



Environment

WHAT DOES AN ENVIRONMENTAL PROFESSIONAL DO?

Environmental engineers are concerned with assessing and managing the effects of human and other activity on the natural and built environment. They apply their engineering knowledge and skills to such things as environmental impact assessment, natural resources management and pollution control. Environmental scientists measure and record features of the environment, study, assess and develop methods of controlling or minimising the harmful effects of human activity on the environment, and develop conservation plans.

Environmental professionals can be involved in many different tasks:

- Developing ways of minimising the impact of processes on the environment, based on the study and assessment of these processes, environmental legislation and physical, biological, social and cultural environments
- Undertaking laboratory work; analysing pollutants, identifying their sources and assessing their effects
- Monitoring and evaluating the environmental and social impacts of engineering projects and development activities
- Rehabilitating land, water and air affected by mining, etc, conducting research and preparing proposals to lessen the impact of developments on the environment
- Researching matters of immediate and long-term importance to governments and the communities such as the impact of land clearing on native animals and the impact of waste products on waterways
- Negotiating with and assisting in the development of policies, strategies and codes of practice on environmental management and conducting environmental audits with industry, government departments and the public
- Researching and developing new technologies and techniques to improve the environmental acceptability of engineering projects
- Designing and operating processes to treat wastes to a standard acceptable for discharge and/or recycling, e.g. waste water treatment or waste solidification
- Working with occupational health experts to ensure a hazard-free working environment
- Preparing reports and studies on the best approach to environmental management in new and existing engineering projects, taking into account environmentally sustainable economic activity and legal, environmental and industrial factors
- Effectively communicating relevant issues to other technical staff, managers, regulatory authorities, public interest groups and the public.

WHAT ARE THE CAREER OPPORTUNITIES?

Just as safety and health are becoming more and more important in the minerals industry so are the environmental professions. There are very good career opportunities in the environmental

professions and many occupations now combine environmental work with another technical discipline.

Environmental Engineer

Environmental engineers are concerned with assessing and managing the effects of human and other activity on the natural and built environment. They apply their engineering knowledge and skills to such things as environmental impact assessment, natural resources management, and pollution control.

Environmental Scientist

Environmental scientists measure and record features of the environment and study, assess and develop methods of controlling or minimising the harmful effects of human activity on the environment. Environmental scientists usually work with a range of other professional and technical staff. The amount of indoor and outdoor work they do depends on the individual job.

Environmental scientists may specialise as an Environmental Officer who makes sure that sound management practices which support plant and animal life are in place.

Environmental Consultant

Environmental Consultants can be either environmental engineers or scientists. They often work on a wide variety of projects and tasks. Environmental Consultants are often based in capital cities and travel to the project they are working on at the time. Because much work is done by computers now a consultant may only travel to the project site to take samples, etc.

Environmental Research

Environmental Researchers can work from tertiary institutions like universities where they may be involved in research and teaching students. Environmental researchers also work within companies in researching different aspects of products, processes, situations and their environmental effects

Environmental Chemist

Environmental Chemists monitor pollutants, their products and natural chemicals, determine ways to reduce the bad effects of chemicals released into the environment and devise industrial processes which are environmentally friendly.

Environmental Economist

Environmental Economists study the environmental impacts of projects and subsequently advise industry and government on environmental and natural resource management regulations. They also advise on the government's responsibilities in terms of international agreements and treaties about the environment.

Environmental Geologist

Environmental geologists study the nature of ground and surface waters; soil movement, erosion and degradation; salinisation and coastal erosion; the effects of pollution and human activity on rivers; and the environmental effects of mining, nuclear energy and waste disposal.

LAURA MCILWAINE

BEng (Hons 1) – Environmental, MAusIMM
Senior Environmental Engineer, BHP Billiton
Olympic Dam

Why did you choose your particular career?

