Comparison of models

The chart below shows the relationship between the outcomes of the four models of demand for EHOs.

Figure 22 Comparison of outcomes of Models A, B and C.



Based on the analysis above, and the fraught nature of projections, it is suggested that a range is applied with Model A providing the upper parameters and Model C the lower.

These estimates provide part of the picture. The question is where will the replacement come from. In the first instance they are likely to come from other local governments in Victoria. However, these are from within the system and do not constitute, numerically speaking, part of the calculation. However, in reality just because there is a broad pool of EHOs does not mean that they will be available at a local level. This is discussed.

EHOs could also come into the system from interstate or overseas. However, it can be assumed that the net gain would be 0 as inflows are likely to be balanced by outflows.

The key source of labour is likely to be from graduates. The EHO survey suggested that this was the greatest source after entrants from other local government departments. The average numbers of graduates from tertiary programs over the past 3 years is 32. If Victorian graduates of the University of NSW, Hawkesbury Campus are included then there are an average of 34 graduates per annum.

It is likely that not all of these will enter local government. Providers estimate that on average 4 graduates per annum go to jobs outside local government, into further study or do not take-up employment on graduation.

The following table compares demand with likely supply from training.

Table 16 Estimated demand and supply of new and replacement positions for next 10 years

	Model	12 months	3 years	10 years
Model 1	A CoPS	34.9	118.7	413.9
Model 2	C Local government	78	113	269
Likely supply of graduates		28	74	280

Appendix 9 Food handler enrolments in training⁵⁴

Table 17 Unit enrolments and activity in Food handling units, 1999 to 2002

Unit Code		1999		2000		2001		2002	
		SCH	Unit ENR	SCH	Unit ENR	SCH	Unit ENR	SCH	Unit ENR
DFCO RFS1A	Apply basic food safety practices	14200	711	105909	5630	96669	5167	126933	7070
THHBC C11A	Implement food safety procedures	24546	1102	61774	2681	63890	3046	82376	4442
THHG SO1A		4635	309	0	0	0	0	0	0
THHBC C11B	Implement food safety procedures	0	0	0	0	0	0	17572	744
WRRLP 6C	Apply retail food safety practices	0	0	0	0	0	0	5817	162
	ALL	43381	2122	167683	8311	160559	8213	232698	12418

⁵⁴ Unpublished data provided by the Office of Training and Tertiary Education.

Nb. Unit ENR = enrolments in units of competency. It should be noted that the total enrolments are not the same as the total number of students as a student may be enrolled in more than one unit at the same time.

SCH = student contact hours

Table 18 Course enrolments in Food handling units, 1997 to 2003

	ENR 1997	ENR 1998	ENR 1999	ENR 2000	ENR 2001	ENR 2002	ENR 2003
0008HTFWP Hygiene procedures for Food Handlers							63
0008HTHF0 Hygiene for Food Handlers							310
018AWB2007 Food Hygiene for Food Handlers		46					
1000KIX Food Hygiene and Food Handlers	169	258	170	11			
2007AMB Course in Basic Food Hygiene	1,087	239	1,062	43			
2007AWB Course in Food Hygiene for Food Handlers	919	47	433				
2007AXB Course in Food Hygiene for Supervisors / Managers	5						
2011AHC Course in Food Hygiene for Food Handlers Level 1		211	1,195	1,351	1,743	1,897	
2011AIC Course in Food Hygiene for Food Handlers Level 2		73	373	629	495	325	1
2011AJC Course in Food Hygiene for Food Handlers Level 3		93	567	293	236	191	
2011AMB Course in Food Handling and Hygiene (Fresh Food Managers – Coles)	84						
3100KAF Food Hygiene	327	331	325	458	158	161	163
3190KAC Basic Food Hygiene for the Food Handler	192	278	850	332	155	339	629
4290ABE Food Handling Hygiene	92	439	1,612	355	23	23	
TOTAL	2,875	2,015	6,587	3,472	2,810	2,936	1,167

Table 19 Course activity in Food handling units, 1997 to 2003

	SCH 1997	SCH 1998	SCH 1999	SCH 2000	SCH 2001	SCH 2002	SCH 2003
0008HTFWP Hygiene procedures for Food Handlers							945
0008HTHF0 Hygiene for Food Handlers							7,710
018AWB2007 Food Hygiene for Food Handlers		552					
1000KIX Food Hygiene and Food Handlers	834	1,437	1,107	176			
2007AMB Course in Basic Food Hygiene	6,552	1,434	6,372	258			
2007AWB Course in Food Hygiene for Food Handlers	4,996	276	3,788				
2007AXB Course in Food Hygiene for Supervisors / Managers	60						
2011AHC Course in Food Hygiene for Food Handlers Level I		1,134	7,509	6,896	8,850	10,212	0
2011AIC Course in Food Hygiene for Food Handlers Level 2		193	1,246	1,522	1,380	958	0
2011AJC Course in Food Hygiene for Food Handlers Level 3		266	5,799	837	663	576	
2011AMB Course in Food Handling and Hygiene (Fresh Food Managers – Coles)	3,780						
3100KAF Food Hygiene	2,438	2,856	1,668	2,655	1,283	1,476	1,462
3190KAC Basic Food Hygiene for the Food Handler	1,695	2,369					
4290ABE Food Handling Hygiene	800	2,357					
TOTAL	21,155	12,874	7,024	2,800	930	2,973	5,150

Appendix 10 Mapping of EHO skills & knowledge against gazetted courses

The following table show the relationship between EHO skills and knowledge relating to the Food Act and existing EHO qualifications currently provided in Australia as listed in the gazetted qualification list as of 1 July 2002. The numbers appearing in brackets after unit or subject titles correspond to the application/level item and indicate that the item is covered. Where units

Skills and Knowledge	Application/Level	Swinburne Bachelor of Health Science (Public & Enviro Health)	LaTrobe Bachelor of Public Health	Curtin Uni Bachelor of Science (Environmental Health)
General Underpinning Skills & Knowledge				
English language, grammar and computer literacy		See applied communication	Public health research A	7713 Health Science Comm 180
OHS		HES1500 HES4725	Lab OHS	11356 Health and Safety 282
Workplace induction	Awareness of work requirements, industrial issues and agreements	HBSH400 Admin & management		
Context				
Public health system	<ol style="list-style-type: none"> 1. Health system principles, concepts and systems 2. Relationship of food safety to broader public health framework 3. Policy evaluation/ development related to food safety 	HES1700 Enviro health management 1 (1, 3)	Health Systems 1 (1) Health sociology (1) Public health principles (1, 3) Health systems policy (1, 3) Enviro health (1)	Health and Society 180 (1)

Skills and Knowledge	Application/Level	Swinburne Bachelor of Health Science (Public & Enviro Health)	LaTrobe Bachelor of Public Health	Curtin Uni Bachelor of Science (Environmental Health)
Political and economic context	<ul style="list-style-type: none"> 4. Respective responsibilities of federal, state and local governments for food safety 5. Local government structure, operation and responsibilities (priority setting/resource allocation) 6. Awareness of political environment and agendas 7. Awareness of business operating environment (basic understanding of both retail and manufacturing business context) 8. Stakeholder needs/expectations 9. Impact of diversity – age, gender, cultural, racial and ethnic background socio-economic status, profession and lifestyle preference 	<ul style="list-style-type: none"> HES4730 Food Safety 2 (4, 6, 8) HES1700 Enviro health management 1 (4, 5, 6) HBSL200 Enviro Health Mgt 2 5 (Health Act) HES4715 Health planning & prom'n (9) HBSL100 Introductory law (4, 6) HBSH400 Admin & management (4, 7) 	<ul style="list-style-type: none"> Health Systems 1 (5, 6) Public health principles (5, 6, 10) Health systems policy (5, 6) Public health principles (4, 5, 6,8, 9) Environmental health management B (4) 	<ul style="list-style-type: none"> 304567 Public Health Law 284 (4) 8420 Professional Practice (Community) 284 (5)
Resource management	<ul style="list-style-type: none"> 10. Basic understanding of tender evaluation & contract management 	<ul style="list-style-type: none"> HBSH400 Admin & management (10) 		
Ethical conduct	<ul style="list-style-type: none"> 11. Personal values, behaviours and attributes of EHOs 	<ul style="list-style-type: none"> HBSL200 Environmental health Management 2 (11) 	<ul style="list-style-type: none"> Reference to research ethics 	
Information collection, analyse and application				
Information collection and management	<ul style="list-style-type: none"> 12. Information requirements 13. Relevant sources of technical information/research 14. Collection methods eg. Interviews, observations, records/documentation review 15. Use information management systems 	<ul style="list-style-type: none"> HES4700 Research skills (21, 22, 23, 24) HES2740 Enviro health technology (24) 	<ul style="list-style-type: none"> Field experience A (21, 22, 23, 24) Public health research A (24) 	<ul style="list-style-type: none"> 7713 Health Science Communication 180 (13, 14) 9319 Principles of Research 381 (12, 14) 303168 Epidemiology and Biostatistics 180 (15) 304661 Environmental Health Applied Research 384 (12, 13, 14)
Research methods	<ul style="list-style-type: none"> 16. Research methods 17. Use of statistics in health research 18. Common laboratory test methods (awareness of methods/purpose but not required to conduct tests) 19. Interpretation of research results 20. Evidence-based decision making methods 	<ul style="list-style-type: none"> HMS102 Intro to statistics (26) HES4700 Research skills (16, 17, 19, 20) HES4705 Research skills (16, 17, 19, 20) HES4715 Health planning & promotion (20, 21) 	<ul style="list-style-type: none"> Field experience A (25, 28, 30) Public health research A (16, 19, 20, 21) Public health research B (16, 17, 19, 20) Health education (21) Health systems policy (21) 	<ul style="list-style-type: none"> 303168 Epidemiology & Biostatistics 180 (16, 17, 19, 20) 303091 Epidemiology 186 (16, 17, 18, 19, 20, 21) 304661 Enviro Health applied research (depending on topic)

