Are SME Printers Accidental Environmentalists?

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ABSTRACT

This paper presents results of a case study that explores the response of Australian printing firms to social concerns about the impact of industrial activity on the natural environment. The study draws upon both qualitative and quantitative approaches to characterize the response and identify drivers of change. The paper positions the research outcomes within the framework of ecological modernization theory, providing new insights into this theory concerning its applicability to SMEs in a specific industry sector.

Keywords: EMT, sustainability, stakeholder, SMEs, printing industry

This paper presents results of a study of the way in which the Australian printing firms have responded in their businesses to the concerns that society expresses about the damage being done to the natural environment. The small amount of published research conducted into SME printing firms around the world suggests that the overall industry response has been limited. Also evident, SMEs comprise the majority of printing firms in most economies. The research framework used in the study is based on a stream of literature related to ecological modernization theory. The main questions addressed by the research are:

- How has the printing industry in Australia responded to environmental concerns?
- What have been the key drivers of change concerning environmentally-related practices, policies and strategies in the industry?

The literature review following provides background on the Australian printing industry, including environmental issues and an account of ecological modernization theory. The research methodology is then described followed by results, a discussion of these results and conclusions.

LITERATURE REVIEW

Background to the Australian printing industry

In Australia the printing industry is dominated by a very large number of very small firms that employ only a few staff and includes only a handful of large companies (Deloitte Touche Tohmatsu, 2005). According to Tchamkertenian (2009) the Australian printing is populated by about 85% of firms with less than 20 employees. Printing is described as a craft industry, a business based on such a model has

limitations according to Filley and Aldag (1978) and Smith (1967). These researchers make the point that craftsman style firms show little innovation, are generally blue collar, basic education and are paternalistic. The printing industry in Australia exists in an extremely competitive market place. Porter (Porter, 1980) describes the printing industry sector as an extremely fragmented industry which has a large number of firms and also a massive number of customers. There has been limited research into this industry. In terms of environmental behaviours, Simpson, Barker and Taylor (2004) and Masurel (2007) make the point that the printing has not embraced environmental responsibility. Masurel (2007) describes the printing industry in Holland of 3650 firms, only 57 has sort to gain an environmental certification such as ISO14001. Simpson, Taylor and Barker (2004) specifically mention the printing industry as one group that is poor in its commitment to training, innovation and environmental responsible business practices.

Ecological modernization theory

The body of theory called 'ecological modernization theory' (EMT) was first proposed in the early 1980s by a small group of European scholars including Huber, Janicke, Spaaragren, Hajer, Mol and Sonnenfeld (Mol & Sonnenfeld, 2000). Later, EMT was defined in the following terms "From the initial contributions onwards, the aim of Ecological Modernization Theory has been to analyze how contemporary industrialized societies deal with environmental crises" (Mol et al., 2000, p 5).

The body of theory has been critiqued, tested and expanded over the past 25 years. Particular critical views have been expounded by such authors as York and Rosa (2003) in their paper *Key Challenges to Ecological Modernization Theory.* However, as Mol and Sonnenfeld (2000) put it EMT is a living and growing body of theory. Challenges should therefore be expected over time to the core themes of EMT.

The development of EMT has been characterized by periods of maturation over time that have been described by Mol and Sonnenfeld (2000) over three distinct periods of development which could described as technology, socio-politico and national development. Other scholars have gone on to further propose descriptions of the periods of EMT as either weak or strong forms, or undefined

(Christoff, 1996; Dryzek, 1997). In this research we have used the framework of the early contributions to the EMT body of theory that focuses on technology as a solution to the global environmental problems.

The Red Queen effect

The use of technology in the printing industry is widespread. However it has not studied as a response to the degradation that has occurred to the natural environment. The need for the firm to continually improve the equipment and technologies is not without problems. Marx explained that capitalist firms would continually compete against each other, driving down prices and reducing their margins to a point where in the end in a perfect market there would be no profits. The only way to survive would be to find new, efficient ways of doing the same things (Beck, Giddens, & Lash, 1994). The process of competitive advantage gained then lost, then gained again is described as the Red Queen Effect that has been discussed in regards to competition and firm performance in the academic paper by Derfurs, Marritti, Grimm and Smith (2008).

