Holt, D. (2011), The Longitudinal Evolution Of Environmental 'Ecopreneurs' From The 1990s: Mergers And Acquisitions And The Waste Management Industry. In Eweje, G & Perry, M (Eds), Business & Sustainability: Concepts, Strategies and Changes, Emerald Publishing pp. 101-120
ISBN: 978-1-78052-438-2

Dr Diane Holt

Queen's University Management School

Queen's University Belfast, UK

Introduction

The 1990's saw the promotion of the win-win paradigm of the benefits to business by '*going green'* (e.g. Saunders, 1993) whereby the emerging environmental imperative offered businesses opportunities for environmental efficiencies, and new competitive opportunities. At the same time, a number of publications promoted the idea of the entrepreneurial opportunities for new business creation caused by this emerging environmental (and latterly sustainability) ethic such as those by Bennett (1991) and Berle (1991).

Entrepreneurs are often described as those who *'perceive an opportunity and create an organization to pursue it'* (Bygrave and Hofer, 1991:14). Social conditions in the 1980s and early 1990s offered many entrepreneurial individuals emerging opportunities for new business creation or innovation within their products and services, related to increasing calls to manage wastes and adopt a 'greener' lifestyle with a lower environmental burden. This 'opportunity recognition' is a concept reviewed by Lumpkin *et al.* (2004) who note the lack of studies considering this phenomenon.

Businesses with a environmental (green) primary product or service are variously described as ecopreneurs (Bennett, 1991; Schaper, 2002), environmental entrepreneurship (de Bruin and Lewis, 2005; Schaltegger, 2005), enviropreneurship (Menon and Menon, 1997), green entrepreneurship (Berle, 1991) and green-green businesses (Isaak, 1997). Various descriptions include:

- ecological-purpose business ventures that are *'system-transforming, socially committed environmental businesses characterized by breakthrough innovation'* (Isaak, 1997:80);
- created from '*new products, services or organizations to meet environmental market opportunities'* (Lober, 1998: 26);
- *'entrepreneurial activity that benefits the environment' (*Hendrickson and Tuttle, 1997:363).
- an integration of environmentalism and entrepreneurship leading to innovative technological solutions that are entrepreneurial in nature, but with a triple bottom line perspective (Menon and Menon, 1997).

Schaper (2005) presents the most recent and holistic definition of ecopreneurs as: commercial activities with a net positive impact on the environment; entrepreneurial in some way; and demonstrating an intentionality emerging from sustainability orientated personal belief system of the founder ecopreneur(s) or green champion.

Examining the companies named in Bennett's (1991) *'Ecopreneurs'* and Berle's (1991) *'The Green Entrepreneur'* publications it is clear that their examples range across these different definitions from those born 'green' in the manner of Isaak (1997), to those based on a traditional business model taking advantages of the new emerging market opportunities offered by the rise of environmentalism within society (after Lober, 1998), or those converting to a more sustainable paradigm.

It should also be considered that the definition of ecopreneurial activity has evolved from those examples cited in the early 1990s, to those examples considered in the edited work by Schaper (2005). What may have been breakthrough innovation in the early 1990s, such as recycling based businesses or products with a lower environmental burden, have been mainstreamed by market changes and policy developments (such as the emergence of organic product lines in mainstream supermarkets, the development of mandatory recycling targets and State-led alternative energy initiatives). Emphasis within the 1991 publications by both Bennett and Berle was on businesses with an environmental focus yet many consider today's ecopreneurs to have not only an environmental ethic, but also a social dimension within responsible business practice as part of the social, economic and environmental bottom line perspective (Schaper, 2005).

Essentially what Bennett and Berle both describe are what might be considered as 'green enterprises' – businesses that have a product or service that is based predominantly on managing or using environmental / natural capital and consider (to varying degrees) the three aspects of the pillars of sustainability, incorporating environmental, social, and economic criteria. The development of these case studies through mergers, acquisitions, failure, growth, disappearance or post bankruptcy organisation reflects both the development of this sample of businesses but may also reflect changing business conditions over time. The common denominating factor is that they were all considered in the early 1990s to be 'classic' examples of green/ecopreneurial businesses and all either started up a business model associated in some form with a more sustainable use of our environment, or transformed their business model to consider environmental issues as a market opportunity and /or as a social necessity given changing legislative and policy decisions.