Skills and Knowledge	Application/Level	Swinburne Bachelor of Health Science (Public & Enviro Health)	LaTrobe Bachelor of Public Health	Curtin Uni Bachelor of Science (Environmental Health)
		HES1715 Environmental measurement; HES2700 Food science (18)	Food science essentials (27) Epidemiology (26)	
Policy/program development	21. Basic understanding of policy/program development 22. Evaluation of effectiveness of interventions and programs	HES4715 Health planning & promotion (21, 22)	Program development (21, 220) Health systems policy (21, 22)	
Sampling methodology	23. Purpose of sampling 24. Sampling plans – based on understanding of representative samples 25. Sample collection procedures –requirements of 3 part sampling	HES2725 Food safety 1 (25)	Public health research A (23, 24, 25?)	8420 Professional Practice (Community) 284 (25)
Technical & Applied Skills & Knowledge				
Food Safety	26. Patterns and characteristics of food-borne disease and illness 27. Health/food safety issues affecting specific populations (vulnerable groups) 28. Principles of HACCP-based risk management systems 29. Overview of food chain 30. Ways in which food can cause illness or injury – incidence and trends 31. Programs and procedures to support food safety (eg. personal hygiene; pest management; hygiene and sanitation)	HES2725 Food safety 1 (28, 30, 31) HES4730 Food safety 2 (28) HES2636 Microbes in the enviro (30) HES1616 Concepts of micro (30) HES2700 Food science (30)	Food science essentials (28)	307182 Health and Society 180 (26, 27?) 8420 Professional Practice (Community) 284 (30) 304663 Food Systems Safety 384 (26, 27, 28, 30, 31)
Food science	32. Common control methods used to minimize food safety risks including food receipt; storage; temperature control; food preservation methods, cooking/preparation methods, traceability; product shelf life; cleaning and sanitation; pest control; personal hygiene 33. Understanding of common food spoilage causes and controls including cross-contamination 34. Understanding of circumstances, procedures	HES2636 Microbes in the enviro (32, 330) HES2725 Food safety 1 (32, 33, 34) HES4730 Food safety 2 (32, 33, 35, 36 (intro))	Food science essentials (32, 33)	304663 Food Systems Safety 384 (32, 33, 34) 304652 Food Science Specialisation 201 (32, 33, 34) 304656 Food Science Specialisation 202 (32, 33)

Skills and Knowledge	Application/Level	Swinburne Bachelor of Health Science (Public & Enviro Health)	LaTrobe Bachelor of Public Health	Curtin Uni Bachelor of Science (Environmental Health)
	<p>and responsibilities for a food recall</p> <p>35. Current and emerging processing methods and foods and implications for food safety</p> <p>Optional/Professional development</p> <p>36. Awareness of risks and control measures associated with processing methods including:</p> <ul style="list-style-type: none"> - Pasteurization - Aseptic packaging - Retort sterilization - Cook-chill processes - Catering - Manufactured and fermented meats 			
Chemistry	<p>37. Awareness of methods and technologies used to determine chemical composition of food</p> <p>38. Common chemical food safety hazards and control methods to minimize the risk of contamination</p>	<p>HES1500 Introductory chemistry (37)</p> <p>HES2700 Food science (38)</p>		<p>10009 Chemistry 127 37</p> <p>8686 Chemistry 128 37</p>
Biology Micro-biology	<p>39. How organisms grow</p> <p>40. Human digestive system</p> <p>41. Common biological hazards and control methods to minimize the risk of contamination</p> <p>42. Requirements for survival and growth of micro-organisms</p> <p>43. Growth rates, transmission rates, likely carriers and threshold levels</p> <p>44. Food borne pathogens</p> <p>45. Control methods to minimize the risk of microbial contamination</p> <p>46. Food safety hazard posed by pests</p>	<p>HES1610 Human biology (40)</p> <p>HES1616 Concepts of biotechnology (39, 42)</p> <p>HES2631 The microbial world (39, 41, 42, 43, 44, 45)</p> <p>HES2636 Microbes in the enviro (39, 41, 42, 45)</p> <p>HES1616 Concepts in biotechnology (44)</p> <p>HES2725 Food safety 1 (46)</p>	<p>Life Sciences 1 (39, 40)</p> <p>Intro to microbial (39, 42)</p>	<p>1643 Human Biology 133 (39)</p> <p>1644 Human Biology 134 (49)</p> <p>302467 Introduction to Microbiology 132 (39, 41, 42, 43, 44)</p> <p>304714 Environmental Health Microbiol 232 (41, 42, 43)</p>
Toxicology	<p>47. Signs of presence of toxins in food and methods of testing</p> <p>48. Control methods to minimize the risk of the presence of toxins in food</p>	<p>HES2700 Food science (47, 48)</p>		<p>304714 Environmental Health Microbiol 232 (47, 48)</p>
Communication Skills & Knowledge				

Skills and Knowledge	Application/Level	Swinburne Bachelor of Health Science (Public & Enviro Health)	LaTrobe Bachelor of Public Health	Curtin Uni Bachelor of Science (Environmental Health)
Prepare and present information	49. Prepare and present information on food safety appropriate to audience – written & verbal. For example: <ul style="list-style-type: none"> - Individual (premises) reports - Council reports - Special reports eg. Prosecution briefs - Education material - Technical / research reports - Policy and procedures - Notices / advice 50. Cultural diversity sensitivity 51. Public speaking	HBSL200 Enviro Health mgt 2 (4)9, 50 HES370/307 IBL (49)	Comm Skills (49, 50, 51)	7713 Health Science Communication 180 (49, 50, 51)
Exchange information	52. Interpersonal skills to convey information effectively eg. Provide guidance and options information 53. Understand the role of consultation in promoting food safety 54. Explain technical information and procedures 55. Active listening	HES1700 Enviro health management (52, 55) HBSL200 Enviro Health mgt 2 (52, 55) HES370/307 IBL (52, 53, 54, 55) HES4715 Health planning & prom'n (53)	Comm Skills 52, 55 Enviro health manag't A 52 Enviro health mgt B 52 Public health principles 53	7713 Health Science Communication 180 (52)
Establish and maintain effective relationships	56. Negotiation/Mediation 57. Conflict resolution 58. Engage stakeholders 59. Establish and maintain collaborative networks 60. Culture change principles/methods	HES1700 Enviro health management (56, 57) HBSL200 Enviro Health mgt 2 (56, 57) HES370/307 IBL (58,, 59) HBSH400 Admin & mgt (60)	Public health principles (59) Psychology studies A (69 part) Public health principles (69) Health education (58, 59, 60) Enviro health mgt B (56, 57)	
Food safety promotion	61. Advocate on food safety issues 62. Support and educate stakeholder groups on food safety and related issues 63. Liaison with external agencies	HES4715 Health planning & prom'n (61, 62, 63)	Public health principles (61, 62, 63) Health education (61, 62) Enviro health mgt B (61, 62)	304656 Food Science Specialisation 202 (62) 9442 Professional Practice (Community) 384 (63)
Food Law				
Interpretation/application of food law	64. Understand legislative requirements and enforcement role	HBSL100 Intro Law HES1700 Enviro health management HES2725 Food safety 1	Food science essentials Enviro health mgt B	8420 Professional Practice (Community) 284

Skills and Knowledge	Application/Level	Swinburne Bachelor of Health Science (Public & Enviro Health)	LaTrobe Bachelor of Public Health	Curtin Uni Bachelor of Science (Environmental Health)
		HBSL200 Enviro Health mgt 2		
Legislative framework	65. Overview of national and international food standards/regulators (eg AQIS, Primesafe, Dairy Food Safety Victoria) 66. Principles of governance, procedural fairness and natural justice 67. Food Safety Standards; Food Act; Codes; Guidelines 68. Food Standards Code – mandatory components and understanding of what is covered by remaining sections of the Code 69. Roles and responsibilities of AOs and related personnel/bodies eg. DHS, 3 rd party auditors	HES1700 Enviro health mgt 1 (65, 67, 69) HES2725 Food safety 1 (67) HES4730 Food safety 2 (67, 69)	Enviro health mgt B (65?)	304657 Public Health Law 284 (69) 304663 Food Systems Safety 384 (65, 67, 68)
Scope of powers of AOs under the Food Act		HES1700 Enviro health mgt 1 & 2 HBSH400 Admin & management		304663 Food Systems Safety 384
Legal responsibilities and liabilities of AOs		HBSH400 Admin & management		
Evidence collection	70. Interview/evidence collection preparation 71. Investigation procedures 72. Interview procedures – collection of information and writing up outcomes	HES4730 Food safety 2 (70, 71, 72)	Comm Skills (70, 71, 72)	304663 Food Systems Safety 384 (70, 71, 72)
Legal documentation/recording	73. Prepare/present evidence in court 74. Evidence management systems and procedures records - chain of evidence	HBSL200 Enviro Health mgt 2 (73, 74)		
Registration and inspection procedures				
Food premises registration	75. Advise on, approve and inspect new businesses according to confirm compliance plans and specifications – understanding of design and construction of premises as it impacts on food safety 76. Registration of new premises 77. Renewal or transfer registration 78. Registration of temporary food premises	HES2725 Food safety 1 (75, 76, 77, 78, 79)		8420 Professional Practice (Community) 284 (75) 304656 Food Science Specialisation 202 (75, 79) 9441 Professional Practice (Community) 383 (75-79 depending on placement)

Skills and Knowledge	Application/Level	Swinburne Bachelor of Health Science (Public & Enviro Health)	LaTrobe Bachelor of Public Health	Curtin Uni Bachelor of Science (Environmental Health)
	79. Ability to read and interpret building plans and specifications			
Compliance check/inspection processes and procedures	80. Inspection procedures/schedules 81. Food recall, labeling and disposal/quarantine 82. Food borne disease complaints protocol	HES2725 Food safety 1 (81) HES4730 Food safety 2 (80)		8420 Professional Practice (Community) 284 (80) 304663 Food Systems Safety 384 (80. 81)

