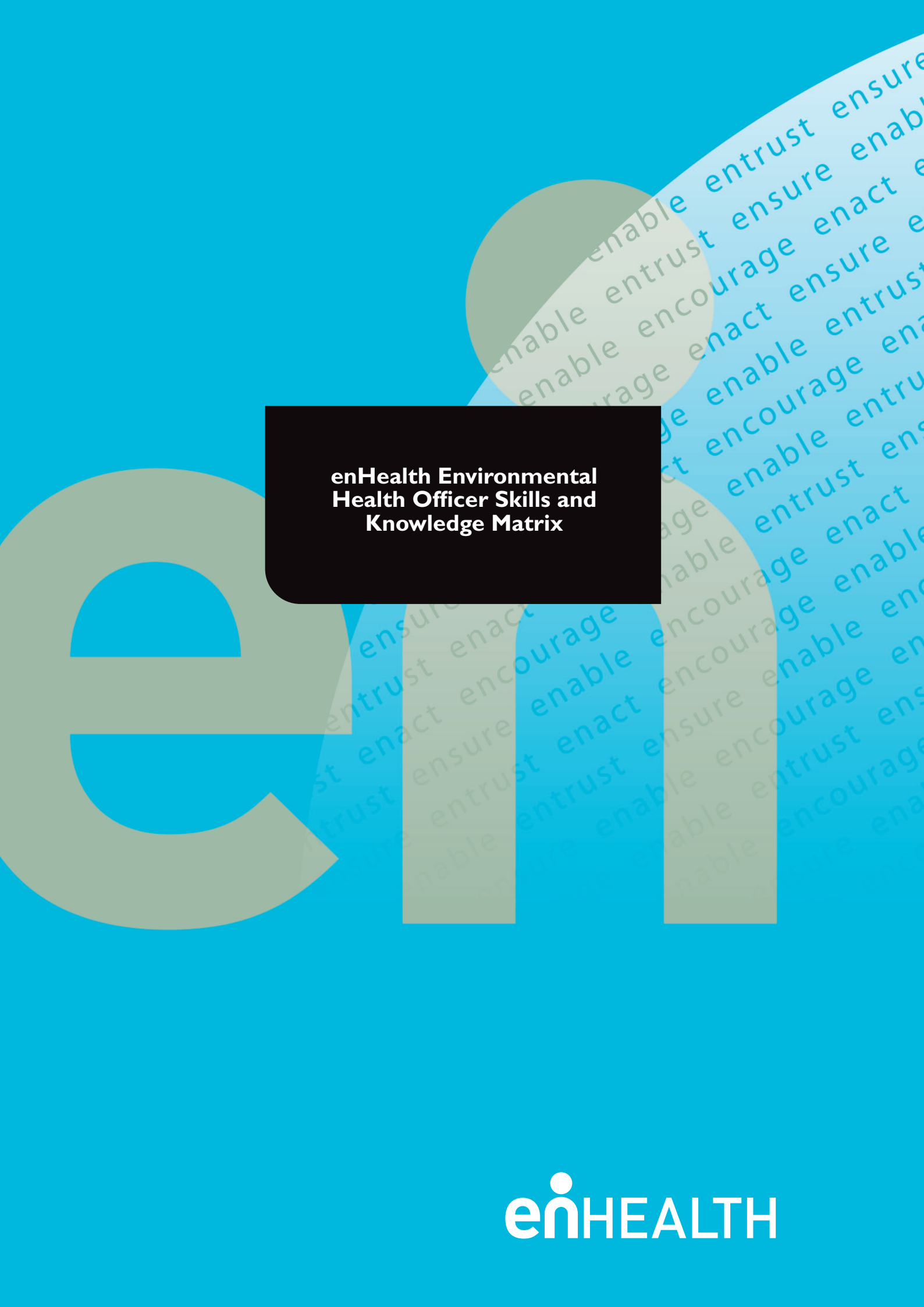
enHealth Environmental Health Officer Skills and Knowledge Matrix



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Prepared by Kim Windsor, Windsor & Associates, July 2009

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ISBN: 1-74186-990-0

Publications Number: P3-5647

Recommended reference

Environmental Health Committee (enHealth) 2009, *enHealth Environmental Health Officer Skills and Knowledge Matrix*, Department of Health and Ageing, Canberra.

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About this report

This is the final report of the enHealth 'Environmental Health Officer Skills, Knowledge and Expererience Workforce Project. This project was established and managed by the Victorian Department of Human Services (DHS) on behalf of the Environmental Health Committee (enHealth). Its purpose was to develop a skills and knowledge matrix that could underpin a national approach to managing environmental health workforce issues. This work fulfils a commitment of the National Environmental Health Workforce Action Plan.[1] Identifying the skills and knowledge to undertake environmental health roles is a first step towards delivering a sustainable level of environmental workforce capability.

The context for this work is shaped by chronic shortages in the supply of people who hold environmental health qualifications. Difficulty attracting suitably qualified people is further exacerbated by local labour market conditions with regional and remote locations facing the most significant challenges.

Across Australia, public and environmental health legislation has undergone, or is in the process of undergoing, significant review. While there are minor differences in approach between jurisdictions, some common themes emerge. A number of new acts no longer refer to 'environmental health officer', instead adopting the term 'authorised officer'. Legislation in each jurisdiction outlines the criteria for appointment to undertake an authorised officer role. Acts refer to 'appropriate' or 'approved' competencies, qualifications and/or experience. In Victoria for example the Health and Wellbeing Act 2008 allows for recognition of qualifications and/or experience that is 'substantially equivalent' to declared qualifications and/or experience[2]. Some jurisdictions gazette or issue guidelines that specify approved qualifications, others do not. Most legislation delegates authority to appoint authorised officers to local government.

These developments underline the timeliness of establishing a shared understanding of the environmental health role and the related skills and knowledge required to undertake it. An agreed, national definition of environmental health skills and knowledge can support agencies to make well informed judgements when appointing people with 'appropriate' skills, knowledge and experience to fulfil these roles. It can also underpin effective planning, development and management of workforce issues at national, and jurisdictional levels.

Scope

In order to build a shared understanding of both the role and the related skills and knowledge required to work as an EHO, the project first defined the scope[3]. The Steering Committee adopted the following key parameters for the skills and knowledge matrix. The matrix should provide:

- **A description of the whole EHO role, not a specific EHO job.** The matrix describes the skills and knowledge required to support typical EHO roles and responsibilities. EHOs work across a very diverse breadth of activities. Their work spans development of systemic, policy and program level responses through to responding

1 1a and b of the National Environmental Health Workforce Action Plan.

2 Public Health and Wellbeing Act (2008), Sect 29(2)b.

3 Appendix 2: Working Paper 1 presents background research that informs these decisions and outlines the methodology used.

to specific risks. The skills and knowledge matrix relates to the whole EHO role rather than a specific job.

- **A statement of common EHO skills and knowledge.** The matrix establishes a nationally agreed set of skills and knowledge that applies across all jurisdictions. Where specific skills and knowledge only applies to EHOs in some but not all jurisdictions, this is identified in an 'optional' section of the matrix. For example, a number of jurisdictions expect that some EHOs will become food safety auditors. Food safety auditor competencies are therefore listed as optional because at this stage, they are not a routine requirement of all EHOs.

  Meetings held in each jurisdiction considered the appropriate breadth of skills and knowledge, particularly when there may be limited application for some EHO roles or within some jurisdictions. For example in one jurisdiction EHOs are not routinely involved in policy and program development yet this is central to the work of EHOs in other jurisdictions. The inclusion of a discrete section relating to indigenous environmental health raised similar issues about applicability to EHOs with limited exposure to working with discrete indigenous communities.

  The content of the matrix reflects broad agreement about the appropriate scope of the skills and knowledge required to support the breadth of activities an EHO may be expected to undertake and at the same time, ensure that options and mobility of EHOs to work across local government and state employers and across jurisdictional boundaries is not limited.

- **A statement of a minimum level EHO skills and knowledge to perform the role competently.** The matrix outlines the common, minimum skills and knowledge requirement to competently perform the work of an EHO. The Steering Committee agreed that in the first instance, the matrix should not differentiate between entry and more advanced levels of skills and knowledge. Nor should it include specialist or more advanced skills and knowledge required by some but not all EHOs.

- **A statement of skills and knowledge required regardless of whether this is attained through formal education, training and/or experience.** The matrix makes no comment on the length of workplace experience required to attain skills and knowledge. Experience is one way of developing and refining skills and knowledge; however, on its own it indicates time served rather than evidence of competence. To be able to infer competence, experience needs to be defined in terms of demonstrated outcomes. It therefore becomes a form of evidence of competence that sits within a broader assessment framework.

- **A description of skills and knowledge directly related to the environmental health role.** EHOs may be required to undertake additional roles that do not utilise their environmental health skills and knowledge. Enforcement of local laws is a frequently cited example. The matrix only describes skills and knowledge directly related to environmental health and does not cover other skills and knowledge to support work functions that EHOs may be asked to undertake by a given employer.

- **Support for emerging roles based on reported developments in the field.** The matrix is designed to address current requirements of the role and at the same time, anticipate developments in the role that are likely to occur in the short to medium term.

- **Sufficient detail to underpin the design of assessment processes.** The matrix is designed to underpin more informed decisions about engaging people with appropriate environmental health skills and knowledge. It therefore provides sufficient detail to support the design of related assessment processes and course accreditation guidelines. This is not to suggest, however, that a new graduate could be expected to demonstrate all aspects of the skills and knowledge outlined by the matrix. The appropriate content of tertiary and

vocational courses needs to be considered in the development of related course accreditation arrangements.

Method

The workplan was structured in three main steps[4]. The first step involved a desktop review of literature and legislation. The results were presented in a Working Paper that reviewed the findings of previous environmental health workforce projects and identified key themes and directions in legislative reform which are shaping the environmental health role[5].

The second step involved drafting, refining and validating the roles and responsibilities of environmental health officers. The description of roles and responsibilities provided the basis for identifying skills and knowledge requirements. The purpose was to understand enough about roles and responsibilities to identify the skills and knowledge required to undertake them rather than developing a detailed state by state description of activities.

The Departments of Health managed consultation within their jurisdiction, distributed information, convened workshops and invited direct feedback where workshops were not convened. Working parties were convened in Queensland and South Australia to refine a draft of EHO roles and responsibilities ready for validation by the remaining jurisdictions. Validation workshops were then convened in Victoria, West Australia, and New South Wales.

The workshops were attended by key stakeholders including experienced EHOs from jurisdictional offices, local government and defence, local government associations, professional bodies including the Environmental Health Australia (EHA) and Environmental Health Association (Australia) (EHAA) and universities. The description of roles and responsibilities was then posted on the Victorian Department of Human Services (DHS) website to allow stakeholders an opportunity to make further comment.

A similar process was used to develop a working draft of the skills and knowledge matrix. A Working Paper was prepared that explored options for describing environmental health skills and knowledge and presented an initial draft of the matrix[6]. This was further refined by working parties convened in Queensland and West Australia. Validation meetings were then convened in every state and territory before the draft was posted on the DHS website for further comment.

A national steering committee provided guidance and direction on each step of the work and determined responses to issues raised through the validation process.

4 A flowchart of the workplan is attached in Appendix 1.

5 See Appendix 2: Working Paper 1.

6 See Appendix 4: Working Paper 3.

The skills and knowledge matrix

The matrix is structured in three parts, reflecting distinct types of skills and knowledge.

Part 1 adopts the generic learning outcomes required by the Australian Qualifications Framework for degree level graduates to cover generic attributes of EHOs.

Part 2 describes underpinning skills and knowledge that supports environmental health work across a breadth of activities. Areas cover:

- Science
- Public and environmental health concepts
- Research methods
- Political, legislative and policy context
- Risk assessment and management
- Compliance and enforcement
- Communication, cultural awareness and interpersonal skills
- Administration and management

Part 3 describes activity-specific skills and knowledge relating to:

- Safe and suitable food
- Prevention and control of notifiable and communicable conditions
- Water management
- Environmental management
- Land use management
- Built environment
- Indigenous environmental health
- Sustainability and climate change
- Emergency and incident management

A descriptor statement at the beginning of each section outlines the specific content covered by each heading. Within each area-specific section, skill and knowledge is outlined under three sub-headings of communication, risk management and administering and reporting.

Each part of the matrix is cumulative so that once stated in one part, skills and knowledge are not repeated unless to provide additional emphasis or detail on its application in a particular context.

The environmental health skills and knowledge matrix

Part 1: Generic attributes

- The acquisition of a systematic and coherent body of knowledge, the underlying principles and concepts, and the associated communication and problem-solving skills
- Development of the academic skills and attributes necessary to undertake research, comprehend and evaluate new information, concepts and evidence from a range of sources
- Development of the ability to review, consolidate, extend and apply the knowledge and techniques learnt, including in a professional context
- A foundation for self-directed and lifelong learning
- Interpersonal and teamwork skills appropriate to employment and/or further study

Part 2: Underpinning skills and knowledge

Science

- Foundation physics:
  - basic principles of physics
  - principles of radiation e.g. to manage nuisance complaints relating to radiation
  - basic understanding of acoustics e.g. noise measurement
- Foundation biology:
  - basic principles of biology
  - basic human anatomy and physiology related to identifying disease causation and exposure pathways
- Microbiology:
  - microorganisms of significance for human health
  - conditions required for growth of potentially harmful microorganisms and methods of control
  - growth rates
  - transmission mechanisms and likely carriers
  - infective dose levels
- Foundation chemistry:
  - basic principles of chemistry
  - sample collection and analysis
- Foundation and applied principles of natural and built environmental science:
  - water cycle and water quality
  - soil
  - air quality
  - meteorology
  - principles of public health engineering

Underpinning skills and knowledge (cont.)

