

GEMENT_AND_LOW- COST_STRATEGIES_ON_ENVI RONMENTAL_PERFORMANCE .docx

by

Submission date: 23-Mar-2021 03:19AM (UTC-0700)

Submission ID: 1540185367

File name: GEMENT_AND_LOW-COST_STRATEGIES_ON_ENVIRONMENTAL_PERFORMANCE.docx
(355.12K)

Word count: 4125

Character count: 23580

ANALYSIS OF THE INFLUENCE OF GREEN SUPPLY CHAIN MANAGEMENT AND LOW-COST STRATEGIES ON ENVIRONMENTAL PERFORMANCE

Shafira Alya Dewi E¹, Titik Kusmantini², Tri Wahyuningsih³

Faculty of Economics and Business, UPN Veteran Yogyakarta^{1,2,3}

Jl. SWK Jl. Ring Road Utara No.104, Ngropoh, Condongcatur, Kec. Depok, Kabupaten
Sleman, Daerah Istimewa Yogyakarta 55283

Correspondence email: kusmantini_titik@yahoo.co.id

ABSTRACT

This study aims to analyze the effect of green supply chain management and low cost strategies on environmental performance. This research uses descriptive quantitative research. This study conducted a survey of 78 KWT (Women's Farmers Group) in Sewon Regency, Bantul. The sampling technique used was simple random sampling. The results of this study indicate that green supply chain management has a positive effect on environmental performance in organic KWT cultivation practices in Sewon Bantul Regency. In addition, the low cost strategy has a positive effect on environmental performance in organic KWT cultivation practices in Sewon Bantul Regency.

Keywords: Green Supply Chain Management, Low Cost Strategy

INTRODUCTION

In this globalization era, environmental damage is everywhere. Factory exhaust fumes that contain carbon dioxide (CO₂) can pollute the air, factory waste that is dumped in river flows, plastic waste that goes to the sea, or the use of excessive chemical fertilizers and pesticides which will pollute the soil. Environmental pollution which is increasingly occurring will disturb the preservation of nature as well as directly or indirectly disturb the health of all living things. The effects of environmental pollution on humans may not be felt instantly, but these effects will affect health in the future after harmful substances that are accidentally consumed or inhaled accumulate in the body.

Indonesian Society of Respiriology at media conference in 2019 stated that air pollution has proven implied human health including respiratory or pulmonary system, cardiovascular system, cerebrovascular system, cancer risk, and woman and children's health. To minimize the effect of air pollution especially outdoor air pollution on human health, the participation from all stakeholders are needed (Perhimpunan Dokter Paru Indonesia, 2019).

As the education increases, more people are aware of the importance of environmental sustainability. Some people began to do various ways to save the environment. In fact, it is

starting to become a lifestyle for some people. Due to the increasing number of people who are starting to switch to consuming organic materials. To meet changes in people's lifestyles, stakeholders began competing to make environmentally friendly products and services produced through environmentally friendly processes.

Based on a research report conducted by the Indonesian Organic Alliance (AOI) in its published report, it was found that the increase and decrease in the total area of certified organic land was caused by many factors, for example for the years 2008 to 2010 was a period where there was an accreditation of 7 Certification bodies, causing an increase in the amount of land that is certified. However, for 2011-2014 there was fluctuation in the area of land, as several farmer groups, farmer groups, cooperatives or companies did not renew their certification. The increase in the total area of organic farming from 2016 to 2017 was around 39.4% and the increase in the area of organic farming in 2017 and 2018 was around 17.3%.

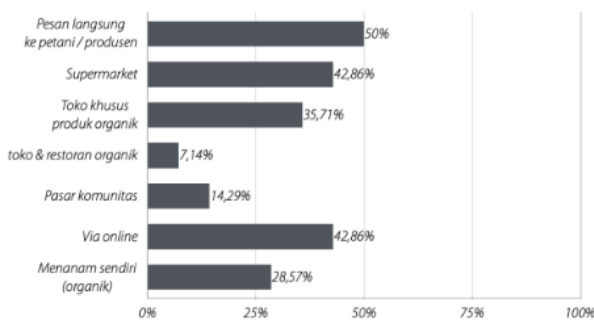


Figure 1 Distribution of access to purchase of organic products by consumers
Source: SPOI 2019

Consumer access to organic products is important in seeing the distribution patterns of organic products. Figure 1 shows the results of a survey conducted by AOI on consumer preferred access to organic products. It is known that, the method of shopping carried out by organic consumers through a combination of online and direct methods has almost reached 50%, offline shopping methods, especially those living in urban areas, namely shopping at supermarkets, organic specialty stores, through communities that have started to exist in several places, organic restaurants, besides that there are also consumers who have grown their daily organic products through organic principles.