Skills and Knowledge	Application/Level	Uni of Western Sydney Bachelor of Applied Science (Environmental Health)	Flinders Uni Bachelor of Environmental Health	Griffith Uni Bachelor of Science in Environmental Health
General Underpinning Skills & Knowledge				
English language, grammar and computer literacy			ENGL1001 Professional English	
OHS			ENVH3003 Occupational Health and Safety	2203PBH: Managing Workplace Hlth&Safety
Workplace induction	Awareness of work requirements, industrial issues and agreements	300362.1 Environment and Health		3112PBH: Env Health Workplace Practicum
Context				
Public health system	1. Health system principles, concepts and systems 2. Relationship of food safety to broader public health framework 3. Policy evaluation/development related to food safety	300290.1 Researching Communities and their Environments (1))	ENVH3008 Public Health Law (1, 2) ENVH3009 Health Promotion for Environmental Health (3)	1002PBH Community Health & Disease (1) 2111PBH Introduction to Environmental Health (1, 3) 3116PBH Environmental Health Management Systems (1) 3125PBH Health Policy & Planning (Opt) (1, 3) 3121PBH Indigenous Health (Opt) (9)

Skills and Knowledge	Application/Level	Uni of Western Sydney Bachelor of Applied Science (Environmental Health)	Flinders Uni Bachelor of Environmental Health	Griffith Uni Bachelor of Science in Environmental Health
Political and economic context	<ul style="list-style-type: none"> 4. Respective responsibilities of federal, state and local governments for food safety 5. Local government structure, operation and responsibilities (priority setting/resource allocation) 6. Awareness of political environment and agendas 7. Awareness of business operating environment (basic understanding of both retail and manufacturing business context) 8. Stakeholder needs/expectations 9. Impact of diversity – age, gender, cultural, racial and ethnic background socio-economic status, profession and lifestyle preference . 	LW212A Environmental Health Law (4, 5, 6 (NSW law only)) FS203A.1 Approved Industrial Experience (6)	ENVH3009 Health Promotion for Environmental Health (10) ENVH2011A/B Integrated Environmental Health Practice ½ (Dependent on placement)	3125PBH Health Policy & Planning (Opt) (4, 5, 7, 8)
Resource management	10. Basic understanding of tender evaluation & contract management			
Ethical conduct	11. Personal values, behaviours and attributes of EHOs			
Information collection, analyse and application				
Information collection and management	<ul style="list-style-type: none"> 12. Information requirements 13. Relevant sources of technical information/research 14. Collection methods eg. Interviews, observations, records/documentation review 15. Use information management systems 	300288.1 Occupational Environment (14) EH214 A Epidemiology (15)	ENVH3005A Integrating Research and Project Management 1 # (12, 13, 14? 15)	3114PBH Public Health Research Methods (12, 13,14, 15)
Research methods	<ul style="list-style-type: none"> 16. Research methods 17. Use of statistics in health research 18. Common laboratory test methods (awareness of methods/purpose but not required to conduct tests) 19. Interpretation of research results 20. Evidence-based decision making methods 	300288.1 Occupational Environment (16) 300469.1 Introductory Chemistry (18) EH214 A Epidemiology (17)	ENVH3001 Research Methods and Data Analysis (25, 26) ENVH3005A Integrating Research and Project Management 1 # (25, 28, 29)	1202PBH Epidemiology & Public Health (16) 1204PBH Statistics for Public Health (17, 20) 3114PBH Public Health Research Methods (16, 19) 3154SCE Food & Drug Analysis (Opt) (18) 3154SCE Food & Drug Analysis (Opt) (18)

Skills and Knowledge	Application/Level	Uni of Western Sydney Bachelor of Applied Science (Environmental Health)	Flinders Uni Bachelor of Environmental Health	Griffith Uni Bachelor of Science in Environmental Health
				1101SCE Chemistry A (18) 1501EAS Chemistry 1 (18) 1171AES Statistics for the Environment (17, 19, 20)
Policy/program development	21. Evaluation of effectiveness of interventions and programs 22. Policy/program development			
Sampling methodology	23. Purpose of sampling 24. Sampling plans – based on understanding of representative samples 25. Sample collection procedures –requirements of 3 part sampling			
Technical & Applied Skills & Knowledge				
Food Safety	26. Patterns and characteristics of food-borne disease and illness 27. Health/food safety issues affecting specific populations (vulnerable groups) 28. Principles of HACCP-based risk management systems 29. Overview of food chain 30. Ways in which food can cause illness or injury – incidence and trends 31. Programs and procedures to support food safety (eg. personal hygiene; pest management; hygiene and sanitation)	FS323A.1 - Food Safety A 26, 28, 30, 31 (only in EH Mgt Major)		2113PBH Food & Drug Safety Management (26, 28, 30, 31) 3121PBH Indigenous Health (Opt) (27) 3722BBS Quality Management in Food Industry (Opt) (31)
Food science	32. Common control methods used to minimize food safety risks including food receipt; storage; temperature control; food preservation methods, cooking/preparation methods, traceability; product shelf life; cleaning and sanitation; pest control; personal hygiene 33. Understanding of common food spoilage causes and controls including cross- contamination	FS323A.1 - Food Safety A (32, 33, 35)	NUTD2001 Food, Nutrition and Health (41, 42?)	1703BBS Introductory Food Science (32, 35) 3717BBS Food Science & Manufacturing (Opt) (32, 36)

Skills and Knowledge	Application/Level	Uni of Western Sydney Bachelor of Applied Science (Environmental Health)	Flinders Uni Bachelor of Environmental Health	Griffith Uni Bachelor of Science in Environmental Health
	34. Understanding of circumstances, procedures and responsibilities for a food recall 35. Current and emerging processing methods and foods and implications for food safety Optional/Professional development 36. Awareness of risks and control measures associated with processing methods including: <ul style="list-style-type: none"> - Pasteurization - Aseptic packaging - Retort sterilization - Cook-chill processes - Catering - Manufactured and fermented meats 			
Chemistry	37. Awareness of methods and technologies used to determine chemical composition of food 38. Common chemical food safety hazards and control methods to minimize the risk of contamination	300469.1 Introductory Chemistry (37)	CHEM1201 Introduction to Chemistry A* CHEM1102 Introduction to Chemistry B* ENV2003 Environmental Chemistry (46, 47?)	2206PBH Chemistry for Environmental Health (38) 1101SCE: Chemistry A (37)
Biology Micro-biology	39. How organisms grow 40. Human digestive system 41. Common biological hazards and control methods to minimize the risk of contamination 42. Requirements for survival and growth of micro-organisms 43. Growth rates, transmission rates, likely carriers and threshold levels 44. Food borne pathogens 45. Control methods to minimize the risk of microbial contamination 46. Food safety hazard posed by pests	300221.1 Biology 1 (39) 300331.1 General Microbiology (39, 41, 42) MI310A.1 - Public Health Microbiology	BIOL1101 Biology 1A BIOL1102 Biology 1B ENV2005 Environmental Chemistry (48, 50? 51, 52, 53) ENV2004 Biological Chemistry (49) MMED2927 Human Physiology 2A (48, 50, 51, 52)	1004HSC Human Anatomy 1005HSC Cell Biology 1006HSC Human Physiology 1 1008HSC Biological Chemistry 1151AES Biology and Biological Diversity 1974NRS Anatomy & Physiology 1 (40) 2005BBS Microbiology (39, 41, 42, 43, 44)
Toxicology	47. Signs of presence of toxins in food and methods of testing 48. Control methods to minimize the risk of the	EH217A.1 Toxicology (47, 48)	MMED3928 Toxicology for Environmental Health (56, 57)	3119PBH Environmental Toxicology & Risk Assessment

Skills and Knowledge	Application/Level	Uni of Western Sydney Bachelor of Applied Science (Environmental Health)	Flinders Uni Bachelor of Environmental Health	Griffith Uni Bachelor of Science in Environmental Health
	presence of toxins in food			(47, 48)
Communication Skills & Knowledge				
Prepare and present information	49. Prepare and present information on food safety appropriate to audience – written & verbal Eg: – Individual (premises) reports – Council reports – Special reports eg. Prosecution briefs – Education material – Technical / research reports – Policy and procedures – Notices / advice 50. Cultural diversity sensitivity 51. Public speaking		ENGL1001 Professional English (58?)	
Exchange information	52. Interpersonal skills to convey information effectively eg. Provide guidance and options information 53. Understand the role of consultation in promoting food safety 54. Explain technical information and procedures 55. Active listening		ENGL1001 Professional English (63?) ENVH3004 Social and Environmental Psychology (61, 62, 64)	
Establish and maintain effective relationships	56. Negotiation/Mediation 57. Conflict resolution 58. Engage stakeholders 59. Establish and maintain collaborative networks 60. Culture change principles/methods		ENVH3004 Social and Environmental Psychology (65, 66, 67, 68, 69)	
Food safety promotion	61. Advocate on food safety issues 62. Support and educate stakeholder groups on food safety and related issues		ENVH3009 Health Promotion for Environmental Health (dependent on project)	1977PBH Health Promotion (71) 2113PBH Food & Drug

Skills and Knowledge	Application/Level	Uni of Western Sydney Bachelor of Applied Science (Environmental Health)	Flinders Uni Bachelor of Environmental Health	Griffith Uni Bachelor of Science in Environmental Health
	63. Liaison with external agencies			Safety Management (62)
Food Law				
Interpretation/application of food law	64. Understand legislative requirements and enforcement role		ENGL1001 Professional English (73)	2111PBH Introduction to Environmental Health (73) 3116PBH Environmental Health Management Systems 73
Legislative framework	65. Overview of national and international food standards/regulators (eg AQIS, Primesafe, Dairy Food Safety Victoria) 66. Principles of governance, procedural fairness and natural justice 67. Food Safety Standards; Food Act; Codes; Guidelines 68. Food Standards Code – mandatory components and understanding of what is covered by remaining sections of the Code 69. Roles and responsibilities of AOs and related personnel/bodies eg. DHS, 3 rd party auditors	FS323A.1 - Food Safety A (65, 67, 69)	ENVH1001 Introduction to Environmental Health (79) ENVH2009 Legal Studies (74? 76) ENVH3008 Public Health Law (74)	2111PBH Introduction to Environmental Health (74, 75, 79) 2113{BH Food & Drug Safety Management (77, 78) 3116PBH Environmental Health Management Systems (74)
Scope of powers of AOs under the Food Act				
Legal responsibilities and liabilities of AOs				
Evidence collection	70. Interview/evidence collection preparation 71. Investigation procedures 72. Interview procedures – collection of information and writing up outcomes			
Legal documentation/recording	73. Prepare/present evidence for presentation in court 74. Evidence management systems and procedures records - chain of evidence			

Skills and Knowledge	Application/Level	Uni of Western Sydney Bachelor of Applied Science (Environmental Health)	Flinders Uni Bachelor of Environmental Health	Griffith Uni Bachelor of Science in Environmental Health
Registration and inspection procedures				
Food premises registration	<p>75. Advise on, approve and inspect new businesses according to confirm compliance plans and specifications – understanding of design and construction of premises as it impacts on food safety</p> <p>76. Registration of new premises</p> <p>77. Renewal or transfer registration</p> <p>78. Registration of temporary food premises</p> <p>79. Ability to read and interpret building plans and specifications</p>			
Compliance check/inspection processes and procedures	<p>80. Inspection procedures/schedules</p> <p>81. Food recall, labeling and disposal/quarantine</p> <p>82. Food borne disease complaints protocol</p>			

Appendix 11 Mapping of EHO skills & knowledge against selected training pathways

The following maps show the relationship between EHO skills and knowledge relating to the Food Act and units from selected courses. The numbers appearing in the adjacent column indicate the degree of alignment between the unit/subject and EHO skills and knowledge requirements. For an explanation of the ratings, refer to Chapter8 of the main report.

