



*Centre for  
Environmental  
Solutions*

# Capability Statement

**C4ES Pty Ltd**

ABN 97 079 654 872



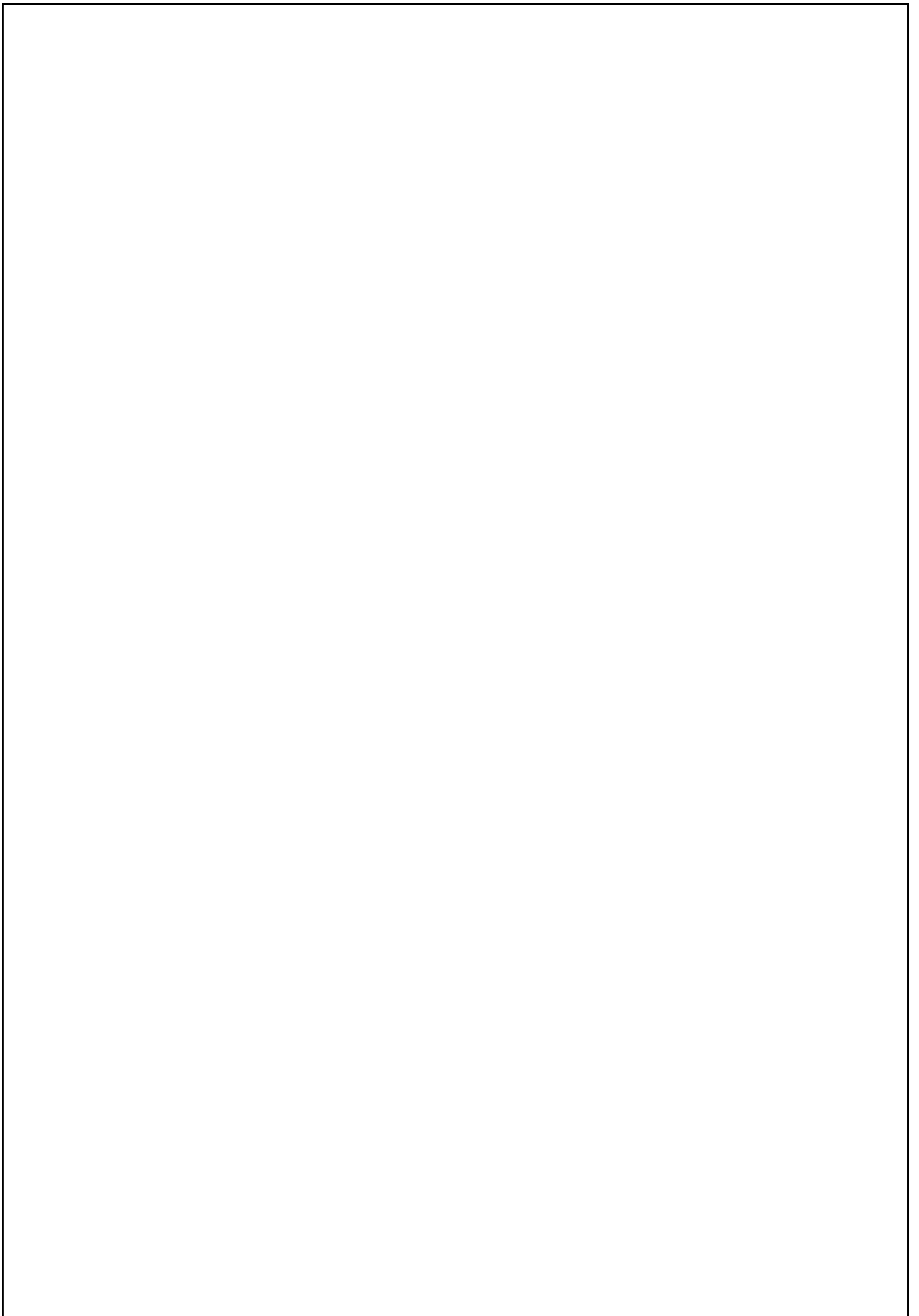
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## **BUSINESS NAME**

C4ES Pty Ltd

ACN 079 654 872

### ***Registered Office***

166 Cabbage Tree Road  
Grose Vale NSW 2753

### ***Director***

Paul Coffey

## **BUSINESS PROFILE**

In 1997 Paul Coffey recognised the need to improve resource management in Australia through the better use of resources and technology. C4ES was set up as a result with the aim of forming links between government and industry by developing practical approaches based on the fundamental experience of staff to move towards a more sustainable future.