Green supply chain management, integrating supply chain management with thoughts about saving the environment, which includes product design and development processes, supplier selection and procurement processes, manufacturing processes with good technology, distribution of end products to consumers, to the recycling process at the end of products (Sharma & Jain, 2014). By reducing air emissions and disposal of liquid and solid waste and

reducing the use of hazardous and toxic materials in the production process, without sacrificing quality, cost reliability or energy efficiency, practices that are carried out in green supply chain management can reduce the ecological impact (Carvalho, et al. 2011).

Organic agriculture in Indonesia has not been able to develop properly. There are several factors that cause the low number of organic farmers in Indonesia, one of which is the lack of concern from the government. It was only in 2002 that the government published the Indonesian National Standard (SNI) on Organic Food 6729-2002. In 2010 the government through the Ministry of Agriculture launched "Go Organic 2010". "Go Organic 2010" is a program intended to support the development of organic agriculture. The vision of "Go Organic 2010" is to integrate the organic system and the commodity market system at the international level which is targeted to be achieved in 2010 (Ministry of Agriculture, 2010).

The organic farming empowerment program was continued during President Jokowi's administration in his first term. The organic farming program is one of the agendas in Nawacita, namely "Development of 1000 Organic Farming Villages". This program marks a change in policy direction from previously focused on increasing production, quality competitiveness and competition at the global level to achieve industrialization and world trade to towards the development of organic agriculture based on food sovereignty at the village level. This program focuses on implementing environmentally friendly agricultural practices by accelerating the implementation of Law Number 41 of 2009 concerning the Protection of Sustainable Food Agricultural Land and its derivative regulations (Aji, Wangsit, & Ningrum, 2019)

Low cost strategy is a strategy that emphasizes efficiency. It is further explained that this strategy can make a company more efficient by producing a larger volume than standard products so that the company can take advantage. The products in this strategy are usually general products and are produced at low cost that can be accepted by the wider community. This strategy requires consideration of market advantages or easy access to raw materials, components, labor or other essential inputs in order to be successful. The weakness of this strategy is that there is no advantage in this strategy so that what the company does will be more easily imitated by competitors (Porter, 1985).

To carry out green supply chain management, choosing the right business strategy is needed. Selection of the right business strategy will increase the effectiveness of green supply chain management which results in good environmental performance. To evaluate a green supply chain it is necessary to use a reasonable business perspective by identifying cost, quality, delivery, and flexibility as the main dimensions that can be considered (Büyüközkan & Çifçi, 2012). Adopting green supply chain management practices will involve setting costs so that organizations without significant financial resources may not be able to finance the implementation of these practices (Wu & Pagell, 2011). The statement illustrates that organizations with a strategy that focuses on low costs can find it difficult to adopt green

supply chain management practices and can influence the results achieved. This is reinforced by the results of research from Laosirihongthong, et al (2013) which states that there is a relationship between low-cost strategies and environmental performance.

Green Supply Chain Management

Hervani, et al (2017) adding a "green" component to supply chain management affects the relationship of supply chain management with the natural environment. According to Sharma & Jain (2014) green supply chain management is integrating supply chain management with thoughts about saving the environment, which includes product design and development processes, supplier selection and procurement processes, manufacturing processes with good technology, distribution of final products to consumers, to recycling process at the end of product life.