Science (cont.)
• Foundation and applied environmental toxicology: – exposure/dose level, assessment and health impact • Foundation ecology: – ecological principles related to environmental health • Foundation entomology: – insects that can potentially harm human health – conditions required for growth/spread – strengths and limitations of control methods
Public & environmental health concepts
• Definition and social models of health, wellbeing, quality of life, human rights, equity, personal choice, privacy and social responsibility • Principles of health promotion • Links between lifestyle and personal choices, the environment and public health outcomes • Legislative approaches and responsibilities designed to protect and promote health outcomes and limit sale of potentially harmful products e.g. tobacco • Public and environmental health assessment tools, e.g. surveys, planning methods and frameworks • The points of impact to influence environmental health determinants and related methods of impact • Impact of natural and built environments on public and environmental health
Research methods
• Foundation epidemiology appropriate to identify, measure, analyse and interpret public and environmental health data, trends and status • Public and population health research methods, research ethics and tools • Effective design and implementation of studies, policies and programs to protect public and environmental health and minimise risks • Sampling principles, procedures and methods • Concept of evidence based decision making and options for determining, collecting, validating, analysing and applying data to inform decisions • Foundation qualitative and quantitative methods of data collection and analysis and related research design, e.g. to provide evidence to support a course of action • Evaluative methods and applications

Underpinning skills and knowledge (cont.)

Political, legislative and policy context
• Overview of public and environmental health governance, administrative and legislative frameworks and related standards, codes and guidelines • Legislative approaches to defining public and environmental health objectives, principles and risks • Application of environmental health principles e.g. precautionary principle, evidence based decision making, primacy of prevention, accountability, proportionality, collaboration and cost/benefit • Jurisdictional scope of relevant tiers of government, agencies and personnel • Relevant legislation specific to activity/jurisdiction to identify and act in accordance with powers and intent • Process and responsibility for developing, implementing and evaluating public and environmental health policy legislation, procedures, codes of practice, protocols and programs • Socioeconomic, political, environmental and cultural factors that influence policy development, interpretation and practice • Definition and interaction between individual health, public health, environmental health, environmental protection and sustainability policy and programs • Relationship between public and environmental health and development processes • Roles, protocols and collaborative arrangements between partner agencies, departments, and professionals to deliver public and environmental health outcomes • Legal and ethical responsibilities to protect the rights of individuals and organisations that may affect public and environmental health e.g. right to privacy, freedom of information, confidentiality, duty of care, anti-discrimination, anti-harassment, data disclosure and reporting
Risk assessment and management
• Sources of evidence and guidelines to support risk management • Context, frameworks and procedures to conduct environmental health risk assessment • Risk management strategies and methods to evaluate options • Methods and factors to consider when assessing and evaluating options for mitigating risk
Compliance and enforcement
• Legal authority and ethical standards applying to environmental health officers undertaking authorised roles • Enforcement agency criteria for determining appropriate action • Compliance options, tools and procedures • Availability, strengths and limitations of different compliance and legal enforcement tools and mechanisms • Interviewing and investigation techniques to collect evidence e.g. sampling • Procedures for initiating, preparing and presenting a prosecution case • Grounds on which enforcement agency decisions can be challenged

Underpinning skills and knowledge (cont.)

Communication, cultural awareness and interpersonal skills
• Written and verbal communication techniques to support consultative, educative and enforcement responsibilities • Communication strategies for diverse audiences and contexts e.g. diverse socio economic and cultural backgrounds, levels of first language and English literacy, individuals, groups, industry, business, media and community • Presentation and communication techniques to provide advice and influence outcomes suited to different purposes and environments, e.g. business and public forums, management meetings, staff interaction, conferences and legal proceedings • Information collection, document management and presentation skills to meet legal and organisational requirements • Design of effective advisory and information campaigns • Facilitation of public meetings and consultation processes • Mediation, conflict management and interpersonal techniques to communicate effectively in diverse environments e.g. stressed, resistant and hostile situations • Change management principles and strategies to support behavioural change around environmental health issues • Media liaison techniques and presentation skills • Advocacy skills to act on behalf of individuals and stakeholder groups
Administration and management
• Information systems, data bases, technologies and software options to manage security, authorisation and distribution of environmental health data and records • Procedures and criteria for assessing, approving, determining conditions and administering the issuing of licences, notices, orders and fines • Tools and resources to support consistent interpretation and enforcement of environmental health legislation • Administrative appeals processes • Models for costing, preparing budgets and evaluating impact of environmental health initiatives • Principles and models of continuous improvement • Contract and project management • Procurement principles and processes • Governance and risk management models • Principles of OHS legislation and procedures to identify hazards and manage risks related to own work; develop work practices suited to work contexts that present multiple risks e.g. exposure to vapours, gases, radiation, asbestos, noise, heat, chemicals, particulates, aggravated and aggressive behaviour

Part 3: Applied skills and knowledge

Safe and suitable food: to meet requirements of the Food Standards Code as reflected in food legislation and relevant guidelines

Communication	Risk management	Administering and reporting
• Negotiate entry • Provide food safety information and advice to business and the public • Provide advice on managing foodborne outbreaks	• Apply knowledge of food standards code, food preservation and preparation processes and requirements, related handling, storage, equipment and facilities, basic construction principles to determine appropriate action to eliminate, reduce or control risks related to food • Apply principles of risk based sampling and inspection to assess food related public health risks • Assess and manage risk related to: – Programs – Systems – Specific risks • Apply HACCP principles to identify hazards, assess and quantify level of risk in a: – Low risk – Medium risk – High risk, food business context • Assess adequacy of control measures against prescribed standards and where there are no established standards or guidelines • Apply knowledge of likely causes of food contamination and spoilage to investigate contamination events • Apply knowledge of symptoms and incubation periods to Investigate likely causes of foodborne illness and implement outbreak management and reporting procedures • Implement product recall procedures	• Develop/apply tools and programs to support consistent approaches to enforcement e.g. evidence based risk assessment procedures, rating or priority systems, policies, procedures • Contribute to standards development e.g. food standards • Assess and administer issuing of licences, legal notices, orders and fines • Identify and analyse foodborne illness records • Liaise with and report to partner agencies/ departments to improve and protect public health related to management of foodborne disease

Optional

Conduct audits

- Low risk businesses (3.3.1, Food Standards Code)
- Vulnerable populations (3.3.1, Food Standards Code)
- Catering businesses
- Heat treatment process
- Manufacturing of ready-to-eat meat products
- Bivalve mollusc growing and harvesting processes

Specific to EHOs in some jurisdictions:

- Provide structured training and assessment
- Identify public health concerns and related options for managing risk in meat, seafood, dairy or horticulture businesses

Applied skills and knowledge (cont.)

Prevention & control of notifiable and communicable conditions: Includes communicable disease control, microbial control in air, water handling systems, immunisation, personal services, brothels & parlours, cemeteries, crematoriums and mortuaries, vector control, pest control and animal management

Communication	Risk management	Administering and reporting
• Provide information and advice to businesses and the public on public and environmental health issues, preventative strategies, risk management and outbreak management • Communicate information on nature and level of public and environmental health risk • Apply interpersonal skills to interview people about issues which may be personal and sensitive • Develop and implement health promotion campaigns • Provide information, advice and training to a range of stakeholder groups on the prevention and control of communicable diseases • Apply mediation skills to facilitate agreements and resolve conflict e.g. with neighbouring properties	• Apply research skills e.g. to assess public and environmental health status, identify health trends and establish priorities • Design studies to investigate public and environmental health risk levels and conduct investigations associated with notifiable and communicable conditions • Identify common types, symptoms and control measures for diseases that are: – Waterborne – Blood borne – Zoonotic – Vectors – Other infectious diseases • Apply understanding of typical facilities, equipment and processes or procedures to identify public and environmental health risks e.g. associated with cooling towers, personal service businesses, brothels; cemeteries, crematoriums and mortuaries, human parasites, pests, animals and birds • Apply general principles of disinfection, sterilisation, sanitation and infection control to assess or determine action required to eliminate, reduce or control public health risks related to communicable disease • Assess options and adequacy of mitigation measures • Design and implement studies, policies and programs to minimise risk e.g. immunisation programs • Identify, assess and manage personal OHS and safety of others	• Contribute to/lead planning processes e.g. disease control, environmental health plans, environmental impact plans • Develop quality assurance plans to ensure delivery of quality service e.g. to manage quality assurance related to vaccination programs • Maintain and evaluate public and environmental health records and databases • Administer issuing of licences, legal notices, orders and fines • Liaise with and report to partner agencies/ departments involved in communicable disease control and management to improve and protect public and environmental health • Manage/participate in investigations and related processes associated with notifiable diseases e.g. contact tracing

Optional

Specific to EHOs in some jurisdictions:

- Conduct facility audits (Specific to Qld EHOs)

Applied skills and knowledge (cont.)

Water management: Relates to drinking, recreational and reuse water

Communication	Risk management	Administering and reporting
• Negotiate entry • Provide information and advice to businesses and the public on public and environmental health issues, preventative strategies, risk management and outbreak management • Communicate information on nature and level of public and environmental health risk • Draft and communicate water quality advice and advisories to the public • Develop and implement health promotion campaigns	• Apply knowledge of waterborne diseases: water treatment methods suited to different water use and facility contexts e.g. large and small scale water supply, water recycling and reuse methods, potable and recreational waters such as public swimming pools • Design studies to investigate public and environmental health risk levels and conduct investigations associated with water supply, use and reuse • Identify common types, symptoms and control measures for waterborne diseases • Conduct inspections to assess water quality against relevant standards and identify public and environmental health risks • Apply knowledge of water catchment management • Identify water quality standards appropriate to various jurisdictions and applications, related test methods and water treatment options • Conduct investigations to identify probable causes of unacceptable water quality in treated, natural and artificial water bodies • Assess options and adequacy of mitigation measures to meet regulatory requirements • Identify possible sources of pollution in a natural or artificial water body and determine appropriate remedial action	• Contribute to standards development e.g. water quality standards, water quality monitoring requirements • Administer assessment and issuing of relevant licences, legal notices, orders and fines • Liaise with and report to partner agencies/ departments to improve and protect public and environmental health related to waste water management

Optional

Specific to EHOs in some jurisdictions:

- Apply understanding of water standards and related processes to monitor harvesting of bivalve molluscs

Applied skills and knowledge (cont.)

Environmental management: Includes solid waste, waste water management related to on-site single and multi-dwelling treatment systems, grey water and control of pollution and hazardous substances, both domestic and industrial

Communication	Risk management	Administering and reporting
• Provide information and advice on safe and appropriate handling and disposal methods, site clean up and remediation • Communicate information on nature and levels of health risk • Apply mediation and facilitation skills to resolve conflict e.g. between neighbours • Develop and implement information campaigns e.g. clean up campaigns, information on collection and use of grey water	• Apply knowledge of waste treatment requirements and methods • Apply knowledge of health risks, land carrying capacity and water drainage systems to assess applications for sewerage treatment facilities, on-site effluent treatment and disposal, location sites for solid waste management facilities, waste reuse applications • Apply basic features and design of plumbing systems that feed on-site treatment systems • Identify common types of environmental pollution and methods used to assess quality of: – Water – Soil – Noise – Air • Determine and collect evidence to respond to complaints related to environmental management e.g. solid and liquid waste management, effluent overflows, illegal dumping, pollution, odour, dust, infestation, chemicals, noise, asbestos, lead • Identify sources of toxic substances in the environment and methods to test impact on public and environmental health • Identify and advise on selection and application of pesticides to prevent any risk to human health • Develop sampling and monitoring plans, collect samples and use appropriate monitoring and testing equipment to collect evidence • Apply knowledge of methods used to manage waste-related risk to meet prescribed standards and guidelines • Assess options and adequacy of mitigation measures • Identify partner agencies and respective roles and responsibilities	• Contribute to standards development e.g. water reclamation and application • Develop and manage contracts e.g. waste collection and disposal contracts • Manage waste handling facilities • Develop policies and programs e.g. waste recycling programs • Administer assessment and issuing of relevant licences, legal notices, orders and fines • Liaise with and report to partner agencies/ departments involved in monitoring and responding to environmental pollution to improve and protect public and environmental health related to environmental protection

Optional

Specific to EHOs in some jurisdictions

- Enforce legislation related to control of drugs and poisons
- Identify and manage risks associated with radiation (other than those associated with waste)

Applied skills and knowledge (cont.)

Land use management: Relates to strategy, subdivision and lot planning and development

Communication	Risk management	Administering and reporting
• Collaborate and advocate for recognition of public and environmental health issues in planning forums • Develop public information and campaigns to promote healthy lifestyle decisions • Facilitate community contributions to planning decisions	• Apply knowledge of relationships between built environment and public and environmental health • Identify and promote opportunities to support healthy lifestyle decisions through planning policy • Identify public and environmental health hazards and risks associated with land use e.g. land contamination, built environment, sewer loading, industrial/residential buffer zones, storm water and waste management, drainage, emissions, water services, vector control, noise levels • Identify public and environmental health hazards and risks associated with land development e.g. noise, drainage, sediment/erosion control, site traffic movement , dust management • Assess options and adequacy of mitigation measures e.g. site rehabilitation, management of contaminated sites	• Contribute to strategy development e.g. planning schemes, municipal development strategy • Assess and advise on pubic health implications of planning strategy, subdivision and lot development applications and decisions • Develop and draft conditions to ensure that public and environmental health is improved and hazards are effectively controlled by planning decisions • Liaise with and report to partner agencies/ departments involved in planning and monitoring land use to improve and protect public and environmental health related to land use planning and development

Optional

Specific to EHOs in some jurisdictions

- Consider development impact on release of acid into water bodies – requires testing for acid sulphate soils (Applies in WA, NSW, Qld)

Applied skills and knowledge (cont.)

