Green Human Resource Management: A Review and Research Agenda

Douglas W.S. Renwick*, Tom Redman, and Stuart Maguire

Details of contributors:

* Dr. Douglas Renwick, Lecturer in HRM, Management School, Institute of Work Psychology, University of Sheffield, Mushroom Lane, Sheffield, S10 2TN. Tel: 0114 222 3435. Email: d.renwick@sheffield.ac.uk
Professor Tom Redman, Professor of HRM, Durham Business School, Durham University, Mill Hill Lane, Durham City, DH1 3LB. Tel: 0191 334 5496. Email: Tom.Redman@durham.ac.uk
Dr. Stuart Maguire, Lecturer in Management, Management School, University of Sheffield, U.K. (address as above). Tel: 0114 222 3440. Email: s.maguire@sheffield.ac.uk

Biographical information on authors:

Doug's research interests include involving line managers in HRM, green (environmental) HRM, HRM in Brazil, and research practice. Tom's research interests include employee commitment, HRM, and leadership. Stuart's research interests include business intelligence, electronic HRM, and Enterprise-wide systems.

*****Corresponding author.

Key words: Environmental management, human resource management, sustainability, AMO theory.

GREEN HRM: A REVIEW AND RESEARCH AGENDA

The paper makes a case for the integration of the largely separate literatures of Environmental Management (EM) and Human Resource Management (HRM) research. The paper categorises the existing literature on the basis of Ability-Motivation-Opportunity (AMO) theory revealing the role that Green Human Resource Management (GHRM) processes play in people management practice. The contributions of the paper lie in drawing together the extant literature in the area, mapping the terrain of the field, identifying some gaps in the existing literature and suggesting some potentially fruitful future research agendas. The findings of the review suggest that our understanding of how GHRM practices influence employee motivation to become involved in environmental activities lags behind that of how organizations develop green abilities and provide employees opportunities be involved in EM organizational efforts. Organizations are not using the full range of GHRM practices and this may limit their effectiveness in efforts to improve EM.

Introduction

Much recent interest has been paid to environmentalism globally, whether arising from specific treaties to combat climate change, e.g. Kyoto 1997, Bali 2007, and Copenhagen 2009 (Victor 2001), or from harm/pollution resulting from high-profile industrial accidents such as at the BP Texas City Refinery in 2005 killing 15 and injuring over 100 people. In the management field there is a growing research literature on Green Marketing (Peattie 1992), Green Accounting (Owen 1992; Bebbington 2001), Green Retailing (Kee-hung *et al.* 2010), and Green Management in general (McDonagh and Prothero 1997). However, in comparison, Green Human Resource Management (GHRM) research, defined as the HRM aspects of Environmental Management (EM), is rather diverse and piecemeal.

The contributions of this article are threefold: first, to survey and draw together the HR elements of EM; second, to map the terrain of this field; and third to outline some avenues for potential further study in GHRM. In doing so we are responding to calls in the literature to integrate EM and HRM as a subject of research (Jabbour and

Santos 2008; Jackson *et al.* 2011); to expand the scope of Strategic HRM (SHRM) to incorporate sustainability issues (Osland and Osland 2007; Wilkinson *et al.* 2001); and more specifically to answer a question posed by Bunge *et al.* (1996), namely: "Is there a role for human resource management in pollution prevention?"

First, we begin with a discussion on the methodology adopted and second, by presenting the theoretical framework used to structure the review. Third, we proceed by reviewing the literature on the HR aspects of EM. Last, we discuss the issues arising from our review of the literature and offer some general conclusions on the state of the field, before indicating some gaps for potential future study.

Methodology

Given the aims of the paper, a systematic review (Tranfield *et al.* 2003) using an archival method is adopted to build a reliable knowledge base of the GHRM field. Our analysis process includes categorising and classifying the existing literature in EM and HRM (across the full range of HRM practices), using papers published across over two decades plus (1988 until 2011). This periodisation was chosen to track the development of the field from the time that GHRM papers first appear in the published literature. Research papers were delimited from the review if they did not have a focus on EM **and** HRM -widely defined. This process produced over 200 books, journal articles, edited works, and discussion papers that were available for analysis. In this review we focus only on those papers that report empirical findings or develop theoretical arguments for the EM-HRM relationship. We do not include papers that provide only unsupported prescription on what organizations

should/should not do to develop GHRM. This review draws on a range of GHRM practices revealed through a wide type of papers including case studies, business reports, and survey findings.

In deciding what people management concerns to include in a review of GHRM, we use AMO theory (Appelbaum *et al.* 2000) to identify the key HRM areas that will impact on EM outcomes. AMO theory is one of the most commonly used conceptualisations of the impact of HRM practices on organizational performance in empirical studies (Boselie *et al.* 2005). AMO theory (Appelbaum *et al.* 2000) suggests that HRM practices that enhance the firm's human capital via increased human capabilities translates into performance outcomes, such as higher productivity, reduced waste, higher quality and profit. According to AMO theory, HRM works through increasing employees' *Ability* through attracting and developing high performing employees; enhancing employees' *Motivation* and commitment through practices such as contingent rewards and effective performance management; and providing employees the *Opportunity* to engage in knowledge sharing and problem-solving activities via employee involvement programmes. This review examines each of these three core components of GHRM in turn.

Developing Green Abilities: Attracting and Developing Talented Staff

Recruitment and Selection. Attracting high quality staff is a key HR challenge in the "war for talent". It seems that some employers, particularly major multi-national companies (Ehnert 2009), are adopting GHRM practices as a form of 'employer branding' in order to improve their selection attractiveness for an increasingly

environmentally aware younger generation. Job seekers prefer organizations that have a close fit between their and the organization's values, and the recruiting organization's environmental reputation and images are now increasingly prominent in recruitment efforts.

The move to more web-based recruitment activity has permitted recruiters to provide much more information, such as detail on their EM activities, compared to traditional mediums such as newspaper advertising or brochures. The recruitment websites of major European employers find considerable detail on the environmental activity of the organization (Ehnert 2009). Aiman-Smith *et al's* (2001) study compared two types of corporate social performance – ecological ratings and lay-off policy, along with pay and promotional opportunities, to examine their relative importance in selection attractiveness. The findings, from a policy capturing study using U.S. Business studies students, reports that a positive environmental image was the strongest predictor of an organizations' overall selection attractiveness. However, for job pursuit intention, pay was most strongly predictive. One implication from this study is that organizations with good environmental practices should emphasise these in recruitment practices but focus on job characteristics more, such as pay, when interviewing candidates.