The role of technology

Christoff (1996) describes the technology description of EMT as the weakest form of the theory where firms rely on new technology as the main vehicle for the reduction of environmental damage. However, to date a technology based EMT has been explored only in large international organizations and the theory has not been applied in the case of a dynamic SME environment. The printing industry has been noted for its lack of attention to environmental issues and is an industry sector that embraces technology solutions. We therefore suggest that this weakest form of EMT as it applies to large global organization may in fact be less weak in the case of an intensely competitive SME market such as printing.

The matrix shown in Figure 1 includes the descriptions of weak forms in regards to socio-political and technology, and a strong civil socio-political form of the theory as they are currently described in the major body of EMT theory. We propose an expanded ecological modernization matrix which sets out weak, hybrid and strong forms of the theory. Our

formulation of weak and strong EMT is based on the principle that SMEs may be impacted by a set of different forces compared to large organizations and therefore a special recognition within the existing matrix may be justified. Or, just as in the case of the socio-political form of the body of theory having both strong and weak forms, the same situation could be described in the case of a technology version of the body of theory. In the case of large global organizations that use technology as a part of their business strategy to gain advantage in their markets is portrayed as a weak form of EMT, however, in the case of an intensely competitive SME market these small firms must engage in technology solutions to ensure they remain economically viable.

INSERT TABLE 1 HERE

The elegance of EMT

EMT proposes with an elegant simplicity that institute market-based reforms and the market will shift industry to greater environmental performance with a drive towards efficiency (Dryzek, 1997; Spaargaren & Mol, 1992). Such apparent simplicity has caused Giddens (1998, p 58) to put a direct challenge to EMT theorists by posing that the theory was "too good to be true".

Despite the assurances given by advocates of EMT, there are some critiques that expose shortcomings in the body of theory. In general, the criticisms of EMT have been based on the suspicion that capitalism could be good for the environment. These criticisms have been countered by Huber (2004) who proposed that the best way to address environmental damage caused by industrial activities was to go further into industrialization through technological advancement.

The dynamic market as an agent of environmental reform

We use the term dynamic to describe the intense competition of the SME printing market which Porter (1980) has also described as being intensely competitive with a vast number of printing firms, customers and suppliers acting in the industry. Recently, Mol and Sonnenfeld (2006) have expressed the opinion that a dynamic market will have a role playing out EMT. Most SME industry sectors are

dynamic markets where there is intense competition between firms, mostly because the firms have difficulty creating a difference which can be turned into a competitive advantage (Link & Scott, 2001). Revell and Blackburn (2004) argue the role that dynamic markets play in environmental reform. The description of the dynamic market process is also proposed by Huber (2004) as a key mechanism for achieving a reduction in the impact on the environment.

Printing firms and Promethean discourse

Promethean discourse is the "invisible hand" which is guiding human technological advances (Dryzek, 1997, p 57). The strength of these arguments supports the Promethean belief that technology and human ingenuity will overcome the environmental problems that the world may be facing. However, Beck (1988) in his description of risk society takes the opposite view in using the metaphor of the invisible hand, but describing it as the invisible saboteur.

Many researchers who have investigated the responses that SMEs have to the environmental problems the world is facing argue that this response appears to be very much in line with some aspects of the Promethean response. A wide literature reveals that SMEs are generally failing to align their businesses with the concerns that are being expressed by the surrounding society (Friedman & Miles, 2001; Hillary, 1995; Hillary, 2000b; Kerr, 2006; Lawrence, Collins, Pavlovich, & Arunachalam, 2006; Masurel, 2007; Merritt, 1998; O'Laoire & Welford, 1996; Petts, Herd, Gerrard, & Horne, 1999; Rajendran & Barrett, 2003; Revell, 2002; Revell & Blackburn, 2004; Simpson et al., 2004; Spence, Rutherford, & R., 1998; Starkey, 1998; Tilly, 1999; Welford & Gouldson, 1993).