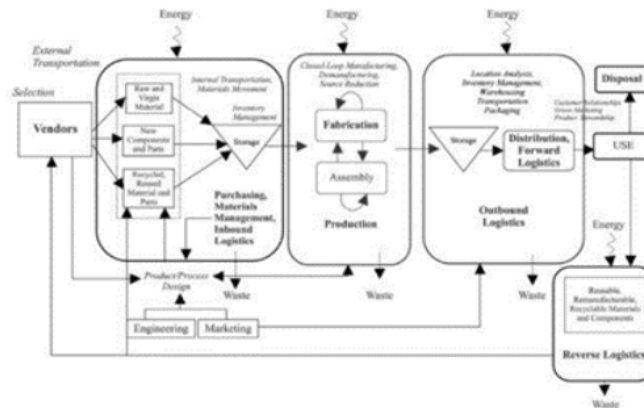


Figure 2. Green Supply Chain Management Model

Source: Hervani, et al (2017)

Hervani, et al (2017) describe a working model of green supply chain management (Figure 2). This model is the general structure of the implementation of green supply chain management in the internal supply chain. It contains the four main parts of green supply chain management starting from eco-friendly purchasing consisting of supplies that include new raw materials, components and parts and materials and spare parts that are reused and recycled from vendors. The second stage is environmentally friendly production ie manufacturing and assembly are the main activities in this section. The third stage is green marketing is the last part of the supply chain. In this section the final product will be stored and distributed elsewhere. The final stage is reverse logistics. Reverse logistics is the "closing loop" of a specific forward supply chain and includes reusing, remaking, and / or recycling of materials into new materials or other products of market value. The idea is to eliminate or minimize waste (energy, emissions, chemicals / hazardous, solid waste)

According to Eltayeb, et al (2011) green supply chains can be classified into several categories, including:

1. Eco-design refers to actions taken during product development aim at minimizing a product's environmental impact during its whole life cycle.
2. Green purchasing is the purchase of products or materials by ensuring that the goods purchased meet can reduce sources of waste, promote recycling, reuse, reduction of resources, and replacement of materials.
3. Supplier environmental collaboration an activity to improve environmental performance and capabilities of suppliers who join the project.
4. Customer environmental collaboration an activity to improve environmental performance and the capabilities of buyers who join the project
5. Reverse logistics is the activity of taking materials or products for reuse or recycle.

In addition, there are other classifications according to Ninlawan (2010), including:

1. Green procurement is defined as an environmental purchasing consisting of involvement in activities that include the reduction, reuse and recycling of materials in the process of purchasing.
2. Green manufacturing is defined as production processes which use inputs with relatively low environmental impacts, which are highly efficient, and which generate little or no waste or pollution.
3. Green Distribution is a combination of environmentally friendly packaging and environmentally friendly logistics.
4. Reverse logistics is the process of retrieving the product from the end consumer for the purposes of capturing value or proper disposal

Low Cost Strategy

According to Porter (1985), the cost leadership strategy or low cost strategy is a strategy that emphasizes efficiency. It is further explained that this strategy can make a company more efficient by producing a larger volume than standard products so that the company can take advantage. Nandakumar, et al (2010) argue that a cost leadership strategy is suitable for a stable and predictable environment. Organizations that implement a strategic cost leadership place an emphasis on highly efficient and low cost production systems to minimize prices. The results of his research argue that a cost leadership strategy is more profitable for improving financial performance in a very dynamic environment.

According to Miller (1988), users of this strategy tend to face the least uncertainty and environmental changes. They are looking for customers who care more about price than novelty, so that product innovation will often be redundant and inefficient for the company and its direct competitors, making for tremendous stability.

Based on the research of Nandakumar, et al (2010), the low-cost strategies for indicators include

1. emphasis on the efficiency of securing raw materials or components (bargaining of purchase prices)
2. emphasis on finding ways to reduce costs (standardize products or increase economies of scale)
3. emphasis on operating efficiency (productivity in production or efficiency in outbound logistics)
4. emphasis on utilization of production capacity
5. emphasizes price competition (competitive unknown prices)
6. emphasis on tight control of sales / general / administrative costs.

Environmental Performance

Lankoski (2000) states that the concept of environmental performance is related to the level of harmful environmental impacts caused by company activities. So that the more "environmentally friendly" a company is, the better its environmental performance. Conversely, the more environmental damage it causes the worse the environmental performance. It is further argued that environmental performance is operationalized as an absolute level of emissions, waste, and the use of company land and resources so that the smaller the emissions the better the environmental performance with respect to these pollutants and vice versa.

The increasing pressure from environmental problems caused by industrial activity has also urged companies to set key environmental performance indicators. So that Judge & Douglas (1998) expressed their opinion that environmental performance is the effectiveness of the company in meeting and exceeding community expectations with respect to concern for the natural environment as well as the entire organization's commitment to environmental excellence relative to other industries in various fields.