Such developments are in line with signalling theory in recruitment and selection, where because of incomplete information in the recruitment process, candidates use organizational attributes, such as environmental image and reputation, to draw clues about the firms' future intentions and actions. Thus studies using surveys and experimental designs by Behrend *et al.* (2009), Bauer and Aiman-Smith (1996), and

Backhaus *et al.* (2002) in the U.S. report university students as being attracted to work for organizations with pro-environmental images. Albinger and Freeman's (2000) study reports that a Corporate Social Performance index (including a "natural environment" rating) was positively associated with selection attractiveness only for job seeking individuals with high levels of job choice. Such individuals had high levels of skill and education and thus firms with good reputations for EM may have a source of competitive advantage in their ability to hire potentially high performing staff. Dolan's (1997) study of U.S. MBA students found over half saying they would take a lower salary to work for an environmentally responsible organization.

U.K. survey data reports that high-achieving graduates judge the environmental performance and reputation of a company as a criterion for decision-making when applying for jobs (CIPD 2007). HR professionals also appear to believe that environmental reputation is important, especially for younger employees, with 39% of 757 CIPD members surveyed in U.K. organisations believing that a policy on environmental management to be important in recruiting and retaining younger workers (Philpott and Davies 2007). A wider survey by the British Carbon Trust – an organization set up by the U.K. Government in 2001 to help organizations cut carbon emissions – shows over 75% of 1,018 employees considering working for a firm see it as important that such firms have an active policy to reduce carbon emissions (Felgate 2006a).

Candidate preferences for green organizations also seem to be impacting on organizational practice with some employers increasingly influenced by 'green job candidate' thinking in planning their recruitment strategies (Brockett 2006, p. 18). A

CIPD/KPMG survey of 1,000 HR professionals found 47% of them stating they feel that employees would prefer working for firms that have a strong green approach, and this would attract potential high quality recruits (Phillips 2007). Comparative interview evidence from the U.K. and Japan (from 88 interviews among 53 companies) also indicates that it is 'easier to hire high quality employees if a firm had a better environmental reputation' (Bansal and Roth 2000, p. 724).

Creating and sustaining a pro-environment organization also requires the organization to hire employees who are willing to engage with EM activities. The green agenda appears to be impacting on the criteria some employers require in new hires. For example, a survey of 94 Brazilian firms with ISO14001 certification found recruiters preferring candidates with environmental knowledge and motivation (Jabbour, Santos and Nagano 2010). Although there are as yet few systematic studies of "green-collar" recruitment practices, there is a growing advice industry of self-help guides on how to find a green job that includes case study and employer interview evidence about their hiring practices (Parks and Helmer 2009; Cassio and Rush 2009; Llewellyn and Golden 2008). This literature reports the use of job descriptions and personnel specifications which emphasise environmental aspects of the job and interview protocols which probe applicant environmental knowledge, values and beliefs.

Employee Training in EM. Training is widely seen in the literature as a key GHRM intervention, not least in order to heighten staff awareness of the environmental impact of their organization's activities (Bansal and Roth 2000); to equip staff with core skills, such as how to collect relevant waste data (May and Flannery 1995); and to raise the level of 'eco-literacy' and environmental expertise in the firm (Roy and

Therin 2008). Well trained and environmentally aware front-line employees are ideally placed to identify and reduce waste as they are closest to it.

Training in green issues is widespread now in some countries. In the U.K. a CIPD/KPMG survey reported 42% of U.K. organisations educating and training employees in business practices that are environmentally friendly (Phillips 2007) and training employees to comprehend the threats that climate change may pose on firms (Felgate 2006b). In the U.S. £300m has been invested in training for green jobs under the Obama administration (Barton 2009). Advanced EM approaches are seen to be 'people intensive' and dependent upon skill development through employee training (Brio *et al.* 2007, p. 494). Fernandez *et al.* (2003) find that a pro-environmental approach requires increased employee awareness, knowledge, and skills in both processes and materials, and that this requires integrated training in EM to create an emotional involvement in environmental concerns. Survey and interview data from 156 plant-level employees among 31 lean automobile assembly plants in North America and Japan reveals that HR practices 'encourage a higher level of environmental training', and the development of skills required for waste reduction (Rothenberg *et al.* 2001, p. 241).

Trade unions also have a role in environmental training initiatives, and this seems to be most developed in Europe (Madsen and Ulhoi 2001). In Britain, the Trades Union Congress (TUC) has established its own body on sustainability, the Trade Union Sustainable Development and Advisory Committee (TUSDAC), who call on all U.K. employers to develop employee training and skills in energy-efficient technologies (TUSDAC 2005).

Although TUSDAC note that union representatives sometimes face the problem of getting paid time off to attend green development courses, a number of unions have included environmental issues in their activist training. Training opportunities include the development of a University diploma course, the TUC's own three-day EM course, and joint initiatives between Environwise, TUSDAC, and the Carbon Trust, (TUSDAC 2005). British unions have also been pressing for sustainable development issues to be included in all Modern Apprenticeship training (TUSDAC 2005).

Several specific concerns arise in the literature regarding the use of training and development in EM (Milliman and Clair 1996), including the need to counter employee cynicism regarding the importance/relevance of the issues involved. In part, cynicism arises because such training is sometimes delivered in an overly "politically correct way", with an over-emphasis on EM enforcement and in an authoritarian manner (Rees 1996). Hence organisations may need to not only develop more training in EM, but also like all training efforts, to carefully assess the general effectiveness of it too (Perron *et al.* 2006).

Other training concerns in EM include the re-training of employees who have lost jobs in the "polluter" industries; ensuring that managers release staff for training; and integrating training into appraisals and performance management systems (Wehrmeyer and Vickerstaff 1996). To tackle training concerns, the Institute of Environmental Management (IEM) has established and delivered training workshops for environmental managers, including raising awareness and skills in EM (Bird 1996).

Environmental Knowledge. A key to the effectiveness of training is developing an environmental knowledge base. Rothenberg (2003) reports that most environmental projects combine more than one category of knowledge. A self-report study of managers in China (Fryxell and Lo 2003, p. 57) reveals that they have a 'strong disposition' towards taking environmental action, and that environmental knowledge and values are predictors of personal environmental behaviours. Issues in environmental knowledge generation in China include difficulties in confirming linkages between environmental education, knowledge and behaviours; the 'disproportional' and often 'negative impact' managers have on the natural environment; whether self-reported managerial behaviours in EM mirror actual ones in practice; and the environmental issues Chinese companies face (Fryxell and Lo 2003). As controlling environmental impact is now seen to be a responsibility for all employees, taking their tacit knowledge (see below) into account in EM is important in identifying sources of pollution, managing emergency situations, and developing preventative solutions (Boiral 2002).

Management Development and Leadership. Training for management staff is also important for GHRM. As Business Schools are potentially seen as architects of a new 'evolutionary course' towards sustainability and environmental knowledge (Starkey and Crane 2003), they may play a key role in educating and developing environmental leaders in the future. EM is also increasingly being included in MBA programmes curricula in countries such as China, and is seen to be the type of business education that empowers managers to start projects in EM (Fryxell and Lo 2003). Management education in the past has historically not been seen to lead the way in EM as it has often been an isolated and "non-essential component" of business education (Ulhoi

and Madsen 1996). There is more recent positive evidence with a small but growing number of "eco-MBAs" and survey data reporting that more MBA programmes are incorporating environmental concerns into their curriculum (Beyond Grey Pinstripes 2010).