Built environment: Relates to public buildings including rooming houses, motels, caravan parks, licensed premises, backpacker accommodation, supported accommodation, school camps and one-off/mass events and festivals

Communication	Risk management	Administering and reporting
• Negotiate entry • Provide information and advice to business operators on public and environmental health standards • Communicate information on nature and levels of health risk • Apply mediation and facilitation skills to broker agreements and resolve conflicts e.g. between neighbours • Co-ordinate across multiple agencies to plan and monitor mass events • Provide information to event managers and the public on safe conduct	• Apply understanding of basic construction principles e.g. to advise on appropriate fitout requirements, liaise with construction professionals, read and understand plans • Apply knowledge of sanitation methods and standards, basic fire safety and building requirements to identify public and environmental health hazards • Conduct inspections to assess fitness for purpose and identify public and environmental health risks associated with building and accommodation • Assess options and adequacy of mitigation measures • Assess public and environmental health risks associated with one-off/mass events and determine effective risk management strategies • Identify public and environmental health hazards and risks associated with mass events and festivals e.g. safety and certification of structures, noise, sanitation/sewerage, food safety, access, public safety, crowd control, waste management, first aid, shade • Identify, assess and manage personal OHS and safety of others	• Assess and advise on planning applications to site structures and accommodation • Develop and draft conditions to ensure that public and environmental health hazards are effectively controlled • Liaise with and report to partner agencies/ departments involved in providing individual and public and environmental health and related social support programs to improve and protect public and environmental health related to buildings, accommodation and facility standards

Optional

Specific to EHOs in some jurisdictions:

- Identify, monitor and enforce appropriate standards of care and business practices as required by the Supported Residential Facilities Act 1992 (SA)
- Identify, monitor and enforce appropriate standards in venues (SA & Tas)

Applied skills and knowledge (cont.)

Indigenous environmental health: Relates particularly to discrete communities that are often serviced by sub-standard environmental health infrastructure. This section outlines additional skills and knowledge requirements of EHOs working in this context

Communication	Risk management	Administering and reporting
• Apply knowledge of cultural factors and community structures to establish and maintain community relationships • Provide information and advice to communities and individuals on nature and levels of health risk • Conduct appropriate environmental health promotion • Community engagement and development strategies to establish and implement agreed public and environmental health priorities and programs • Determine appropriate environmental health interventions • Mentor and support public and environmental health capability building within the community • Advocate to improve access and availability of public and environmental health infrastructure to indigenous communities	• Identify common types and symptoms of diseases associated with poor environmental health infrastructure • Conduct research and investigations to determine public and environmental health risk levels and implement effective control/ management interventions • Develop and implement appropriate solutions in consultation with communities • Apply community development strategies	• Liaise with and report to indigenous communities, partner agencies/ departments involved in preventing disease and improving public and environmental health in indigenous communities • Present reports to key stakeholders

Applied skills and knowledge (cont.)

Sustainability and climate change

Communication	Risk management	Administering and reporting
• Provide information and advice to communities and individuals on nature and levels of public and environmental health risk associated with changing climate • Community engagement and development strategies to develop and implement adaptation strategies • Facilitate community engagement and capacity building • Mentor and support community leaders to develop adaptive capability within the communities • Develop information strategies and campaigns to promote sustainable practices	• Apply knowledge of emerging issues and tools for responding to climate change • Investigate the likely public and environmental health impact and affects of climate change e.g. health issues associated with drought (water use/recycling), bushfires, floods, sea level inundation, vectors, increased temperatures, food and water security • Participate in assessing risk exposure • Develop policies and programs to support climate change mitigation and adaptation of actions, policies and strategies	• Liaise with and report to partner agencies/ departments to improve understanding and capacity to adapt to changes in climate that are difficult to accurately predict • Lead/participate in multi-disciplinary teams to achieve effective outcomes • Develop policy and procedures to support and promote sustainability

Applied skills and knowledge (cont.)

Emergency and incident management

Communication	Risk management	Administering and reporting
• Provide information and advice to communities and individuals on emergency planning, preparation, response and recovery (PPRR) processes • Facilitate community engagement in planning for, responding to and recovering from incidents and emergencies • Apply mediation and front line support skills to communicate with people who may be distressed or hostile • Develop information strategies and campaigns to promote community capacity	• Apply understanding of principles, policies and procedures that support public and environmental health emergency PPRR processes • Assess risk exposure related to incidents and emergencies and develop relevant plans • Identify public and environmental health hazards and risks associated with incidents and emergencies • Determine and prioritise action required to respond to emergencies and incidents • Identify and source equipment, personnel and related rapid response needs • Identify roles, responsibilities and authorisation of partner agencies • Work with others to apply public and environmental health knowledge and implement plans in high pressure/stressful situation • Identify and operate within emergency management structures and chain of command • Identify, collect and apply data to prepare, plan, respond to and recover from incidents and emergencies • Apply understanding of the purpose and principles of debriefing • Apply knowledge of appropriate psychological techniques for coping in and after stressful and distressing situations	• Liaise with and report to partner agencies/ departments to develop, review and implement emergency and incident PPRR and disseminate information • Provide advice and leadership within enforcement agencies • Lead/participate in multi-disciplinary teams

A future work agenda

This project provides the essential starting point for managing environmental health workforce planning. For the first time, it establishes a nationally agreed description of the role and related skills and knowledge requirements to work as an EHO in Australia. In the course of undertaking this work a number of questions have been raised and need to be addressed in order to capitalise on this work.

1. How can the matrix support national consistency in assessing skills and knowledge?

   The value of an agreed definition of skills and knowledge requirements relies on establishing a consistent approach to assessment. This does not preclude customising the matrix content to meet the specific needs of a jurisdiction or agency such as an individual local government. In order to support cross agency recognition, however, there needs to be agreement on the approach to customisation and to assessment.

   At present, skills and knowledge recognition is bound to achievement of specified university qualifications although there is slight variation between jurisdictions in the approach to nominating acceptable qualifications. Legislation that allows for recognition of experience and/or qualifications that are 'substantially equivalent' to approved qualifications requires processes to support these new arrangements. While nomination of specific academic courses such as those listed in government gazettes or guidelines is administratively straightforward, new arrangements need to provide the option of assessing competence that may have been attained under other circumstances such as by undertaking relevant local or overseas qualifications not included on approved qualification lists and/or through experience.

   Development of a national assessment framework for implementation across all jurisdictions should be a priority for the next stage of this work. This should include development of guidelines on designing assessment processes to enable individual jurisdictions and agencies to assess the skills and knowledge of environmental health applicants, including those who do not hold an approved qualification.

2. What is the relationship between the matrix and course accreditation arrangements?

   Environmental Health Australia currently accredits environmental health courses. These accreditation arrangements are varyingly accepted and adopted by jurisdictional offices. Accreditation arrangements will need to be revised to reflect the skills and knowledge matrix. This is not to suggest that all of the skills and knowledge described by the matrix could or should be delivered by a university course. Revised accreditation arrangements need to consider the respective contributions of tertiary and vocational training providers together with workplaces in equipping EHOs with the skills and knowledge they need to perform their work.

3. What are the options for managing the professional environmental health workforce?

   A future work program could investigate and facilitate national agreement on a model for sustainable management of an appropriately skilled environmental health workforce. This could include consideration of how best to recognise professional status such as through professional registration. It could also consider options for administering and sustaining these arrangements.

4. How can the matrix support appropriate job design of environmental health roles?

   The matrix identifies the whole environmental health role. A number of initiatives are exploring options for designing job roles to address specific environmental health functions. These are sometimes described as environmental health technician roles. These roles are often developed on an informal basis in response to skill shortages and there is little agreement on the appropriate skills and knowledge required to underpin activities.

   There is considerable interest in understanding how this matrix could support the identification of skills and knowledge requirements for limited function job design. While decisions on these matters currently occur on an 'as needs' basis, there are advantages in establishing some national guidelines to support these arrangements.

Concluding comments

The environmental health role is a role in transition. The scope of environmental health has developed a long way from narrow, compliance based inspection and surveillance activities. Today environmental health officers routinely implement approaches based on risk management and evidence-based decision making. The expanding nature and scope of environmental health is shaped by an increasing awareness of the relationships between the natural and built environments and human health. Emerging challenges associated with climate change and resource depletion bring this interaction into sharp focus and point to a continuing expansion in both the role and demand for environmental health officers.

Degree and post graduate entry level qualifications equip this workforce to take a lead role in coordinating, planning and managing the increasingly complex set of environmental factors that affect health outcomes. This is the 'promise' of the future environmental health job role yet the reality for many EHOs is a job closely aligned with old paradigms and approaches. While some EHOs work at the more strategic end of the profession, researching, developing and promoting best practice preventative strategies and controls, many are confined to a much more limited surveillance and enforcement role and report that their environmental health skills and knowledge are not effectively utilised.

This national skills and knowledge matrix provides the basis for building a shared understanding about the nature of environmental health work and the related skills and knowledge required to undertake it. It provides the building blocks for developing well informed approaches to appointing people to the role, to designing and staffing jobs, to developing and delivering appropriate training and to establishing effective arrangements in the workplace that foster and utilise available skills.

Appendix 1: enHealth Workforce Project Outline

Establishment & Research	Roles & Responsibilities	Skills, Knowledge & Experience	Final Report
Establish a national project steering committee	Convene expert focus groups to refine roles and responsibilities. Members to reflect EHO experience across city, metro, regional and remote locations; experience working with indigenous communities: Convened by EHA in Queensland Convened by SA Health in South Australia	Convene expert working groups to refine matrix. Members to include experienced EHOs from state and local governments, industry bodies, academics	
Approve project plan			
Desktop research: Legislation Scan Literature Review	Present Working Paper 1 to Steering Committee	Conduct supplementary consultation	Prepare and present draft report to Steering Committee
Convene workshop on future environmental health roles	Validate outcomes in each jurisdiction	Present Working Paper 2 to Steering Committee	Produce final report
Develop draft description of roles and responsibilities	Develop draft skills, knowledge and experience matrix to meet roles, responsibilities requirements	Validate outcomes in each jurisdiction	

Appendix 2: Working Paper 1 – Literature and legislation scan

The desktop scan of literature and legislation draws on three main sources:

1. Workforce studies produced by state health authorities. This body of work examines current and future workforce challenges in environmental health. Reports were produced for South Australia (2004), Queensland (2004; 2009), Victoria (2005) and Tasmania (2006). Each analyses the current workforce, projects future labour demand and proposes strategies to better foster and manage the skill base. Most draw on workforce survey data. In addition, a number of papers have been produced by enHealth and the Environmental Health Australia (EHA) that address workforce issues.
2. A scan of selected environmental health legislation together with a review of commentary on legislative reform. This includes a paper on legislative reform specifically commissioned to support the work of this project prepared by Chris Reynolds.
3. Academic work exploring the role of environmental health practitioners both in Australia and overseas.

Before embarking on this discussion it is useful to clarify the term 'environmental health'. The National Environmental Health Strategy (NEHS) defines health as:

> *...a state of complete physical, mental and social well being and not merely the absence of disease or infirmity.*

It defines environmental health as:

> *Those aspects of human health determined by physical, chemical, biological and social factors in the environment.* [7]

In legislative terms, environmental health sits mainly within the wider context of public health where it competes for attention and resources with the dominant paradigms of clinical and medical health. The NEHS goes on to describe environmental health practice, highlighting its role in preventing illness rather than responding to it. EHOs focus on the environment to drive health promotion and illness prevention. It is this dual focus on public health mediated by the environment that positions environmental health between the disciplines of public health and environmental protection.

The environmental health workforce

The demand for environmental health services is steadily growing at a time when appropriately skilled labour is increasingly difficult to find and retain, This growth in demand is driven in part by an aging population as well as by scientific and technological advances that expand our understanding of how the environment impacts on health outcomes.

Successive studies of the environmental health workforce report significant shortfalls in the supply of suitably qualified people to meet current and future demand.[8]

> *Simply, based on current and anticipated future needs there will not be enough EHOs to carry out the required work.*[9]

7 The National Environmental Health Strategy, 1999, p 3.

8 See for example the state workforce reports summarised in the ISC EHO Workforce Shortage Working Group (2007) Environmental Health Officer Workforce Shortage Issues and Options Final Report, p6.

9 Local Government Career Taskforce (Qld) 2009, p5.

The workforce studies use different indicators of labour and skill shortage including the ratio of EHOs per head of population, time taken to fill vacancies and local government estimates of staffing needs. Projections draw on population data, workforce demographics, student enrolments, EHO and local government manager survey data. While there are nuances in the methodologies applied and some of the specific issues identified, the concurrence of findings is striking and by now, well known.