However, as researchers have shown that environmental behaviour is sector specific, SMEs need to be considered in the context of specific industry sectors (Banerjee, Iyer and Kashap, 2003).

METHODS

Drawing on the proposed revision to EMT set out in Figure 1 four themes related to EMT were used to investigate SME printing firms in relation to their approach to environmental matters:

1. The competition theme investigated how SME printing firms were responding to competition and what impact competition has on their ability to be environmentally responsible.

2. The training theme explored the amount and nature of training SME printing firms were engaged in and how training related to the skills of staff and their ability to identify opportunities.

3. The technology theme explored whether printing firms were installing new technology and the reasons behind their selection of equipment and

4. The environmental theme explored the attitudes of SME printing firms to environmental responsibility.

Two groups of research subjects were selected for the research. These were owners/managers of Australian SME printing companies and suppliers of equipment and materials to the Australian printing industry. According to Carland, Hoy and Bolton (1984) the SME owner/manager is the central to the strategies and success of the business and therefore essential subjects for this research. Suppliers were selected because of the important role that technological plays in the printing industry and also for their intimate knowledge of their printer customers' needs and preferences.

A sample of ten printing companies was selected and semi-structured interviews, lasting approximately three hours in each organization, were conducted with either the business owner or a senior manager. Visits to each company included a tour of the site and the opportunity to ask questions additional to the interview questioning. Data were collected from suppliers using a self-report questionnaire. The categories and items used on the questionnaire are shown in Table 2. Twenty- seven usable responses were obtained representing approximately 68% of international suppliers to the printing industry operating in Australia. The qualitative interview data was analyzed thematically using Nvivo software, according to the four themes set out above and the quantitative data obtained from suppliers was subjected to basic statistical analysis using SPSS software.

RESULTS

Interviews with SME owner/managers

Competition in the industry was described as intense and customers were extremely demanding of the small firms on both price and delivery requirements. Relationships with customers were seen as important to printers with frequent contact and face-to-face meetings taking place. Printers worked hard to satisfy their customers' demands. A common complaint was that the industry had become

increasing stressful over recent years with some interviewees showing emotion when discussing this issue.

Our interview analysis indicated that technology played a central role in competitive strategy. Interviewees said that technological developments had contributed significantly to productivity increases and the speed an intensity of completion. These advances were described by interviewee 1:

> *There is no comparison, the industry from 20 years ago was so slow and wasteful compared to printing these days. The trouble is it has also made printing much cheaper, too cheap. Just the reduction in the amount of chemistry has been incredible.*

A general belief that the latest equipment is needed to compete was described by interviewee 4:

> *You have to have the latest machines to keep the work, not just to win new work. The trouble is the customer is not loyal; they'll drop you just like that.*

Although customers were demanding in relation to quality, delivery performance and particularly price, they were not placing any significant pressure on SME printing firms to become more environmentally responsible or to use ecologically responsible inputs to the printing process. This applied to large customer organizations as well as small ones. There were occasional requests from customers for the use of recycled or environmentally certified paper.

Training was not a priority for the printing firms included in the study. None of the companies had firm plans to train new printing staff through the apprenticeship systems that were available. Their preference was to employ trained staff, but they complained that finding skilled staff was a major problem.

Survey of suppliers to printers

The analysis of survey results is shown in Table 2. The right hand column shows if the mean value of each item on the questionnaire is significantly greater than the mid-point of the 1 (strongly agree) to 5 (strongly disagree) scale e.g. the mean of item 7 (4.04) is significantly greater than 3 (scale mid-point) which supports a supplier belief that printers are not very knowledgeable about environmental certifications.