Green Leadership. In a study designed to develop a preliminary model for environmental leadership, interview and questionnaire data from 73 Canadian and U.S. leaders (of for and non-profit product and service organizations) reveals that their personal values 'were more eco-centric, open to change, and self-transcendent' than other managers in different types of organisations (Egri and Herman 2000). The finding that personal values influence Green leadership behaviours is supported in Bansal and Roth's study of 53 U.K. and Japanese companies, which finds that single individuals tend to champion ecological responses, with their own values driving such decision processes rather than 'a widely applied decision rule' (Bansal and Roth 2000).

A study of how leaders' cognition shapes their firm's responses to deteriorating environmental circumstances in China finds that executives tend to 'champion' new initiatives following personal values and principles' (Branzei *et al.* 2004, p. 1075). Managerial attitudes and norms are seen to act as strong drivers for undertaking active EM behaviours from a study of organisations in the U.S. wine industry (Marshall *et al.* 2005). Observed learning processes of managers in medium and large sized German and Dutch organisations reveals a participatory leadership style being used, with leaders active in involving employees in sustainability processes (Siebenhuner and Arnold 2007).

Motivating Green Employees

Performance Management (PM) and Appraisal (PA). Using Performance Management (PM) in EM presents many challenges, not least here being how to measure environmental performance standards across different organizational departments/units, and gaining useable data on the environmental performance of these units and staff. Some firms have addressed this issue by installing corporate-wide environmental performance standards, and green information systems/audits to gain useful data on environmental performance (Marcus and Fremeth 2009). One way in which Green PM systems can be successfully initiated is to develop performance indicators for each environmental risk area (TUSDAC 2005).

Green Performance Appraisals (PA) covers topics such as environmental incidents, use of environmental responsibilities, and the communication of environmental concerns and policy. Issues involved in environmental PA's concern the need for managers to be held accountable for EM performance in addition to wider performance objectives. One concern is that the PA systems with EM objectives appear to be limited largely to plant or division managers and executives only, rather than more broadly for other employees.

It may also be that negative reinforcements (like suspensions, criticisms and warnings) are needed in performance management systems to get employees to make environmental improvements, e.g. if employees lapse in following good EM practice. .For example, Chan and Hawkins's (2010) study of a Hong Kong hotel workers

experience with environmental management systems reports their accounts of being "repeatedly reminded" and "scolded" if they did not fully implement the hotels environmental practices. However, using such negative reinforcements does not necessarily educate staff in good EM practice, and may result in workers failing to disclose environmental problems at source because they engage in self-protective behaviours.

Pay and Reward Systems. In line with a strategic approach to reward management, defined as the aligning of pay practices and corporate objectives, there is some evidence for organisations developing reward systems to incentivise EM, especially for senior managers.

For example, in Britain ICI have included environmental targets as part of their PRP assessment for senior managers (Snape *et al.* 1994, p. 134). Early research findings, from 186 U.S. firms on the *Forbes* list reveal a strong relationship between CEO compensation (total compensation and salary) and firm environmental reputation, but that CEO's are not necessarily rewarded for their firm's EM record, and moreover, are not stimulated towards doing so by the structure of such firm compensation systems (Stanwick and Stanwick 2001). More recent findings, such as Berrone and Gomez-Mejia's (2009) study on links between environmental performance and executive compensation in 469 U.S. firms reveals stronger support for environmental performance being positively associated with CEO total pay. A study by Corderio and Sarkis (2008) of 207 US firms from the Standard and Poor 500 finds that *only* in firms with an *explicit* linkage between environmental performance and executive contracts

is there evidence for an impact of environmental performance on CEO compensation levels.

Thus there is some developing evidence that paying for EM performance is effective from studies that report companies with contingent remuneration for senior managers having higher EM performance than those with fixed salaries (Fernandez *et al.* 2003, p. 647). However the issue of causation is not resolved by these studies. It may be that firms are reacting to environmental performance concerns by implementing managerial rewards for EM performance. Indeed a study of the US electronic industry across six SIC classifications also finds a link between plant manager pay and EM performance but subsequent analysis suggests that managerial pay *results* from rather than *causes* environmental performance, and thus firms remain reactive on environmental issues (Russo and Harrison 2005).

Pay and EM linkages for other staff are rarely reported in the literature. There are some examples of competency based reward schemes for front-line staff acquiring specific designated environmental competencies (such as knowledge of environmental legislation), as they are seen to help organisations to stop serious environmental accidents or illegal emissions occurring (Ramus 2002). Some 40 percent of U.K. employers are reported in a CIPD reward survey (Cotton 2008) as reviewing their reward and employment conditions policies and practices to see if they support their environmental objectives. However, this has largely been concerned with benefits such as transport and travel rather than pay itself, and another survey reviewing the links between rewards and EM reports a "dearth of activity" (Bashford 2008).

Thus organizational practice on linking EM and rewards for those below senior management largely focuses on giving employees non-monetary recognition rewards for environmental management (Govindarajulu and Daily 2004).Recognition-based rewards for staff in EM (such as company-wide public recognition) are used in large U.S. companies, and are offered at different levels, for example by CEOs annually for individual, team, and divisional contributions to waste reduction, company-wide team excellence awards, and in non-traditional forms, such as giving employees opportunities to attend green events/rallies. Other such innovative non-monetary rewards for employee EM actions include paid vacations, time off, and gift certificates (Govindarajulu and Daily 2004).

The use of environmental rewards and recognition (like daily praise and company awards) are seen to have a significant impact on employee willingness to generate eco-initiatives. Such initiatives are seen to produce an open style of communication which encourages employees to discuss their environmental ideas 'in an honest and unrestrained manner' (Ramus 2001, p. 93). In Britain, some examples of company practice include the use of a "carbon credit card" and cash incentives for staff to purchase hybrid cars (Brockett 2006; Davies and Smith 2007), incentive schemes rewarding good attendance/performance with a "green benefit card" enabling staff purchases of green products (CIPD 2009, p. 4), and annual awards dinners to recognise exemplary behaviour in EM (Simms 2007, p. 39). Additionally, financial incentives have been introduced into company EM reward strategies in the U.K., such as tax incentives and exemptions to promote loaning bicycles to employees, and the use of a less polluting car fleet (Davies and Smith 2007).

Providing Green Opportunities: Employee Involvement (EI)

Wider employee participation in environmental management, rather than restricting involvement to managers and specialists, is often seen as crucial to successful outcomes (Remmen and Lorentzen 2000; Hanna *et al.* 2000; Bunge *et al.* 1996). Although market, business, and regulatory demands remain as the key drivers of EM, employees themselves are often reported as a source of pressure for organizations to address environmental issues (Berry and Rondinelli 1998). Henriques and Sardosky's (2003) study of 400 Canadian firms find organizations with more proactive environmental commitment profiles being positively associated with employees as a pressure source. A Belgian study of high-level polluters (as measured by environmental taxes paid) also finds a significant relationship between firms identifying themselves as practicing environmental leadership and attaching a high importance to their employee stakeholders (Buysse and Verbeke 2003).