According to Ditz & Ranganathan (1997) there are four main categories of environmental performance. In contrast to most compliance-oriented EPIs (Environmental Performance Indicators), this performance measure has little in common with most of the regulatory requirements of Material Use, Energy Consumption, Nonproduct Output, Pollutant Release. Environmental performance will be measured based on research from (Zhu, et al 2008). In this study, there are six indicators of environmental performance, including

1. reducing air emissions
2. reducing waste water
3. reducing solid waste
4. reducing consumption of hazardous / hazardous / toxic materials
5. reducing the frequency for environmental damage
6. improving the company's environmental situation.

Research Model

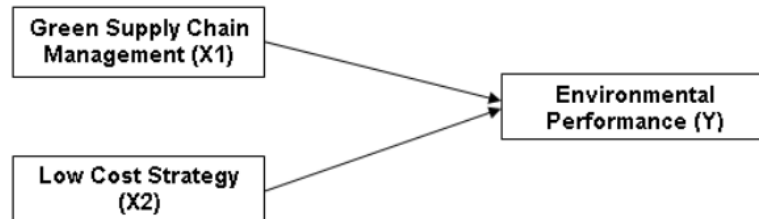


Figure 3. Model of Research Framework

Conceptual Hypothesis

H1: Green Supply Chain Management has a significant positive effect on environmental performance in organic cultivation practices by KWT in Sewon District, Bantul.

H2: Low-cost strategies have a significant positive effect on environmental performance in organic cultivation practices by KWT in Sewon District, Bantul.

RESEARCH METHOD

Research Design

This research uses descriptive quantitative research. The survey was conducted by distributing questionnaires to KWT members in Sewon Regency, Bantul, totaling 83 people from 3 KWTs. The questionnaire was sent to all members and filled out completely so that the answers collected could be analyzed further.

Population and Research Samples

The population in this study were all members of the KWT Sewon District, Bantul. While the sample in this study were members of the KWT who implemented an organic farming system. The sampling technique used was simple random sampling. From the KWT data in Sewon District, Bantul, there were 19 groups, there were 3 KWTs who carried out activities with an organic system, So the sample in this study was 83 KWT members from 3 KWTs in Sewon District, Bantul.

Measurement

We have conducted a questionnaire to analyze and measure the variables involved in our study. Respond to research to rate whatever extent they agree or disagree with each item on the Likert scale (1 = strongly disagree, 5 strongly agree).

Green supply chain management is measured by fourteen questions (for example, "In providing a special planting medium labeled organic") The results of the validity and reliability tests show that the scale is valid (Pearson correlation for all indicators ranges from 0.471 to 0.825 and significant at 0.01) and reliable (Cronbach's Alpha = 0.918).

Low-cost strategies are measured by the Nandakumar scale, et al (2010). This scale consists of eight question items (eg, "KWT members are always learning more effective farming / livestock methods to produce more product"). Respondents were asked to rate how far they agreed or disagreed with each item on a Likert scale (1 = strongly disagree, 5 strongly agree). The results of the validity and reliability tests indicate that the scale is valid (Pearson's correlation for all indicators ranges from 0.567 to 0.825 and significant at 0.01) and reliable (Cronbach's Alpha = 0.931).

Environmental performance is measured by the scale of Zhu, et al (2008). This scale consists of six question items (for example, "In farming / raising KWT does the processing of rotten fruit and vegetable waste"). Respondents were asked to rate how far they agreed or disagreed with each item on a Likert scale (1 = strongly disagree, 5 strongly agree). The results of the validity and reliability tests indicate that this scale is valid (Pearson's correlation for all indicators ranges from 0.471 to 0.694) and reliable (Cronbach's Alpha = 0.838).

RESULTS AND DISCUSSION

Of the 83 questionnaires in the Women Farmers Group (KWT) in Sewon Subdistrict, Bantul, 78 questionnaires were returned and fit to be processed, so that the questionnaire return rate was 95%. The questionnaire that did not return and was suitable for processing was 5%.

Respondents aged under or up to 30 years were 3 or 3.8%, respondents aged 31-40 years were 18 or 23.1%, respondents aged 41-50 years were 36 or 46.2%, respondents aged 51-60 were 19 or 24.4%, and respondents aged over 60 years as much as 2 or 2.6%.