- All jurisdictions predict a worsening gap between skill supply and demand.
- Skill shortages are most acute in regional and remote locations. The Morton report (Qld) states that 75% of EHOs work as sole practitioners *'which are really not suitable placements for a young graduate.'* Demands on sole practitioners further compound the challenges of meeting skill and experience requirements, particularly in rural and remote areas.
- Where workforce demographic data was collected it describes a workforce in transition. As the older, predominantly male workforce nears retirement, it is being replaced by younger women. This has implications for the stability of the workforce as women are more likely to take mid-career breaks and may not necessarily return to the role.

More recent (2009) anecdotal feedback from state and territory health departments report a mixed picture in terms of the short term outlook for EHO numbers. Ironically the current economic downturn may provide limited relief as retirees return or defer retirement although often they opt to work on a part time or limited basis. On the downside the current outlook puts pressure on state and local authorities to find savings. Tight financial conditions will further constrain options for attracting and retaining skilled environmental health officers. Some jurisdictions and regional areas have had some success marketing lifestyle to attract environmental health workers both from other labour markets within Australia and from overseas markets. However, endemic skill shortages and the relatively long lead times for delivering a qualified EHO mean that poaching from other labour pools is at best a very limited option.

These challenges are not confined to Australia. International reports on the environmental health workforce in developed countries echo similar workforce shortage challenges.[10] Cromar reports that in the England and Wales environmental health labour shortages appear to have peaked in 2004. Since then there are indications of improvements in both recruitment and retention. Cromar notes however that average statistics mask significant regional variations and notwithstanding these encouraging signs, the number of graduates entering the labour market is still too low to maintain the labour market status quo.[11]

In Australia all levels of government recognise the need for coherent, coordinated action on workforce planning. To this end initiatives have been established at both jurisdictional and national levels to address workforce challenges. This project is designed to contribute to this goal.

EHO Workforce Studies

Workforce studies surveyed EHOs about their work. These studies draw primarily on the workforce and local government surveys conducted in South Australia (2004), Victoria (2005) Tasmania (2006) and Queensland (2009).

Job satisfaction

Not only are there insufficient numbers of qualified EHOs but there is evidence that poor job satisfaction is affecting the morale of the existing workforce. Unless addressed this is likely to affect job retention rates. Workforce studies conducted in Queensland, Tasmania[12] and Victoria canvassed EHO feedback on job satisfaction. All surveys report high levels of satisfaction with work variety. Other factors identified as contributing to job satisfaction included autonomy and team work.

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10 See for example, National Environmental Health Association (Canada) Workforce Development initiatives; Burke, S. et al (2002).

11 Cromar, N (2008).

12 The Tasmanian survey was posted only to general managers rather than to EHOs directly.

Factors that EHOs are least happy about included:

- Workload
- Expanding areas of responsibility
- Lack of recognition and resources
- No or little mentoring/collegiate support
- Not being able to 'make a difference'. This was linked to lack of resource/time, limited enforcement options and lack of consistency in enforcement
- Limited career advancement
- Low Pay
- Poor access to flexible, family friendly work arrangements.

Local government amalgamations which were often associated with a reduction of resources and the constant refinement and development of public and environmental health legislation shaped the broader context that influenced EHO feedback on job satisfaction.

Workforce study recommendations relating to job satisfaction included:

- Review models of environmental health service delivery. (Tas, SA)
- Develop models/guidelines to support new, flexible approaches to job design. This includes reviewing job size, job value, role breadth and effective utilisation of skills. (Tas, Vic, SA)
- Explore ways to improve consistency of outcome across councils. This could include development of support resources, policies and procedures. (Qld, Vic)
- Establish mentoring programs. (Qld, SA, Vic, Tas)
- Develop career pathways. (Qld, SA, Vic)

Awareness and valuing of the role

Job satisfaction levels were directly related to the way the role is seen and valued within the workplace, by elected councillors and within the wider community. EHOs who felt marginalised in their workplaces[13] identified the following concerns:

- Councillors have very limited understanding of their environmental health responsibilities. Local government operates within tight resource constraints. Unless there is a failure or systems breakdown the work of EHOs is largely invisible.
- Elected members and council managers may not be fully aware of their risk exposure related to environmental health obligations. The Tasmanian report reinforces these concerns by profiling the vastly different approaches of councils with similar profiles to setting environmental health priorities and allocating resources. The Queensland report (2004) recommended that councillors should undergo training about their legislative responsibilities.
- Within council EHOs often felt marginalised within corporate structures and had limited scope to influence key decisions in related areas such as planning.

The EHA is undertaking a project funded by Queensland Department of Health to develop a risk assessment tool to support local government to make better informed decisions when allocating resources to environmental health. Both the EHA and enHealth are coordinating a range of initiatives to more actively promote and market the EHO role.

The low status and profile of environmental health is a theme taken up in the wider literature. Goldman et al writes:

> *As a result of the growth of the individual and predominantly remedial (medical intervention focussed) healthcare industry throughout the 20th Century, public and environmental health was relegated to the position of poor cousin, both in popular profile and allocation of resources.*[14]

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[13] Survey responses do not provide quantifiable data on the numbers of EHOs who support these views but qualitative feedback is consistent across the different jurisdictions on this issue.

[14] Goldman et al cited in South Australia Health, 2008, *Environmental Health Indicators for South Australia*.

Education and training

Feedback from EHOs on entry level and ongoing training can be grouped under three headings:

- Work readiness
- Training gaps
- Ongoing professional development

Work readiness: EHOs were asked to comment on the adequacy of entry level education in preparing them for the role. Lack of 'work readiness' on completion of training was most frequently raised (SA, Qld, Vic). Opportunities for developing practical experience through work placements were strongly endorsed. Broader discussion about how to address a lack of work readiness questioned the extent to which formal training alone can achieve this outcome. The Victorian report for example questions how realistic it is for managers to expect a new graduate to 'hit the ground running' given lack of mentoring and collegiate networks.[15]

Training gaps: The Victorian report[16] and a working paper produced by Queensland Health[17] both map competencies against selected tertiary courses to identify alignment. Both found a reasonable but not complete fit between the competency needs of an EHO and course content. Responses to skills and knowledge gaps often take the form of special purpose, vocational training programs. For example, in Victoria DHS recently commissioned the EHA to develop a short course on Food Act legal management for EHOs in response to a perceived skills gap.

There is little evidence of an articulated policy or approach to determining which types of skills and knowledge are more effectively addressed by vocational rather than tertiary training. The impression is of education and training arrangements that have evolved on an ad hoc rather than planned basis to meet specific needs as they arise.

Ongoing professional development: Concerns were expressed about the need for expanded opportunities to maintain professional currency, particularly in a dynamic legislative context. Specific issues related to the need for increased resourcing of professional development including suggestions that local government be provided with guidelines on appropriate training levels. Other concerns related to variable training quality. Requests were also made for training to be structured more flexibly in terms of hours, locations and access to distance education formats. Comments on flexible delivery options related to both entry level education and ongoing professional development.

A number of reports identified skill development needs or gaps to be addressed by professional development. The following summarises the main areas identified.

- Prosecutions
- Risk management (including legal framework and responsibilities)
- Auditing
- Investigation skills
- Communication/education/advocacy/conflict resolution
- Technical skills updates e.g. food, water, noise and air pollution, terrestrial environment, building etc
- Emergency/disaster management
- Project Management
- Policy Development
- Budgeting/Financial Management
- Strategic Planning
- Climate change

In addition to the issues outlined above the workforce studies made a series of recommendations related to increasing student numbers; providing scope for more flexible pathways into the profession from related disciplines such as food technician; promoting training through cadetships and specifically targeting rural and remote areas; exploring more flexible employment

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15 Windsor (2005), p55.

16 This report only maps EHO skills and knowledge requirements to administer the Food Act.

17 Queensland Health, *Competencies for appointment as an authorised person Queensland Health Environmental Health Officers*, Working Paper.

arrangements supported by mentoring programs and resource sharing between councils.[18]

The underutilisation of EHO skills was a recurring theme in these studies. This is a longstanding concern and overlaps with issues of low morale and poor job design. A number of reports make recommendations about formalising recognition of skills at the technician or paraprofessional level. Initiatives to explore this option are in progress in a number of states and are described in the section on Job Roles.

Environmental health legislation scan

Purpose and scope

Although not the only determinant, legislation is a key driver that shapes the roles and responsibilities of EHOs in their capacity as authorised officers. This project scanned key environmental health legislation from each jurisdiction. The purpose of this scan was not to conduct a forensic study of legislative provisions in each jurisdiction but rather to identify the common components of the environmental health role that are defined by legislation.

The structure of legislation governing environmental health is complex and fragmented with different aspects of the role covered under multiple acts and further amplified in related regulations, guidelines, codes of practice and local laws. Adding to this complexity, legislation in each jurisdiction has evolved in different ways so there is no consistency in the way the environmental health role is described. So for example, aspects of the role contained in a central act such as a health act in one jurisdiction but may be spread over numerous specialist acts in another.[19]

The approach to reviewing the legislation started with a request to each jurisdiction to identify relevant legislation and regulations related to environmental health. For the purpose of this exercise, the main health, food and environmental acts were included. The intent was to capture current approaches in public health and environmental legislation. Acts that were under review were excluded. This means that while the review does not provide a comprehensive legislative profile for each individual jurisdiction, it provides an overview of legislative approaches and trends.

The most significant variation in legislation is in the nature and scope of activities covered by local laws. In many cases, EHOs are responsible for enforcement of these laws although these roles do not necessarily draw on their specific environmental health expertise. Where local laws provide a vehicle to address environmental health issues, the related skills and knowledge is covered in the skills and knowledge matrix. However skills and knowledge required to enforce local laws not directly related to environmental health are not covered.

Trends

The following discussion outlines some general trends evident in the recently drafted legislation that may impact on the role of environmental health officers.

An increasing role for local government

- The scope and responsibilities delegated to local government has steadily increased.[20] Local government has always had a lead role in environmental health through provision of services including basic sanitation and waste management, safe water, safe food and control of infectious disease. New legislation expands the job role of some EHOs to areas such as tobacco, recycled water, radiation (solaria), supported residential facilities and extended aspects of environmental protection.
- New Public health acts provide more explicit direction on local government responsibilities for environmental health planning and reporting. In Victoria for example, the Health

[18] See ISC (2007) and AIEH (2007) for a more detailed summary of recommendations.

[19] These comments relate more to public health legislation than to food where the model food act underpins consistency across jurisdictions.

[20] This is discussed in more detail in the section on legislative reform.

and Wellbeing Act requires Councils to produce Municipal public health and wellbeing plans or to incorporate public health matters in strategic or corporate plans. A number of acts also require regular reporting. Even where more robust planning and reporting are not a mandatory responsibility, they are actively promoted as part of good practice.

- Legislation supports risk management approaches to responding to public health issues. Enforcement agencies need to develop capacity to plan, collect, analyse and apply data to support evidence-based decision making rather than simply recording activity levels.
- In some cases, clarification of local government responsibilities will streamline workloads, particularly in food regulatory work. In Victoria for example the drive to balance public health outcomes against financial burdens on business will see a reduction in the number of premises to be inspected.

A focus on risk management and health outcomes

The increasing complexity and breadth of public health issues calls for new approaches to defining and responding to environmental health risks. In 2000 the National Public Health Partnership produced a paper outlining approaches to incorporating risk management principles into public health legislation.[21] Risk management principles have shaped approaches to reviewing environmental health legislation. The traditional approach to environmental health identifies a range of statutory 'nuisances' and provides for the making of orders to respond to contraventions. It takes a primarily reactive rather than preventative approach and is measured by enforcement activity levels rather than health outcomes. As Reynolds notes, these prescriptive approaches are not well placed to respond to the breadth and pace of emerging environmental health issues.[22]

Recently drafted legislation takes a more open-ended approach to defining risk. For example, Food Acts retain a prescriptive approach to setting standards for specific foods and mandating standards of hygiene and building requirements, but combine this more traditional approach with a risk-based approach in the form of Hazard Analysis and Critical Control Points (HACCP).

Health Acts similarly introduce broader notions of public health risk. The ACT Public Health Act, 1997 for example allows the minister to:

> *... declare an activity that may result in the transmission of disease, or that may otherwise adversely affect the health of individuals in the context of the wider health of the community, to be a public health risk activity.* (Section 18)

It also requires authorised officers to exercise considerable judgement in determining appropriate responses. For example, in deciding whether to issue an abatement notice in response to a complaint of insanitary conditions, section 69(2) requires the authorised officer to take into account factors including the number of people affected, the degree, of public health risk, the level of offensiveness to community health standards, any measures the person causing the risk has taken to avoid or minimise the conditions or any measures taken by the person affected.

An emphasis on prevention and health promotion

Public health legislation in other jurisdictions including the Queensland Public Health Act (2005) and the Victorian Public Health and Wellbeing Act (2008) retain reference to defined nuisances but require flexibility of judgement through the inclusion of broad objectives and principles that must be considered when reaching a decision. For example, Section 4(2) of the Victorian Public Health and Wellbeing Act (2008) commits to achieving the objects of the Act by:

> *(a) protecting public health and preventing disease, illness, injury, disability or premature death;*
> *(b) promoting conditions in which persons can be healthy;*
> *(c) reducing inequalities in the state of public health and wellbeing.*

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21 National Public Health Partnership, 2000, The application of risk management principles in public health legislation.

22 Reynolds, 2009 op cit.

The Act also outlines six principles that support achievement of these objectives. These relate to evidence based decision-making, the precautionary principle, primacy of prevention, accountability, proportionality and collaboration.