Involving employees in EM has been reported as improving the key outcomes of environmental management systems, including: efficient resource usage (Florida and Davidson 2001); reducing waste (May and Flannery 1995); and reducing pollution from workplaces (Denton 1999; Kitazawa and Sarkis 2000). A study of EI in 110 Spanish ISO 14001 registered factories found employee involvement in environmental management to be positively correlated with manager rated environmental outcome measures (Brio *et al.* 2007).

There are a wide range of practices to increase employee involvement in EM, in addition to more traditional ones such as newsletters, suggestion schemes and

problem solving groups. For example, 'low carbon champions' (Clarke 2006), work-based recycling schemes (CIPD 2009), establishing specific Green/Environmental action teams to discuss how to involve staff in helping firms become more environmentally-friendly (Felgate 2006a; Carbon Trust 2006), and encouraging employees to use tele/videoconferencing, car-sharing, and home-working (Philpott and Davies 2007), are all recent developments aimed at engaging employees in environmental initiatives.

Employee involvement in EM seems to have its effects through three core processes: First, through tapping employees' tacit knowledge gained through their close links to the production process (Boiral 2002); second, through engaging and empowering employees to make suggestions for environmental improvements (Govindarajulu and Daily 2004); and third, through developing a culture in the workplace which supports EM improvement efforts.

Tacit Knowledge. Case study research in Canada in smelting plants of oil and copper refineries reports the importance of workers' tacit knowledge as being particularly useful in identifying pollution sources, managing emergency situations, and developing preventive solutions (Boiral 2002). A study of worker participation in environmental management initiatives in the NUMMI automobile plant in the U.S. found that employee involvement makes an important contribution to improving environmental performance as 'employees possess knowledge and skills that managers lack' (Rothenberg 2003). This study goes further and provides important insight into how worker knowledge is combined with managerial and technical knowledge to improve EM. The study identifies two main vehicles for worker

participation in environmental projects: a suggestion programme, and problem solving circles. Shop-floor employees engaged in EM projects mainly at the implementation process, rather that the initiation stage. The initiation stage was dominated by environmental and engineering specialists. Rothenberg's analysis suggests that rather than portraying this as a passive form of involvement, the contribution of contextual, processual, inter-organizational knowledge by workers to EM projects combined with the external knowledge of specialist managerial and technical staff to efficiently solve environmental problems. The culture and structures of lean production plants, for example minimal buffer stocks ensure instant feedback of problem conditions, facilitated knowledge combination between workers and specialists in EM projects.

Empowerment and Engagement. Commitment from senior management to environmental management systems is seen as providing the underpinning framework for EM, but without wider employee engagement the success of EM may be limited. As Denton (1999) plainly puts it: "Good EI planning and activities are the key to pollution management. A Management initiative without employee involvement is useless." Rather than management seeking to ensure mere employee compliance with EM systems, the need is to win their "hearts and minds" to the environmental cause, including involving employees in EM to motivate them to 'buy-in' to taking ownership of energy management use (Carbon Trust 2006). Comparative case studies of U.K. and U.S. companies report that increasing employee feelings of psychological empowerment, because it increases their willingness to make suggestions for environmental improvements, is critical to EM (Kitazawa and Sarkis 2000). Survey data from 232 Australian manufacturing firms reports a positive association between

the level of employee empowerment in EM and environmental performance (Simpson and Samson 2008).

There is considerable evidence that supportive managerial and supervisor behaviours in environment initiatives are important in developing employee engagement in EM. Ramus and Steger's (2000) study of employee "eco-initiatives", defined as any action taken by an employee that she or he thought would improve the environmental performance of the company, found a strong relationship between managerial behaviours such as competence-building, communication, rewarding and recognising employees and their engagement with innovative environmental activities.

Supportive Cultures for EM. A strong theme in the EM literature is that effective outcomes are achieved not just by making changes to production processes, products or raw material but by changing the corporate culture such that organizations have deeply embedded values that support long term sustainability (Stone 2000; Kitazawa and Sarkis 2000). An organizational culture that supports EM is one that encourages employees to make suggestions for and the freedom to engage in, activities that improve the environment. In particular, employees must be well informed about environmental issues that affect their workplace (Madsen and Ulhoi 2001), and wider employee participation in EM is found to underpin such supportive cultures. Fernandez *et al.* (2003) argue that EI forms a core element of an advanced environmental approach because its supports a work culture 'based on ecological values'. Antecedents of such cultures derive from managers showing commitment to environmental issues, and the eco-centric values of employees and their involvement

in EM activities are all viewed as 'indispensable' for EM to be successful (Fernandez *et al.* 2003).

Findings from a survey of 472 workers in 7 Chinese energy companies reveal that employee personal values, such as openness to change, are positively correlated with positive attitudes towards the environment (Chun 2009). However, case study research in two Danish organizations (railways and slaughterhouses) also report the problems of sustaining pro-environmental cultures over the longer term with changes in managerial personnel and organizational priorities damaging employee commitment to EM initiatives (Forman and Jorgensen 2001). EI is seen to be a very effective approach to developing a strong pro-environment culture in Small and Medium-Sized Enterprises (SMEs), an especially difficult to reach sector in environmental terms, with findings from a Netherlands survey of 194 employees in 8 metal businesses reporting that EI campaigns in EM (which put information at the centre of involved joint management and employee decision making), have the greatest influence in reducing the costs of waste processing (Klinkers and Nelissen 1996).

The Union Role in EI and EM. Trade unions generally have a long history of action on environmental issues, not least because of seeking to ensure a safer and healthier work place for their members and job protection are key traditional union concerns, but more recently in order to encourage employers to create new green jobs and to extend their sphere of influence in the workplace. In Britain the Trade Union Sustainable Development and Advisory Committee (TUSDAC 2005) recommends that unions take a key role in negotiating a 'Sustainable Workplace Framework Agreement' with

employers to strengthen workplace employee engagement in EM. For TUSDAC, a sustainable workplace needs to broaden shop stewards responsibilities to take in EM concerns.

Some recent developments in the U.K. include environmental education programmes for rank and file union members, joint management and union training programmes in EM, and the developments of workplace environmental representatives, the so-called "union green representatives" (TUC 2009). Currently the TUC is campaigning for legal rights for such union green reps to take reasonable time off during working hours to promote sustainable work practices, carry out audits, consult on EM polices, and receive training. As yet there have been no systematic analyses of the achievements of trade union green initiatives but there has been a general reluctance by some employers to involve unions in EM, as such employers still seem to consider it an area of management prerogative. Case study evidence from 43 European organizations finds that despite some good practice, the strategic nature of EM "constrains the development of an essential role for workers and trade unions" (Le Blansch and Lorentzen 1996).