Skills and Knowledge	Application/Level	RMIT Food Technology and Nutrition – B of App Sci		Ballarat Uni: B of App Sci (Food Science & Technology)/B of Mgt		Deakin Uni B of Nutrition & Dietetics / B of App Sci (Nutrition & Dietetics	
Context							
Public health system	<ol style="list-style-type: none"> 1. Health system principles, concepts and systems 2. Relationship of food safety to broader public health framework 3. Policy evaluation/development related to food safety 					HBS107 Understanding Health (Both BND & BAS apply unless specified) HSN309 Food Policy and Regulation	4
Political and economic context	<ol style="list-style-type: none"> 4. Respective responsibilities of federal, state and local governments for food safety 5. Local government structure, operation and responsibilities (priority setting/resource allocation) 6. Awareness of political environment and agendas 7. Awareness of business operating environment (basic understanding of both retail and manufacturing business context) 8. Stakeholder needs/expectations 9. Impact of diversity – age, gender, cultural, racial and ethnic background socio-economic status, profession and lifestyle preference 			JN 701 Public Sector Management	4	HBS107 Understanding Health HSN309 Food Policy and Regulation	4
Resource management	<ol style="list-style-type: none"> 10. Basic understanding of tender evaluation & contract management 						

Skills and Knowledge	Application/Level	RMIT Food Technology and Nutrition – B of App Sci		Ballarat Uni: B of App Sci (Food Science & Technology)/B of Mgt		Deakin Uni B of Nutrition & Dietitics / B of App Sci (Nutrition & Dietetics)	
Ethical conduct	11. Personal values, behaviours and attributes of EHOs			JN 603 Ethics & Organisations	2		
Information collection, analyse and application							
Information collection and management	12. Information requirements 13. Relevant sources of technical information/research 14. Collection methods eg. Interviews, observations, records/documentation review 15. Use information management systems			MS501 Statistical Methods JN602 Managerial Research Methods MS601 Experimental Design & Development	1	HBS108 Health Information and Data HSN314 Dietetic Research Skills (BND)	2
Research methods	16. Research methods 17. Use of statistics in health research 18. Common laboratory test methods (awareness of methods/purpose but not required to conduct tests) 19. Interpretation of research results 20. Evidence-based decision making methods	MATH2112 - Mathematics and Statistics for Food Science	2	SF641 Food Analysis MS501 Statistical Methods MS601 Experimental Design & Development JN602 Managerial Research Methods	2	HSN206 Food Analysis and Quality Assurance (BAS) HBS108 Health Information and Data	2
Policy/program development	21. Basic understanding of policy/program development 22. Evaluation of effectiveness of interventions and programs						
Sampling methodology	23. Purpose of sampling 24. Sampling plans – based on understanding of representative samples 25. Sample collection procedures – requirements of 3 part sampling	ONPS2054 - Quality Assurance for Industry	2	SF641 Food Analysis	3	HSN206 Food Analysis and Quality Assurance (BAS)	2
Technical & Applied Skills & Knowledge							
Food Safety	26. Patterns and characteristics of food-borne	ONPS2138 - Food	2	SF552 Food Science and	3	HSN204 Food	2

Skills and Knowledge	Application/Level	RMIT Food Technology and Nutrition – B of App Sci		Ballarat Uni: B of App Sci (Food Science & Technology)/B of Mgt		Deakin Uni B of Nutrition & Dietetics / B of App Sci (Nutrition & Dietetics	
	<p>disease and illness</p> <p>27. Health/food safety issues affecting specific populations (vulnerable groups)</p> <p>28. Principles of HACCP-based risk management systems</p> <p>29. Overview of food chain</p> <p>30. Ways in which food can cause illness or injury – incidence and trends</p> <p>31. Programs and procedures to support food safety (eg. personal hygiene; pest management; hygiene and sanitation)</p>	<p>Manufacture</p> <p>ONPS2137 - Introduction to the Food Industry</p>		<p>Nutrition</p> <p>SF621 Food Processing Systems I</p> <p>SF761 Food Quality Management</p>		<p>Microbiology and HACCP (BAS)</p>	
Food science	<p>32. Common control methods used to minimize food safety risks including food receipt; storage; temperature control; food preservation methods, cooking/preparation methods, traceability; product shelf life; cleaning and sanitation; pest control; personal hygiene</p> <p>33. Understanding of common food spoilage causes and controls including cross-contamination</p> <p>34. Understanding of circumstances, procedures and responsibilities for a food recall</p> <p>35. Current and emerging processing methods and foods and implications for food safety</p> <p>Optional/Professional development</p> <p>36. Awareness of risks and control measures associated with processing methods including:</p> <ul style="list-style-type: none"> - Pasteurization - Aseptic packaging - Retort sterilization - Cook-chill processes 	<p>ONPS2137 - Introduction to the Food Industry</p> <p>ONPS2136 - Food Preservation</p>	2	<p>SF621 Food Processing Systems I</p> <p>SF622 Food Processing Systems II</p> <p>SF721 Food Processing Systems III</p> <p>SF722 Product and Process Development</p> <p>SF631 Food Microbiology I</p> <p>SF761 Food Quality Management</p>	3	<p>HSN102 The Food System</p> <p>HSN206 Food Analysis and Quality Assurance (BAS)</p> <p>HSN205 Food Commodities (BAS)</p> <p>HSN204 Food Microbiology and HACCP (BAS)</p> <p>HSN306 Product Development & Processing (BAS)</p>	2

Skills and Knowledge	Application/Level	RMIT Food Technology and Nutrition – B of App Sci		Ballarat Uni: B of App Sci (Food Science & Technology)/B of Mgt		Deakin Uni B of Nutrition & Dietetics / B of App Sci (Nutrition & Dietetics	
	<ul style="list-style-type: none"> - Catering - Manufactured and fermented meats 						
Chemistry	37. Awareness of methods and technologies used to determine chemical composition of food 38. Common chemical food safety hazards and control methods to minimize the risk of contamination	CHEM1022 - Chemistry Theory 1A (Food Science) CHEM1023 - Chemistry Theory 1B (Food Science) CHEM1056 - Chemistry 2A (Food Science & Technology) CHEM1083 - Food Chemistry	3	SF511 Chemistry 1 SF642 Food Chemistry SF622 Food Processing Systems II SF761 Food Quality Management	3	SBC142 Applications of Chemistry HSN206 Food Analysis and Quality Assurance (BAS)	2
Biology Micro-biology	39. How organisms grow 40. Human digestive system 41. Common biological hazards and control methods to minimize the risk of contamination 42. Requirements for survival and growth of micro-organisms 43. Growth rates, transmission rates, likely carriers and threshold levels 44. Food borne pathogens 45. Control methods to minimize the risk of microbial contamination 46. Food safety hazard posed by pests	BIOL1010 - Biology For Food Scientists BIOL2176 – Microbiology CHEM1056 - Chemistry 2A ONPS2140 - Proteins in Food Science ONPS2143 - Lipids in Food Science	3	SF532 Introductory Microbiology SF631 Food Microbiology I SF761 Food Quality Management	3	HSN203 <div style="border: 1px solid black; padding: 2px; width: fit-content;">Food Composition</div> <div style="border: 1px solid black; height: 15px; width: 100%;"></div> HBS109 <div style="border: 1px solid black; padding: 2px; width: fit-content;">Human Structure and Function</div> SBB111 <div style="border: 1px solid black; padding: 2px; width: fit-content;">Biology A</div>	3

Skills and Knowledge	Application/Level	RMIT Food Technology and Nutrition – B of App Sci		Ballarat Uni: B of App Sci (Food Science & Technology)/B of Mgt		Deakin Uni B of Nutrition & Dietetics / B of App Sci (Nutrition & Dietetics	
						Food biotechnology	
						HSN306 Product Development & Processing (BAS)	
Toxicology	47. Signs of presence of toxins in food and methods of testing 48. Control methods to minimize the risk of the presence of toxins in food		2	SF761 Food Quality Management SF631 Food Microbiology 1 SF511 Chemistry 1	1	HSN203 Food Composition	2
Communication Skills & Knowledge							
Prepare and present information	49. Prepare and present information on food safety appropriate to audience – written & verbal Eg: – Individual (premises) reports – Council reports – Special reports eg. Prosecution briefs – Education material – Technical / research reports – Policy and procedures – Notices / advice 50. Cultural diversity sensitivity 51. Public speaking			JN601 Management Skills JN602 Managerial Research Methods	2		
Exchange information	52. Interpersonal skills to convey information effectively eg. Provide guidance and options information 53. Understand the role of consultation in promoting food safety 54. Explain technical information and procedures 55. Active listening			JN601 Management Skills JN602 Managerial Research Methods	4		
Establish and maintain	56. Negotiation/Mediation			JN501 Management	2		