Explicit recognition of the role of health promotion is reinforced in Section 7:

> *(1) The prevention of disease, illness, injury, disability or premature death is preferable to remedial measures.*
>
> *(2) For that purpose, capacity building and other health-promotion activities are central to reducing differences in health status and promoting the health and wellbeing of the people of Victoria.*

While there are differences in the way that legislation supports flexible approaches to defining and responding to environmental health risks, there is a general trend to expand from reliance on prescriptive lists of conditions that constitute public health hazards to approaches based on risk assessment and management. These approaches signal a clear departure from the conception of environmental health focused on achieving compliance with predetermined standards of sanitation and infectious disease control. It establishes a legislative framework capable of responding to emerging health issues as well as to known risks. At the same time, it places greater emphasis on gathering evidence and presenting argument on health risk that stands up to legal scrutiny. Environmental health officers need both the legislative tools and the skills to use them. This means researching, collecting and analysing evidence, assessing risk and determining and monitoring implementation of appropriate responses to an increasingly broad range of public health hazards. It demands a sound understanding of the statutory requirements for preparing and presenting successful prosecution briefs.

Appointment of authorised officers

Most environmental health legislation refers to authorised officers rather than specifying environmental health officers. Legislation also extends to local government CEOs the authority to appoint authorised officers.[23] Appointment is typically conditional on holding the appropriate qualifications, experience or both and the Secretary, Director or Chief Health Officer may nominate relevant qualifications. Victoria, West Australia, South Australia and Tasmania publish a list of approved qualifications advice in government gazettes or guidelines.

There is considerable variation in approaches to specifying who can carry out the role of authorised officer between acts and between jurisdictions. Even in jurisdictions that require authorised officers to hold specified environmental health qualifications, a close reading of delegations does not preclude less qualified officers from undertaking aspects of the role. Wall makes this point:

> *Few of the duties that EHOs undertake require specific legislative authorisation beyond that in Local Government Acts, or else the CEOs of the Councils have the power to appoint whomever they deem competent to undertake environmental health work under the Public Health Acts – ie there is no restriction to authorise only EHOs.*[24]

On the one hand, this reading of legislation[25] offers greater flexibility to appoint people to authorised positions. On the other, it is likely to add further to uncertainty about determining which qualifications are appropriate.

Clarifying what is meant by terms such as 'qualifications' is only part of the challenge. Some acts allow for recognition of experience or in the case of Victoria, '*of qualifications, or qualifications and experience*'.... that are '*substantially equivalent to the qualifications or experience, or qualifications and experience*' declared by the Secretary. These provisions suggest the need to extend beyond the use of nominated qualifications as a proxy for competence. They require approaches that allow for recognition of competence that may have been attained under other circumstances such as by

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23 These arrangements do not apply in the territories where environmental health functions and appointments remain centralised.

24 Wall, B. (2006) Examination of the role and training of environmental health paraprofessionals.

25 Applies only to some legislation.

undertaking relevant local or overseas qualifications not included on approved qualification lists and/or through experience. The ability to assess an application to practice as an EHO assumes the decision maker understands the requirements of the role and has a mechanism to determine whether an applicant has the appropriate skills and knowledge, whether acquired through training, experience or both. Both state and local governments share a common interest in developing this capability.

There is another reason to more closely consider the issue of national consistency in defining appropriate ways of recognising the skills, knowledge and experience required by authorised officers. Section 17 of the Mutual Recognition Act relates to 'entitlement to carry on an occupation':

> *(1) The mutual recognition principle is that, subject to this Part, a person who is registered in the first State for an occupation is, by this Act, entitled after notifying the local registration authority of the second State for the equivalent occupation:*
>
> *(a) to be registered in the second State for the equivalent occupation; and*
>
> *(b) pending such registration, to carry on the equivalent occupation in the second State.*

Understanding the implications of this provision requires further information on the meaning of the term 'registration'. This is defined quite broadly for the purposes of this act.

> ***registration** includes the licensing, approval, admission, certification (including by way of practising certificates), or any other form of authorisation, of a person required by or under legislation for carrying on an occupation.*

As a consequence of these provisions Reynolds warns that state and territory differences in defining requirements and appointing authorised officers effectively results in lowest common denominator standards:

> *... the State with the least demanding entry requirements provides the de facto standard across Australia.*[26]

All jurisdictions are committed to promoting a common, shared definition of EHO skills and knowledge. The skills and knowledge matrix is a step towards achieving this outcome.

Roles and responsibilities of environmental health officers

The role of EHOs can be broadly described under two headings. There are those aspects of the role that are defined by legislation. In addition are the non-statutory elements of the role.

Statutory components of the role

The statutory component of the role is established by authorisation which grants legal powers to officers to carry out enforcement activities. These powers differ according to each act and set out the scope and limits of the legal powers of authorised officers. Legislation can support authorisation under all or only selected parts of an act.

The legislated powers of authorised officers are the least contentious aspect of the role as they are clearly defined, however statutory functions constitute only part of a much larger and evolving role. Reynolds comments:

> *...a focus on the statutory powers and responsibilities of the EHO to the exclusion of other issues will continue the 'old' and narrow approach to public health administration that is not so appropriate for emerging issues.*[27]

Non statutory components of the role

The authorised officer role as defined by legislation outlines the extent and limits of surveillance and enforcement powers. While an essential aspect of the role, many argue that it is the non statutory work that EHOs do that offers most promise to change behaviour and improve compliance levels. Work such as researching and applying current and emerging science to identifying and managing risk; translating that information to support the education of businesses and the public about good practice; building business and community

[26] Reynolds, C. (2009) op cit p4.

[27] Reynolds, C, op cit (2009) p5.

capacity and adaptability to recognise and respond to environmental hazards. As legislative reform opens up to more flexible interpretations of risk and risk management, EHO activities have expanded from an essentially inspectorial role supported by clearly defined standards to roles that demand more strategic, research-intensive methods.

EHOs are already skilled in the application of risk management to the specific business environment or process as required by HACCP based approaches. However changes to Health Acts require capacity to design enforcement and evaluation systems at a more strategic level. It requires an understanding of risk and the allocation of limited resources to manage them at a program as well as at an individual business level.

New and growing aspects of the role[28]

The following aspects of the role have increased or are likely to increase.

- Environmental health planning. New legislation places increased responsibility and accountability on local government. EHOs could play an increasing role in preparing strategic environmental health plans, risk assessments and impact statements and reporting on their achievement.
- Education and capacity building. Education has long been a feature of traditional environmental health activities. EHOs anticipate a growing role in facilitating input to environmental health policy, particularly at the local level; raising capacity around issues such as risk management and resource allocation and developing community capacity to respond to emerging challenges of climate change and lifestyle diseases.
- Integrated partnerships to support holistic public and environmental health responses. No single set of experts can generate effective solutions to increasingly complex public and environmental health issues. These require the collaborative efforts of people from diverse specialisations. EHOs are well positioned to act as a central point of contact and coordination.
- Development and referral to support healthy lifestyles. This includes a focus on social determinants of health and strategies to address lifestyle diseases. The entry powers of EHOs also positions them as a key point of contact and referral to other social support programs.
- Increased capacity to prepare for and respond to and recover from complex emergency and disaster scenarios such as floods, bushfires and pandemics.
- Climate change was identified as a driver of a number of aspects of environmental health including increased emphasis on emergency management, vector control, water use and heat and flood-related illnesses to name just a few.
- Ability to understand, interpret and apply increasingly complex legal provisions. This includes for example, responsibility to consider the implications of new statements of principle to the interpretation and enforcement of an act.

Contextual factors that influence job content

There is significant variation in the way EHO work is carried out. Key drivers of these differences include:

- Split of responsibilities between state and local governments: EHOs working for state government departments can perform different roles to those performed by EHOs working in local government. In some instances states take on responsibility for whole areas. In others, they perform more extensive roles than would typically be done by a local government EHO. For example, state EHOs often take a lead role in researching matters referred from local government and developing policy and procedural guides. These are then adapted and applied at the local level.
- Location: Geographic location, population size and socio economic status have a significant impact on the role. For example, EHOs working in rural and remote locations typically carry out a wider range of activities than those working in

[28] Identification of these aspects of the EHO role was supported by a workshop convened by the Victorian Department of Human Services to canvas this issue and by EHO focus groups convened by this project.

city and metropolitan locations who are more likely to specialise in particular areas. For EHOs working in more isolated locations managing environmental issues, including solid and water waste typically comprises a greater part of the role than activities related to food. In city and metropolitan locations aspects of these services are more likely to be contracted, requiring EHOs to negotiate and manage contracts rather than directly manage services.

- EHOs working with indigenous communities perform a similar range of functions but the context demands differences in the way these are undertaken and in the allocation of time/effort. Performance of their role relies on establishing and maintaining community credibility and relationships. Communication and education about very basic environmental health issues is a central part of the role and EHOs need to recognise and respond to infectious diseases which they would not normally encounter in other environments.

Role boundaries

The structure of EHO jobs often overlaps with other related job roles.

- A number of the workforce studies identify the multi-skilled nature of EHO jobs. Not only do EHOs work across a very diverse range of activities, many also take on other duties such as local laws enforcement.
- As EHOs progress to management levels, they acquire a range of generic management roles.
- Some EHOs will pursue a career path that allows them to specialise in a particular area or develop skills in a related discipline such as strategic planning, logistics management, health promotion, engineering, town planning, building and plumbing, environmental science.
- Some activities may be undertaken by an EHO although in other cases the same work may be undertaken by a person not from an environmental health background. For example, in Victoria radiation is managed at the state level, usually by people from either a physics or environmental health background.

Job design

The scope of the EHO role described in the literature and identified by the workshop on future EHO roles sits at odds with the reality of current job design for many EHOs. Information about the allocation of effort and resources to different aspects of the role is limited. A number of workforce studies[29] surveyed EHOs about time allocated to activities within the role. They report that many EHOs see their role as being primarily complaint driven and focused narrowly on inspection and enforcement activities. This finding is reinforced by Vickers and Reynolds[30] who draw on the local government reports provided by South Australian local government. They conclude that complaints determine the majority of environmental health activity is reactive and report that 59% of councils were made aware of significant issues as a result of complaints. The same paper reports on time allocation to environmental health functions in five South Australian councils and finds that over 60% of EHO time is devoted to reactive and regulatory functions of investigating complaints and conducting routine and follow up inspections. Similar resource allocations are reported in the workforce studies. By comparison, time allocated to community education and health promotion was very low, ranging from the highest allocation in Queensland with 6% down to just 2.6% in South Australia and 2% in Victoria.[31]

Anecdotal feedback from EHOs reflected frustration with what they regard as poor time and resource allocation. For example, one EHO estimated spending around 30% of time responding to noise complaints. Despite significant time investment, the proportion of complaints that were resolved to

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29 Time distribution was surveyed as part of the Queensland (2009), South Australia (2004), the Environmental Health Indicators for South Australia paper (2008) also provides a time estimated for 5 local councils), Victoria (2005), Tasmania (2005).

30 Vickers, A., Reynolds, C 2008, *Environmental Health Indicators for South Australia,* Government of South Australia pp27–8.

31 These estimates are drawn from the workforce studies conducted in Victoria (2005) and Queensland (2008) and the summary of EH department functions in Vickers and Reynolds (2008).

the satisfaction of the parties involved was relatively low.

The gap between role expectations and reality is a recurring theme of EHO feedback reported in the workforce studies. EHOs in Queensland identified the narrow, regulatory nature of the job as a factor contributing to current workforce shortages. '*The job has largely been reduced to a policeman role focussed on compliance'.* The Victorian study echoes frustrations at the underutilisation of skills. As the role has progressively been professionalised to require an undergraduate degree as a minimum entry level, job design has not kept pace. EHOs talked of feeling 'duped' after completing training that prepared them for a breadth of work. As one commented: *I didn't do four years at uni to take samples and inspect shops.*[32]

Similar concerns are reported in international studies. A UK report on developments in environmental health found that:

> *...the mainstream practice of environmental health has become fixed on the delivery of a narrow agenda ...(which) has resulted in environmental health officers having to take on predominantly technical and enforcement roles. This trend has been at the expense of effective practice of the wider principles of environmental health protection, and has had the effect of deskilling many in the profession, leading to both dissatisfaction among existing environmental health officers and a diminishing number of applicants for student training.*[33]

Vickers and Reynolds look beyond the potential impact on staff attraction and retention to question the cost benefits of an approach that remains predominantly focused on the control of infectious disease:

> *Does this narrow focus on 1.7% of the disease burden mean that Local Government is not meeting their legislative responsibilities to maintain adequate standards of health?*[34]

They suggest that in the absence of methods to assess and evaluate approaches to improving environmental factors to health outcomes, local government resource allocation to environmental health is narrowly focused on acquitting minimum legislative responsibilities and guided by historical activity levels.

Filling the role

In the absence of qualified environmental health officers, state and local governments are taking different approaches to filling the shortfall. Broadly these include:

1. Inadequate surveillance and enforcement
2. Filling EHO positions with unqualified people
3. Engaging unqualified people to undertake aspects of the role
4. Establishing minimum qualification and/or competency requirements for people who are fulfilling aspects of the role.

Local governments that take up the first option are failing to meet their legal obligations. Most acts allow for an enforcement agency to apply for exemption where it is not reasonably possible to engage a qualified person. While limited exemptions may be granted, option two is clearly a course of last resort. This point is stressed in the recent policy statement issued by SA Health on qualifications of authorised officers under the Public and Environmental Health Act (1987).[35]

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32 Windsor (2005), op cit p53.