The C4ES team draws on broad experience and skills from agricultural science, engineering, environment science, education and economics, with a working background in both industry and government to deliver effective outcomes for our clients.

### **What We Believe**

- Sustainability is not just reducing waste and pollutants, but improving our overall management and use and ultimately longevity of resources.
- Government, Industry and the Community are all interconnected with the environment and have a role a play in progressing towards a more sustainable way of living.
- Outcomes need to balance environmental, financial and social factors in order to be sustainable.
- Broad stakeholder involvement is a vital part of achieving workable outcomes.

### **Our Approach**

Our approach has earned the C4ES team a reputation as innovators who can develop and implement creative solutions to traditional waste and natural resource management problems:

- To explain complex issues in simple, yet comprehensive terms.
- To form partnerships with and between organisations.
- To leave a legacy, not just a report.
- To commence projects without any preconceived ideas.
- To conduct independent research.
- To find innovative solutions to resource management issues.

C4ES has extensive experience with environmental and waste management programs, policies and regulations and with private sector responses to these forces. The type of projects in which C4ES has had extensive experience demonstrates our ongoing commitment to sound environmental management and sustainable development. Projects include:

- Improving environmentally responsible production, distribution, recovery, procurement and reporting practices through Environmental Stewardship.
- Policy development and analysis at national, state, regional and local levels.
- Development of environmental planning and management systems.
- Market development for recyclable materials including paper, glass, organic materials, wood and plastics.
- The development of waste minimisation programs based on a full understanding of waste management and recycling costs and the economics and logistics of alternative approaches.
- The delivery of a broad range of research and services including resource audits, education and training, publicity and promotion campaigns, seminars and workshops and recycling programs.

C4ES has offices in Grose Vale, Sydney and Adelaide, and an extensive international network of contacts to keep up to date with international and local developments in waste management and recycling technologies, end use applications and product marketing techniques.

C4ES has built a strong reputation as a leader in the field of waste avoidance and environmental sustainability by providing stakeholders with a comprehensive program of technical assistance in six areas:

- Industry Leadership through Environmental Stewardship.
- Strategic Planning and Policy Development.
- Market Development for Recycled Materials.
- Waste Minimisation and Avoidance.
- Education and Training.
- Research and Other Services.

C4ES's principals are at the forefront of the development of a National resource approach and are leaders in the development of sustainable environmental solutions.

## **PRINCIPAL CONSULTANT**

**PAUL COFFEY** – Director, is Instrumentation and Control Engineer with a strong commercial and technical background developed during 35 years working with the mining, minerals processing, food production, public sector, agricultural, environment, and waste management industries. Paul is highly regarded as one of Australia’s leading authorities on organic waste, green waste and biosolids processing and materials management. With an extensive international network of peers, Paul stays abreast of global developments in technology and market opportunities. With the ability to quickly grasp and assess technical, processing and materials management problems Paul has assisted many of our clients improve their environmental performance in addition to significant cost savings.