Skills and Knowledge	Application/Level	RMIT Food Technology and Nutrition – B of App Sci		Ballarat Uni: B of App Sci (Food Science & Technology)/B of Mgt		Deakin Uni B of Nutrition & Dietitics / B of App Sci (Nutrition & Dietetics)	
effective relationships	57. Conflict resolution 58. Engage stakeholders 59. Establish and maintain collaborative networks 60. Culture change principles/methods			Principles JN601 Management Skills JN606 Managing People at Work JH 701 Management of Change & Organisational Development JN701 Public Sector Management			
Food safety promotion	61. Advocate on food safety issues 62. Support and educate stakeholder groups on food safety and related issues 63. Liaison with external agencies						
Food Law							
Interpretation/application of food law	64. Understand legislative requirements and enforcement role	ONPS2137 - Introduction to the Food Industry	2	SF761 Food Quality Management	2		
Legislative framework	65. Overview of national and international food standards/regulators (eg AQIS, Primesafe, Dairy Food Safety Victoria) 66. Principles of governance, procedural fairness and natural justice 67. Food Safety Standards; Food Act; Codes; Guidelines 68. Food Standards Code – mandatory components and understanding of what is covered by remaining sections of the Code 69. Roles and responsibilities of AOs and related personnel/bodies eg. DHS, 3 rd party auditors	ONPS2137 - Introduction to the Food Industry	4	SF761 Food Quality Management	2		
Scope of powers of AOs under the Food Act							

Skills and Knowledge	Application/Level	RMIT Food Technology and Nutrition – B of App Sci		Ballarat Uni: B of App Sci (Food Science & Technology)/B of Mgt		Deakin Uni B of Nutrition & Dietetics / B of App Sci (Nutrition & Dietetics)	
Legal responsibilities and liabilities of AOs							
Evidence collection	70. Interview/evidence collection preparation 71. Investigation procedures 72. Interview procedures – collection of information and writing up outcomes						
Legal documentation/ recording	73. Prepare/present evidence in court 74. Evidence management systems and procedures records - chain of evidence						
Registration and inspection procedures							
Food premises registration	75. Advise on, approve and inspect new businesses according to confirm compliance plans and specifications – understanding of design and construction of premises as it impacts on food safety 76. Registration of new premises 77. Renewal or transfer registration 78. Registration of temporary food premises 79. Ability to read and interpret building plans and specifications	ONPS2138 - Food Manufacture	4				
Compliance check/inspection processes and procedures	80. Inspection procedures/schedules 81. Food recall, labeling and disposal/quarantine 82. Food borne disease complaints protocol						

Skills and Knowledge	Application/Level	Monash Uni B of Nutrition and Dietetics		Victoria Uni B of Science, Nutrition & Health Science		RMIT B of App Sci (Consumer Science)	
Context							
Public health system	1. Health system principles, concepts and systems 2. Relationship of food safety to broader	BME1130 Health and human behaviour BBD1011 Social nutrition	4	SBF1135 Intro to food sci	4	BESC1015 - Consumer Policy And Legislation	4

Skills and Knowledge	Application/Level	Monash Uni B of Nutrition and Dietetics		Victoria Uni B of Science, Nutrition & Health Science		RMIT B of App Sci (Consumer Science)	
	3. public health framework Policy evaluation/development related to food safety						
Political and economic context	4. Respective responsibilities of federal, state and local governments for food safety 5. Local government structure, operation and responsibilities (priority setting/resource allocation) 6. Awareness of political environment and agendas 7. Awareness of business operating environment (basic understanding of both retail and manufacturing business context) 8. Stakeholder needs/expectations 9. Impact of diversity – age, gender, cultural, racial and ethnic background socio-economic status, profession and lifestyle preference			SBF1135 Intro to food sci	4	BESC1015 - Consumer Policy And Legislation ONPS2057 - Community Development MKTG1048 - Sales Strategy And Negotiation	2
Resource management	10. Basic understanding of tender evaluation & contract management						
Ethical conduct	11. Personal values, behaviours and attributes of EHOs	BME1130 Health and human behaviour	2			ONPS2171 Integrated Consumer Research 1	4
Information collection, analyse and application							
Information collection and management	12. Information requirements 13. Relevant sources of technical information/research 14. Collection methods eg. Interviews, observations, records/documentation review 15. Use information management systems			SBF2660 Nutrition & Food Analysis Laboratory SMA1070 Data Assembly, Statistics & Epidemiology	2	BESC1384 - Introduction to Consumer Research ONPS2171 - Integrated Consumer Research 1	2
Research methods	16. Research methods 17. Use of statistics in health research 18. Common laboratory test methods (awareness of methods/purpose but not required to conduct tests)	BMS1042 Biomedical sciences and society BMS1011 Biomedical chemistry BMS1021 Cells, tissues	2	SBF2660 Nutrition & Food Analysis Laboratory	2	BESC1384 - Introduction to Consumer Research ONPS2171 - Integrated Consumer Research 1 BESC1020 Consumer	4

Skills and Knowledge	Application/Level	Monash Uni B of Nutrition and Dietetics		Victoria Uni B of Science, Nutrition & Health Science		RMIT B of App Sci (Consumer Science)	
	19. Interpretation of research results 20. Evidence-based decision making methods	and organisms				Science Investigation Project 1	
Policy/program development	21. Basic understanding of policy/program development 22. Evaluation of effectiveness of interventions and programs						
Sampling methodology	23. Purpose of sampling 24. Sampling plans – based on understanding of representative samples 25. Sample collection procedures – requirements of 3 part sampling			SBF2660 Nutrition & food analysis laboratory	2	BESC1384 - Introduction to Consumer Research	2
Technical & Applied Skills & Knowledge							
Food Safety	26. Patterns and characteristics of food-borne disease and illness 27. Health/food safety issues affecting specific populations (vulnerable groups) 28. Principles of HACCP-based risk management systems 29. Overview of food chain 30. Ways in which food can cause illness or injury – incidence and trends 31. Programs and procedures to support food safety (eg. personal hygiene; pest management; hygiene and sanitation)	BND2021 Nutritional biochemistry BME1130 Health and human behaviour BND1022 Food chemistry BND2062 Food microbiology BND4021 Food service management	2	SBF3730 Food Microbiology SBF6750 Food Safety & Quality Assurance	2	ONPS2054 - Quality Assurance for Industry ONPS2059 - Food Science 1 ONPS2050 - Food Science 2 BESC1015 - Consumer Policy And Legislation	3
Food science	32. Common control methods used to minimize food safety risks including food receipt; storage; temperature control; food preservation methods, cooking/preparation methods, traceability; product shelf life; cleaning and sanitation; pest control; personal hygiene 33. Understanding of common food spoilage causes and controls including cross- contamination	BND1011 Social nutrition BND2062 Food microbiology BND3011 Food science and skills	2	SBF3730 Food Microbiology SBF3731 Food Processing SBF3733 Animal Food Processing Laboratory SBF3734 Plant Food Processing Laboratory SBF1135 Introductory Food Science	2	ONPS1090 - Food Studies 1 ONPS1091 - Food Studies 2 ONPS2059 - Food Science 1 ONPS2050 - Food Science 2	4 3

Skills and Knowledge	Application/Level	Monash Uni B of Nutrition and Dietetics		Victoria Uni B of Science, Nutrition & Health Science		RMIT B of App Sci (Consumer Science)	
	34. Understanding of circumstances, procedures and responsibilities for a food recall 35. Current and emerging processing methods and foods and implications for food safety Optional/Professional development 36. Awareness of risks and control measures associated with processing methods including: <ul style="list-style-type: none"> - Pasteurization - Aseptic packaging - Retort sterilization - Cook-chill processes - Catering - Manufactured and fermented meats 					ONPS2054 - Quality Assurance for Industry	
Chemistry	37. Awareness of methods and technologies used to determine chemical composition of food 38. Common chemical food safety hazards and control methods to minimize the risk of contamination	BND1022 Food chemistry	3	SCS1601 Chemistry 1A	3	ONPS2135 - Consumer Chemicals and Toxicology ONPS2059 - Food Science 1ONPS2054 - Quality Assurance for Industry	4
Biology Micro-biology	39. How organisms grow 40. Human digestive system 41. Common biological hazards and control methods to minimize the risk of contamination 42. Requirements for survival and growth of micro-organisms 43. Growth rates, transmission rates, likely carriers and threshold levels 44. Food borne pathogens 45. Control methods to minimize the risk of microbial contamination 46. Food safety hazard posed by pests	BMS1011 Biomedical chemistry BMS1021 Cells, tissues and organisms BMS1062 Molecular biology BND2062 Food microbiology	2	SBF1310 Biology 1 SBF3730 Food Microbiology	3	ONPS1118 - Nutrition Principles ONPS2059 - Food Science 1ONPS2054 - Quality Assurance for Industry	4
Toxicology	47. Signs of presence of toxins in food and	BND1022 Food chemistry	1	SBF2300 Microbiol 1	2	ONPS2135 - Consumer	2

Skills and Knowledge	Application/Level	Monash Uni B of Nutrition and Dietetics		Victoria Uni B of Science, Nutrition & Health Science		RMIT B of App Sci (Consumer Science)	
	48. methods of testing Control methods to minimize the risk of the presence of toxins in food	BND2052 Applied food science		SBF2301 Microbiol 2 SBF2730 Food Micro		Chemicals and Toxicology ONPS2054 - Quality Assurance for Industry	
Communication Skills & Knowledge							
Prepare and present information	49. Prepare and present information on food safety appropriate to audience – written & verbal Eg: – Individual (premises) reports – Council reports – Special reports eg. Prosecution briefs – Education material – Technical / research reports – Policy and procedures – Notices / advice 50. Cultural diversity sensitivity 51. Public speaking			ACE1910 Communication for Science	2		
Exchange information	52. Interpersonal skills to convey information effectively eg. Provide guidance and options information 53. Understand the role of consultation in promoting food safety 54. Explain technical information and procedures 55. Active listening	BND3031 Health education and pro	4	ACE1910 Communication for Science	2		
Establish and maintain effective relationships	56. Negotiation/Mediation 57. Conflict resolution 58. Engage stakeholders 59. Establish and maintain collaborative networks 60. Culture change principles/methods						
Food safety promotion	61. Advocate on food safety issues 62. Support and educate stakeholder groups	BND3031 Health education and promotion	2				