The objective of this chapter is to present some of the cases indentified by Bennett or Berle and explore what has happened to them in the intervening two+ decades. This chapter is part of an ongoing research project, the TracEE Project, which considers the longitudinal evolution of environmental / ecopreneurial enterprises (see for instance Holt, in press). This chapter considers two main areas: the role of mergers and acquisitions as growth strategies; and case examples from the emerging waste management industry.

Methodology of the TracEE Project

Using the Bennett (1991) and Berle (1991) publications as a historical picture of what were considered to be 'best-practice' examples of ecopreneurial businesses in the 1990s allows a longitudinal assessment of the success and failure of such businesses almost two decades on. Tracking their evolution facilitates the consideration of emerging patterns in their development, such as what happened within certain industries, whether common patterns emerge in the role of the founder ecopreneurs and how successful different firms actually were.

The initial sample is a convenience sample, identified by scanning these two publications to identify any mention of examples of what each publication considered to be ecopreneurial businesses. This sample was then expanded by using a LexisNexis search of newspaper articles reporting on green businesses from the period1989-1991. Information on each case was distilled to a summary table of business focus, ownership, and location in 1991. Only examples that provided sufficient information for identification were included (typically name, location and function). In the second stage, the worldwide web was used to search for any online mention, noting current business status, the services currently offered and any other pertinent information on success/failure and business development. Any available financial data available on the manta financial website[i], sourced from Dun and Bradstreet, was also noted. A search was then conducted using the company name on LexisNexis to identify any newspaper, trade publication or business wire services announcements for the 1991 company and the subsequent merged and associated companies.

Introducing the sample

Initial scanning of the two publications yielded 310 company names, individuals, publications (such as trade magazines) or industry associations. Subsequent evaluation of these identified 87 not considered as 'green' companies/start ups but as companies that were identified as having some form of environmental product or innovation or were trade associations or similar. These companies were mostly large companies mentioned by Berle (1991) for integrating environmental management practices into their organisations (for example American Electric Power or Electrolux). This does not mean they have not promoted entrepreneurial green innovations but the focus of this chapter is on those companies that were born out of the emerging green agenda. A number of these excluded cases were also industry associations such as the Centre for Responsible Tourism and the American iron and Steel Institute, leaving a remaining sample of 223 companies

Table 1: Business status in 2010 of the selected sample

Business Status	***Number***	***%***	***% of total***
Sold	26	11.7	60
Failed	14	6.3	
Not found/status unclear	95	42.6	
Currently trading	88	39.4	40

Within Table 1 some key patterns emerge. A number of companies were sold; some were sold and subsequently failed (such as some of the small waste management companies bought by bigger players like Phillips who then declared bankruptcy a few years later). Other companies like the health food store *Bread and Circus* were bought for assets as part of the growth phase of *Whole Foods.* This idea of growth through mergers and acquisitions is explored later in this chapter.

A small sample is positively identified as having failed (6%) but there is a much higher failure rate that is represented by the ‘not found’ designation. This means than no recent mention of the company exists online, or on the business wire services, suggesting these companies are moribund or have failed. Almost half of the sample is in this failed status and this does not include those sold but then subsequently failed (see Holt, in press for a further discussion of failure rates).

There are 88 companies that are still trading in some form or another. Many of these remain in the subsidence stage of their business lifecycle with little growth and perhaps represent ‘mom and pop’ type firms. A number have been highly successful including the Appliance Recycling Centers of America, KLD Research and Analytics (recently acquired) and Alteris Renewables. Interestingly some of the most successful starts ups from the 1980s and 90s are now subsidiaries or brands owned by larger mainstream companies (such as Tom’s of Maine, Earths Best, Body Shop, and Gaiam Real Goods)

Growth through Mergers and Acquisitions

A merger occurs when two or more companies consolidate through the exchange of common stock resulting in a single company (Morris and Morris, 2007). An acquisition (takeover) is when one company purchases, or takes over, the assets of another, with the acquiring company continuing to function and the acquired company ceasing to exist (Morris and Morris, 2007). These developments are collectively referred to as mergers and acquisitions (M&A).

Yin and Shanley (2008: 474) explore the various reasons for M&As and alliances including scale / scope economies, resources dependence, transaction costs, institutional pressures, network effects and organizational learning. Haleblian *et al.* (2009) present a comprehensive review of the current state of knowledge about M&As and classify the reasons why firms acquire as value creation, managerial self interest, environmental factors or firm characteristics. They also note the lack of integrated theoretical research on M&As, the absence of longitudinal studies, the need for a multidisciplinary perspective, and the predominance of quantitative studies based on larger firms, in the antecedent literature.