## **C4ES CLIENTS**

C4ES clients include:

- Australian Government Department of Agriculture, Fisheries and Forestry
- Australian Wool Innovation Ltd
- Beverage Industry Environment Council
- ACT Government
- Waste Service NSW
- NSW DEC
- EcoRecycle Victoria
- SHOROC
- NSW JRG
- DrumMUSTER
- Environment Australia
- Coca-Cola Amatil
- Coca-Cola South Pacific
- Carlton United Brewers
- Southcorp
- Local Governments throughout Australia

## **RECENT REPORTS AND PROJECTS**

- Industry Performance Advisor for Southern Sydney Regional Organisation of Councils (SSROC) – on-going.
- Waste Resource Mapping South East Queensland Regional Organisation of Councils (SEQROC) - on-going.
- Environmental Audit of the Australian Sugar Industry - 2004.
- NSW Environment Protection Authority (EPA) - Wood/plastic composite in pallets – 2002-2004.
- Salisbury Council Hard Waste Collection Survey - 2003.
- AWI Green Offsets – 2002.
- Enhancing the Viability of DrumMUSTER for DrumMUSTER – 2002.
- Impacts of Implementing Container Deposit Legislation in the ACT for ACT NoWaste – 2002.
- Impacts of Container Deposit Legislation on Waste Service NSW Business and Local Government for Waste Service NSW – 2002.
- From Stewardship to Sustainability™ Report and Technical Reference Chapters for Australian Wool Innovation – 2002.
- Preparation of a Response to NSW EPA Green Offsets Draft Call for Submissions for Australian Wool Innovation – 2002.
- Recycling Education Program – Kerbside - Program Management/Facilitation and Evaluation for Resource NSW in association with Coca-Cola Amatil, Beverage Industry Environment Council (BIEC), Publishers National Environment Bureau (PNEB), Norske Skog, NSW Health, Plastics and Chemicals Industry Association (PACIA), Dairy Farmers, Visy Recycling, NSW Jurisdictional Recycling Group and Waste Service NSW – 2002.
- Community Knowledge and Support for Kerbside Recycling for Resource NSW in association with Coca-Cola Amatil, BIEC, PNEB, Norske Skog, NSW Health, PACIA, Dairy Farmers, Visy Recycling, NSW JRG and Waste Service NSW – 2002.
- Assessment of Stirling Collection Systems – 2002.

## PREVIOUS REPORTS AND PROJECTS

- Office Fitouts: Plasterboard Waste and Recycling Feasibility Study for the Inner Sydney Waste Board – 2001.
- Review of Waste Management and Recycling Practices at Carlton and United Breweries (CUB) Kent Brewery (2000) and Coca-Cola Amatil's Richlands, Perth, Adelaide, Kings Park, Smithfield and Northmead Facilities – 1999-2001.
- Impacts of Container Deposit Legislation on New South Wales Recycling and Litter Management Programs for the Beverage Industry Environment Council – 2000.
- Brisbane City Council 'Recycling and Waste Management Strategy' – 2000.
- Community Knowledge and Support for Kerbside Recycling for the Macarthur Waste Board – 2000.
- Feasibility Study for Living Cities National Resource Recovery Program – Development of Material Maps and Resource Inventories for Environment Australia – 2000.
- Feasibility Study of Non-Residential Beverage Container Recovery in association with Community Change Pty Ltd for BIEC – 2000.
- Research and Report of Key Stakeholder Involvement in Establishing a Wood Recycling Centre – 2000.
- Commercial & Industrial and Construction & Demolition Waste Audit and Advisory Service for Inner Sydney Waste Board – 2000.
- Development of Recycling Education Program – Kerbside for Macarthur Waste Board in association with Coca-Cola Amatil, BIEC and Waste Service NSW – 2000.
- Provided Assistance to Local Councils within the NSW Waste Boards to Implement Waste Reduction and Procurement Policies and Plans – 1999-2000.
- Infrastructure Implementation Plan for the Macarthur Region – 2000.
- Product Performance Investigations for Recycled Content Office Paper for Southern Sydney Waste Board, including the "Know Your Paper Guide" – 2000.
- Coca-Cola Amatil Prestons PET Recycling Facility Waste Management and Recycling Report – 1999.
- Preparation of Tender Documentation and Tender Assessment of Waste Management Services for Coca-Cola Amatil's NSW operations – 1999.
- Engaged as consultant for Evaluation of Processing Methodology 'Willoughby City Council - Food Waste Collection Trial' - 1999.
- Development of Markets for Recyclable Materials in Metropolitan NSW for the NSW Waste Boards – 1999.
- Development and Implementation of the Clean Hunter Centre in Newcastle for NSW State Government and Federal Government – 1998.