Skills and Knowledge	Application/Level	Monash Uni B of Nutrition and Dietetics		Victoria Uni B of Science, Nutrition & Health Science		RMIT B of App Sci (Consumer Science)	
	on food safety and related issues 63. Liaison with external agencies						
Food Law							
Interpretation/application of food law	64. Understand legislative requirements and enforcement role	BND2052 Applied food science	2			BESC1015 - Consumer Policy And Legislation	4
Legislative framework	65. Overview of national and international food standards/regulators (eg AQIS, Primesafe, Dairy Food Safety Victoria) 66. Principles of governance, procedural fairness and natural justice 67. Food Safety Standards; Food Act; Codes; Guidelines 68. Food Standards Code – mandatory components and understanding of what is covered by remaining sections of the Code 69. Roles and responsibilities of AOs and related personnel/bodies eg. DHS, 3 rd party auditors	BND2052 Applied food science	2				
Scope of powers of AOs under the Food Act							
Legal responsibilities and liabilities of AOs							
Evidence collection	70. Interview/evidence collection preparation 71. Investigation procedures 72. Interview procedures – collection of information and writing up outcomes						
Legal documentation/ recording	73. Prepare/present evidence in court 74. Evidence management systems and procedures records - chain of evidence						
Registration and inspection procedures							
Food premises registration	75. Advise on, approve and inspect new businesses according to confirm compliance plans and specifications – understanding of design and construction						

Skills and Knowledge	Application/Level	Monash Uni B of Nutrition and Dietetics		Victoria Uni B of Science, Nutrition & Health Science		RMIT B of App Sci (Consumer Science)	
	<ul style="list-style-type: none"> of premises as it impacts on food safety 76. Registration of new premises 77. Renewal or transfer registration 78. Registration of temporary food premises 79. Ability to read and interpret building plans and specifications 						
Compliance check/inspection processes and procedures	<ul style="list-style-type: none"> 80. Inspection procedures/schedules 81. Food recall, labeling and disposal/quarantine 82. Food borne disease complaints protocol 						

Skills and Knowledge	Application/Level	VET Cert IV/Dip Food Sci & Tech		Food Processing Training Package Selected Units	
Context					
Public health system	<ul style="list-style-type: none"> 1. Health system principles, concepts and systems 2. Relationship of food safety to broader public health framework 3. Policy evaluation/development related to food safety 			FDFSCFSAA Conduct food safety audits (partial) FDFOPTSD2A Work in a socially diverse environment	4
Political and economic context	<ul style="list-style-type: none"> 4. Respective responsibilities of federal, state and local governments for food safety 5. Local government structure, operation and responsibilities (priority setting/resource allocation) 6. Awareness of political environment and agendas 7. Awareness of business operating environment (basic understanding of both retail and manufacturing business context) 8. Stakeholder needs/expectations 9. Impact of diversity – age, gender, cultural, racial and ethnic background socio-economic status, profession and lifestyle preference 				

Skills and Knowledge	Application/Level	VET Cert IV/Dip Food Sci & Tech		Food Processing Training Package Selected Units	
Resource management	10. Basic understanding of tender evaluation & contract management				
Ethical conduct	11. Personal values, behaviours and attributes of EHOs			FDFFSACSAA Conduct food safety audits	2
Information collection, analyse and application					
Information collection and management	12. Information requirements 13. Relevant sources of technical information/research 14. Collection methods eg. Interviews, observations, records/documentation review 15. Use information management systems	VBP096 Plan and conduct a research project in food analysis	4	FDFFSACA Assess compliance with food safety programs FDFFSACSAA Conduct food safety audits	1
Research methods	16. Research methods 17. Use of statistics in health research 18. Common laboratory test methods (awareness of methods/purpose but not required to conduct tests) 19. Interpretation of research results 20. Evidence-based decision making methods	VBP070 Apply workplace statistics to the food industry VBP034 Process & interpret physical data pertaining to the food industry VBP035 Perform microbiological tests pertaining to the food industry VBP036 Apply chemistry knowledge and laboratory practices in the workplace PMLTEST300A Perform basic tests PMLTEST405A Perform food tests VBP096 Plan and conduct a research project in food analysis	2	FDFTECNUM4A Describe and analyse data using mathematical principles FDFFSACA Assess compliance with food safety programs FDFFSACSAA Conduct food safety audits FDFOPTSPC2A Apply principles of statistical process control	1
Policy/program development	21. Basic understanding of policy/program development 22. Evaluation of effectiveness of interventions and programs				
Sampling methodology	23. Purpose of sampling 24. Sampling plans – based on understanding of representative samples 25. Sample collection procedures – requirements of 3 part sampling	VBP036 Apply chemistry knowledge and laboratory practices in the workplace PMLTEST300A Perform basic tests VBP068 Interpret sampling plans	1	FDFOPTISP2A Implement sampling procedures	1
Technical & Applied Skills & Knowledge					

Skills and Knowledge	Application/Level	VET Cert IV/Dip Food Sci & Tech		Food Processing Training Package Selected Units	
Food Safety	26. Patterns and characteristics of food-borne disease and illness 27. Health/food safety issues affecting specific populations (vulnerable groups) 28. Principles of HACCP-based risk management systems 29. Overview of food chain 30. Ways in which food can cause illness or injury – incidence and trends 31. Programs and procedures to support food safety (eg. personal hygiene; pest management; hygiene and sanitation)	VBP037 Identify the principle of hazard analysis & critical control points VBP043 Apply an understanding of the food processing industry VBP044 Apply principles of food spoilage control PMLQUAL301B Apply critical control point requirements	1	FDFCORQFS3A Monitor the implementation of quality and food safety programs FDFOPHCP3A Participate in a HACCP team FDFFSCHZA Identify, evaluate & control food safety hazards FDFFSACA Assess compliance with food safety programs FDFFSACSAA Conduct food safety audits FDFIMMIA4A Manage internal audits FDFOPTIP3A Implement the pest prevention program	1
Food science	32. Common control methods used to minimize food safety risks including food receipt; storage; temperature control; food preservation methods, cooking/preparation methods, traceability; product shelf life; cleaning and sanitation; pest control; personal hygiene 33. Understanding of common food spoilage causes and controls including cross-contamination 34. Understanding of circumstances, procedures and responsibilities for a food recall 35. Current and emerging processing methods and foods and implications for food safety Optional/Professional development 36. Awareness of risks and control measures associated with processing methods including: <ul style="list-style-type: none"> - Pasteurization - Aseptic packaging - Retort sterilization - Cook-chill processes - Catering 	VBP043 Apply an understanding of the food processing industry VBP044 Apply principles of food spoilage control FDFTECPPR4A Participate in product recall There is a number of higher level, process-specific units	1	FDFTECFAD4A Apply an understanding of food additives FDFTECCCS4A Control food contamination and spoilage FDFTECPPR4A Participate in product recalls FDFFSCHZA Identify, evaluate & control food safety hazards FDFTECPAK4A Apply principles of food packaging	1

Skills and Knowledge	Application/Level	VET Cert IV/Dip Food Sci & Tech		Food Processing Training Package Selected Units	
	– Manufactured and fermented meats				
Chemistry	37. Awareness of methods and technologies used to determine chemical composition of food 38. Common chemical food safety hazards and control methods to minimize the risk of contamination	VBP036 Apply chemistry knowledge and laboratory practices in the workplace VBP044 Apply principles of food spoilage control	3	FDFTECCCS4A Control food contamination and spoilage FDFFSCHZA Identify, evaluate & control food safety hazards	1
Biology Micro-biology	39. How organisms grow 40. Human digestive system 41. Common biological hazards and control methods to minimize the risk of contamination 42. Requirements for survival and growth of micro-organisms 43. Growth rates, transmission rates, likely carriers and threshold levels 44. Food borne pathogens 45. Control methods to minimize the risk of microbial contamination 46. Food safety hazard posed by pests	VBP044 Apply principles of food spoilage control VBP035 Perform microbiological techniques in the food industry	2	FDFTECCCS4A Control food contamination and spoilage FDFTECPSC4A Identify the physical and chemical properties of materials, food and related products FDFFSCHZA Identify, evaluate & control food safety hazards FDFOPTIPP3A Implement the pest prevention program	1
Toxicology	47. Signs of presence of toxins in food and methods of testing 48. Control methods to minimize the risk of the presence of toxins in food	VBP036 Apply chemistry knowledge and laboratory practices in the workplace VBP044 Apply principles of food spoilage control	2	FDFFSCHZA Identify, evaluate & control food safety hazards	1
Communication Skills & Knowledge					
Prepare and present information	49. Prepare and present information on food safety appropriate to audience – written & verbal Eg: – Individual (premises) reports – Council reports – Special reports eg. Prosecution briefs – Education material – Technical / research reports – Policy and procedures			FDFFSCOMA Communicate & negotiate to conduct food safety audits FDFOPTSD2A Work in a socially diverse environment	2

Skills and Knowledge	Application/Level	VET Cert IV/Dip Food Sci & Tech	Food Processing Training Package Selected Units	
	– Notices / advice 50. Cultural diversity sensitivity 51. Public speaking			
Exchange information	52. Interpersonal skills to convey information effectively eg. Provide guidance and options information 53. Understand the role of consultation in promoting food safety 54. Explain technical information and procedures 55. Active listening		FDFSCOMA Communicate & negotiate to conduct food safety audits	2
Establish and maintain effective relationships	56. Negotiation/Mediation 57. Conflict resolution 58. Engage stakeholders 59. Establish and maintain collaborative networks 60. Culture change principles/methods		FDFSCOMA Communicate & negotiate to conduct food safety audits	2
Food safety promotion	61. Advocate on food safety issues 62. Support and educate stakeholder groups on food safety and related issues 63. Liaison with external agencies			
Food Law				
Interpretation/application of food law	64. Understand legislative requirements and enforcement role		FDFTECLEG4A Apply an understanding of legal requirements in food production	2