There are three distinct types of M&As. Firstly *horizontal mergers* between companies in the same industry typically as a form of industry consolidation (after Berger *et al.,* 1998), or market power to increase firm level pricing power by decreasing competitors (Haleblian *et al.* 2009). Rhodes-Kropt and Robinson (2008) describe this as *‘like buys like’*, though they note the tendency for firms of similar asset levels to merge so they have an equal leverage. A pattern also emerges where a weaker firm may be acquired by one that is more powerful, with Graebner and Eisenhardt (2004) stating that firms facing difficult strategic choices are more likely to be acquired.

Vertical mergers occur between firms in the same industry but with a different product range or processes, and may be a way to acquire new resources or as a way to acquire innovations (Puranam and Srikanth, 2007). Pfeffer (1972) found that firms manage their resource dependencies by absorbing those that they need through mergers.

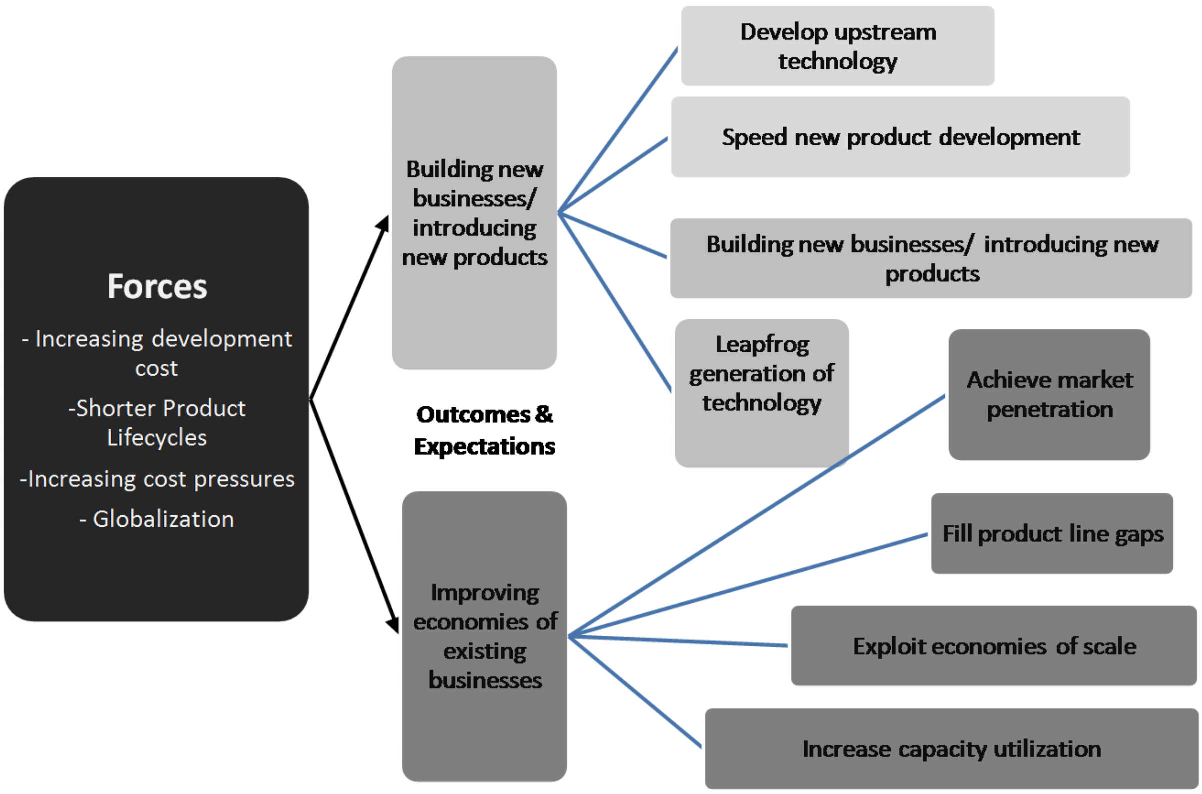

Figure 1: Antecedent forces driving alliances and potential outcomes within high technology industries (after Krubasik and Launtenschlager, 1993).

The third form of M&A is *product extensions* where merging firms are not competitors but do have commonalities or related products, markets or distribution channels. This relates to idea of extending further into the value chain and widening the business model. An overview of the forces that drive M&As and potential outcomes was modeled by Krubasik and Launtenschlager (1993) for high technology firms (as illustrated in Figure 1). A parallel might be drawn between these highly specialized technology industries and those in the niche eco-products and services industries. Some of the mergers and acquisitions within the sample of 223 companies are profiled in Table 2.