Hypothesis Test

Hypothesis testing is done to determine whether the independent variable affects the dependent variable or not.

Table 1. Regression Equation Test Results

Model	Regression Coefficient	Standard Error	t-statistics	Sig.
Constant	0.326	1.908	0.171	0.865
Green Supply Chain Management	0.355	0.044	8.076	0.00
Low Cost Strategy	0.119	0.049	2.406	0.19
R2 : 0.812				

From multiple linear regression analysis, the regression coefficient, t value and significance level are shown in Table 2. (1) The Green Supply Chain Management variable (X1) has a positive regression coefficient direction which indicates a positive influence on environmental performance (Y) with a regression coefficient of 0.355. (2) Low Cost Strategy

Variable (X2) has a positive regression coefficient which indicates a positive influence on environmental performance (Y) with a regression coefficient value of 0.119.

The coefficient of determination is a measurement to what extent the model's ability to explain the dependent variables. Based on table 2, it is known that the coefficient of determination (R²) is 0.728 or equal to 72%. This figure implies that the management of green supply and low-cost strategies has an impact on environmental performance by 72%. While the rest ($100\% - 72\% = 28\%$) is influenced by variables outside the model

The t test aims to test each dependent variable (green supply chain management and low-cost strategy) individually whether it has a significant effect on the dependent variable (environmental performance). The results of the t test analysis are shown in Table 2, as follows (1) Green Supply Chain Management variable (X1) is 0.355 with a significance level of 0.000. Because $0.000 < 0.05$ then H₀ is rejected and H_a is accepted, the Green Supply Chain Management variable has a positive and significant effect on environmental performance. (2) The tcount value of the Low Cost Strategy variable (X2) is 0.119 with a significance level of 0.19. Because $0.19 > 0.05$ then H₀ is rejected and H_a is accepted, the Low Cost Strategy variable has a positive and significant effect on environmental performance.

Discussion

The results show that green supply chain management and low cost strategies have a significant relationship to environmental performance. The effect of green supply chain management on environmental performance is that KWT will collect the remaining rotten agricultural products which will later be processed into organic fertilizer to fertilize its agricultural crops and use used goods to become a planting medium which reduces the use of hazardous materials and waste in agriculture. In addition, the effect of low-cost strategies on environmental performance by using used goods for growing media and making organic fertilizers from agricultural waste means reusing and ensuring the use of organic materials on their farms.

The results of the effect of low-cost strategies on environmental performance in this study, although getting significant results, the value is classified as weak, which is equal to 0.119. This reflects that the capacity for low-cost cultivation practices needs to be increased in effectiveness. The findings in the field were that some KWTs spent a lot of money doing farming. KWT in farming.

To minimize the costs incurred by KWT, several things can be done, among others, the KWT can apply for village funds for the empowerment of village communities at musrenbangdes (village development meetings). Another alternative is to apply for guidance from the agricultural office specifically in the Sewon District, Bantul, through the Sewon BPP (Agricultural Extension Center) which is the main office for agricultural extension.

Another effort that can be done by KWT is by not only selling them in the form of fresh vegetables but processing them first into healthy food or drinks. If KWT sells its agricultural products in the form of healthy food or drinks, it will automatically attract even bigger consumers and of course it will increase KWT's profit.

This study is in line with previous research conducted by Zhu & Sarkis (2004) finding strong support for their hypothesis that "companies having a higher level of adoption of green supply chain management practices will have better environmental performance improvements". It is reinforced by the results of research by Laosirihongthong et al (2013) and Green et al (2018) which also suggest that green supply chain management is positively related to environmental performance, but not in accordance with research from the results of research on the relationship of low-cost strategies and environmental performance do not support previous research conducted by (Laosirihongthong et al 2013).

CONCLUSION

1. There is a significant influence between green supply chains and environmental performance in a positive direction, which means that the bigger the green supply chain the greater the environmental performance.
2. There is a significant influence between low cost strategies and environmental performance in a positive direction, which means that the better the low cost strategies the better the environmental performance.
3. From the coefficient of determination (R^2) of 0.728 or equal to 72%. This figure implies that green supply chain management and low cost strategies have an impact on environmental performance by 72%. While the rest ($100\% - 72\% = 28\%$) is influenced by variables outside the model.

