

**AN ANALYSIS OF PRIVATE VERSUS PUBLIC SECTOR
RESPONSES TO THE ENVIRONMENTAL CHALLENGES OF
THE SUPPLY CHAIN**

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ABSTRACT. This paper examines differences and similarities between private and public sectors regarding green supply: the incorporation of environmental considerations into procurement and supply chain relationships. While there are considerable differences between the sectors, there are two key areas of similarity. Firstly, responses in both sectors are heavily influenced by organisational structure and patterns of decision-making and information flow. Secondly, the success of green supply initiatives appears to be heavily dependent on organisation's ability to align activity with dominant corporate objectives.

INTRODUCTION: THE ENVIRONMENTAL CHALLENGE

Environmental issues are becoming an important element of the task of management, and there are good reasons to believe that this new development is likely to be more than a passing trend. Relevant work is emerging from a number of sub-disciplines: once considered a subset of health and safety, the environment is now seen as pertinent to work in distribution logistics, product and process design, operations strategy and (as discussed below) procurement and supply chain management. Recently, a major stimulus to this work has been the seminal contribution of Porter and van der Linde (1995a, 1995b), who have argued that environmental constraints on businesses need not be regarded as a

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problem for business but as an opportunity. Other key writers in this field include Schmidheiny et al (1992), who has campaigned for a pro-industrial (and generally pro-big business) view of environmental responsibility, which may be contrasted with the line taken by Shrivastava (1995) who has adopted a more ethics-based approach. Welford (1996) has written extensively on the tension between these two stances. Newman and Hanna (1996) have considered the interplay between manufacturing and environmental strategies, and Gallarotti (1995) provides a neat classification of the reasons why firms may seek to adapt their behaviour in the light of environmental considerations.

Environmental issues present several difficulties for managers. Firstly, environmental issues are highly contestable: there is generally ample scope for scientific disagreement about merits of alternative courses of action. Secondly, organisations operate in a context of extreme uncertainty: Most expect the future to hold increased environmental regulation and taxation schemes, but it is rarely possible to predict what these will look like over the medium term. Many are wary of environmental crises (real, or in consumers' imaginations) that may arise with little warning. Finally, firms' and public bodies' activities are often gilded by huge amounts of cynical public relations (so-called 'green wash'), and also sometimes unfounded or ill-informed accusations from competitors and activists.

GREEN SUPPLY

An important part of the development of the environment as a business issue has been the increasing interest in the green aspects of purchasing and supplier relations (Burton, 1993; Lamming & Hampson, 1996; Green, Morton & Green, 1996). Several major corporations have taken steps to collaborate with suppliers on environmental projects (such as Rover: see Anonymous, 1994) and in applying environmental criteria in supplier selection and evaluation (such as the UK home improvement store, B&Q: see Green, Morton & New, 1998). An important issue is the role of customer pressure in the spread of environmental management systems such as ISO14000 and the European Eco-Management and Audit Scheme (EMAS), with which parallels may be drawn with the diffusion of quality management systems such as ISO9000 (see New, Green & Morton, 1997). In the UK, a major contribution towards the growth of interest in the topic has been the work of Business in the Environment (BiE) and the Chartered Institute of Purchasing (CIPS) with their 'Buying into the Environment' initiative (CIPS/BiE, 1993).

INVESTIGATING THE GREEN SUPPLY PHENOMENON

In our research, we have worked closely with a wide range of private sector firms and public sector bodies within the UK and a handful from overseas. Our methodology was simply to trace the development of green supply ideas within the organizations, and attempt to understand the meanings attached to the initiatives, and to develop an empathetic understanding of the problems which faced the firms with whom we dealt. We interviewed managers and purchasing staff, and worked as 'consultants' and as a sounding board for managers --sometimes Environmental Managers, sometimes Purchasing Managers-- and we attended meetings and examined documents. We also organized meetings of an Environmental Supply Chain Forum, at which practitioners came along to report their aspirations, confusions and (occasionally) progress.

Our rather pragmatic and reactive approach was based on a series of initial case studies in which we learnt that a more conventional cross-sectional, survey-based approach would be hindered by serious methodological difficulties. The first of these was that the range of actions possible, and the complexity of many organizations, would render any simplistic questions about organizational practice incomprehensible. For example, questions like "Do you base purchase decisions on environmental criteria?" would generate answers that were likely to be uninterpretable, given the lack of consensus on what can be included in the word 'environment'. Secondly, we were aware that, for many organizations, the public relations aspects of green supply were paramount: without careful deconstruction and triangulation it would easy to be misled by those who for honest or cunning reasons might confuse aspiration with actuality. Thirdly, we realized that understanding the impact of organizations' own specific cultures, and the roles of the specific people involved, would be crucial to tell a complete story: this was a texture of explanation that would be missed by ticks in boxes on a cross-sectional questionnaire survey.