## **EXPERIENCE OF C4ES STAFF**

### **Environmental Stewardship**

- C4ES undertook an environmental audit of the Australian sugar industry, which was commissioned by the Department of Agriculture, Fisheries and Forestry under the Terms of Reference provided to it by the Australian Government. The report produced a snapshot of the industry management practices, made recommendations on industry-wide Code of Practice and Best Management Practice, and reviewed the effectiveness of industry self-assessment tools. C4ES examined sugar production along the value chain and surveyed growers, harvesters, mills and refineries in sugar cane regions across Australia. The audit also considered strategies for improved engagement between industry and other stakeholders.
- Wool Production Industry - a comprehensive study of the environmental impacts of the Australian wool production industry (36,000 wool producers and 13 early stage processors) and stewardship strategy development. The environmental footprint component included an assessment of dryland salinity, soil acidity, soil and water erosion, water resources, biodiversity, greenhouse gas emissions, pesticide use and wool processing.
- Australian Wool Innovation Limited (AWI) commissioned C4ES to develop a briefing document and public submission on behalf of AWI on the NSW EPA's proposed Green Offsets scheme. Potential opportunities and impacts for AWI and wool producers were identified in regards to Green Offsets to form the foundation for future discussions and negotiations in regards to this market-based instrument. This included an investigation of nutrient trading and its potential to reduce the nutrient loadings of farmers to catchments.
- Commissioned to assess the long-term viability of the collection and processing of empty, non-returnable chemical containers under the drumMUSTER program and to develop specific recommendations for program enhancements. This study included conducting economic analysis and SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis for alternative strategies relating to program (in conjunction with SOS Initiatives).

### **Strategic Negotiation**

- Preparation of major discussion papers and forums for key local government stakeholders.
- Assisted with the development of national strategies for waste minimisation and recycling.
- Members of Federal Minister's National Committee for Regional Co-operation, which operated under the auspices of the Australian Local Government Association.
- Represented a state environmental agency in negotiation and legislative development to incorporate risk-based decision making in policy development.
- Staff direction and consensus development for Florida Packaging Council.

### **Economic Development**

- Successfully negotiated the relocation of a newspaper processing company. This company currently holds Australian and European patents for its method of handling newsprint for value-adding.
- Successfully negotiated with local, interstate and overseas companies to establish a post consumer plastics industry.
- Initiated and successfully sought funding for feasibility studies and consequently secured \$800,000 funding from the private and public sectors to establish a regional skills training and business development centre.

### **Business Planning**

- Development of a holistic business plan for State-based recycling peak body to provide the direction and means of evaluating progress.
- Development of waste and recycling evaluation models.
- Development of revised financial strategies to significantly improve returns from major landfills.
- Development of strategic and corporate planning models.

### **Environmental Planning**

- Initiated a proposal for funding for the development of regional environment strategies and assisted with the negotiations to secure Federal funding for the program.
- Conducted the recruitment of councils for the pilot phase of the Cities for Climate Protection program that provides a local based leadership approach to greenhouse gas emissions.
- Development of Agenda 21 planning process for Local Government authority.
- Water quality assessment and investigation into suitable aquatic wildlife for wetland development.

### **Recycled Product Market Development**

- Development of local and international marketing strategies for a range of recycled paper, organic and glass products.
- Development of marketing strategies for post consumer plastics.
- Development of marketing strategies and recommended infrastructure for wood products.

## **Recycling**

- Feasibility study and business plan for regional recycling facility.
- Policy development for peak recycling bodies.
- Evaluation of kerbside recycling systems.
- Facilitating development of viable secondary markets for waste paper.
- Development of kerbside recycling models to determine the optimum size and location of material recycling facilities.
- Policy development regarding the development of regional recycling centres.
- Regional material recycling studies to investigate opportunities for reuse of materials within manufacturing industries.
- Legislative development and implementation of economic instruments for recycling market development.
- Identification of secondary recycling market opportunities for multinational container manufacturer.
- Identification of secondary recycling market opportunities for NSW wood waste resources.
- Implementation strategies for waste reduction and procurement policies, including development of performance specifications and an online register for recycled products.
- Development of best practice collection principles.
- Development of state-wide waste paper recycling scheme and green organics strategies.
- Business review of recycling contractors to evaluate efficiency and viability.
- Development of best management practices for recovery and reuse of green organics.
- Development of comprehensive directory of commercial and government recycling facilities and services.
- Development of a series of waste minimisation fact sheets for industry.