REFERENCES

- Aji, G. B., Wangsit, S., & Ningrum, V. (2019). Reorientasi Kebijakan Pertanian Organik Sesudah "Go Organik 2010" dan "Program Seribu Desa Pertanian Organik" di Indonesia. Malang: UB Press.
- Büyüközkan, G., & Çifçi, G. (2012). Evaluation of green supply chain management practices: a fuzzy ANP approach. *Production Planning & Control: The Management of Operations*, Vol. 23 No. 6, 405-418.
- Carvalho, H., Duarte, S., & Machado, V. C. (2011). Lean, agile, resilient and green: divergencies and synergies. *International Journal of Lean Six Sigma*, Vol. 2 No. 2, 151-179.
- Ditz, D. W., & Ranganathan, J. (1997). *Measuring up: Toward a Common Framework for Tracking Corporate Environmental Performance*. Washington DC: World Resources Institute.

- Eltayeb, T. K., Zailani, S., & Ramayah, T. (2011). Green supply chain initiatives among certified companies in Malaysia and environmental sustainability: Investigating the outcomes. *Resources, Conservation and Recycling*, 55(5), 495–506.
- Green, K., Inman, R. A., Sower, V., & Zelbst, P. (2018). Impact of JIT, TQM and green supply chain practices on environmental sustainability. *Journal of Manufacturing Technology Management*, Vol. 30 No. 1, 26-47.
- Hervani, A. A., Helms, M. M., & Sarkis, J. (2017). Performance measurement for green supply chain management. *Benchmarking: An International Journal*, Vol. 12(4), 330-353.
- Institute, Organic; Alifa, Yayasan; , Kombas.id;. (2020). *Statistik Pertanian Organik Indonesia 2019*. Bogor: Aliansi Organik Indonesia.
- Judge, W. Q., & Douglas, T. J. (1998). Performance Implications of Incorporating Natural Environmental Issues into the Strategic Planning Process: An Empirical Assessment. *Journal of Management Studies*, Vol. 35(2), 241-262.
- Lankoski, L. (2000). *Determinants of environmental profit: an analysis of the firm-level relationship between environmental performance and economic performance*. Espoo: Helsinki University of Technology.
- Laosirihongthong, T., Adebajo, D., & Tan, K. C. (2013). Green supply chain management practices and performance. *Industrial Management & Data Systems*, Vol. 113(8), 1088-1109.
- Miller, D. (1988). Relating Porter's Business Strategies To Environment And Structure: Analysis And Performance Implications. *Academy of Management Journal*, Vol. 31(2), 280-308.
- Nandakumar, M. K., Ghobadian, A., & O'Regan, N. (2010). Business-level strategy and performance: The moderating effects of environment and structure. *Management Decision*, Vol. 48(6), 907-939.
- Ninlawan, C. S. (2010). The Implementation of Green Supply Chain Management Practices in Electronics Industry. *Proceedings of the International MultiConference*.
- Perhimpunan Dokter Paru Indonesia (Jakarta, Indonesia). Press release "Perhimpunan Dokter Paru Indonesia (PDPI) menyikapi polusi udara di kota Jakarta" (Indonesia). 2019 Jul 31
- Porter, M. (1985). *Competitive Advantage: Creating and sustaining superior performance*. New York: The Free Press.
- Sharma, S., & Jain, V. (2014). Drivers affecting the green supply chain management. *IUP Journal of Operations Management*, 54-63.
- Wu, Z., & Pagell, M. (2011). Balancing priorities: decision-making in sustainable supply chain management. *Journal of Operations Management*, 577-590.
- Zhu, Q., & Sarkis, J. (2004). Relationships between operational practices and performance among early adopters of green supply chain management practices in Chinese manufacturing enterprises. *Journal of Operations Management*, Vol. 22(3), 265-289.

Zhu, Q., Sarkis, J., & Lai, K. (2008). Confirmation of a measurement model for green supply chain management practices implementation. *International Journal of Production Economics*, Vol. 111(2), 261–273.

GEMENT_AND_LOW-COST_STRATEGIES_ON_ENVIRONMENTAL_PERFORMANC..

ORIGINALITY REPORT

2%

SIMILARITY INDEX

2%

INTERNET SOURCES

2%

PUBLICATIONS

%

STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

4%

★ www.emeraldinsight.com

Internet Source

Exclude quotes Off

Exclude bibliography Off

Exclude matches Off