THE PUBLIC SECTOR CONTEXT

Although much attention on corporate environmentalism has focused on the private sector, it is important to recognise the economic and

environmental importance of the public sector: it represents a major force in terms of the scale of its spending on goods and services. Within the Organisation for Economic Co-Operation and Development (OECD) countries, government-related procurement of goods and services represents between 5 and 15% of Gross Domestic Product, with central governments accounting (on average) for about one third of this (Cinq-Mars 1997). As well its large scale, public procurement is also notable for its complexity (Hartley, 1991). Heinritz, Farrell, Giunipero and Kolchin (1991) outline ten commonly accepted areas of difference between public and private sector purchasing. The first is the *size of purchases*: many government contracts - especially for defence-related purchasing, are huge. In the US, 2% of the Department of Defense contracts represent approximately 90% of dollar value of contracts awarded. Further, the public sector exercises significant *leverage* over its suppliers: in many industries (such as defence, and in some countries, healthcare) the public sector acts as the only or the single most important customer, and so has huge influence over the supply base. Also, the government has a *unique power* to set the commercial terms of engagement, by, in principle, changing the law (or, for example, levying taxes) to its advantage. In defence, public procurement pays unusual attention to the degree of *security* in the commercial relationship.

Other differences are that public procurement is undertaken in an environment of *legal restrictions* and detailed scrutiny of its *compliance with regulation*, with mechanisms in place to govern to ensure that the *solicitation of vendors* proceeds in a fair way. This means that procurement is undertaken with considerable attention to *procedural detail*. The bureaucratic implications of this are potentially exacerbated by a general *diffusion of authority* in public sector organisations. Lastly, public procurement may be used as an *instrument of government social and industrial policy*.

Countries have taken a variety of approaches to the greening of public procurement, but many are now formulating or implementing policies and developing institutions to act in this area. In the United States, for example, the Clinton Administration has implemented orders that favour the use of recycled paper products by the government and its subcontractors (Rabasca, 1993). All 50 US states have implemented some form of green procurement regime (Marron, 1997; Raymond, 1992). In the UK, Angela Eagle, the Parliamentary Under-secretary of State in the Department of Environment, Transport and the Regions, has committed

the Labour government to ensuring that it is "among the leaders in the area of green procurement" (Eagle, 1997). Cinq-Mars (1997) gives brief progress reports on the state of green government procurement in several countries, and cites the recommendation of the OECD (from 20th February 1996), which stipulated "the establishment and implementation of policies for the procurement of environmentally-sound products and services for use within governments". Some UK local authorities have incorporated environmental purchasing as one element in the Agenda 21 programme that has emerged from the Rio Summit (ACA/ADC/AMA, 1996); some have pursued the idea of adapted versions of the EMAS environmental management standard (CAG Consultants, 1993; Davis, 1995; Department of Environment, 1995).

KEY DIFFERENCES

Our research has entailed working closely with a number of large organisations in the private and public sector, and in tracing the development (and in some cases, effective demise) of green supply initiatives. Two key differences have emerged between public and private sectors: a) the effect of regulation on procurement practice and b) the use of green supply approaches for other than immediate commercial purposes. The analysis of both these differences, however, has led to an appreciation of important similarities between the two sectors, and within these some indication of what might be critical factors in establishing successful initiatives.

To a large degree, private organisations are permitted to invoke whatever criteria they like, and use what control procedures they deem appropriate, to govern the outflow of money to suppliers. They do, of course, have to demonstrate to the owners - via the auditors - that frauds have not been perpetrated and that arrangements have been made to the advantage of the company, but the precise form of commercial arrangements is open to considerable flexibility. The public sector, on the other hand, operates under the constraint of having to be seen to behave rationally and fairly, as good and reliable custodians of public money (Thomas, 1919; Turpin, 1989). This means there is generally a greater degree of traceability and structured procedure in public sector procedure, with the underlying motivation that potential suppliers are treated fairly, and that the (significant) scope for corruption is curtailed. This has meant that in most public sector contexts the most obvious comparison with the private sector is of greater reliance on formal procedures and routinised