Skills and Knowledge	Application/Level	VET Cert IV/Dip Food Sci & Tech		Food Processing Training Package Selected Units	
Legislative framework	65. Overview of national and international food standards/regulators (eg AQIS, Primesafe, Dairy Food Safety Victoria) 66. Principles of governance, procedural fairness and natural justice 67. Food Safety Standards; Food Act; Codes; Guidelines 68. Food Standards Code – mandatory components and understanding of what is covered by remaining sections of the Code 69. Roles and responsibilities of AOs and related personnel/bodies eg. DHS, 3 rd party auditors			FDFPLDMP5A Design and maintain programs to support legal compliance FDFSCFSAA Conduct food safety audits	
Scope of powers of AOs under the Food Act					2
Legal responsibilities and liabilities of AOs					
Evidence collection	70. Interview/evidence collection preparation 71. Investigation procedures 72. Interview procedures – collection of information and writing up outcomes			FDFSCFSAA Conduct food safety audits	1
Legal documentation/ recording	73. Prepare/present evidence in court 74. Evidence management systems and procedures records - chain of evidence			FDFSCFSAA Conduct food safety audits	4
Registration and inspection procedures					
Food premises registration	75. Advise on, approve and inspect new businesses according to confirm compliance plans and specifications – understanding of design and construction of premises as it impacts on food safety 76. Registration of new premises 77. Renewal or transfer registration 78. Registration of temporary food premises 79. Ability to read and interpret building plans and specifications				

Skills and Knowledge	Application/Level	VET Cert IV/Dip Food Sci & Tech		Food Processing Training Package Selected Units	
Compliance check/inspection processes and procedures	80. Inspection procedures/schedules 81. Food recall, labeling and disposal/quarantine 82. Food borne disease complaints protocol	FDFTECPPR4A Participate in product recall	4	FDFFSACA Assess compliance with food safety programs FDFFSFSA Conduct food safety audits FDFTECPPR4A Participate in product recalls	4

Skills and Knowledge	Application/Level	Cert IV Hospitality (Commercial Cookery)		Local Government Training Package Selected Units	
Context					
Public health system	1. Health system principles, concepts and systems 2. Relationship of food safety to broader public health framework 3. Policy evaluation/development related to food safety			LGADMIN420A Contribute to policy development LGADMIN526A Coordinate policy development LGACOMP007A Participate in policy development	2
Political and economic context	4. Respective responsibilities of federal, state and local governments for food safety 5. Local government structure, operation and responsibilities (priority setting/resource allocation) 6. Awareness of political environment and agendas 7. Awareness of business operating environment (basic understanding of both retail and manufacturing business context) 8. Stakeholder needs/expectations 9. Impact of diversity – age, gender, cultural, racial and ethnic background socio-economic status, profession and lifestyle preference			LGACORE104B Work effectively in local government LGACORE105B Work with others in local government	2
Resource management	10. Basic understanding of tender evaluation & contract management				
Ethical conduct	11. Personal values, behaviours and attributes of EHOs				
Information collection, analyse and application					
Information collection and	12. Information requirements				

Skills and Knowledge	Application/Level	Cert IV Hospitality (Commercial Cookery)		Local Government Training Package Selected Units	
management	13. Relevant sources of technical information/research 14. Collection methods eg. Interviews, observations, records/documentation review 15. Use information management systems				
Research methods	16. Research methods 17. Use of statistics in health research 18. Common laboratory test methods (awareness of methods/purpose but not required to conduct tests) 19. Interpretation of research results 20. Evidence-based decision making methods				
Policy/program development	21. Basic understanding of policy/program development 22. Evaluation of effectiveness of interventions and programs				
Sampling methodology	23. Purpose of sampling 24. Sampling plans – based on understanding of representative samples 25. Sample collection procedures – requirements of 3 part sampling			LGAEHRR501B Implement council's responsibilities in food safety	4
Technical & Applied Skills & Knowledge					
Food Safety	26. Patterns and characteristics of food-borne disease and illness 27. Health/food safety issues affecting specific populations (vulnerable groups) 28. Principles of HACCP-based risk management systems 29. Overview of food chain 30. Ways in which food can cause illness or injury – incidence and trends 31. Programs and procedures to support food safety (eg. personal hygiene; pest management; hygiene and sanitation)	THHGHS01A Follow Workplace Hygiene Procedures THHBKA04A Clean & Maintain Premises THHBCC11A Implement Food Safety Procedures THHS2CC3A Develop a Food Safety Plan	2	LGAEHRR501B Implement council's responsibilities in food safety	4
Food science	32. Common control methods used to minimize	THHBCC11A Implement Food Safety	2		

Skills and Knowledge	Application/Level	Cert IV Hospitality (Commercial Cookery)		Local Government Training Package Selected Units	
	<p>food safety risks including food receipt; storage; temperature control; food preservation methods, cooking/preparation methods, traceability; product shelf life; cleaning and sanitation; pest control; personal hygiene</p> <p>33. Understanding of common food spoilage causes and controls including cross-contamination</p> <p>34. Understanding of circumstances, procedures and responsibilities for a food recall</p> <p>35. Current and emerging processing methods and foods and implications for food safety</p> <p>Optional/Professional development</p> <p>36. Awareness of risks and control measures associated with processing methods including:</p> <ul style="list-style-type: none"> - Pasteurization - Aseptic packaging - Retort sterilization - Cook-chill processes - Catering - Manufactured and fermented meats 	<p>Procedures</p> <p>THHS2CC3A Develop a Food Safety Plan</p> <p>THHBCC01A Use Basic Methods of Cookery</p> <p>THHBKA03A Receive and Store Stock</p>			
Chemistry	<p>37. Awareness of methods and technologies used to determine chemical composition of food</p> <p>38. Common chemical food safety hazards and control methods to minimize the risk of contamination</p>				
Biology Micro-biology	<p>39. How organisms grow</p> <p>40. Human digestive system</p> <p>41. Common biological hazards and control methods to minimize the risk of contamination</p> <p>42. Requirements for survival and growth of</p>				

Skills and Knowledge	Application/Level	Cert IV Hospitality (Commercial Cookery)		Local Government Training Package Selected Units	
	micro-organisms 43. Growth rates, transmission rates, likely carriers and threshold levels 44. Food borne pathogens 45. Control methods to minimize the risk of microbial contamination 46. Food safety hazard posed by pests				
Toxicology	47. Signs of presence of toxins in food and methods of testing 48. Control methods to minimize the risk of the presence of toxins in food				
Communication Skills & Knowledge					
Prepare and present information	49. Prepare and present information on food safety appropriate to audience – written & verbal Eg: – Individual (premises) reports – Council reports – Special reports eg. Prosecution briefs – Education material – Technical / research reports – Policy and procedures – Notices / advice 50. Cultural diversity sensitivity 51. Public speaking	THHCOR02A Work in a Socially Diverse Environment	4	LGAEHRH305A Present environmental health education information LGACOM403B Conduct public educational presentations LGAEHRR501B Implement council's responsibilities in food safety	4
Exchange information	52. Interpersonal skills to convey information effectively eg. Provide guidance and options information 53. Understand the role of consultation in promoting food safety 54. Explain technical information and procedures 55. Active listening	THHCOR02A Work in a Socially Diverse Environment	4	LGADMIN417A Conduct community consultations LGADMIN419A Implement and facilitate community development strategies and programs LGACOMP009A Implement effective communication techniques	2
Establish and maintain effective relationships	56. Negotiation/Mediation 57. Conflict resolution	THHCOR02A Work in a Socially Diverse Environment	4	LGADMIN421A Participate in negotiations LGACOM404B Establish cooperative arrangements	2

Skills and Knowledge	Application/Level	Cert IV Hospitality (Commercial Cookery)	Local Government Training Package Selected Units	
	58. Engage stakeholders 59. Establish and maintain collaborative networks 60. Culture change principles/methods		with other organisations LGACOMP008A Apply conflict resolution strategies LGACOMP024A Develop community relations	
Food safety promotion	61. Advocate on food safety issues 62. Support and educate stakeholder groups on food safety and related issues 63. Liaison with external agencies		LGADMIN528A Provide advocacy and representation LGACOM501B Develop and organise public education programs LGACOM403B Conduct public educational presentations LGACOM404B Establish cooperative arrangements with other organisations LGACOM502B Devise and conduct community consultations LGACORE501B Provide quality and timely advice to council LGACORE603B Represent council's role and value in the community LGAGOVA303B Coordinate production of communication materials LGAEHRR504B Implement public education programs to improve community compliance	2
Food Law				
Interpretation/application of food law	64. Understand legislative requirements and enforcement role		LGAEHRR501B Implement council's responsibilities in food safety LGAGOVA501B Contribute to advice to council on legislation LGACOM408A Represent council at legal proceedings	3
Legislative framework	65. Overview of national and international food standards/regulators (eg AQIS, Primesafe, Dairy Food Safety Victoria) 66. Principles of governance, procedural fairness and natural justice 67. Food Safety Standards; Food Act; Codes; Guidelines			

Skills and Knowledge	Application/Level	Cert IV Hospitality (Commercial Cookery)		Local Government Training Package Selected Units	
	68. Food Standards Code – mandatory components and understanding of what is covered by remaining sections of the Code 69. Roles and responsibilities of AOs and related personnel/bodies eg. DHS, 3 rd party auditors				
Scope of powers of AOs under the Food Act					
Legal responsibilities and liabilities of AOs					
Evidence collection	70. Interview/evidence collection preparation 71. Investigation procedures 72. Interview procedures – collection of information and writing up outcomes				
Legal documentation/ recording	73. Prepare/present evidence in court 74. Evidence management systems and procedures records - chain of evidence				
Registration and inspection procedures					
Food premises registration	75. Advise on, approve and inspect new businesses according to confirm compliance plans and specifications – understanding of design and construction of premises as it impacts on food safety 76. Registration of new premises 77. Renewal or transfer registration 78. Registration of temporary food premises 79. Ability to read and interpret building plans and specifications			LGAEHRR501B Implement council's responsibilities in food safety	4
Compliance check/inspection processes and procedures	80. Inspection procedures/schedules 81. Food recall, labeling and disposal/quarantine 82. Food borne disease complaints protocol			LGAEHRR501B Implement council's responsibilities in food safety	4