The results for attitudes to the environment show that from the suppliers' viewpoint waste reduction is an important aspect of technologies they offer the industry. However, suppliers believe that printers choose supplies largely on price rather than on environmental credentials. They do not believe that printers are particularly environmentally responsible or aware of environmental standards.

Suppliers strongly concur with the views of printers regarding the fierce competition in the printing industry, with too many companies involved.

Suppliers' views on technology indicate the multinational nature and homogeneity of their industry. They support the notion that innovations stem from large global suppliers and are aimed at improving the efficiency and quality of their printer customers' operations.

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Suppliers have a rather negative view of printers' efforts to train their staff. They believe that printers have a lack of commitment to staff training and believe that it is not particularly required. However, suppliers indicate that they can provide low cost training albeit limited in scope.

INSERT TABLE 2 HERE

DISCUSSION

The result from the interviews with the owner/managers of SME printing firms shows that SME printing firms are not putting an emphasis on environmental issues in their businesses. The owner/managers appear to be solely focused on responding to the intense competition they are facing in the sector.

These firms are using technology as the only solution to addressing competition. Porter and van de Line (1995) have suggested that SME can use environmentally responsible practices such as waste reduction and energy efficiency in order to obtain a competitive advantage. However, our results show that this not an option that SME printing firms appear to have explored. The owner/managers make the point that the large customers who are purchasing printing are not placing any significant pressure on the SME printing firm to become environmentally responsible or to use ecologically responsible inputs in the printing process other than an occasional request for recycled or environmentally certified paper. The owner/managers suggest that large buyers of printing are solely concerned about the monetary cost of printing. The owner/managers of SME printing firms appear to use only a single solution in responding to the intense competition in the printing industry, this is to purchase and install new highly efficient manufacturing technologies. The result is the individual printing firms race each other "to the bottom" trapping themselves in a "Red Queen Effect" where the end point is that every printing firm become just as efficient as their nearest best competitor. The only remaining opinion for the owner/manager of the individual SME printing firm is to reduce the price they charge the customer for printing services. They have made no attempt to pick 'low-hanging fruit' by the deliberate reduction in environmental costs that Porter and van der Linde (1995) suggests is so easy to achieve.

The key informants from the large global supply firms also support the conclusion that SME printing firms exist in a highly competitive market and these small firms are not engaging in environmental business practices in order to create a competitive advantage. They do not generally believe that their SME printing firm customers have regard for the natural environment nor an understanding of how environmental impact can be related directly to cost efficiency. In other words, the behaviour of printers is neither influenced by stakeholder reputational pressure nor by deliberate attempts to reduce environmental costs.

There is considerable agreement between the information collected from interviews with owners/managers of SME printing companies and the analysis of the questionnaire survey data collected from industry suppliers. This suggests that SME printers and suppliers share a common understanding of the competitive environment in the industry and of the attitudes and behaviour of printing companies who compete. This common understanding extends to printers' attitudes and approach to environmental issues. Results depict an industry with fierce competition in which price dominates strategic decision making; only modest consideration is given by printers to environmental concerns and training of staff. On the other hand there has been significant improvement in the technology provided by supplier to the industry both in terms of printing machinery and consumables. Although a major goal of improvement has been to reduce printing costs through improving efficiencies it is clear that a number of significant environmental benefits have resulted. Products, such as inks, have become more environmentally friendly and improvements in machinery have reduced key wastes of materials, time and specific energy use. The extent of improvement across the printing industry sector has been achieved with little if any intension to do so on the part of SME printing firms. Past descriptions of a technology form of EMT has been described as weak, however in the case of SME printing firms the description of EMT as weak, may not be understating the potential change in the industry's positive environmental impact.