Table 2. Summary of the sample of Merger and Acquisition activity

Name (alternative)	Focus	Location	Start up	Type	Status (2008)	Sales mill $ (size)
Aqua Glass	Produced fiberglass bathtubs, shower stalls, sinks and portable spas from PET plastics	Adamsville Tennessee	1984	Product from post consumer waste	subsidiary of Masco Corporation - still trading but not with eco-product mentioned in 1991	108.8 (very large)
Body Shop	Initial store – then franchise of retail stores selling environmentally friendly cosmetics	Was Littlehampton UK	1976	Retailer	subsidiary of L'Oreal - still trading. £652 million takeover in 2006, 2000 outlets in 54 countries	786.9 (very large)
Bread and Circus	Natural food supermarkets	was Massachusetts	1975	Retailer	acquired by Whole foods in 1992	n/a
Circo Glass Company (Allwaste)	Glass recycling company	San Francisco	1971	Waste recycling and services	merged with Allwaste Inc of Houston Texas -largest glass recycler in US acquired by Phillips in 1997 - who filed for bankruptcy in 1999	n/a
Cyklop (Delta-Cyklop Strapping Systems)	manufacturer of strapping using PET bottles	Downington Pennsylvania	1974	Product from post consumer waste	part of Illinois Tool Works Inc - still trading	<0.5 (Micro)
Earth's Best	Produced organic pesticide free baby foods	Burlington Vermont	1984	Food product	acquired by Heinz in 1996, then Hain Celestial - still trading as a brand	n/a
Nasoya	Produced organic tofu	Leominster MA	1977	Food product	acquired by Hong Kong Soya Bean Products Co. Ltd. in 1990 to brand as a brand - original ecopreneur moved into new ecobusiness	n/a
Nature's Gate	Produced environmentally safe products in personal care area	Chatsworth California	1970 s	Personal care products	operating as brand within Levlad Inc (owned by equity firm) Parent firm very large revenue $25-75 million	n/a
New England Container Recovery Inc (CRInc.)	services 5000 retail accounts to recycle beverage containers		1982	Waste recycling and services	sold to WMX in 1995 (in liquidation) assets sold	n/a
Pride's Corner Farms	produce their own fertilizer (Eathgro) from agricultural waste and sewage sludge.	Lebanon Connecticut	1977	Product from post consumer waste	original mention in Bennett was an a fertilizer product - Earthgro - this was business was sold for $47 million in 1998 to publically listed Scotts company. Now trades	n/a

					as a brand. Prides Corner Farms still operating successfully.	
R W Frookies Corporation	Produced healthy cookie range	Englewood New Jersey	1998	Food product	merged with Delicious Brands, which went public, and then taken over. Part of assets recovered in 2000 and trades as a brand. Original ecopreneur moved to new eco-business (Cool Fruits)	n./a
Real Goods Trading Company (Gaiam Real Goods)	mail order alternative energy products	Ukiah California	1978	Home and Garden Products	was bankrupt in 1986 - reorganised and recovered. Founder is president. Is a wholly owned subsidiary of Gaiam since 2001 (sales of $200+ million per year)	19.4
Ringer Corporation (Verdant)	Produced insecticides with all natural ingredients, sold composting tools and mail order gardening suppliers	Minneapolis	1989	Home and Garden Products	rebranded to Verdant, acquired number of companies, listed. Delisted 1991 and assets broken up	n/a
Sobek Expeditions (Mountain Travel Sobek)	Outdoor Adventures – Ecotourism -used guidelines for interaction with indigenous peoples	Angels Camp California	1973	Tourism	merged with Mountain Travel in 2001. original founders moved on	medium
Solar Works Inc	Installed solar systems	Montpelier Vermont	1980	Renewable energy systems	merged to form Alteris in 2008. recapitalised by private investment in 1995	9 (medium)
Tom's of Maine	set up to produce toothpaste, shampoo and deodorant with all natural ingredients, 1982 expanded into mass market	Kennebunk	Early 1970s	Personal care products	now independently run division within Colgate-Palmolive Company. Founder still involved	25 (medium)
Trimax Lumber (Trimax Building Products Inc)	Produced plastic lumber for construction	Lincoln Park New Jersey		Product from post consumer waste	Trimax bought by US Plastic Lumber in 2004 who then went bankrupt. Assets sold to private investor who renamed USPL Trimax Building Products Inc	6.8 (medium)
Tri-R systems	Conglomerate of five units, multi-commodity recycling firm	initially Denver		Waste recycling and services	in 1989 went public. Filed for Chapter 11 bankruptcy in 1990 until 1993. Three of units sold by March 1995. Remaining elements linked to small firm Dataguard	n/a