## **Waste Management**

- Development of waste management options and strategic plans for government and industry.
- Development of waste minimisation guidelines for corporate sponsorship of public events.
- Waste minimisation planning for local industries.
- Impact assessment of NSW Dairy Industry Waste Reduction Plan.

### **Landfill Management**

- Rehabilitation management plan for waste disposal sites.
- Site operation contract management.
- Policy direction for major landfill sites.
- Negotiation and implementation of landfill resource management contract.

### **Resource Identification - Resource Audits**

- Development of waste minimisation and recycling strategies for multinational beverage manufacturer, including nationally consistent tender documents.
- Adoption of the principles of identification of recoverable resources rather than conducting “waste audits”.
- Development of analysis systems to monitor residential waste disposal and recycling behaviour.
- Development of methodologies for resource / waste auditing of office buildings.

### **Project Management**

- Managed Cross Regional Recycled Product Market Development Project for recyclable materials glass, paper and wood in NSW.
- Commissioned management for the Oil from Sludge Facility in Perth.
- Clean Up Australia Day – Project co-ordination for southern region of Adelaide involving over 26 sites.
- Management of major local government projects.

### **Tender Preparation, Evaluation and Administration**

- Preparation of tender documentation for waste, recycling and green waste collection.
- Tender specification for strategic biosolids evaluation.
- Preparation of registration of interest and tender specifications for Green Organics Strategy for metropolitan Adelaide.
- Tender documents and tender evaluation for a regional green waste processing facility.
- Tender specification for strategic plan community consultation facilitator.

## **Green Waste and Organic Waste Management**

- Development and implementation of the Green Organics Action Plan for Metropolitan Adelaide.
- Tender preparation and tender evaluation for WSC for the Regional Green Waste Processing Facility at Buttonderry Creek SWDD.
- Produced best management practices for green organics recovery and reuse (SA).
- Technical support for the development and submission of the EIS for a major Sydney composting facility.
- Initiated and implemented large-scale research and demonstration trials for green waste in conjunction with the Commonwealth Scientific and Industrial Research Organisation (CSIRO).
- Management and reuse of in excess of 200,000 tonnes of biosolids.
- Design and construction of a number of biosolids processing facilities.
- Gosford City Council – Garden Waste Collection Options Study and Expression of Interest (EOI).

## **Seminars and Workshops**

- Public policy seminars and stakeholder consultations in US and Australia to further public policy development of economic instruments for environmental protection.
- Cleaner production and waste minimisation workshops for local industries.
- Co-ordination of market development workshops for glass, paper and wood stakeholders.
- Workshops designed to assist community groups access Natural Heritage Trust funding.
- Environmental Management Systems and Agenda 21 workshops for Local Government.

## **Publicity and Promotion**

- Public education of economic instruments for recycling markets, including national recycling congresses in US and Canada and testimony before legislative committees.
- Production of regular newsletters and media releases.
- Implementation of publicity and promotional campaign for new garbage, recycling and green waste collection service.

## **Education**

- Recycling Education Program - Kerbside
- Development and implementation of schools recycling program for Councils.
- Environmental Forum for Schools – 5 hour forum involving 200 students with rotating educational activities including waste minimisation and litter, water quality monitoring, revegetation.

## **Research**

- Literature review of overseas extended producer responsibility models.
- Sydney Water – international review of biosolids drying systems.
- International literature search and report “Beneficial Land Application of Organic Liquid Wastes Containing Levels of Fats and Oils”.
- Research and data collection, green waste, sea grass and biosolids processing options.
- Development of a database of organic reprocessing initiatives.
- Development of a database of glass, paper and wood stakeholders.