INSERT TABLE 3 HERE

CONCLUSION

The research findings support others (Hillary, 2000a; Rajendran et al., 2003; Revell et al., 2004; Rutherfoord & Spence, 1998; Simpson et al., 2004) that have concluded that SMEs generally do not pay enough attention to their environmental responsibilities. In particular they ignore the potential to develop the skills of their employees which could be a rich source of environmental improvement. Despite this lack of direct attention to environmental matters, printers have responded to the highly competitive nature of the industry by investing in new technology as it becomes available. Keeping up with technology seems to be their dominant competitive strategy. By doing this

they have becoming unintentionally or accidentally very environmentally responsible in recent years. In short, playing out our proposition in Figure 1, what we have seen as technology-induced EMT in the printing industry may in fact reflect a strong form of EMT, where there are more profound, if unintended, effects of competition on environmental performance in SMEs.

The environmental 'stars' of the industry seem therefore to be the suppliers who have continually improved plant and consumables. Their main aim in doing this may have been to provide the industry with opportunities to increase productivity and reduce costs but developments has brought with them significant environmental benefits. For example, unit energy costs have decreased and consumables like inks have become less of a threat to the environment. The outcome for the printing industry is a significant but unintended reduction in the footprint the printing industry leaves on the natural environment. The magnitude of the reduction could be as much as a 95% diminution in the environmental impact the from the printing industry compared to how the industry performed in the Kyoto Base year 1990 (United Nations, 1998).

An important finding, worthy of further research, is that the customers of SME printing companies do not seem to exert any significant pressure for environmentally responsible products nor do they seem particularly interested in the environmental practices of their printing suppliers. Price seems to be the overriding concern of customers. It would be important to investigate in more detail the reasons why customers do not exert more pressure on printers for green products and to use greener practices. It is evident that an increasing number of organisations in Australia have significant green credentials related to their own operations. Are these values being extended up the supply chain to their printing suppliers? This research suggests that many may not be doing this. In recent years there has been considerable interest in taking a supply chain perspective of operations. This perspective recognises the importance of the way in which organisations work together in chains and networks to improve various aspects of performance e.g. reduced costs, improved customer service, innovations. An example of this perspective related to environmental issues is the study of reverse logistics and its application in recycling and remanufacturing e.g. Ferrer & Whybark (2000) and Guide (2000).

Table 1. Matrix of Ecological Modernization Theory

	Strong form	**Weak form**
Socio-political	*Robust social groups that protest against the activities of large global organizations and the policies of governments in regard to environmental damage and social exploitation.*	*Active civil groups are participating in the government process and therefore being rendered weak because of government processes such as committees and reports.*
Technological Solutions		*Leaving the repair of the environment up to the investment and marketing decisions of large global firms and trusting that they would put the state of the environment ahead of the need for profit and growth.*

Table 2: Results of Supplier Survey

		Mean	S.D.	Sig.
	Attitudes to the environment			
1	The main aim of suppliers' technologies is to reduce waste	2.44	.97	.00**
2	Customers choose products on environment before price	3.81	.96	.00**
3	Printing firms are not aware of the environment being a major concern	3.07	1.00	.70
4	Printing firms are keen to be environmentally responsible	3.33	.73	.03*
5.	Printing firms care about the environment	3.19	.74	.20
6.	Printing firms are willing to pay more for environmentally responsible products	4.19	.73	.00**
7.	Printing firms are very knowledgeable about environmental certifications	4.04	.76	.00**
8.	Printers are interested in productivity more than price	3.37	1.11	.10
9.	Printers are more concerned about productivity than quality	3.33	1.04	.11
10	Technology is designed to improve efficiency of the printing process	2.04	.81	.00**
11	Small printers make every effort to solve their own problems	3.04	.94	.84
12.	There are too many printing companies, which pushes prices down and adds to competition	1.93	.78	.00**
	Technology			
13	Most suppliers are agents of multinational firms	2.22	.97	.00**
14	Changing technology increases quality	2.44	.70	.00**
15	All innovations come from large global suppliers	2.07	1.06	.00**
16.	Technology advances are specifically designed to reduce the impact on the environment.	3.19	1.00	.34
17	Products are designed to improve the efficiency of our customers	1.67	.73	.00**
	Training			
18	SMEs are open to listening to ideas	3.15	1.06	.48
19	Suppliers offer training	1.63	.792	.00**
20	Printers are skilled, they require no training	4.00	.734	.00**
21	There is a lack of commitment to training at printing firms	1.78	.698	.00**
22	Suppliers can bill for training	4.41	1.12	.00**
23	Our customers like to meet to discuss efficiency and quality	2.78	.64	.08
24	The printing industry has people eager to learn new ideas	3.11	.85	.50
25	Printing firms continuously train their staff in business issues	3.74	.66	.00**