Appendix 12 Workforce Management Schemes: EHOs

Country	Australia	United Kingdom	United States
<i>Professional Body/ Accrediting/ Registering Body</i>	Australian Institute of Environmental Health (AIEH)	Chartered Institute of Environmental Health (CIEH)	National Environmental Health Association (NEHA)
<i>Do you need to be a member to apply?</i>	YES (DRAFT)	YES	NO
<i>Membership Categories</i>	CEHP (certified Environmental Health Practitioner) or CEHO (Certified Environmental Health Officer) or CEHT (certified Environmental Health Technician)	Student Affiliate Associate Graduate Voting member Fellow	Individual member Sustaining member (corporate) Educational member (institutions) Graduate individual Student member New graduate member
<i>Accredited Grades</i>	Proposed: Professional Level Environmental Health Private Practitioners <ul style="list-style-type: none"> - Environmental Health Officers - Environmental Health Specialists Technician Level Environmental Health Technician	Graduate – holds recognised qualification but has not yet passed a CIEH controlled gateway assessment. Voting member – holds recognised qualification plus APC or professional exam and experience portfolio Fellow – voting member for 10 years or 5 years plus submitted thesis	Onsite Wastewater System Installers Registered Environmental Health Specialist/Registered Sanitarian (REHS/RS) Certified Food Safety Professional (CFSP) Certified Environmental Health Technician (CEHT) Registered Environmental Technician (RET) Registered Hazardous Substances Professional (RHSP) Registered Hazardous Substances Specialist (RHSS) NEHA's National Radon Proficiency Program
<i>Terms of Membership</i>	1. Financial member of AIEH 2. An undertaking to adhere to all relevant practice and ethical standards developed by the AIEH. 3. A written plan meeting the scheme's criteria for continuous professional development (CPD). 4. Agreement to provide evidence of professional development activities when called on to do so.	1. A graduate or voting member of the CIEH 2. On the interview date, have completed a minimum of two years of professional practice in environmental health, after the award of Certification of Registration.	Membership is not required to support credentialing. Eligibility to sit for credentialing exam is determined by the National Environmental Health Association (NEHA). Eligibility offers a qualification or experience-based pathway.

<p><i>Continuing Professional Development: Core activities</i></p>	<p>DRAFT ONLY 90 points over 3 years – CPD log</p> <p>A Conferences, seminars, training B Academic courses C Individual Studies D. Professional and technical committees E. Professional and technical activities</p>	<p>20 hours/CPD activity per year At least 10 hours must be in the core category. 2 hours supplementary activity = 1 hour core activity. Preparation and subsequent presentation or publication of a paper In house lunch-time workshops Up to 10 core CPD hours can be claimed for taking the CIEH Assessment of Professional Competence Further study The technical education element of Branch or centre meetings The completion and submission of CPD assignments which are published each month in the Environmental Health Journal Activities which involve the acquisition of knowledge and skills which can be used in environmental health practice can qualify as supplementary activities. (For example, general courses in computing, science, management, ethnic languages and social sciences can also be included in this category. Some activities cannot be included in the CPD program, for example the normal day to day keeping up to date with professional issues by general reading, or structure learning that has no real relevance to the profession.</p>	<p>To maintain credentials, a minimum number of continuing education contact hours is needed within a two year period. A range of PD is recognised including: Certification programs Computer-based training (up to 4 CE contact hours) Home study courses/training modules Journal of environmental health assessment quiz Military training National, state and local conferences NEHA book reviews (up to 4CE contact hours) University/college courses (16CE hours/semester hour credit) Videos (up to 4 CE contact hours)</p>
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References:

Australian Institute of Environmental Health, www.aieh.org.au
Chartered Institute of Environmental Health, www.cieh.org.uk
National Environmental Health Association www.neha.org

Appendix 13 Workforce Management Schemes: Selected Models

Features	Credentials				
	CPA	Building		First Aid	Responsible Service of Alcohol
<i>Professional Body</i>	CPA Australia Formerly Australian Society of Certified Practising Accountants (ASCPA)	Australian Institute of Building Surveyors	Australian Institute of Building	Australian Red Cross/ <i>RTOs</i>	Liquor Licensing Commission
<i>Accrediting/ Registering Body</i>	CPA Australia	Board of Management Building Practitioners Board	AIB Membership Qualifications Committee Building Registration Board	Australian National Training Authority (ANTA)	ANTA
<i>Membership Categories</i>	ASA, CPA, FCPA, Student	Student, Affiliate, Member, Student, Fellow, International Member	Affiliate, Licentiate, Associate, Graduate, Fellow, Student		
<i>Accredited Grades</i>	1. Associate (ASA) – appropriate qualification: degree or accredited conversion course	1. Building Surveyor – Level 1 (degree plus 3 years experience)	1. Professional (degree)	Level 1 Essential First Aid (8 hours) <i>HLTFA1A Apply Basic First Aid</i> Basic CPR (4 hrs)	THHBF09B Providing Responsible Service of Alcohol module Responsible Service of Alcohol Certificate (3 hours)
	2. Certified Practising Accountant (CPA) – Appropriate degree and completed induction, program and mentoring	2. Assistant Building Surveyor – Level 2 (diploma/advanced diploma plus two years experience)	2. Associate Professional (diploma/advanced diploma)	L 2 Intermediate First Aid (min 18 hrs) <i>HLTFA2A Apply Advanced First Aid</i>	
	3. Fellow (FCPA) CPA plus minimum of 15 years' accounting or finance experience, have held a responsible position in accounting or finance for at least 5 years and have their achievements recognised by divisional council.	3. Building Surveying Technician (diploma/ advanced diploma. no experience) Only in Qld & SA	3. Technician (Cert IV)	L 3 Occupational First Aid (min 24-30 hrs) <i>Combined HLTFA1A & HLTFA2A is equivalent to senior or Advanced First Aid Certificate</i> Advanced CPR (6 hrs)	
	Student- Passport Program member while at university		Student (acceptable post secondary course)		

	Specialist designation recognising advanced qualifications, experience and focus in a specific field	Specialist designation in each classification recognising "substantial involvement" in a specific field		Specialist courses (4-7 hrs)	
<i>Recognition of Prior Learning?</i>	Yes	Yes	Yes	No	Yes
<i>Terms of Membership</i>	Recognised degree from an Australian university or equivalent in finance, business or accounting studies. Prefer major in accounting. Accredited conversion course available if lacking necessary component	Comply with AIBS's : 1. CPD requirements 2. Code of conduct 3. Policies & procedures 4. Not practice above classification	Satisfy: 1. Educational qualifications 2. Work experience 3. CPD 4. Ethical conduct		
<i>Length of Currency</i>	Three years for reaccreditation	Three years for reaccreditation	Annual renewal Anticipated annual CPD compliance with registration	Three years for all levels except CPR which is 1 year L 2 Intermediate First Aid Refresher (16 hours) CPR Refresher (6 hrs)	Ongoing currency though LLC does recommend refresher after 3 years but only compulsory renewal if work in bottle shop
<i>Refresher Courses/ Reaccreditation</i>					
<i>Continuing Professional Development</i>	Obligation of 120 hours of structured CPD averaged over a triennium for all members 120 hours may be claimed per segment for CPA Program studies. 1. Compulsory orientation (within 1 yr of joining) CPA Program for advancement to CPA status – 3 compulsory segments and 3 elective segments (approx 12 hrs per week x 12 weeks per segment) to be completed with 8 years Three-hour open book exam for each segment Also, Practical Experience	Currently Victoria requires 15 hours (points) as per Building Commission standards. AIBS is aiming at a minimum of 30 hours of structured study nation-wide for mandated for accredited persons and recommended for members	Voluntary in Victoria at present Recommended: 12 points/ hours per year for builders, erectors, demolishers 15 points/hours per year for building surveyors, building inspectors, draughtspersons quantity engineers Can transfer 50% of points to next year		

	<p>Mentor Program for 3 years CPA Program must be completed within 5 years 3. CPA graduates eligible for CPA MBA or other post grad courses All active members need to fulfil 120 hours every 3 years</p>				
<p><i>Nature of Activities and Delivery Method for CPD</i></p>	<p>Congresses, conventions, lectures at educational institutions or professional bodies, seminars, workshops, discussion groups, videoconferences, online learning, in-house company training and other forms of face-to-face and distance learning Service on technical committees, serving as leader or presenter Writing technical articles, papers or books, lecturing, instructing or leading a discussion Study program planned and executed by a member</p>	<p>Conferences, seminars, technical meetings, short courses, certificate, diploma, graduate and post graduate courses, lectures, papers, technical training</p>	<p>Structured on-the-job training, short courses, workshops, seminars, university and voluntary education, trade sessions, information sessions, conferences, industry-based education, mentoring, discussion groups, meetings, Individual private reading, individual studies, lecturing, professional association membership, committee membership, service to the profession, apprenticeship supervision, publication, subscription to the Building Code of Australia</p>		

References:

- Australian Institute of Building, www.aib.org.au
- Building Commission, www.buildingcommission.com.au
- Consulting Partners Australia, www.cpaaustralia.com.au
- Consumer Affairs, Victoria, www.consumer.vic.gov.au

Appendix 14 Chi Square analysis of relationships between selected variables

Chi square tests (Pearson Chi-Square)

Variables	Value	df	Asymp. Sig (2-sided)
Employment type x age group	32.503	25	0.144
Work hours x Age group	15.918	15	0.388
Salary x Age group	55.772	20	0.000*
	There is a relationship, but it is not significant at p<.05		
Employment type x Gender	4.984	5	0.418
Work hours x Gender	10.384	3	0.016*
	There is a significant relationship (p<.05) between hours of work and gender		
Level of job satisfaction x Gender	10.145	4	0.038*
	There is a significant relationship, slightly greater than p<.05		
Employment type x Council type	37.748	30	0.156
Work hours x Council type	26.767	18	0.083
Job satisfaction x Council type	35.323	24	0.064