mechanisms (such as sealed-bid tendering) and, in consequence, more extensive bureaucratic machinery. It is important to stress that the logic for this is not just to ensure fairness, but that fairness is *seen* to be done (McC Campbell & Rood, 1997). This degree of regulation has two contradictory effects on the development of public sector green supply. The first is that it becomes relatively easy for green criteria to be incorporated into an already criteria-based procurement process; suppliers who already have to jump through procedural hoops have just one more hoop with which to deal. One public authority in our study has followed this route by issuing an edict that all its suppliers (for a particular category of service) achieve either EMAS or ISO14000 by a particular date, or else be excluded from this work. The difficulty, however, is that public bodies often have difficulty in enforcing non-monetary criteria of this kind; the fear of having to explain a non-cost based purchasing decision means that purchasers are under considerable pressure to soften these criteria in practice, and fall back on price or demonstrable cost. This tension has come to the surface recently in pronouncements from senior ministers and officials in the UK government; government purchasing will incorporate green criteria, but there is no intention to pay any sort of 'green premium'; in other words, the government will buy green, but only when green is the cheapest (see Anonymous, 1998).

This issue needs to be seen in the broader context that public procurement is often an activity that is seeking to do several jobs at the same time. A good example of this is defence procurement, in which the survival of indigenous industries is often made a priority in buying decisions. Many public bodies (including many European governments) have espoused a version of the Porter Hypothesis (Porter and van der Linde 1995a and 1995b), which argues that setting high environmental standards will improve the environmental standing of the local supply base. Opponents of this view argue that clouding the pursuit of the best value with (any) other issues will inevitably have negative effects in the long run: an ailing national weapons company may be kept afloat in the short term, but the action will encourage poor management and non-competitiveness in the longer term. In other words, skewing the operation of the market may be killing with kindness. A further area of doubt about the efficacy of green public procurement as a tool of policy is that it is easy for the government to get the detail of its action wrong, and so have an unintentionally negative effect. Fuller, Allen and Glasier (1996) mention this in regard to a need for the US Environmental Protection Agency (EPA) to introduce a 'Common Sense' initiative in response to anti-

pollution measures that transpired to have dysfunctional effects. Bers (1994) describes problems with US public procurement's impact on recycling systems, where well-intentioned interventions have caused problems for the economic mechanisms that otherwise govern 'flow control' of recycled products. An argument in response to this is that, even though they will make mistakes, governments are obliged to intervene as in most cases market may not be adequate to 'close the loop' (see Cramer 1996).

Marron (1997) presents a more complicated and more theoretical argument that cautions against green purchasing by government. Using microeconomic analysis, he demonstrates that in some situations governments' decisions to buy green goods may have an adverse effect on the environment. This counter-intuitive result arises when a shift in government preferences from 'brown' to 'green' goods results in a downward pressure in the price in brown goods, which in turn increases the sales of brown goods to non-government customers. In this way, the total number of goods sold goes up, and this overall increase more than compensates for substitution of brown for green by the government. This rather curious argument is obviously dependent on both a rather limiting set of assumptions, and relies on confidence in equilibrium analysis in explaining economic behaviour.

KEY SIMILARITIES

Despite these differences, some authors (e.g. Sheth, Willams & Hill, 1983; Dobler, Burt & Lee, 1990) have stressed the similarity of public and private purchasing, as both seek to support operations, buy competitively and wisely, maintain minimum inventories, develop reliable sources and hire and train competent personnel. In our investigations, we have found that there are two key features which stand out in organisations who are exploring or striving towards green supply.

The first of these is the difficulty in establishing links between the appropriate members of staff and groups within an organisation who need to interact before environmental issues can be sensibly incorporated into procurement decisions. In public sector bodies, for example, it appears that procurement staff are often largely in the dark about the detail of the uses

to which their purchases are put. These staff experience difficulty establishing a credible position from which to challenge users' preconceptions. An example of this is the healthcare sector, in which it appears to be difficult to engage clinical staff in procurement-related discussions, as there is an embedded set of expectations that any innovation will be related to old-fashioned 'cheese-paring'. In the private sector, this issue often manifests itself as a gap between marketers and purchasers, who find it difficult to examine the marketing opportunities that might arise from modified procurement strategies.