Notes: Rating scale from 1 = "strongly agree" to 5 = "strongly disagree
*p<.05; **p<.01 for t test comparing item mean with the mid-point of the rating scale i.e. 3

Table 3: EMT Extended Matrix

	Strong form	***Hybrid form***	**Weak form**
socio-political	Robust social groups that protest against the activities of large global organizations and the policies of governments in regard to environmental damage and social exploitation.		Active civil groups are participating in the government process and therefore being rendered weak because of government processes such as committees and reports.
Technological Solutions		*The role of the highly competitive dynamic SME market which drives the small firm to seek out more efficient means of production. In some cases there may even be a shift in the typology of the individual firm (yet to be explored).*	Leaving the repair of the environmental up to the investment and marketing decisions of large global firms and trusting that they would put the state of the environment ahead of the need for profit and growth.

REFERENCES

Banerjee, B., Iyer, E. & Kashyap, R. 2003. Corporate environmentalism: Antecedents and influences of industry type, *Journal of Marketing*, 66 (2) 106-122.

Beck, U., Giddens, A., & Lash, S. 1994. *Reflexive Modernization, Politics, Tradition and Aesthetics in the Modern Social Order*: Polity.

Christoff, P. 1996. Ecological modernization ecological modernities. *Environmental Politics*, 5(3): 476 -500.

Carland, J., Hoy, F., & Boulton, W. 1984. Differentiating entrepreneurs from small business owners. *Academy of Management Review*, 9(2): 354 - 359.

Deloitte Touche Tohmatsu. 2005. A study of the paper and printing industry in Australia. Sydney: *Printing Industries Association of Australia*.

Derfus P., Marritti P., Grimm C. & Smith K. 2008. The Red Queen Effect: Competitive Actions and Firm Performance, Academy of Management Journal, 51(1): 61-80

Dryzek, J. 1997. *The Politics of the Earth*. New York: Oxford.

Ferrer, G. and Whybark, C. 2000. From garbage to goods: Successful remanufacturing systems and skills, *Business Horizons*, November-December, pp. 55-64.

Filley, A. C. & Aldag, R. J. 1978. Characteristics and measurement of an organizational typology. *Academy of Management Journal*, 21(4): 578 - 591.

Friedman, A. & Miles, S. 2001. SME's and the environment: Two case studies. *Eco-Management and Auditing*, 8: 200 - 209.

Guide, V.D.R. Jr. 2000. Production planning and control for remanufacturing: industry practice and research needs, *Journal of Operations Management*, Vol. 18, pp. 467-483.

Giddens, A. 1998. *The Third Way*. Cambridge: Policy Press.

Hillary, R. 1995. *Small Firms and the Environment: a Groundwork Status Report*. Birmingham.

Hillary, R. (Ed.). 2000a. *Small and Medium-sized enterprizes and the environment: business imperitives*. Sheffield: Greenleaf.

Hillary, R. E. 2000b. *Small and Medium-Sized Enterprises and the Environment*. Sheffield: Greenleaf.

Kerr, I. 2006. Leadership strategies for sustainable SME operation. *Business Strategy and the Environment*, 15: 30 -39.