Discussion and Conclusions

The literature on EM often makes the point that because organizations are the main cause of environmental problems, they should therefore play a large part in addressing EM issues (Bebbington 2001). Consequently, there are now a very wide range of eco-initiatives being launched by organizations and managers to address EM concerns. From the above review, it is clear that there is a developing GHRM model of people

management practice that is emerging as one organizational response to environmental degradation. This paper has identified a wide range of GHRM practices and Table one summarises the main ones in the core areas of the AMO model-namely skill development, motivation and involvement of employees.

Table 1: Summary of GHRM practices

DEVELOPING GREEN ABILITIES		MOTIVATING GREEN EMPLOYEES	PROVIDING GREEN OPPORTUNITIES	
Attracting/Selecting - Green issues specified in job descriptions - Green job candidates, applicants use green criteria to select organizations - Green employer branding (green employer of choice) - Firms recruit employees who are 'Green aware' - Green issues in induction /socialisation processes *Training & Development* - Employee training in EM to increase awareness, skills & expertise - Training for Green jobs, & integrated training to create an emotional involvement in EM - Trade union reps get information on EM, & union activist EM training - Green knowledge management - Using employees tacit knowledge in EM - Training workshops for managers - Green MBAs - Green leadership styles	*Performance Management/Appraisal* - Green performance indicators included in performance management system and appraisals - Communication of Green schemes to all levels of staff through PMA scheme, establishing firm-wide dialogue on green matters - Managers/employees are set green targets, goals and responsibilities - Managers are set objectives on achieving Green outcomes included in appraisals - Dis-benefits in performance management system for non-compliance/ not meeting EM goals	*Pay and Reward Systems* - Staff suggestions in EM rewarded - Reward schemes linked to staff gaining EM skills via skill based pay - Green benefits (transport/ travel) rather than pay benefits cards to gain green products - Financial/tax incentives (bicycle loans, use of less polluting cars) - Monetary-based EM reward system - Monthly managerial bonuses for good EM - Including Green targets as part of PRP for senior staff - Executive compensation for managers partly based on EM stewardship - Recognition-based rewards in EM for staff (public recognition, awards, paid vacations, time off, gift certificates)	*Employee Involvement* - EI practices in EM including newsletters, suggestion schemes, problem-solving groups, low carbon champions, and Green action teams *Empowerment & Engagement* - Encouraging employees to make suggestions for EM improvements - Increasing employees' psychological empowerment enhances their willingness to make suggestions for EM improvements - Supportive managerial and supervisor behaviours develop employee engagement in EM	*Supportive climate/culture* - Wider EI in EM underpins pro-environment culture *Union role in EI and EM* - EM education programmes for union members - Joint management/union training programmes in EM - Green union representatives

From this review of GHRM, it is clear that some parts of the model are much more comprehensively researched than others. The area with the most developed empirical literature base is that of involving employees in EM initiatives. Perhaps this should not come as too much of a surprise, as employee involvement is in general one of the most longstanding, e.g. Munsterberg (1913), and most researched areas of HRM (Dietz *et al.* 2009). It is also the area of HRM in which managers have most experimented with, and research reports continuing "waves" of new employee involvement initiatives (Marchington and Wilkinson 2005). Green EI, it seems, is the latest variant of these waves of managerial interest in employee involvement. It is thus now almost a 'natural' first step when organizations introduce new initiatives, such as EM, to attempt to involve the wider workforce.

The review finds considerable evidence of the positive impact of employee involvement in EM with evidence of an association with the key outcomes of efficient resource usage, reduced waste and pollution and also some evidence of a positive impact on employee outcomes such as increased job satisfaction. Thus the key questions in this research area are not so much now about the effects of Green EI but the rather less explored one of what distinguishes effective Green EI initiatives from ineffective ones? Empirical research that identifies the key design variables of effective Green EI initiatives would be most useful. A related research question is to better understand the theoretical basis of the linking mechanisms between employee participation in EI schemes and positive organisational and employee outcomes. The above review of the existing research suggests three possible mediators; tapping the tacit knowledge of shop-floor employees; empowering and engaging employees; and

developing supportive work cultures for EM. A programme of theoretically informed research formally testing mediators of the Green EI-outcomes relationship would be valuable.

The GHRM area of attracting and developing staff is also increasingly researched in the literature. Here researchers have used signalling theory to examine how candidates use the environmental image and reputation of the recruiter to make inferences about the firm's future intentions. In sum, being seen as pro-environment is important in attracting high quality talent, not least because such firms generally receive better qualified and motivated job applicants. In addition, it seems some applicants will also be prepared to sacrifice salary potential to work for an environmentally responsible organization. However, we know rather less about how organizations are selecting candidates in line with a pro-environment stance. There is little research examining the impact of the EM movement on selection criteria and the selection processes used. A research programme examining this area would help complete our understanding of pro-environment recruitment and selection practices.

In terms of developing staff for EM, there is clear evidence for the widespread use of environmental training, of firms spending a considerable effort in developing environmental knowledge bases, and developing pro-environment managers and leaders of the future. What is lacking in this body of work is a careful assessment of the general effectiveness of these developmental efforts. There is also a need to broaden the theoretical basis of green leadership research away from a concentration on managerial values, personality, and cognition and to consider other potential antecedents of green leadership. Here one potentially interesting line of research is to

examine the neglected role of emotions in EM. Russell and Griffiths (2008) draw on the theory of issue ownership (Pratt and Dutton 2000), identification theory (Mael and Ashforth 1992) and affective theory to make the case that an individual's emotional reaction to EM is a strong predictor of their ownership of pro-environment initiatives. Empirical research that addresses this agenda has high potential to explain the rather patchy uptake of eco-initiatives in some organizations, and help shape training initiatives such that they result in a wider ownership of EM by employees.

The area of GHRM that we have the least knowledge base on is the motivation of employees to become involved in EM via performance appraisal and reward management practices. Here the empirical research base is especially thin despite there being a large literature offering prescription (e.g. Cotton 2008; Govindarajulu and Daily 2004) on how organizations should incorporate environmental objectives in formal performance appraisal and staff incentive schemes. It seems that employers at best incentivise EM activities via a range of green benefits and recognition devices rather than hard cash. This neglect of reward management in GHRM rather limits the implementation tools available to an organization in their pro-environment activities. It seems that rewards are considered as appropriate for incentivising EM activities but interestingly mainly for encouraging consumers to engage in recycling efforts (Bashford 2008) and compensating countries in the developing world to support their eco-systems (Swallow *et al.* 2009). Researching why organizations are reluctant to use reward management in incentivising staff involvement in EM would be a useful endeavour.