## **REFEREES**

Charlie Woolford  
Procurement & Environment Manager  
Visy Recycling

Phone: (02) 9825 7102

Mark Ricketts  
Senior Programs Manager  
Brisbane City Council

Phone: (07) 3403 4723

Margaret Nicholson  
Project Officer  
ACT NoWaste

Phone: (02) 6207 5898

Maree McCaskill  
Chief Executive Officer  
Beverage Industry Environment Council

Phone: (02) 9518 6566

Les McMahon  
Director of Works  
City of Botany Council

Phone: (02) 9366 3666

## RESUME OF PROJECT TEAM

### **Paul Coffey (Director)**

**Qualifications:** Instrumentation and Control Engineer (NSWIT)

Paul Coffey is an Instrumentation and Control Engineer with over thirty years technical, commercial and management experience in process design and materials handling in the government, manufacturing, mining and food industries. This experience is complimented by six years as a hands-on manager providing innovative solutions to the generators of organic waste for recycling and processing prior to entering the consulting arena in 1996.

With 15 years experience in the heavy mining and resource industry managing the installation and commissioning of new plant and major shut downs Paul has a keen understanding of the technical demands of the materials processing industry. Coupled with the responsibility for the tender preparation and implementation of multi-million dollar processing plants Paul also has a strong background in commercial contract management and tender negotiations.

Responsible for the design philosophy and control systems for major installations such as the Pilkington Float Glass Batch System, two Batch and Alloy Systems for BHP Steel, Batch and Alloy System for Smorgons Mini Mill, Alloys Handling System for Temco (Bell Bay) and food processing systems for APD Snack Foods Paul has a demonstrated ability to deliver successful engineered solutions.

Paul was an industry representative on the NSW EPA Hazardous Chemicals Advisory Committee (HCAC) for the development of the "Environmental Management Guidelines for the Use and Disposal of Biosolids Products" (1991 – 1996) and was the Industry Representative on the NSW State Government's Green Waste Action Plan Implementation Task force (1996 – 1999) and Chairman of COMMPOST NSW (1997 – 1999). Paul is currently a Technical advisor on the NSW Biosolids Taskforce.

Paul assisted with the development of the Green Organics Strategy for Metropolitan Adelaide and prepared Adelaide's Best Management Practice Guidelines and has managed the development and planning approvals of two of Sydney's major recycling sites used to recover organic, C&D and C&I wastes.

Paul designed, erected and commissioned four major biosolids processing facilities and was engaged as the commissioning manager for the ESI/Clough (Oil from Sludge) OFS Plant at the Subiaco Sewage Treatment Plant (STP) in Perth, which involved dewatering, sludge drying and stabilisation. Paul was also engaged by Andritz AG as the construction manager for the Sludge Drying Facility for Waste Service NSW Liquid Waste Treatment Facility.

Paul has travelled extensively in Australia, Europe, the UK and the USA to study organic, liquid and solid waste processing methods, technologies and reuse options, maintaining and understanding of these options in regards to their environmental and social acceptance Paul has been invited to chair conferences and to participate in a number of National and International Conferences and Workshops. With an extensive international network of peers Paul is respected by both his clients and his competitors.

### **Dr Patricia Chamberlain (Research Analyst)**

**Qualifications:** BSc (Hons, Chem.), PhD (Chemical Engineering)

Patricia investigated the environmental impacts of combustion processes at both the University of Sydney (honours research) and the CSIRO Division of Energy Technology (PhD research). Working with the Air Quality Research Group at the CSIRO, she has gained an appreciation of a broad range of environmental issues, including greenhouse impacts, smog formation, ozone layer depletion and acid rain, especially as they relate to the coal and power industries.

Since joining C4ES in 2000, Patricia has been involved in collation and interpretation of community survey information relating to recycling behaviour and sugar farming best management practices, and has been involved in stakeholder consultations for projects concerning C&D recycling, advance disposal fee programs and natural resource management. This has involved consultations with industry, research organisations, and government.