M&As in ecopreneurial businesses – an example of the waste management industries

This section explores businesses associated with the sample of waste management industries that emerged (in a relatively ad hoc manner) to deal with the management of household and commercial wastes, especially those associated with post consumer recycling and reuse. In 1991 waste management policy and legislation was still enacted in the USA primarily on a State level. Municipal recycling schemes were in their infancy and many companies were struggling to develop ways to respond to policy and consumer imperatives to reduce, reuse and recycle their wastes. Part of the 'win-win' business scenarios played out by those promoting how being 'green' offered competitive advantages was as a result of the savings accrued when companies managed their waste hierarchy and resource usage (Holt, 1998), there were few formal mechanisms to manage these in place in the USA in the late 1980s.

Each of the companies identified in the waste management industries in Table 2 is introduced in this next section. In addition some brief notes are presented for the reader on the subsequent companies they interacted with, or others acquired by the same company that acquired our case - many of whom were also similar environmental businesses to the ones presented in Table 2. This provides fertile ground for readers to explore the history of some of these other case examples as extended reading for this chapter.

Table 2 also presents additional examples of M&As with this sample of ecopreneruial businesses and again readers are urged to track the history of each of these and reflect on the role M&A activity played in the development of these businesses or their subsequent owners.

Circo Glass Company (also Allwaste/A&A Recycling and Waste Systems/Philips Environmental). Bennett (1991) described the Circo Glass Company as an ecopreneurial business due to its principal business activities of glass recycling. This is a typical example of environmental enterprise that grew to exploit the new niche markets opening up in the recycling industries of the time. By 1989 it had grown to be the largest glass recycler and processor in the western United States, focusing on recycling of glass, municipal curbside recycling and collection of aluminum cans, plastic containers and other consumer recyclables. It was acquired by Allwaste Inc. in late 1989, alongside a number of other acquisitions as part of Allwaste's aggressive region by region growth strategy using M&As as their principal mechanism of expansion into the recycling industry (Pulley, 1992). Mike Anderson the president of the not for profit recycling company 'Garbage Reincarnation Inc' describes '*larger companies...gobbling up smaller ones in a rush to corner the rapidly expanding recycling market'* (cited in Pulley, 1992:4)[ii]

Allwaste also acquired A&A Recycling & Waste Systems, a Sacramento waste hauler and glass recycler, was also sold to Allwaste Inc. in 1993. A &A, founded in 1983, was the fourth largest commercial waste hauler in the Sacramento area and one of the largest glass recyclers in Northern California, with annual revenues of $ 5 million in 1991 (Pulley, 1992). Post acquisition A&A became the Central California division of Allwaste's subsidiary Circo Glass. In response to the legislative changes of the 1990s, companies like Allwaste targeted States like California that were developing mandatory recycling targets.

Allwaste was subsequently acquired itself by Philip Environmental Inc., founded in Hamilton (Canada) in 1980 by two brothers who ran two trucks offering recycling and waste cleanup services. By 1997 Phillips Environmental were forecasting returns of $2.5 billion. Their growth strategy was again through acquisitions of smaller companies; including the purchase of Allwaste in 1997 for $540-million. Over a period of 6 months they undertook nine acquisitions totaling almost $700 million, with a further $2-billion worth of possible takeovers under consideration. This built on the previous acquisition of 38 small companies within 28 months between 1991 and 1993 (McFarland, 1997). Quoted in 1997, the owner Mr. Allen Fracassi stated the company would probably stay in this buying phase for about five years as part of a consolidation of the waste management industry to 'about 10 major companies' (cited in McFarland, 1997:B12). Renamed Philips Serv. Corp in 1997, the late 1990s saw a disastrous time for the company who filed for bankruptcy protection in 1999. A series of accounting discrepancies weakened shareholder and market confidence, leading to a nine year legal battle with shareholders accusing Philips of securities fraud which was eventually settled for $80 million.

New England Container Recovery Inc (also Wellman/ WMX Corp.) The Massachusetts Beverage Container Law was passed in 1983 with a 5c deposit charge and mandatory takeback of bottles and cans. This legislation was the impetus for a whole series of new business start ups including approximately 100 warehouse operations specializing in mass container redemptions and businesses like New England CRInc (Torry, 1987). CRInc was formed by thirteen beer distributors who joined to form a company to pick up empties from retailers, processes them and sell them onto glass and aluminium industries.