33 Burke, S. Gray, I. Paterson, K. Meyrick, J. (2002) *Environmental Health 2012: A key partner in delivering the public health agenda*, Health Development Agency, p1.

34 Vickers, A., Reynolds, C 2008, *Environmental Health Indicators for South Australia* Government of South Australia, p29. The reference to 1.7% BoD is taken from Australian Institute of Health and Welfare, 2007 which estimates that infectious and parasitic diseases are responsible for only 1.7% of total Australian disease burden.

35 Health SA, (December 2008), Public and Environmental Health Council policy position on qualifications of authorised officers under the Public and Environmental Health Act 1987

Option 3 occurs now under diverse arrangements and job titles. For example, council officers who are not qualified EHOs may undertake aspects of the role, often linked to bylaws enforcement. Specific aspects of the job such as vector control are commonly undertaken by technicians with a narrow scope of responsibilities. Typically these arrangements have evolved on an ad hoc basis with no recognised or agreed skill requirements. In response, a number of the workforce studies recommended further work to define role boundaries and related skill requirements for technicians as one of the measures that could alleviate the skills shortfall. This option was further developed in an enHealth report produced by Brian Wall. Wall argues for confining the work of environmental health paraprofessionals to activities that 'do not require judgement' to be exercised, that are supported by protocols or standard operating procedures and supervised by a qualified EHO. He proposes a list of tasks that he suggests fall into this description.[36]

The Queensland Local Government Association has recently developed a Diploma of Local Government (Environmental Health) targeted at local government employees with a minimum of two years experience working in environmental health related services who undertake 'a variety of low-risk and technical activities'. There are similarities with the approach proposed by Wall but differences in the activities considered appropriate for this level of environmental health worker. The Diploma specifically excludes training in the areas described as high-risk, professional activities which are identified as food safety, Environmentally Relevant Activities (ERAs) and dangerous goods. Queensland Health notes that this qualification would not meet requirements for appointment as an authorised officer with Queensland Health but recognises that a graduate may undertake activities that do not require them to exercise legislative powers.[37]

A different approach has been taken in Victoria where the option of developing a training pathway for a Food Act Authorised Officer (FAAO) is being developed. Unlike the Wall model, the Victorian approach supports developing environmental health competencies required to fulfil rather than support the role of an authorised officer specific to the Victorian Food Act. While there is a marked difference in the approaches being pursued in different jurisdictions and by different enforcement agencies, existing and proposed paraprofessional qualifications share some common features. They are based on vocational qualifications and are intended to articulate with environmental health university courses.

The EHA offers a Certified Environmental Health Practitioner/Technician Scheme for the purposes of supporting structured professional development. Prerequisites for entry for technicians require completion of an approved VET qualification and 2 years work experience in the field. As of July 2009 the accredited course list does not yet include any VET courses.[38]

Not surprisingly there are mixed views about the merits of formally structuring an environmental health technician role. On the one hand there are those who see this development as undermining the profession by using lesser qualified, and possibly cheaper workers to replace qualified EHOs. This in turn may undermine the already marginal viability of existing tertiary courses, a number of which have already collapsed without any competition from a technician training pathway. These are quite reasonable concerns and need to be addressed in developing new models. On the other hand there are those who recognise that aspects of the environmental health role are already undertaken by people who are not qualified EHOs. Rather than allow this to occur on an ad hoc basis, developing a structured paraprofessional role would formalise such arrangements and ensure that these environmental health workers are supported by relevant training and management systems. Also sharing this view are EHOs who want to step up to the more challenging, strategic potential of the role. It is not feasible to do this at the same time as corralling all existing activities in the

36 Wall, B op cit p 25–6.

37 Michael Smith, quoted in Queensland Environmental Health Quarterly newsletter of AIEH (Queensland Branch), Number 2, 2007.

38 http://journal.aieh.org.au/tools/cehp/index.php.

role. This 'extend the top, defend the bottom' approach is resoundingly rejected by many EHOs who complain of burgeoning workloads and endless role expansion.

Most of the documented discussion concentrates on models for devolving EHO responsibilities to paraprofessionals. Much less attention has been paid to developing high-end, specialist (post graduate) skill streams. Initial focus groups convened to refine the draft Roles and Responsibilities Framework identified the following areas for potential development:

- strategic planning, policy development and outcome based evaluation models related to environmental health
- emerging environmental health risks – including socio economic and lifestyle factors; climate change and resource depletion
- water management – particularly water use and recycling
- food safety auditing of high risk activities and processes.

Conclusion

This scan of literature and legislation informed the initial outline of EHO roles and responsibilities and established the scope of the description of roles, functions and related skills and knowledge.

References

Australian Institute of Environmental Health (2007) *National Local Government Environmental Health Workforce Summit Report,* AIEH

Burke, S., Gray, I., Paterson, K. & Meyrick, J. 2002, *Environmental Health 2012: A key partner in delivering the public health agenda*, [online] http://www.cieh.org/library/About_the_CIEH/Our_vision/environmental_health_2012.pdf Accessed February 2009

Cromar, N. *Local Govt EH Workforce Issues in UK,* Environmental Heath Australia (EHA)

Department of Health and Aged Care (1999) *National Environmental Health Strategy*. Canberra: Department of Health and Aged Care, Commonwealth of Australia Online: (accessed March 2009) http://www.health.gov.au/internet/main/publishing.nsf/content/c642c824473e84d3ca256f190004250c/$file/envstrat.pdf

Department of Health and Aged Care (2000) National Environmental Health Strategy – Implementation Plan. AGPS, Canberra Online: (accessed March 2009)

enHealth website http://enhealth.nphp.gov.au/

Department of Health and Aged Care (2000) Proceedings of the National Environmental Health Workforce Action Plan, enHealth

EHA website: http://www.eh.org.au/

EHA accreditation guidelines: http://accreditation.eh.org.au/general.php

Environmental Health Symposium on Education, Research and Workforce. AGPS, Canberra. Online: (accessed March 2009) enhealth.nphp.gov.au/strategy/systems/eh_symposium.pdf

Employers Organisation for local government and the Society of Environmental Health (2002), *Environmental HealthWorkforce Survey 2002*

enHealth 2007, Environmental Health Committee, *National Environmental health Strategy 2007–2012*, Online: (accessed February 2009) http://www.health.gov.au/internet/main/publishing.nsf/Content/ohp-environ-envstrat.htm

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

ISC EHO Workforce Shortage Working Group (2007), *Environmental health officer workforce shortage: issues and options, Final report*, enHealth Working Paper

Liam Egerton (2009) *Climate change adaptation, resilience and health* Working paper prepared for enHealth Workforce development project

Local Government Career Taskforce (Qld) (2009) *The Queensland Environmental Health Practitioners – Attraction and Retention Survey Report, August 2008*

Municipal Association of Victoria (2006) *National Environmental Health Workforce Action Plan*, Department for Victoria Communities

Morton Consulting Services (2004) *Public health workforce in local government: Functions, skills, recruitment and retention,* Brisbane: Queensland Health

New South Wales Food Authority (2008) *National Environmental Health Workforce Action Plan*

National Environmental Health Association (Canada) Workforce Development initiatives, Online: (accessed February 2009) http://www.neha.org/research/Workforce_Development/index.html accessed February 2009

National Local Government Skills Shortage Steering Committee (2007) *National Skills Shortage Strategy for Local Government*

National Public Health Partnerships (2000) *The application of risk management principles in public health legislation* Online: (accessed March 2009) http://www.nphp.gov.au/publications/legislation/riskmgtrep.pdf

National Public Health Partnership (2002) The Role of Local Government in Public Health Regulation. NPHP, Melbourne

Public and Environmental Health Service, *Local Government Environmental Health Workforce Survey 2005 Report,* Department of Health & Human Services

Queensland Health (2007) *Public Health Management and Local Government Corporate Planning* Queensland Government

Queensland Health, *Competencies for appointment as an authorised person,* Queensland Health Environmental Health Officers, Working Paper

Reynolds, C. (2009) *The EHO as authorised officer – new directions and opportunities in legislation and policy*, Working paper prepared for enHealth Workforce development project

Stoneham, M, *National Skills Shortage Strategy for Local Government – Pre-summit Reading* (2007) Australian Institute of Environmental Health

Vickers, A, Lease, C. (2008) *Developing Local Government Environmental Health Indicators for South Australia,* SA Health, Government of South Australia

WHO 2004a, World Health Organization, *What is environmental health?*, Online: (Accessed March 2009) http://www.euro.who.int/eprise/main/WHO/Progs/HEP/20030612_1

WHO Ottowa Charter, Online: (Accessed March 2009) http://www.euro.who.int/AboutWHO/Policy/20010827_2

Wall, B (2006) *Examination of the role and training of Environmental Health Paraprofessionals,* Prepared for enHealth

Windsor and Associates (2005) Environmental Health Officer Workforce Review. Victoria, Dept of Human Services

Appendix 3: Working Paper 2 – EHO Roles and Responsibilities Framework

Steps to define EHO Roles and Responsibilities Framework

Background Research	Focus Groups	Consultation/Validation
Desktop research including a scan of legislation and literature establishes the broad approach to designing the Roles and Responsibilities Framework. Refer to Working Paper 1 for details. Future environmental health roles workshop convened to provide specific input on how the role is likely to develop. An initial description of roles and responsibilities is drafted.	Expert focus groups are convened in Queensland and South Australia to refine roles and responsibilities. Members are selected to reflect EHO experience across city, metro, regional and remote locations; experience working with indigenous communities: Focus groups comment on: • The description of the generic EHO role. • The impact of location on role requirements, including consideration of how the role differed for EHOs working in city, metropolitan, regional, rural and remote locations and with indigenous communities. • An indication the main activities as measured by allocation of time/resources • Anticipated areas of activity that are increasing or likely to increase in future.	Meetings convened in jurisdictions to comment on the draft of Roles and Responsibilities Framework. The draft of Roles and Responsibilities Framework posted on DHS website for further validation and comment and key stakeholders notified. Final validation comments to be received by end April 2009.

Organisations participating in Roles and Responsibilities Framework development and validation meetings

Queensland	Western Australia	New South Wales	Victoria	South Australia
Dept of Health	Western Australian Local Government Association	Dept Health, NSW	DHS:	SA Health:
Queensland EHA	Dept of Health	Local Government and Shires Association	Communicable disease	Waste water
Gold Coast City Council	Dept of Environment and Conservation	NSW Food Authority	Food Safety	Regional services
Brisbane City Council	Town of Kwinana	Sydney City Council	Environmental health unit	Food safety/auditing
Redland City Council	City of Rockingham	Fairfield City Council	Geelong City Council	South Australia EHA
Logan City Council	City of Rockingham	University of Western Sydney	Moreland City Council	District Council of Mount Barker
Toowoomba Regional Council	City of Perth		Eastern region (REHO)	Adelaide Hills Council
Cairns Regional Council	Shire of Wongan-Ballidu		Hume region (REHO)	Port Adelaide Enfield City Council
Mackay Regional Council	City of Subiaco		Victorian EHA	
Rockhampton Regional Council	City of Gosnells		Baw Baw Shire Council	
Townsville City Council	Town of Claremont		Maroondah City Council	
Fraser Coast Regional Council	City of Canning		Wodonga City Council	
Sunshine Coast Regional Council	City of Bayswater			
	City of Bunbury			
	Shire of Kalamunda			

The EHO roles and responsibilities are presented in three tables. The tables are cumulative so that information provided in one is not repeated in subsequent tables except to provide additional detail.

Table 1 describes common statutory components of the role. Detailed powers are outlined by the relevant legislation.

Table 2 describes non-statutory components of the role that are common across all or a number of functional areas.

Table 3 describes roles and responsibilities related to specific functional areas.

Activities that are specific to some but not all jurisdictions are noted separately in each table. These tables provide an overview of EHO roles and responsibilities. This was further refined in the process of developing the skills and knowledge matrix. Where detailed role differences were identified that did not have implications for skills and knowledge, these may not be noted.

Table 1: EHO Roles/responsibilities as an Authorised Officer (AO)

Roles	Comments
Register, license or approve applications for environment-related activities that can affect public health	Depending on the nature of the application, this can involve a desktop review or require site inspection. The AO is typically responsible for assessing applications and determining any conditions for approval.
Assess health hazards and risks to confirm compliance with legislation and any related registration or licensing conditions	Involves monitoring self regulation; planning inspections; entering businesses; identifying hazards; assessing risk; communicating risk to business owners, managers and the wider public.
Undertake investigations	Involves planning, observation and collection of evidence. Requires the AO to assess and determine adequacy of evidence (e.g. specify sampling regimes, test methods), conduct research and draw conclusions to support consistent interpretation of legislation.
Determine and direct or implement remedial action	Involves weighing multiple factors to determine required response e.g. scientific evidence, practicalities of implementation, enforcement agency approach, legislative requirements and legal principles. It can include issuing and/or serving notices/orders/penalties and conducting follow up inspections to confirm compliance.
Emergency management	This is addressed as a discrete functional area. In appears here as powers of entry and enforcement often vary in emergency situations.
Enforce legal requirements and prosecute legal cases	Involves collecting and managing evidence to fulfill statutory obligations, preparing and initiating prosecution briefs and acting as witnesses in court cases.