Patricia has conducted extensive desktop research into the costs and benefits of bulk supply, refillable and single use packaging, plasterboard recycling options, environmental impacts of the Australian wool production industry and NO<sub>x</sub> formation and control during coal combustion. She is a member of the Energy from Waste Division (currently Secretary of NSW Working Group) of the Waste Management Association of Australia and is a graduate member of the Australian Institute of Energy.

### **Christopher Graham (Technical Officer)**

**Qualifications:** Bachelor of Agricultural Science (Hons)

Chris has an honours degree in Agricultural Science and has worked on agricultural properties in various regions of NSW, QLD and SA. This includes management experience in broad acre cropping and merino wool production.

Previous experience includes work with NSW Agriculture's Organic Waste Recycling Unit, and experience with a sludge management company, responsible for processing, marketing and land application of biosolids on cropping and pastoral properties.

Chris has extensive experience in the application of organic wastes to improve productivity in agricultural soils and also to rehabilitate mine sites. This has included investigating options for the recycling of wool scouring wastes.

Chris's technical skills, experience and broad knowledge and understanding of available technologies are a valuable contribution to the C4ES team. Chris has been responsible for the development and management of beneficial reuse strategies for organic wastes, and has further been responsible for the assessment of processing technologies, recycled products and beneficial reuse markets for a wide range of waste management projects. This has included evaluating tenders and EOI's on behalf of local government, water authorities and private industry.

### **Lynda Lewis (Sustainability Educator)**

**Qualifications:** RN. CM. Grad Dip Adult Ed (Environmental Curriculum). Grad Cert ESD

Lynda had twenty years experience as a health professional, a Midwife and Clinical Nurse Specialist with responsibilities for education, research and quality assurance programs before becoming actively involved in learning for sustainability.

Lynda is experienced in community consultation, environmental education and policy and strategy development. She works part-time at the Western Sydney Institute teaching a range of subjects in certificate and post graduate environmental/waste management courses.

Recent projects (2001-2004) include:

- Developing an education/communication strategy for used oil recycling (Netwaste) (current);
- Development and delivery of Course Materials in Waste Management, Ecologically Sustainable Development, and Sustainable Business Practices Western Sydney Institute of TAFE (current);
- Resource Recovery Program, Sydney Convention and Exhibition Centre (current);
- Recycling Education Program – Kerbside – Research, coordination, implementation;
- Schools Program - Resource NSW;
- "Earth Works", as a trainer and member of the partners group;
- "Look Sharp" (medical waste in recycling);
- Briefings for Builders; and
- "Focusing On Our Future" Waste Education Strategy workshops and presentations.

### **Rashelle Haskins (Administration Manager)**

Rashelle has nine years experience as a Secretary / Receptionist in legal and industry offices. Rashelle provides a wide range of support and administrative tasks for all C4ES staff and ensures the smooth running of the C4ES Head Office.

Rashelle is responsible for company financial accounts and ensures that all communications and the organisation of meeting and travel schedules are attended to in a timely manner. Close contact with Sydney and Adelaide offices is also maintained.

## **NETWORKS AND AFFILIATIONS**

### **Paul Coffey**

- Institute of Instrumentation & Control Australia
- Environmental Engineering Society, Institute of Engineers Australia
- Waste Management Association of Australia (WMAA)
  - COMPOST NSW – Chairman 1997-1999 (Division of WMAA)
  - Energy from Waste Division (Division of WMAA)
- Water Environment Federation (WEF)
- Australian Water Association (AWA)
- NSW Biosolids Task Force (Technical Advisor)

### **Patricia Chamberlain**

- Waste Management Association of Australia (WMAA)
  - Secretary of the Energy from Waste Division (Division of WMAA) NSW Working Group
- Australian Institute of Energy (graduate member)

### **Chris Graham**

- Waste Management Association of Australia (WMAA)
  - COMPOST NSW (Division of WMAA)
- Australian Water Association (AWA)

### **Lynda Lewis**

- Australian Association for Environmental Education
- Waste Educators Network