CRInc was purchased in August 1990 for $17.8 million by Wellman Inc (Paul, 1995) in order to expand Wellman’s operations into this area. By the time of this sale to Wellman inc, CRInc. were designing, building, and operating material recovery facilities for both the private and public sectors, and was the exclusive distributor of the Maschinenfabrik Bezner system for sorting commingled recyclables.

Post acquisition as a Wellman subsidiary, CRInc grew rapidly including the contract awarded in 1992 by the City of Phoenix to sort and market municipal recyclable materials collected in the Phoenix Recycles program (City of Phoenix, 2009). The CRIncs Materials Recovery Facility was the first large-scale recycling facility in North America to process a single stream of commingled recyclables. By 1994 CRInc. was reporting sales of $27 million (Paul, 1995).

In 1995 Wellman sold New England CRInc to Waste Management Inc (WMI), a division of the WMX Technologies Inc. Wellman deducted an after-tax loss of $3.4 million on the expected sale of this subsidiary. Industry analysts said WMX's purchase of CRInc. was consistent with the WMXs strategy to acquire its way into the recycling business (Anon, 1995; Paul, 1995). Resource Recycling Technologies Inc. of Vestal, New York was also acquired by WMX as part of this growth strategy around the same time. The purchase of

New England CRInc added 15 processing plants to the 160+ sites operated by Waste Management Inc (Anon, 1995).

CRInc was acquired by WMI, who were set up in 1968 as small company hauling trash. From its beginnings in a three-man office WMI grew into a huge waste-disposal empire over the next two decades, expanding by buying up smaller haulage companies. Their business portfolio widened in the 1980s to include hazardous waste companies, chemical treatment firms, waste- to-energy incinerators and environmental engineering firms and the company changed its name to WMX Technologies Inc. in 1993 to reflect the diverse range of operations (Anon 2001; Comerford, 2002) before changing back to Waste Management Inc in 1997. In 1998 accounting problems emerged resulting in the firm having to take a $3.5 billion earnings restatement (Comerford, 2002), the largest in corporate history. Significantly weakened it was purchased by the Houston-based USA Waste Services Inc. who took the WMI name in a deal valued at $25 billion, and remains a publically traded company today. WMI is now amongst the largest waste management companies in the world and is the recipient of stinging criticism for it environmental and financial accountability, including having to settle a class-action suit for securities fraud in 2001 for $457 (Comerford, 2002). The assets of CRInc incorporated into WMI are a far cry from the ecopreneurial perspective offered by Bennett in 1991.

Trimax Lumber (also Polymerix/US Plastic Lumber). One of the ecopreneurial cases mentioned by Bennett referred to the emergence of an innovative plastic lumber product as an alternative to traditional timber products and made from post consumer waste. Bennett referred to Trimax Lumber, a subsidiary of Polymerix. Trimax manufactured and installed plastic lumber, mainly marine pilings, bulkheading, boardwalks, and structural supports for decking.

In 1998 the troubled Polymerix and its wholly owned subsidiary, Trimax of Long Island, Inc. filed for Chapter 11 Bankruptcy (PR Newswire, 1998a). Their assets were acquired by the U.S. Plastic Lumber Corporation (USPL). Of particular note to USPL were the two patents owned by Polymerix for the manufacturing process of structural lumber made from recycled plastic and the proprietary equipment owned and operated by Trimax which it used for the production of structural lumber (PR Newswire, 1998b). At that time Trimax was the only other major manufacturer in the United States manufacturing structural lumber with the exception of USPL. This purchase was a strategic acquisition to solidify USPL's competitive position in this plastics recycling market.

US Plastics Lumber has its origins in the merger of a small number of environmentally-oriented companies who formed Clean Earth of Nevada in 1992. In 1996, the company acquired Earth Care Global Holdings and changed its name to U.S. Plastic Lumber, using recycled plastics to make timer products (Progressive Engineer, 2004). In the late 1990s USPL listed on NASDEQ and adopted an aggressive acquisition strategy, seeking a wide range of candidates for vertically integration into their recycled plastic lumber division and the environmental recycling operations division (PR Newswire, 1998c). It is this aggressive acquisition strategy that some attribute to the eventual failure of USPL, including the 16 firms acquired in less than three years including companies outside its core business of plastics recycling and lumber extrusion (Anon, 2007). USPL filed for Chapter 11 protection in July 2004, listing $78.6 million in assets and $48 million in debt. A private investor bought the assets of USPL in January 2006 and named the company Trimax Building Products. This subsequent company also ceased operations and liquidated its assets in 2007 (Anon, 2007).