Table 2: EHO Roles/responsibilities applying to multiple functional areas

Roles/responsibilities	Jurisdictional and local issues
Risk management	
• Apply enHealth guidelines to identify and assess environmental health risks • Communicate risks and responsibilities • Undertake research and provide advice on risk management strategies • Act within legal authority to remove, reduce or manage environmental health risks	
Communication, promotion, education	
• Communicate reasons for actions/decisions that protect/promote health outcomes • Provide information and advice • Respond to complaints • Facilitate and negotiate positions, often in conflict or hostile situations. This can require moderation and counselling skills • Select and design appropriate communication to suit diverse communication needs • Design, develop and promote public information campaigns • Development and implement programs to build community capacity e.g. community renewal programs • Advocate on behalf of minority groups – often involves representation to other levels of government • Act as point of referral to relevant government departments/programs and services e.g. public housing; mental health services; child protection • Develop and deliver structured training (e.g. food handling)	
Health promotion and education	
• Develop health promotion strategies based on an understanding of health promotion principles of building healthy public policy, creating supportive environments, strengthening community actions, developing personal skills and reorienting health services action as outlined in the Ottowa Charter (World Health Organisation) • Develop education programs and campaigns to promote healthy lifestyle choices	
Emergency and incident management	
• Participate in/lead emergency management planning and implementation • Participate in/lead state, local and regional public health recovery plans • Provide information and training to support preparedness, and implementation of emergency response and recovery plans • Collaborate with partner agencies and professionals to implement emergency and disaster management e.g. manage emergency camps • Participate in/develop and implement incident response plans • Provide expert environmental health related advice and guidance to emergency management committees	

Table 2: EHO Roles/responsibilities applying to multiple functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
Climate change *This area has been identified as a significant area of emerging EHO responsibility*	
• Plan for and responding to health issues associated with extreme weather – drought (water use/recycling), bushfires, floods, vector control, heat and flood-related illnesses • Co-ordinate expertise across breadth of disciplines; technical expertise and logistics • Build adaptive capability of local communities • Manage sustainability programs within local govt e.g. purchasing policies • Develop information strategies and campaigns to promote energy and water conservation • Apply and communicate the precautionary principle as it relates to environmental health and climate change	
Planning: Environmental Health (EH)	
• Develop/contribute to public and environmental health plans e.g. pandemic planning, local council strategic plans related to environmental health, health risk assessments, environmental impact statements; state plans • Communicate risks • Facilitate and respond to public consultation • Develop data management systems to support design, implementation and evaluation of evidence based plans and programs and strategies • Develop/apply tools and programs to support consistent enforcement e.g. rating or priority systems, risk assessment tools, policies, procedures • Develop, apply and promote models for measuring/costing the impact of PH initiatives • Develop or contribute to environmental health policy e.g. provide feedback on national, state and local legislation and policy, policy on inspection frequency and related risk management, fee structure • Identify EH workforce needs and development programs • Provide mentoring and support for newly qualified EHOs	
Contract and project management	
• Determine the required service level and translate requirements into contract specifications • Assess value and negotiate contracts • Monitor and evaluate contract fulfilment • Plan and manage projects. E.g. joint oversight of large/complex engineering projects	
Health and safety	
• Assess and control personal health and safety risks in diverse and often unfamiliar work contexts.	• In WA, EHOs are also responsible for enforcing aspects of occupational health and safety.

Table 2: EHO Roles/responsibilities applying to multiple functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
Indigenous health *This section relates to discrete, remote communities on private land that often lack standard environmental health infrastructure. EHOs working in this context need to identify and respond to a wider range of infectious disease symptoms; manage basic sanitation issues associated with low socio economic status, poor sanitation, overcrowding.*	
• Establish and maintain community relationships with community leaders and Land Councils • Engage the community to plan for and implement public health infrastructure and support programs • Mentor newly developing workforce of Environmental Health Workers • Develop strategies and campaigns to support basic health promotion/education of community members • Advocate for environmental health services on behalf of indigenous communities	

Table 3: Roles/responsibilities applying to specific functional areas

Roles/responsibilities	Jurisdictional and local issues
Food Safety *Relates to enforcing the Food Standards Code (FSC) as reflected in Food Acts. This includes food hygiene/handling, food standards (composition), labelling, food premises and equipment*	
• Implementing HACCP to identify hazards, manage risks and assess effectiveness of controls • Implement recall procedures • Monitor and investigate contamination events and foodborne illness • Implement outbreak management plans • Provide food safety education and training • Manage chain of custody • Research emerging and culturally specific foods (including those not covered by the FSC) to identify and assess risks • Evaluate effectiveness of enforcement activities	• In most jurisdictions EHOs will be eligible to become food safety auditors. This will be an additional, optional role accredited against the NFSA standards. Not all auditors will be required to audit all risk levels. • A number of jurisdictions are about to extend auditing requirements to vulnerable populations and caterers (3.3.1, Food Standards Code). • In WA EHOs are responsible for meat, dairy, horticulture. • In NSW the majority of local governments cover retail and food service. Three have elected to manage food safety for manufacturers and wholesalers.

Table 3: Roles/responsibilities applying to specific functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
Notifiable conditions/infection control *Includes identifying and responding to notifiable conditions; taking action to minimise infection risks; collecting health information; responding to public health emergencies*	
Communicable disease control • Provide information and advice on preventative strategies, risk management and outbreak management • Collect evidence and conduct research e.g. outbreak tracing; preventative strategies • Develop preventative strategies and procedures • Participate in developing pandemic response plans	• Qld EHOs conduct facility audits. • In SA EHOs investigate outbreaks to identify the level of risk posed (ie. Infectious organisms that are routinely present in the environment but only occasionally produce symptomatic health disease e.g. Q fever, Murray River encephalitis). Other states require EHOs to do limited investigation, often under direction.
Microbial control in air and water handling systems: Applies to cooling towers and warm water systems • Identify/report high risk systems • Inspect maintenance and service logs and records • Review planning applications and impose relevant conditions • Conduct inspections (either routine or in response to complaint) to identify hazards and assess risk	
Immunisation • Research and assess public health issues and trends to develop immunisation programs and campaigns • Co-ordinate service clinics (e.g. community; schools) • Develop and implement quality assurance to monitor vaccine type, cold chain management, administrative records, waste disposal (sharps) • Provide promotional information and advice	• In Tasmania immunisation clinics can extend to workplaces.
Personal services: high risk, skin penetration • Research and assess safety and risks associated with services, processes and waste management • Assess new/unfamiliar range of personal services and related practices and equipment used • Provide advice/education to public and service providers	
Brothels, parlours • Enter and inspect general sanitation • Confirm nature of service is consistent with licencing • Review/enforce development control plan provisions • Provide information on STDs	• EHO responsibilities for brothels varies between jurisdictions. • In Victoria EHOs interview employees about medical records, safety of equipment and personal safety.

Table 3: Roles/responsibilities applying to specific functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
Vector control: Relates primarily to mosquitoes • Conduct inspections of equipment (e.g. tanks, vessels) and breeding locations • Identify conditions conducive to breeding and take action to remove/reduce breeding grounds • Identify species and determine/implement response plans • Conduct public information campaigns (strong emphasis) • Prepare vector monitoring and management plans (relates to land use planning)	
Pest Control: can include directly eliminating or minimising pests/insects (if licensed) • Plan and conduct inspections to identify public health hazards and assess risks • Review/research science on pest-related hazards and risks related control measures • Check application rates etc (sample for spray drift) • Develop/review pest management plans • Identify pests and provide advice on appropriate methods of control	• In some jurisdictions EHOs are responsible for technician OHS in addition to public safety.
Animal management (may include birds) • Identify and control potential environmental and human risks related to keeping of birds and animals • Review planning requests and siting of animal facilities (e.g. racing stables, chook sheds) • Inspect conditions including husbandry, animal hoarding, sanitary standards • Develop/enforce animal management programs/plans • Manage animal disposal (can include routine and emergency response e.g. mass poultry disposal)	
Water management *Relates to water suppliers: property; water quality; vehicles; tanks. It can also include monitoring water fluoridation and other treatment methods.*	
Potable water • Assess and develop conditions to manage risk in water supplier applications • Review water supplier reports • Inspect/act on complaints • Communicate water quality advisories to public • Specify, interpret and respond to test results • Enforce orders to close water supply; restrict or prevent use • Provide advice on drinking water standards and water treatment methods • Undertake research to identify hazards and appropriate control methods of control	• Recycled water (either potable or recreational) is an emerging area that is likely to be covered by EHOs. • Some aspects of water management are more complex in rural and remote environments that are not serviced by reticulated water systems, e.g. irrigation water being plumbed into domestic systems due to water shortages. • In Tasmania EHOs also carry out sampling/surveillance/ monitoring of reticulated supplies.

Table 3: Roles/responsibilities applying to specific functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
Swimming pools and spas • Assess, approve and monitor facilities • Carry out inspections and enforcement re property, facilities and water quality • Communicate water quality advisories to public • Specify, interpret and respond to test results • Enforce orders to close or restrict access to facility • Provide advice on water quality standards and treatment methods • Undertake research to identify hazards and determine appropriate methods of control	
Alternative water supplies relates to water recycling and reuse • Assess health hazards and risks associated with recycled water • Provide advice on appropriate methods and applications of recycled water • Conduct research and design information campaigns	
Natural and artificial water bodies • Monitor water quality • Communicate water quality advisories to public • Specify, interpret and respond to test results • Enforce orders to close/restrict access to water body • Identify and investigate pollution e.g. blue green algae, fish kills • Investigate pollution sources • Research and determine remedial action • Provide advice on water treatment methods	• In some jurisdictions EHOs are also responsible for restricting or preventing taking or harvesting of fish or shellfish from given body of water in response to sample analysis. • Extent of responsibility for natural water bodies varies depending on level of devolution of responsibility for environmental protection. In a number of jurisdictions responsibilities are shared between departments.
Environmental protection *Relates to identifying and managing factors that can cause environmental harm and promoting best practice environmental management responses*	
• **Waste water management:** Relates to domestic effluent and grey water treatment and disposal systems serving single or multiple dwellings • Assess and approve applications for communal/decentralised wastewater collection, treatment and reuse systems • Assess and approve extensions to communal/decentralised wastewater schemes (e.g. Private/Council owned systems) • Oversee effluent disposal from septic tanks and manage related infrastructure • Investigate effluent overflows • Develop waste water management plans and assess land suitability • Inspect and test equipment • Interpret test results (bacterial and chemical) • Decommission wastewater treatment systems • Provide advice on use and treatment of reclaimed water	• In SA some sewer schemes are privately owned/operated. EHOs approve/inspect connections to these schemes. State EHOs approve additional connections to a scheme if there is more than one additional allotment.

Table 3: Roles/responsibilities applying to specific functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
• Advise/liaise with enviro/water authorities and technical specialists such as soil technicians • Research new/developing systems (e.g. new technologies; shared waste water facilities	
Solid waste management • Establish and assess conditions for treating and storing solid waste • Assess suitability of waste handling sites • Analyse waste streams; assess options for management, develop recycling policies/programs • Assess suitability of alternative waste treatment systems – manage associated issues – noise, vermin, dust, odour etc • Manage waste facilities and/or service contracts	
Control of pollution and hazardous substances: liquids, chemicals, fumes, odours, waste, animals, noise, smoke, dust both domestic and commercial pollution (except for licensed/high risk commercial activities) • Investigate/follow up complaints e.g. bins, litter, sharps disposal, illegal dumping including dumping of hazardous waste, environmentally sensitive (may be registered or licensed) activities • Facilitate negotiated outcomes (e.g. between neighbours in domestic settings) • Identify, sample, oversee/arrange for risk removal/control e.g. disposal of damaged asbestos • Communicate nature and level of risk • Use measuring equipment (e.g. noise meters), commission and assess technical expert advice • Take a range of samples e.g. air, soil, sand, rock, water, other solids/liquids • Identify and provide advice on appropriate action to remove, reduce or manage health risks associated with pollution and hazardous substances including rehabilitation of contaminated sites • Conduct/advise on trauma site clean ups e.g. to remove biohazards associated with human waste or remains • Monitor and investigate health trends e.g. elevated blood lead levels • Provide advice and develop information campaigns to communicate risks and promote appropriate behaviours • Liaise with/notify appropriate authorities • Conduct research to support risk management in emerging areas e.g. clandestine laboratories	• Responsibility varies depending on level of devolution of responsibility for environmental protection. In a number of jurisdictions responsibilities are shared between departments. In some jurisdictions (Qld) dealing with asbestos related issues is a disputed area.
Dangerous goods • Monitor compliance against license conditions • Check storage/handling, overlaps with Aust Stds	• Only applicable to Qld • In SA EHOs support/manage pesticide container recycling e.g. manage regional dumpster programs for drum recycling.