As yet, there are no reported studies of the impact of GHRM systems as a *whole* on either environmental outcomes, such as waste reduction, or on wider organizational performance metrics. The individual GHRM activities discussed in this review may be better viewed as interdependent and reinforcing "bundles" of activities with a synergistic link between practices so that the impact of each element is enhanced when the others are also implemented (Combs *et al.* 2006; Becker and Huselid 1998). Studies that examine the impact of GHRM systems rather than individual practices would be especially useful in this respect.

We suggest GHRM has considerable potential as a management research area but that academic research is rather lagging behind practice here, given the imbalance between practitioner and academic publications found in this review. This is not unusual in HRM research with managers and academics often occupying "separate worlds" (Rynes *et al.* 2007; Guest 2007). We provide this review and suggestions for further research in the hope that researchers will reduce the practice-research gap in GHRM. Table two summarises an AMO-based research agenda in Green HRM.

Table 2: Summary of an AMO-based research agenda in GHRM

Research gaps	Research Needs
Attracting and developing staff 1. How organizations select candidates in line with pro-EM stances/The impact of the EM movement on selection criteria and processes	*Organizational level surveys of green recruiters to research the criteria used and selection processes involved in selecting environmentally aware staff.
2. Assessing the effectiveness of developmental efforts	*There is a considerable general body of work on whether" training pays", research could now focus on whether green training pays.
Employee motivation 3. Motivations of employees to be involved in EM via performance appraisal/reward practices	* There is a need to understand more fully the causality of relationships between senior manager pay and firm environmental performance using longitudinal research designs. *A need for exploratory research to examine why organizations are reluctant to use pay to incentivise EM performance below senior levels.
Green opportunities 4. What distinguishes effective Green Employee Involvement EI initiatives from ineffective ones? Identifying key design variables of effective Green EI initiatives.	*Green EI is the most developed area of GRHM practice with a growing number of studies. We have a number of meta-analytic studies of EI in general, a meta-analysis of the green EI literature would add to our understanding.
5. Understanding the linking mechanisms between Employee Participation in Green EI schemes and positive organisational /employee outcomes	*Testing potential mediators of staff tacit knowledge, employee empowerment, supportive work cultures.
Green HRM (GHRM) systems 6. Impact of GHRM systems on environmental outcomes/wider firm performance metrics	*Organizational level research examining the relationship between GHRM "bundles", environmental performance and organizational performance.

In addition we would note a further limitation in that with some notable exceptions (e.g. Fryxell and Lo 2003; Branzei *et al.* 2004; Chun 2009), the GHRM literature is largely a Western one and given the importance of Asian economic development for EM, this is an important gap for future studies to reduce.

We also suggest that the notion of sustainability also applies to HRM itself. All too often accounts of strategic HRM assume that human resources are there to be consumed and exploited rather developed and maintained (Ehnert 2009) and a wider GHRM practice would help place sustainability at the heart of people management. We also believe that GHRM promises potential benefits for both organizations and those employed by them. For the organization there is some evidence that better environmental performance is also associated with improved financial performance outcomes, the so-called "green pays" argument (Crotty and Rodgers 2011; Ambec and Lanoie 2008). Such findings when coupled with the well established research reporting a strong association between HRM in general and organizational performance suggest that the GHRM practices identified in this review may have a role to play not only in improving environmental performance but also the financial performance of the organization. Equally, the GHRM practices analysed here are likely to improve employee well-being in the workplace, not least through improving the working environment and satisfying the needs of an increasingly environmentally aware workforce. In sum, we believe, GHRM has potential to contribute positively to both employee well-being and to improved organizational performance.

References

Aiman-Smith, L., Bauer, T., and Cable, D. (2001). Are you attracted? Do you intend to pursue. A recruiting policy capturing study. *Journal of Business and Psychology*, **16**, pp. 219-237.

Albinger, H.S. and Freeman, S.J. (2000). Corporate social performance and attractiveness as an employer to different job seeking populations. *Journal of Business ethics*, **38,** pp. 243-253.

Ambec, S. and Lanoie, P. (2008). Does it pay to be green? A systematic overview. *Academy of Management Perspectives,* **43,** pp. 45-62.
Appelbaum, E., Bailey, T., Berg, P., and Kalleberg, A. (2000). *Manufacturing advantage: why high-performance work systems pay off.* Ithaca, NY: Cornell University Press.
Backhaus, K., Stone, B.A., and Heiner, K. (2002). Exploring relationships between corporate social performance and employer attractiveness. *Business and Society,* **41,** pp**.** 292-318.
Bansal, P. and Roth, K. (2000). Why companies go green: A model of ecological responsiveness. *Academy of Management Journal,* **43,** pp. 717-736.
Barton, R. (2009). Is the grass any greener? *The Independent on Sunday,* 15th November, pp. 8-13.
Bashford, S. (2008). Brownie points for green workers. *Human Resources,* May, pp. 30-31.
Bauer, T., and Aiman-Smith, L. (1996). Green career choices, the influences of ecological stance on recruiting. *Journal of Business and Psychology,* **10,** pp. 445-458.
Bebbington, J. (2001). Sustainable development: a review of the international development, business and accounting literature. *Accounting Forum,* **25,** pp. 128-157.
Becker, B.E. and Huselid, M.A. (1998). High performance work systems and firm performance: A synthesis of research and managerial implications. In Rowland, M. and Ferris, G.R. (eds.), *Research in Personnel and Human Resource Management,* Greenwich: JAI, pp. 53-101.
Behrend, T.S., Baker, B.A., and Thompson, L.F. (2009). Effects of Pro-Environmental Recruiting Messages: The Role of Organizational Reputation. *Journal of Business Psychology,* **24,** pp. 341-350.
Berrone, P. and Gomez-Mejia, L.R. (2009). Environmental Performance and Executive Compensation: An Integrated Agency-Institutional Perspective. *Academy of Management Journal,* **52,** pp. 103-126.
Berry, M.A. and Rondinelli, A. (1998). Proactive corporate environmental management: A new industrial revolution. *Academy of Management Executive,* **12,** pp. 38-50.
Beyond Grey Pinstripes. (2010). *Global 100 List*. Aspen: Beyond Grey Pinstripes.
Bird, A. (1996). Training for environmental improvement. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 227-246.
Boiral, O. (2002). Tacit knowledge and environmental management. *Long Range Planning.* **35,** pp. 291-317.
Boselie, J. P., Dietz, G., and Boon, C. (2005). Commonalities and contradictions in HRM and performance research. *Human Resource Management Journal,* **15,** pp. 67-94.
Branzei, O., Ursacki-Bryant, T.J., Vertinsky, I. and Zhang, W. (2004). The Formation Of Green Strategies In Chinese Firms: Matching Corporate And Individual Principles. *Strategic Management Journal,* **25,** pp. 1075-1095.
Brio, J.A.D., Fernandez, E. and Junquera, B. (2007). Management and employee involvement in achieving an environmental action-based competitive advantage: an empirical study. *The International Journal of Human Resource Management,* **18,** pp. 491-522.
Brockett, J. (2006). Change agents. *People Management,* 23rd November, pp. 18-19.