Up until Year 12 I wasn't sure what I wanted to study. I loved mathematics, science and geography and had a deep love for the outdoors and the environment. I'd considered careers in marine biology and even music, but it wasn't until a friend handed me the RMIT University Environmental Engineering degree brochure that I realised this was the course, and indeed career, for me. I found the fact that it was a relatively new discipline exciting and was thrilled at the prospect of using my math and science skills to benefit the environment.

What have you done?

Throughout secondary school and university I was heavily involved in extra curricular activities associated with music, netball and student clubs. I helped establish the first AusIMM student chapter at RMIT, held positions on the Environmental Engineering Students Association and was an active speaker in the RMIT Women in Engineering School Speakers Program.

Being a country student, I was required to work long hours in my part time waitressing jobs on top of 30-something university contact hours a week, in order to make ends meet with rent, bills, car and entertainment money. I remember finishing work at 1am the night before a morning exam and thinking "this is mad!" but I don't think it did me any harm. In fact, the communication, teamwork and organisational skills I developed in my part time work and extra curricular activities at university prepared me well for the "real world" where you need to juggle life and long working hours.

I was fortunate in my second year at university to obtain a scholarship with Pasmaenco Limited (now Zinifex Limited) which involved two summers of vacation work. So at the age of 19, I worked in my first mine – the Pasmaenco

Rosebery Mine on the west coast of Tasmania. The position opened my eyes to the challenges associated with minesite environmental management, and in particular, acid rock drainage (ARD) management. I returned to Tasmania the following summer working at the Pasmaenco Hobart Smelter and returned again a year later as a graduate in Hobart for nine months prior to relocating to the Century Mine in North West Queensland.

I worked at the Century Mine for over four years as an Environmental Advisor, during which time I commenced my Masters of Science (Environmental Geochemistry) in ARD prediction techniques. I left Pasmaenco in January 2004 after accepting a position with Maunsell as Environmental Engineer in their Townsville office. Despite enjoying the variety and challenging work of environmental consulting, I accepted a position as Senior Environmental Engineer at Olympic Dam in early 2005 to live and work in the same town as my partner who is a Metallurgist. In early 2006 I will complete my Masters thesis which will be the result of four years part time study, an achievement that will put a huge smile on my face!

What are the negatives and low points in your career?

The long hours and commute nature of working a remote fly-in-fly-out position for over four years took a lot out of me and I now understand what it is to be truly exhausted. Saying that, remote sites really develop your sense of self and I am a much more independent person as a result from working in such challenging circumstances.

BRONWYN SMART

BSc (Conservation Biology and Environmental Restoration) Murdoch University. Environmental Scientist - Newcrest Mining Limited, Telfer Gold Mine.

Why did you choose your career?

I grew up in a country town, close to a bauxite mine which provided numerous jobs for those

living there. After completing some work experience there during year 12, and spending time with people from various professions, I decided that getting into the environmental field was something that appealed to me. I have always been passionate about the environment, and loved biology, geography and science in general, so choosing to be an Environmental Scientist seemed only natural.

What have you done so far in your career?

Upon completion of my degree I was offered a position in the Newcrest Graduate Program, which I commenced in February 2005. The Newcrest Graduate Program consists of a 2 year program, with elements such as a professional development plan, mentoring program and site rotations. My initial site placement has been at Telfer Gold Mine in Western Australia. Later in the year I will be completing my second placement at Cadia Valley Operations in New South Wales.

What have you enjoyed most about your profession?

I have most enjoyed working away out in the bush – most people in Australia never even visit a place as remote as Telfer, let alone live and work out here! There are some beautiful landscapes, plants, animals and weather to experience in the desert, which I probably would never have had the opportunity to experience had I not been working here. I have also had the opportunity to meet a lot of great people in the mining industry too.

For someone considering a career in your profession, are there any words of wisdom to pass on to them?

If you choose to enter the environmental field, try to get as much hands on experience whilst you are completing your degree as you can. Volunteer work, work experience and vacation work are good ways to do this, and will aid you in getting employment later on. Graduate positions in mining companies are a great way to start out – keep an eye out early in your last year of university, as this is generally when these positions are advertised.