Table 3: Roles/responsibilities applying to specific functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
Radiation • Check x-ray machines; solaria, disposal of smoke detectors, exit signs etc • Provide advice on safe use of appliances such as microwaves	• Limited role, not applicable in NSW. EHOs require a basic understanding of related hazards and risks.
By laws enforcement: itinerant vendors; standing vehicles; footpath dining • Respond to complaints • Manage conflict • Facilitate negotiated outcomes • Varies according to local government legislation / regulations	
Planning: Development *Relates to assessment of planning applications to support sustainable use, and development of land and identify any potential impact on human health*	
Land use • Participate in developing and reviewing planning schemes to identify environmental health issues and support healthy planning decisions e.g. bike paths, walking tracks, shaded areas etc • Assess public health impact of development proposals e.g. noise, run off, sediment/erosion control, traffic movement (on construction site), suitability for use, amenity, wastewater management/reuse, emissions, vector control • Recommend mitigation strategies/options • Advise options for rehabilitating/managing contaminated sites	• In WA, NSW, Qld EHOs need to consider development impact on release of acid into water bodies. Requires testing for acid sulphate soils.
Cemeteries, crematoriums and mortuaries • Inspect preparation rooms, equipment and apparatus in mortuaries, crematories and cemeteries e.g. waste disposal, drainage, fitout, sanitary conditions, refrigeration, screening • Advise on disposal of human remains including site location • Oversee exhumations (under direction)	• Responsibility varies between jurisdictions and is less relevant in city/metro roles. Applies to most country/regional environments EHOs.
Mass events and festivals • Assess applications for events – co-ordinate across multiple planning issues/ experts and agencies e.g. certification of structures, noise, sanitation/sewerage, food safety, disabled access, public safety, link to emergency planning, waste management, first aid; shade • Confirm appropriate insurance cover	

Table 3: Roles/responsibilities applying to specific functional areas (cont.)

Roles/responsibilities	Jurisdictional and local issues
Structures/buildings, accommodation *Applies to rooming houses, motels, caravan parks, licensed premises, backpacker accommodation, supported accommodation, school camps*	
Assess and approve or recommend on applications for use • Check compliance with requirements e.g. structure, maintenance, water supply, drinking water, waste disposal, basic fire safety, discharge of sewage and waste water, refuse receptacles and disposal, toilet and bathing facilities, disabled access, room size, ventilation • Direct remedial action e.g. require person clean or disinfect a place, structure or thing, control insects/pests, demolish or repair property, stop using a place for a given purpose or time • Take action e.g. restrict access or evacuate	• In SA EHOs administer the Supported Residential Facilities Act 1992. EHOs are responsible for facilitating/co-ordinating interagency inspections, assessments and licensing of supported residential facilities. The Act covers resident rights, standards of care (review care plans including extension of care options, admin of medication, nutrition), assessment of facilities at risk of insolvency, negligence, whether a person is a fit and proper person to hold a licence, facilitation and resolution of disputes between facility (proprietor) and residents. This is a shared responsibility with Dept of Families and Communities SA.
Tobacco *Relates to health promotion by discouraging smoking. Includes sale, labelling, packing, advertising and reduction in exposure to tobacco*	
• Monitor compliance with tobacco retailing and advertising legislation • Issue warnings to children re smoking, check proof of age documents • Monitor behaviour compliance in smoke free areas • Conduct surveillance and enforce legislative requirements, prepare prosecutions • Undertake education and health promotion activities on tobacco related health risks	• Extent of responsibility varies and may be enforced by others.
Control of drugs and poisons *Relates to the manufacture, packaging and labelling, sale, supply, possession, handling or use of certain poisons, drugs, devices etc. Includes storage, containers, labelling, transport*	
• Inspect retail outlets • Assess/grant permits and certain approvals (limited) • Check storage of toxic substances • Manage/participate in recalls • Investigate matters of public concern related to use of controlled and prescribed drugs, complementary medicines etc • In emergency remove and/or destroy a poison	• Only applicable to Qld.

Appendix 4: Working Paper 3 – Skills and knowledge frameworks

Significant progress has been made both in Australia and internationally, in describing skills and knowledge to be achieved by EHOs. This body of work was reviewed and shaped the design of the skills and knowledge matrix.

A number of existing frameworks describe environmental health capabilities. Most refer to 'competency'. This term is used in different ways. In some UK material, 'competency' describes actions as distinct from 'knowledge' which is described separately. In Australia and Canada the term 'competency' encompasses both skills and underpinning knowledge. In Australia 'competency' sometimes signals a vocational rather than a higher education training pathway. However in most discussions it refers to skills and knowledge, regardless of how these are attained.

Skills and knowledge framework models

Some competency frameworks describe public health competencies at the organisational level. For example in Australia the National Health and Medical Research Council developed guidelines on *Cultural competency in health*.[39] In the US, public health standards have developed competencies to describe wider public health and the environmental health organisational capabilities. The frameworks more directly relevant to this project are those that describe the skills and knowledge requirements of individuals rather than the capability of an organisation.

A number of frameworks that describe individual competence relevant to environmental health are wide-ranging in their scope. England, the USA and Canada have developed competency frameworks to cover the whole public health sector including environmental health. The Public Health Skills and Career Framework (UK) is the most detailed example. The framework is designed to cover the gamut of occupations related to public health from those involved in direct delivery of services to those who manage, educate or commission services or training. It identifies nine areas of competence and then describes each one over nine successive levels of application. Given the breadth of scope, the descriptions are at a fairly generic level.

The framework overlays existing registration, licensing and qualification arrangements rather than replaces them. It provides a tool to map and link otherwise separate occupational areas and in this way, promotes recognition and career opportunities across as well as within public health disciplines. In reality the extent to which people can move between different roles will continue to be determined by the detailed professional entry requirements embedded in registration, licensing and other requirements of professions covered by the framework. This model is not designed to provide detail against which an individual's skills and knowledge can be assessed.

The most detailed approaches that specifically focus on environmental health skills and knowledge come from the course accreditation guidelines developed by Environmental Health Australia (EHA) and the Chartered Institute of Environmental Health (CIEH) in the UK.[40] Unlike the more generic public health frameworks, these are specifically

[39] National Health and Medical Research Council (2005) Cultural competency in health: A guide for policy, partnerships and participation, Australian Government.

[40] Web addresses for accreditation policies:
EHA – http://accreditation.eh.org.au/general.php
CIEH – http://www.cieh.org/professional_development/EH_degree_curriculum.html.

Table 1: Summary of skills/knowledge categories

EHA	CIEH	CIPHI
Environmental health course accreditation policy, EHA, November 2006	CIEH Curriculum for courses leading to registration of EH Practitioners, April 2003	Board of Certification, Practicum Guideline for Training Agency and Trainees, July 2007
• Generic attributes: – Apply relevant knowledge, principles and concepts to workplace needs – Communicate effectively – Access, evaluate and synthesise information – Commitment to lifelong learning – Demonstrate international and cultural awareness and understanding – Apply professional skills – Use technologies appropriately – Think critically, creatively and reflectively • Public health principles • Sustainable development and environmental health principles • Foundation sciences • Foundational environmental health practice • Environmental health risk assessment and management • Environmental health law • Environmental health management and administration functions	• The physical, social and human worlds • Stressors and their implications for health • The interventions • Minimum intervention areas – food safety – health and safety – housing – environmental protection – public health • The theoretical basis for operational skills: learning, organisational management, communication, inspections and professional ethics • Operational skills: assess, consult, advise, enforce, train/educate, advocate , evaluate, research • Core competencies – describes application of operational skills to intervention areas	• Air quality • Waste management • Water management • Inspection: food, recreation facilities, housing, nuisance and general sanitation, social care facilities, personal services, animal facilities • Land management • Environmental health assessment • Occupational health • Communicable disease control • Emergency preparedness • Pest control • Environmental health advisory – education, community development, advocacy • Lifestyle programs • Investigation, research and reporting • Communications

designed for the purposes of accrediting university courses and provide detailed descriptions of the learning outcomes to be achieved by graduates. The Canadian example developed by the Canadian Institute of Public Health Inspectors (CIPHI)[41] describes the outcomes to be demonstrated via practicum which are additional to the requirement to complete an accredited university course.

Each model takes a different approach to categorising relevant skills and knowledge.

The EHA guidelines start by describing how eight generic attributes of degree graduates translate into specific abilities of environmental health course graduates. Environmental health content is then outlined under seven subject areas or 'literacies'. The guide also provides examples of how graduate abilities can be mapped to environmental health literacies in an appendix that describes how skills and knowledge may be demonstrated.

The CIEH model draws on Bloom's taxonomy of learning to develop a four tiered professional progression criteria. It identifies 10 generic domains and describes each of these over four successive levels. Specific environmental health

41 CIPHI – http://www.ciphi.ca/pdf/boepracticumguide.pdf.

content is structured in a general introduction to 'physical, social and human worlds'. Applied content is then organised around environmental health 'stressors' and 'interventions'. Operational skills and core competencies describe outcomes or applications of knowledge and are similar to the applications of generic attributes described by the EHA. Students must also include an in-depth study of a significant intervention as part of their learning program.

The CIPHI model describes outcomes to be demonstrated in the workplace rather than course content. It therefore describes applied learning outcomes. Requirements are described under 16 main headings and further developed under 488 detailed instructional objectives.

Table 1 summarises each of these approaches.

The role of experience

Experience is one pathway to attaining the required skills and knowledge to practice as an EHO. In the UK system, courses that cover the required skills and knowledge can be accredited. On completion of such a course the graduate attains an academic qualification but they are not eligible for recognition as 'competent' to practice as an environmental health practitioner until they complete a structured work-based learning component. Although there is no specified minimum period, the guide notes that this is likely to take between 9 and 12 months and for a technical officer working in a specific area, it could take around 2 years in order to have opportunities to demonstrate the breadth of experience required. Applicants are provided with a workbook that outlines minimum requirements and must present a portfolio of evidence to demonstrate that they have achieved 'sufficient experience.' Once completed, a graduate is eligible to apply for registration with the Environmental Health Registration Board as an Environmental Health Practitioner (EHP). Registration is conditional on completing a professional examination.

In Canada, practitioners seeking a Certificate in Public Health Inspection must sit an exam and undertake a minimum 12 weeks practicum to be demonstrated and assessed in a health unit or agency. The CIPHI provides a highly detailed, structured guide to support assessment of competence. In order to meet EHA accreditation requirements in Australia undergraduate courses must include a minimum of 6 weeks (or equivalent) practical experience. Although no minimum is specified for post graduate courses, there is an expectation that graduates will either have existing practical experience or will gain it as part of their study. [42]

Designing the skills and knowledge matrix

The environmental health skills and knowledge matrix has a slightly different focus from these existing frameworks. It needs to identify the skills and knowledge required to support the identified roles and responsibilities of EHOs in Australia. The level of detail described should provide sufficient information for use in designing job roles, developing education and training programs and assessing the existing competence of applicants who seek recognition to practice. However it does not necessarily follow that structured education and training is the most appropriate means of delivering all skills and knowledge.

Categorising skills and knowledge

The matrix needs to cover different types of skills/knowledge. The categories reflect a similar structure to those used to describe roles and responsibilities. They include:

- Generic attributes or competencies that relate to broad learning principles for example, access, evaluate and synthesize information, communicate effectively etc.
- Underpinning skills and knowledge that can apply to all or a number of areas of activities.
- Skills and knowledge that relate to a specific area of activity.

[42] EHA Environmental Health Course Accreditation Policy, p15.

Generic attributes

The Australian Qualification Framework (AQF) governs the requirements to be met by all formally accredited training programs. The AQF covers both vocational education and training (VET) and higher education (university) courses and describes the characteristics of learning outcomes to be achieved at each level. These are then interpreted by the education or training provider. The minimum entry level training for EHOs is now a bachelor degree. The AQF requirements for this level are:

- the acquisition of a systematic and coherent body of knowledge, the underlying principles and concepts, and the associated communication and problem-solving skills;
- development of the academic skills and attributes necessary to undertake research, comprehend and evaluate new information, concepts and evidence from a range of sources;
- development of the ability to review, consolidate, extend and apply the knowledge and techniques learnt, including in a professional context;
- a foundation for self-directed and lifelong learning; and
- interpersonal and teamwork skills appropriate to employment and/or further study.[43]

Underpinning skills and knowledge

The proposed headings for the skills and knowledge matrix are based on a review of the roles/responsibilities description and existing models. The following describe areas of knowledge that underpin the EHO role.

- Science
- Public and environmental health concepts
- Research methods
- Political, legislative and policy context
- Risk assessment and management
- Compliance and enforcement
- Communication, cultural awareness and interpersonal skills
- Administration and management

Area-specific skills and knowledge

The area headings used to describe EHO roles and responsibilities form the basis for this section.

- Safe and suitable food
- Prevention and control of notifiable and communicable conditions
- Water management
- Environmental management
- Land use management
- Built environment
- Indigenous environmental health
- Sustainability and climate change
- Emergency and incident management

Under each of these headings, communication, risk management and administration and reporting were identified as common, recurring themes. These have been used to structure the description of skills and knowledge.

Identifying core/optional skills and knowledge

The matrix can either describe minimum requirements for EHOs or it can go beyond this to describe additional or 'nice to have' skill sets. This approach is taken by the Public Health Skills and Career Framework (UK) which identifies four core and five non-core, 'defined' competencies. There may be specific areas or advanced levels within a skills area that are of interest to some but not all EHOs. This is most likely to apply to new and emerging areas of practice such as water recycling.

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[43] Australian Qualification Framework, Implementation Handbook, 4th Edition, 2007.

Structure of the skills and knowledge matrix

This review of approaches to describing environmental and public health skills and knowledge was used to refine the design parameters for the skills and knowledge matrix. The Steering Committee determined that the matrix design would:

- Be structured in three parts that cover generic attributes, underpinning skills and knowledge and area-specific skills and knowledge.
- Adopt the Australian Qualifications Framework definition to describe generic attributes.
- Be presented as a statement of minimum competence. At this stage it does not identify more advanced levels or specialist skills that some EHOs may go on to develop.