Lawrence, S. R., Collins, K., Pavlovich, K., & Arunachalam, M. 2006. Sustainability practices of SME's: The case of NZ. *Business Strategy and the Environment*, 15: 242 - 257.

Link, A. N. & Scott, J. T. 2001. Public/private partnerships: stimulating competition in a dynamic market. *International Journal of Industrial Organization*, 19(5): 763 - 794.

Mol, A. and Sonnenfeld, D. (Eds.) 2000. *Ecological Modernisation Around the World.* Portland: CASS.

Masurel, E. 2007. Why SME's invest in environmental measures: Sustainability evidence from small and medium-sized printing firms. *Business Strategy and the Environment*, 16: 190 - 201.

Merritt, J. Q. 1998. EM Into SME Won't Go? Attitudes, awareness and practices in the London Borough of Croydon. *Business Strategy and the Environment*, Vol.7 (No.2): pp.90-100.

O'Laoire, D. & Welford, R. J. 1996. The EMS in the SME. In R. J. Welford (Ed.), *Corporate Environmental Management: Systems and Strategies*. London: Earthscan.

Petts, J., Herd, A., Gerrard, S., & Horne, C. 1999. The climate and culture of environmental compliance within SME's. *Business Strategy and the Environment*, 8(1): 14 - 30.

Porter, E. M. 1980. *Competitive Strategy*. New York: The Free Press.

Porter, M. & van der Linde, C. 1995. Green and competitive: Ending the stalemate. *Harvard Business Review*: 120 - 134.

Rajendran, D. & Barrett, R. 2003. *Managing Environmental Risk in Small Business: An Agenda for Research*, Conference of Small Enterprise Association of Australia and New Zealand. Ballarat, Australia.

Revell, A. & Blackburn, R. 2004. *SME's and Their Response to Environmental Issues in the UK*. Surrey: Small Business Research Centre, Kingston University.

Rutherfoord, R. & Spence, I. J. 1998. *Small business in the perceived limits to responsibility: environmental issues?*, 21st ISBA National Small Firms Policy and Research Conference. Durham.

Simpson, M., Taylor, N., & Barker, K. 2004. Environmental responsibility in SME's: Does it deliver competitive advantage? *Business Strategy and the Environment*, 13(3): 156 - 171.

Smith, N. R. 1967. *The Entrepreneur and His Firm: The Relationship Between Type of Man and Type of Company*. East Lansing, Michigan: Michigan State University Press.

Spence, L. J., Rutherford, R., & R., B. 1998. *Small Firms and Environmental Issues in the UK and the Netherlands: A Literature Review and Research Agenda*, in: SBRC Monograph: Kingston University, United Kingdom.

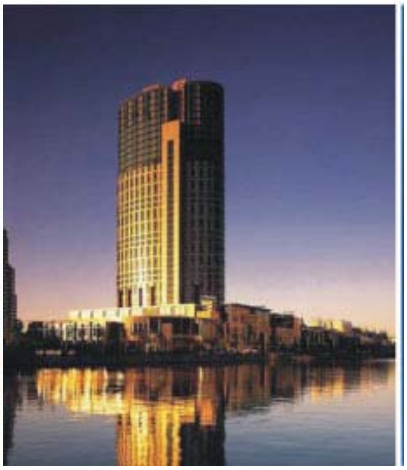
Starkey, R. (Ed.). 1998. *Environmental Management Tools for SMES - A Handbook*: European Union Agency.

Tilly, F. 1999. The gap between the environmental attitudes and the environmental behaviours of small firms. *Business Strategy and the Environment*, 8: 238 - 248.

United Nations. 1998. *Kyoto Protocol to The United Nations Framework Convention on Climate Change*. In UN (Ed.). New York: United Nations.

Welford, R. & Gouldson, A. 1993. *Environmental management and business strategy*. London: Pitman publishing.

York, R. & Rosa, E. 2003. Key challenges to ecological modernization theory. *Organization & Environment,* 16(3): 273-287.



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