The second issue is that we have found that organisations able to sustain momentum in this area are those organisations that can align green supply with another, broader corporate objective. The best example of this in our study is a local authority (which here we call CityCouncil) that has been able to integrate green supply as part of its overall missions in regard to local environmental improvement and local economic development. In this case, a particular purchasing manager was able to galvanize the organization into acting in a particular way which meant the profile of his department was significantly enhanced. The argument went that if CityCouncil was an environmentally demanding customer and gave assistance to local companies in, for example, developing environmental policies, then those same companies would be better placed to get business from other regions. In other words, environmental purchasing would help regional competitiveness. Whether this argument is true or not is debatable; the point here is that the council were persuaded of the logic, and --such was the enthusiasm and energy of the manager in question-- the idea was put into practice. Seminars were organized for local companies which provided help and advice, especially to smaller firms, many of whom responded positively to the initiative. The council at no stage made environmental criteria the principal decision criteria for supply-normal tendering processes were still used, although the purchasing manager used what he saw as the scope of the pre-qualification stage to include some environmental considerations, which were largely at the level of requiring information on policies. One internationally-renowned firm of consultants that had failed to provide an environmental policy, and were reminded of this, rapidly complied; the purchasing manager later found out that the firm was shaken in to action when word had got around that City Council would refuse to use their services in the future. This was a much stronger interpretation than the one intended or indeed was realistic-- nevertheless, the council's actions had effectively communicated that environmental issues were serious. The manager's enthusiasm also extended to

encouraging suppliers to becoming more proactive; part of a contract for office stationery included a provision such that the supplier would be measured in part by its success in moving the council (whose employees could order directly from a catalogue of approved products) towards the greener products.

This case appears to provide an interesting comparison to some private sector green supply initiatives, such as those of the 'ethical cosmetics' retailer Bodyshop or the UK-based retailer B&Q. In both of these cases, procurement becomes part of the overall differentiation in the market; these companies use their environmentally-informed purchasing - as part of their overall corporate identity - to win customers. In the public sector this exact approach is generally not reproducible, but the point can be made that within the organisations, green procurement is given some validation as an appropriate pursuit because of its alignment with an overarching corporate goal. In the City Council case, the goal of local economic development formed the locus of the discourse into which the green agenda could speak. By comparison, other public sector bodies in our study - which included other local government authorities, and an executive agency of central government - failed to make such a connection, and so found it difficult to get green supply initiatives embedded within the life of the organisation.

CONCLUSIONS

This paper has reviewed some of the issues that arise in the emergence of green supply in public and private sectors. While there are important differences, our research suggests some important similarities. For both sectors, our work suggests that green supply practices need to be implemented with regard to organisational structure and strategy; where this is not so, it seems likely that initiatives will flounder.

A final and ancillary conclusion is that we observed a very wide range of skills, enthusiasm and intellectual understanding in the purchasing and selling communities with whom we worked. Amongst purchasing managers in general, we found a very wide range of knowledge and insight surrounding both environmental issues, and also about the scope for developing procurement beyond order-processing and tender

administration. Amongst public purchasers, we found that there was considerable diversity of opinion about how much scope for actions were constrained by regulation (and, in particular for our organisations, European Union public procurement rules). This suggests to us that future empirical work must guard against too easy generalisations when differences between sectors or industries are observed; currently, the diversity of ability amongst purchasing managers is so great that behaviour that appears to be structurally determined may be more to do with the individuals concerned. This does not mean that there is not an urgent need for detailed case study work - it does mean that we must be cautious about too simplistic generalisations.

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REFERENCES

- ACA/ADC/AMA. (1996). Environmental Manifesto for Local Government: A Consultation Document. London, UK: Association of Metropolitan Authorities.
- Anonymous (1994). "Rover: Promoting Environmental Improvement Along the Supply Chain" (Company Report 166). ENDS Report, 233, 18-20.
- Anonymous (1998). "Parliament: Treasury off on Wrong Foot with New Audit Commission." ENDS Report, 276, 29-30.
- Bers, J. S. (1994). "Closing the Recycling Loop with Purchasing Reform." Facilities Design and Management, 13(5), 42-47.
- Burton, T. (1993). "Environmental Criteria in Buying Decisions." Proceedings of the Annual Conference of IPSERA (pp. 27-35). Bath, UK: University of Bath.