Tri-R systems. Bennett (1991) drew attention to the ecopreneurial beginning of the multi-commodity recycling company Tri R Systems. This company comprised of five business units - Tri-R Recycling, Tri-R Shredding, DataGuard USA, Secondary Fiber Inc. , and Colorado Springs Recycling and Waste. The company began in 1977 with David Powelson's desire to start a one-stop neighborhood recycling center (Taylor, 2004). The five business units all grew out of new business developments as the company explanted its operations, and as part of the founder's vision of being able to recycle a wide range of materials not just paper or metals. This allowed the company to grow fast, and by 1989 it operated 22 locations and went public (Ferguson, 2004). Unfortunately Tri R was significantly adversely affected by the emergence of municipal curbside recycling programs, which flooded the recycled-materials market leading to prices falling as markets failed to deal with the oversupply. This market implosion and their overextension forced Tri-R into Chapter 11 bankruptcy reorganization in 1990 until June 1993 (Ferguson, 2004).

By 2004 the combined companies were sorting, baling and shipping paper, accepting mixed residential recyclables, operating an outdoor sorting system, running a plant for confidential shredding, brokering material shipments and supervising internet-based companies involved in confidential shredding and recycling markets (Taylor, 2004). The business unit, Tri-R Recycling was also awarded the contract for Denver's municipal curbside "single-stream recycling program" from 2005. Subsequently this unit was sold to Recycle America Alliance, created in 2003 and a subsidiary of Waste Management Inc. Cintas also acquired the Tri-R's shredding and document destruction businesses, leaving the Tri-R Systems with its Data Guard unit (operating the Internet-based confidential document shredding services Ship n Shred and Shop n Shred) and Secondary Fiber Inc (the brokerage operation). Powelson is cited as saying the opportunities offered by Recycle America Alliance and Cintas were great to walk away from, as the industry was experiencing a significant consolidation phase (Anon, 2005).

In 2004 DataGuard had over 40 Shop 'n Shred retail drop-off shredding service centers for small and home-based businesses, to respond to concerns over identity thefts and the need to shred confidential documents. However, by 2009 most home owners have a personal document shredder purchased for less than $20 and this development has eroded this home market. However DataGuard USA still remains in operation, named Express Destruction, offering an internet service where businesses can Fedex boxes of material for confidential destruction. Registered sales for last year on the manta website for Express Destruction were $340,000. In addition, commercial shredding services are also able to deal with the very large volumes of material that businesses would find too time consuming to manage themselves, and Shred Nations linked to Express Destruction offers this service[iii] – reflecting the small internet based services that remain operating from these remaining remnants of Tri R systems. Secondary Fiber is still also operating as a waste management brokerage and wholesaler. The founder, David Powelson, is now the President of Sales Star Networks (which hosts the DataGuard USA website, Shred Nations and a number of others).

The waste management industry sample of the 1990s was dominated by small companies forming to respond to niche markets or new innovations. These were then either acquired or acquired others as part of a growth strategy. Some of these larger enterprises failed in part due to their aggressive growth strategies. Others ran into difficulties as operating environments changed with legislation and policy changes and the emergence of low cost consumer technologies (like data shredders).

Reasons for M&A activity

The reasons for M&A activity across the cases in Table 2 varies. Some of the cases used an aggressive M&A growth strategy as a form of horizontal expansion (and subsequently vertical and product extension) such as Ringer (later Verdant) gaining access to competitors and then later adding aligned businesses and widening out through the value chain. Many of the companies in the waste management industries grew using these aggressive, and multiple, acquisition strategies.

This consolidation within the waste management industry continues to this day. In 2006 there were 16 M&As in Europe worth over 12 billion Euro (Hall, 2007). In the US an oligopoly has emerged in the plastics and paper waste markets based on four firms: Waste Management Inc, Allied Waste Industries, Republic Services and Onyx North America (Canton *et al.* 2008). A similar pattern appears to be emerging in the nascent solar industries with Solar Works, Solar Wrights and Real Goods Solar all involved in merger activity. Larger solar companies are undertaking M&A activity to integrate their operations across their supply chain and gain control over feedstock supply and downstream distribution costs

(Jennings *et al.* 2008), responding to the massive growth in the promotion of renewable technologies to reduce carbon emissions, facilitated by public incentive schemes.