Bunge, J., Cohen-Rosenthal, E. and Ruiz-Quintanilla, A. (1996). Employee participation in pollution reduction: preliminary analysis of the Toxic Release Inventory. *Journal of Cleaner Production*, **4,** pp. 9-16.
Buysse, K. and Verbeke, A. (2003). Proactive environmental strategies: A stakeholder perspective. *Strategic Management Journal*, **24,** pp. 453-470.
Carbon Trust. (2006). *Office based companies: Maximising energy savings in an office environment,* (Report no. CT007), pp. 1-19.
Cassio, J. and Rush, A. (2009). *Green Careers: Choosing Work For A Sustainable Future*. Gabriola Island: New Society Publishers.
Chan, E. and Hawkins, R. (2010). Attitudes towards EMSs in an international hotel: an exploratory case study. *International Journal of Hospitality Management*, **39**, pp 641-651.
Chartered Institute of Personnel and Development (CIPD). (2007). The environment and people management. Discussion page accessed at: www.cipd.co.uk/subjets/corpstrategy/corpspcres/envirnpm
Chartered Institute of Personnel and Development. (2009). B&Q reward cards to offer green benefit. *People Management,* 23rd April, p. 4.
Chun, R. (2009). Ethical Values and Environmentalism in China: Comparing Employees from State-Owned and Private Firms. *Journal of Business Ethics,* **84,** pp. 341-348.
Clarke, E. (2006). Power brokers. *People Management,* 18th May, pp. 40-42.
Combs, J., Lui, Y., Hall, A. and Ketchen, D. (2006). How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology*, **59**, pp. 501-528.
Cordia, J. and Sarkis, J. (2008). Does explicit contracting effectively link CEO compensation to environmental performance? *Business Strategy and the Environment*, **17,** pp 304-317.
Cotton, C. (2008). Go the Green Mile. CIPD discussion page accessed at: http://www2.peoplemanagement.co.uk/pm/articles/gothegreenmile.htm?name=_guide&type=section
Crotty, J. and Rodgers, P. (2011). Sustainable development in the Russia Federation: The limits of greening within industrial firms. *Corporate Social Responsibility and Environmental Management,* forthcoming.
Davies, G. and Smith, H. (2007). Natural resources. *People Management,* 8th March, pp. 26-31.
Denton, D.K. (1999). Employee involvement, pollution control and pieces to the puzzle. *Environmental Management and Health,* **10,** pp. 105-111.
Dietz, G., Wilkinson, A. and Redman, T. (2009). Involvement and Participation. In Wilkinson, A., Bacon, N., Redman, T. and Snell, S. (eds.*) The Sage Handbook of Human Resource Management*, London: Sage, pp. 245-268.
Dolan, K.A. (1997). Kinder, Gentler MBAs. *Forbes,* June 2nd, pp. 39-40.
Egri, C.P. and Herman, S. (2000). Leadership in the North American environmental sector: Values, leadership styles, and contexts of environmental leaders and their organizations. *Academy of Management Journal,* **43,** pp. 571-604.
Ehnert, I. (2009). *Sustainable Human Resource Management.* London: Springer.
Felgate, G. (2006a). U.K. employees set to drive greening of business. *Carbon Trust news,* pp. 1-2.
Felgate, G. (2006b). Emission statements. *People Management,* 1st June, pp. 40-41.

Fernandez, E., Junquera, B. and Ordiz, M. (2003). Organizational culture and human resources in the environmental issue. *The International Journal of Human Resource Management,* **14,** pp. 634-656.
Florida, R. and Davison, D. (2001). Gaining from green management: Environmental management systems inside and outside of the factory. *California Management Review*, **43,** pp. 64-84.
Forman, M. and Jorgensen, S. (2001). The social shaping of participation of employees in environmental work within enterprises – experiences from a Danish context. *Technology Analysis & Strategic Management*, **13,** pp. 71-93.
Fryxell, G.E. and Lo, C.W.H. (2003). The influence of environmental knowledge and values on managerial behaviours on behalf of the environment: An empirical examination of managers in China. *Journal of Business Ethics,* **46,** pp. 45-69.
Govindarajulu, N. and Daily, B.F. (2004). Motivating employees for environmental improvement. *Industrial Management and Data Systems,* **104,** pp. 364-372.
Guest, D. (2007). Don't shoot the messenger. *Academy of Management Journal,* **50,** pp. 1020-1026.
Hanna, M.D., Newman, W.R. and Johnson, P. (2000). Linking operational and environmental improvement through employee involvement. *International Journal of Operations & Production Management,* **20,** pp. 148-165.
Henriques, I. and Sardosky, P. (1999). The relationship between environmental commitment and managerial perceptions of stakeholder importance. *Academy of Management Journal*, **42,** pp. 87-89.
Jabbour, C.J. and Santos, F.C.A. (2008). The central role of human resource management in the search for sustainable organizations. *The International Journal of Human Resource Management,* **19,** pp. 2133-2154.
Jabbour, C.J., Santos, F.C.A. and Nagano, M.S. (2010). Contributions of HRM throughout the stages of environmental management: methodological triangulation applied to companies in Brazil. *The International Journal of Human Resource Management,* **21,** pp. 1049-1089.
Jackson, S.E., Renwick, D.W.S., Jabbour, J.C., Muller-Camen, M. (2011). State-of-the-Art and Future Directions for Green Human Resource Management: Introduction to the Special Issue, *German Journal of Research in Human Resource Management,* **25,** pp. 99-116.
Kee-hung, L., Cheng, T., and Tang, A. (2010). Green retailing: factors for success. *California Management Review,* **52**, pp6-31.
Kitazawa, S. and Sarkis, J. (2000). The relationship between ISO 14001 and continuous source reduction programmes. *International Journal of Operations and Production Management,* **20,** pp. 225-248.
Klinkers, L. and Nelissen, N. (1996). Employees give business its green edge: Employee participation in corporate environmental care. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 213-224.
Le Blansch, K.L. and Lorentzen, B. (1996). Do workers and trade unions have a role to play in environmental protection? Results from case studies in companies in European countries. *Transfer: European Review of Labour and Research,* **2**, pp. 449-464.
Llewellyn, B., and Golden, K. (2008). *Green Jobs: A Guide to Eco-Friendly Employment.* Avon, MA: Adams.