- CAG Consultants. (1993). A Guide to the Eco-Management and Audit Scheme for UK Local Government. London, UK: Local Government Management Board.
- Cinq-Mars, A. (1997, July 11). "A New Policy Tool for the Environment: Green Public Purchasing." Paper presented at the Green Procurement in Government Conference, London, UK. Available: www.open.gov.uk/doe/greening/greenpro/qe2/qe2mars.htm.
- CIPS/BiE. (1993). Buying into the Environment. Stamford, UK: Chartered Institute of Purchasing and Supply.
- Cramer, J. (1996). "Experiences with Implementing Integrated Chain Management in Dutch Industry." Business Strategy in the Environment, 5, 38-47.
- Davis, P. (1995). "Development of Eco-Management and Auditing in Local Government." Eco-Management and Auditing, 2, 103-110.
- Dobler, D.W, Burt, D., & Lee, L. Jr. (1990). Purchasing and Materials Management (5th ed.) (pp. 678-679). New York: McGraw-Hill.
- Department of Environment (1995). The Voluntary Eco-Management and Audit Scheme for Local Government (Circular 2/95). London: Author.
- Eagle, A. (1997, July 11). "Keynote Address." Presented at the Green Procurement in Government Conference, London, UK.
- Fuller, D. A., Allen, J., & Glaser, M. (1996). "Materials Recycling and Reverse Channel Networks: the Public Policy Challenge." Journal of Macromarketing, 16(1), 52-73.
- Gallarotti, G. M. (1995). "It Pays to Be Green: the Managerial Incentive Structure and Environmentally Sound Strategies." Columbia Journal of World Business, 30(4), 38-57.
- Green, K., Morton, B., & New, S. J. (1996). "Purchasing and Environmental Management: Interactions, Policies and Opportunities." Business Strategy and the Environment, 5(3), 188-197.
- Green, K., Morton, B., & New, S. J. (1998). "Green Purchasing and Supply Policies: Do They Improve Companies Environmental Performance?" Supply Chain Management: An International Journal, 3(2), 15-22.

- Hartley, K. (1991). "Public Purchasing." Public Money and Management, 11(1), 45-49
- Heinritz, S., Farrell, P.V., Giunipero, L., & Kolchin, M. (1991). Purchasing Principles and Applications (8th ed.). Englewood Cliffs, NJ: Prentice-Hall.
- Lamming, R. L., & Hampson, J. (1996). "The Environment as a Supply Chain Issue." British Journal of Management, 7 [Special issue], S45-S62
- Marron, D. B. (1997). "Buying Green: Government Procurement as an Instrument of Environmental Policy." Public Finance Review, 25(3), 285-297.
- McCampbell, A. S., & Rood, T. L. (1997). "Ethics in Government: a Survey of Misuse of Position for Personal Gain and its Implications for Developing Acquisition Strategy." Journal of Business Ethics, 16(11), 1107-1116.
- New, S.J., Green, K., & Morton, B. (1997, April). "The Sustainable Supply Chain: Theoretical Perspectives and Practical Developments." Paper presented to the International Sustainable Development Research Conference, Manchester, UK.
- Newman, W. R., & Hanna, M. D. (1996). "An Empirical Exploration of the Relationship Between Manufacturing Strategy and Environmental Management." International Journal of Operations and Production Management, 16(4), 69-87.
- Porter, M. E., & van der Linde, C. (1995a, September-October). "Green and Competitive: Ending the Stalemate." Harvard Business Review, 73(5), 120-134.
- Porter, M. E., & van der Linde, C. (1995b). "Toward a New Conception of the Environment-Competitiveness Relationship." Journal of Economic Perspectives, 9(4), 97-118.
- Rabasca, L. (1993). "Clinton Signs Buy-Recycled Executive Order." Recycling Times, 5(22), 1.
- Raymond, M. (1992). State Recycling Laws Update - Year End Review. Riverdale, MD: Raymond Communications.
- Schmidheiny, S. with the Business Council for Sustainable Development. (1992). Changing Course: A Global Business

Perspective on Development and the Environment. Cambridge, MA: MIT Press.

Sheth, J. N., Williams, R. F., & Hill, R. M. (1983, Winter). "Government and Business Purchasing: How Different Are They?" Journal of Purchasing and Material Management, 19(4), 7-13.

Shrivastava, P. (1995). "Ecocentric Management for a Risk Society." Academy of Management Review, 20(1), 118-137.

Thomas, A. G. (1919). Principles of Government Purchasing. New York: D. Appleton.

Turpin, C. (1989). Government Procurement and Contracts. London, UK: Longman.

Welford, R. (Ed.). (1996). Corporate Environmental Management. London, UK: Earthscan.