M&A to acquire the assets (resources) and expand geographically of an organization is also apparent in the natural foods industries in Table 2 especially within the development of Whole Foods (and the acquisition of Bread & Circus). Mountain Travel merged with Sobek (as of a form of horizontal integration amongst similar sized companies) and then acquired Alaska Discovery to expand geographically. Another example would be Solar Wright acquisition of Kosmo Solar and Allwaste acquiring CRInc. Sometime the brand is acquired, allowing the acquirer to diversify their product range to include new 'green' product lines as part of a portfolio of brands. The classic examples of this are the multiple acquisitions by Hains, Sorrell Ridge jams, Frookies and Delicious Brands. Acquiring the initial green product can also allow the company to diversify into a wider product range – for instance Earths' Best has gone from organic baby food to a wide range of Earth's Best branded baby products. Joining brands together as a form of co-branding strategy is also apparent mostly in the natural foods industries (e.g. Delicious Cookie). In the natural foods industry the larger players are 'buying in' the innovation in product or process, rather than developing their own to fill the gap in a much wider product portfolio, for example the purchase by Scott's of the Earthgro brand and Sorrell Ridge providing the missing element of Allied Old English's portfolio.

Final Thoughts

In most cases the acquiring firm in this study has been another commercial enterprise in a related industry. However another theme that emerges is the role of private equity companies, not only for refinancing but also as purchasers (e.g. nSpired and Alteris Renewables). Public sector agencies and public-led initiatives have also played a key role in the growth of the waste and energy industries. The publicly funded subsidies offered for installing renewable energy systems have been crucial in the growth of Solar Wrights and

Solar Works. In the waste management industries the public sector has been a two edged sword, growing some as they gained access to municipal contracts and disrupting the business model for others as recycling moved from a voluntary activity towards mandatory recycling schemes with formalized collection put in place.

When considering the wider sample of companies in Table 2, it is apparent that in the start-up phases of these cases there are many clear examples of how strong sustainability-orientated founder values have formed the basis of the business model and niche market, for example Tom’s of Maine, Body Shop, Nasoya, Solar Works, and Real Goods. In some of these cases the founder vision remains part of the brand (and/or subsidiary) even after the M&A, such as Tom’s of Maine (Colgate Palmolive), Body Shop (L’Oreal), Levlad (Nature’s Gate), Earth’s Best (Hains) and is protected as it is such a key part of the brand. In the case of Tom’s of Maine and Body Shop the subsidiary remains ‘independent’ with no overt rebranding on the products or their websites – very little tells the consumer they are actually owned by another company.

There are a number of habitual entrepreneurs evident within the sample: e.g. Worth of Frookies, Alper of Bread and Circus, Irwin of Wild Oats (Hains), Powelson of Tri R systems and Paino of Nasoya. All these individuals went on to form other companies after the initial sale, either as a serial (Worth, Paino) or a portfolio entrepreneur (Powelson). New spin off’s also started up from the successful original business model including Real Goods Solar, the development of document shredding businesses by Tri-R and Earthgro as part of Prides Corner Farms.

This chapter presents a snapshot of some of the early environmental businesses and their evolution. The same patterns may play out in the nascent green technology firms of this new century – certainly the reinvigorated solar industries appear to be mirroring some of the M&A trends of the waste management industries of the 1990s. The sample of firms presented here also provides a retrospective on how far the mainstreaming of environmental issues, especially as a business model, has come over the last two decades. It is hard to imagine that there was a time when supermarkets did not sell organic food, or recycled toilet paper, or energy efficient light bulbs. Whilst we are certainly not at the point that every household has a solar hot water and energy system we are in an era where environmental goods and services have mainstreamed into traditional consumer markets in a way we have not previously seen. This has profound implications for today's businesses, and those seeking opportunistic new business 'niches'.

Acknowledgements

The author acknowledges the financial support of the Nuffield Foundation Small Grants Scheme (SGS/37471) who supported the fieldwork for this study.

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[i] www.manta.com

[ii] Garbage Reincarnation is a non-profit organization that runs ‘Recycletown’ in Sonoma County California where the focus is on recycling items from across the waste stream including and items that might be considered as ‘junk’. This program was founded in 1970 and is an example of the non-commercial / community based development of a waste management industry as part of a transition movement or social enterprise(www.garbage.org/about.html)

[iii] http://www.shrednations.com/about-us.php