Madsden, H. and Ulhoi, J.P. (2001). Greening of human resources: environmental awareness and training interests within the workforce. *Industrial Management and Data Systems,* **101,** pp. 57-63.
Mael, F. and Ashforth, B.E. (1992). Alumni and their alma mater: A partial test of the reformulated model of organizational identification. *Journal of Organizational Behaviour,* **13,** pp. 103-123.
Marchington, M. and Wilkinson, A. (2005). Direct participation and Involvement. In Bach, S. (ed) *Managing Human Resources: Personnel Management in Transition*, 4th edn, Oxford: Blackwell, pp. 398-423.
Marcus, A. and Fremeth, A. (2009). Green management matters regardless. *Academy of Management Perspectives,* **23,** pp. 17-26.
Marshall, R.S., Cordano, M. and Silverman, M. (2005). Exploring individual and institutional drivers of proactive environmentalism in the U.S. wine industry. *Business Strategy and the Environment,* **14,** pp. 92-109.
May, D.R. and Flannery, B.L. (1995). Cutting waste with employee involvement teams. *Business Horizons,* **38,** pp**.** 28-38.
McDonagh, P. and Prothero, A. (1997). *Green Management: A Reader,* London: Dryden Press.
Milliman, J. and Clair, J. (1996). Best environmental HRM practices in the U.S. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 49-73.
Munsterberg, H. (1913). *Psychology and Industrial Efficiency*, Charleston: Bibliolife.
Oates, A. (1996). Industrial relations and the environment in the U.K. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 117-140.
Osland, A. and Osland, J.S. (2007). Aracruz Celulose: best practices icon but still at risk. *International Journal of Manpower,* **8,** pp. 435-450.
Owen, D. (ed.), (1992). *Green Reporting: Accountancy and the Challenge of the Nineties.* London: Chapman Hall.
Parks, B. and Helmer, J. (2009). *Green Careers*. New York: Alpha Publishing
Peattie, K. (1992). *Green Marketing.* London: Pitman.
Perron, G.M., Cote, R.P. and Duffy, J.F. (2006). Improving environmental awareness training in business. *Journal of Cleaner Production,* **16,** pp. 551-562.
Phillips, L. (2007). Go green to gain the edge over rivals. *People Management,* 23rd August, p. 9.
Philpott, J. and Davies, G. (2007). *Labour Market Outlook,* (Quarterly survey report, summer), London: CIPD/KPMG, pp. 1-22.
Pratt, M.G., and Dutton, J.E. (2000). Owning up or opting out: The role of emotions and identities in issue ownership. In Ashkanasy, N.M., Hartel, C.E.J., and Zerbe, W.J. (eds), *Emotions in the workplace: Research, theory, and practice,* Westport, CT: Quorum Books, pp. 103-129.
Ramus, C.A. and Steger, U. (2000). The roles of supervisory support behaviours and environmental policy in employee "eco-initiatives" at leading-edge European companies. *Academy of Management Journal,* **41,** pp. 605-26.
Ramus, C.A. (2001). Organisational support for employees: Encouraging creative ideas for environmental sustainability. *California Management Review,* **43,** pp. 85-105.
Ramus, C.A. (2002). Encouraging innovative environmental actions: what companies and managers must do. *Journal of World Business,* **37,** pp. 151-164.

Rees, S. (1996). Action through ownership: Learning the way at Kent County Council. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 357-375.
Remmen, A. and Lorentzen, B. (2000). Employee participation and cleaner technology: learning processes in environmental teams. *Journal of Cleaner Production*, **8,** pp. 365-373.
Rothenberg, S., Pil., F.K. and Maxwell, J. (2001). Lean, green, and the quest for superior environmental performance. *Production and Operations Management,* **10,** pp. 228-243.
Rothenberg, S. (2003). Knowledge content and worker participation in environmental management at NUMMI. *Journal of Management Studies,* **40,** pp. 1783-1802.
Roy, M.J. and Therin, F. (2008). Knowledge acquisition and environmental commitment in SMEs. *Corporate Social Responsibility and Environmental Management,* **15**, pp. 249-259.
Russell, S.V. and Griffiths, A. (2008). The role of emotions in driving pro-environmental behaviours. In Zerbe, W., Ashkanasy, N.M. and Härtel, C.E.J. (eds), *Managing Emotions in the Workplace*, New York: Sharpe, pp. 83-107.
Russo, M. and Harrison, N. (2005). Organizational design and environmental performance: clues from the electronics industry. *Academy of Management Journal* **48,** pp. 583-593.
Rynes, S.L, Giluk, T.L., and Brown, K.G. (2007). The very separate worlds of academic and practitioner periodicals in human resource management: Implications for evidence-based management. *Academy of Management Journal,* **50,** pp. 987-1008.
Siebenhuner, B. and Arnold, M. (2007). Organizational learning to manage sustainable development. *Business Strategy and the Environment,* **16,** pp. 339-353.
Simms, J. (2007). Direct Action. *People Management,* 26th July, pp. 36-39.
Simpson, D. and Samson D., (2008). Environmental strategy and low waste operations: Exploring complementarities, *Business Strategy and the Environment,* **19**, pp. 104-118.
Snape, E., Redman, T. and Bamber, G. (1994). *Managing Managers: Strategies and Techniques for Human Resource Management.* Oxford: Blackwell.
Stanwick, P.A. and Stanwick, S.D. (2001). CEO compensation: Does it pay to be green? *Business Strategy and the Environment*, **10,** pp. 176-182.
Starkey, K. and Crane, A. (2003). Toward green narrative: Management and the evolutionary epic. *Academy of Management Review,* **28,** pp. 220-237.
Stone, L.J. (2000). When case studies are not enough: The influence of corporate culture and employee attitudes on the success of cleaner production initiatives. *Journal of Cleaner Production,* **8,** pp. 353-359.
Swallow, B.M., Kallesoe, M.F., Iftikhar, U.A., van Noordwijk, M., Bracer, C., Scherr, S.J., Raju, K.V., Poats, S.V., Duraiappah, A.K., Ochieng, B.O., Mallee, H. and Rumley, R. (2009). Compensation and rewards for environmental services in the developing world: Framing pan-tropical analysis and comparison. *Ecology and Society*, **14,** pp. 1-10.
Tranfield, D., Denyer, D. and Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management,* **14,** pp. 207-222.
TUC (2009). *Go Green at Work: A Handbook for Union Green Representatives.* TUC: London.
TUSDAC (2005). Greening the workplace (June). Discussion paper accessed at: www.Defra.gov.uk/environment/tusdac/

Ulhoi, J.P. and Madsen, H. (1996). The greening of European management education. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 289-300.
Victor, D.G. (2001) *The Collapse of the Kyoto Protocol and the Struggle to Slow Global Warming.* Princeton University Press, USA.
Wehrmeyer, W. (1996). Introduction. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 11-32.
Wehrmeyer, W. and Vickerstaff, S. (1996). Analysis for environmental training needs. In Wehrmeyer, W. (ed.), *Greening People: Human Resources and Environmental Management,* Sheffield: Greenleaf Publishing, pp. 339-356.
Wilkinson, A., Hill, M. and Gollan, P. (2001). The sustainability debate. *International Journal of Operations and Production Management,* **21,** pp. 1492-1502.

Acknowledgements

The authors would like to thank Frank Birkin and Geoff Wood for useful comments provided on an earlier draft of this paper.