

Ecology, Sustainability Development and Accounting Reporting Systems: A Comparative Approach

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ABSTRACT

The paper introduces comparative approaches to sustainability development and accounting reporting systems. The paper applies anthropological and sociological approaches to describe how sustainability development has impacted the development policies and programs of bilateral and multilateral organizations, as well as those of multi-national corporations. The paper argues that there are common sustainability trends among the four competing approaches in protecting and promoting environmentally based development programs. It suggests that sustainability has its roots in the developing economy and has been adapted/modified to meet the environmental and natural resources conservation and management policies of the developed societies. Accordingly, accounting systems have been developed to codify and report these trends in sustainability development.

Key Words: sustainability development, ecology and resources management, sustainability business reporting, ecological resources management.

THEORETICAL FRAMEWORK

Sustainability is primarily an ecological and societal concept and its extension to corporate and organizational responsibilities has certain limitations. Gray (2010) has raised three issues that questioned sustainability's applications to business organizations. First, social and ecological justice is applicable to global as well as regional levels and their translations to corporate levels are questionable. Second, sustainability is a state of being that is complex where there is no single "sustainable position" or policy that a corporation can achieve. Sustainability outcomes are derived from collective value judgments involving "politics, preference, knowledge, religion and spirituality, understanding of the planetary ecology, morality" (p. 57). Third, and finally, sustainability efforts result from "interactions between organizations, individuals, societies and states" (p. 57). In other words, some organizations, may behave in an "unsustainable" manner, for example, mining, natural resources extraction, while they compensate their extraction through sustainable actions (p. 57).

Sustainability has thus several social and ecological dimensions that transcend beyond corporate and organizational behavior and sustainable performance. Gray (2010) questioned the concept of sustainability relationship to corporate performance unless it is possible to derive some form of

organizational narratives that describe organizational behavior. It is suggested that the anthropological and sociological approaches would provide the ecologically based societal and community narratives that describe corporate sustainability behavior.

THE ANTHROPOLOGICAL VIEW OF SUSTAINABILITY

Ecological anthropology examines human adaptation, cultural change and diffusion in relation to environmental and technological changes (Bozzoli, 2000). In doing so, it recognizes the role of culture as providing distinctive set of values and norms among groups. Culture, in essence, has become the main force behind humans' adaptation to the environment. In other words, cultural practices contribute to differences in local and regional systems. However, information technology and communication have spread across cultural and social boundaries and have minimized cultural barriers among groups of populations (Kottack, 1999; Dietz and Burns, 1992; Feldman, 1986 and 1988; and Haenn, 2000).

Technological development has eroded cultural differences as well as altered the quality of life and way of living among cultural and population groups. Deforestation, irrigation, commercial farming, business development and population growth have changed the local living conditions, and in some cases to environmental degradation. The focus on ecological anthropology is not only on conservation policy, but on social soundness approach to development programs that pays attention to the needs of the people. Kottack has related the social soundness analysis (SSA) approach to "sustainable development aims at culturally appropriate, ecologically sensitive, self-regenerating change" (1999, p. 26). SSA has implications in the development and preparation of management accounting sustainability reports that promote environmental resources conservation (Sisaye et al., 2004).

SOCIOLOGICAL APPROACHES OF SUSTAINABILITY

As social science disciplines, both sociology and ecological anthropology address sustainability within the context of organizations and the broader environment – community, nation, ecosystem and planet. These are organizational ecological issues addressing the imbalance from pollution, environmental degradation and damages to the ecosystem. The industrial ecology and ecological anthropology approaches to growth, development and interdependencies are embedded in several social, agricultural and biological sciences disciplines, for example, in economics (agricultural and resource economics), sociology (rural sociology and human ecology), geography and organization management studies (population ecology) (refer to Aldrich, 1979; Astley, 1985; Bozzoli, 2000; Carroll, 1984; Cohen-Rosenthal, 2000; Ehrenfeld, 2000; Pierce and White, 1999; Singh and Lundsden, 1990; Stone, 2003; Vondal, 1988; Wilbanks, 1994). Sustainability development became an integrated subject of study from various social disciplines. The multidisciplinary approach to sustainability growth has thus been incorporated in various reports and programs advocated by international development organizations.

Sustainability has economic, technological as well as market development dimensions and social components to safeguard and protect the environment and natural resources. Therefore, sustainability implies responsibility by those who are in power to protect the environment, to use

ecological resources in a manner that is morally and equitably sharing for the benefits of humans and other species for today and in the future. There is a consciously intended social aim to use resources morally and responsibly to manage long lived living systems. Environmental management enhances sustainability by linking environmental resources management “to quality, production, service and managerial systems (Cohen-Rosenthal, 2000; Ehrenfeld, 2000). It promotes organizational learning where employees are trained and made aware of the importance of environmental issues and natural resources conservation. Accordingly, sustainable development and sound environmental management comprises the primary components for establishing environmental, industrial ecology and anthropological relationships.

Ecology and sustainable development received prominence in the 1970’s when economists suggested that existing natural resources create potential limits to growth. A group of economists from the Massachusetts Institute of Technology (MIT) argued in the early 1970’s that current rate of population growth could adversely affect food and industrial production, environment (pollution), climatic conditions and geographical location (Meadows et al., 2004). There came the realization that in economics, the national income and product accounts would be extended to include non-market accounts, for example, air and water quality beyond consumer products with market accounts. This allows the development of parallel indicators for non-market accounts similar to near-market accounts. The development of green accounting provided systematic recording and reporting of assets and production activities associated with natural resources and the environment.

In this context, the evolutionary process in organizational ecology implies that, when there is competition among organizations, it involves selection and learning (Aldrich, 1979; Amburgey and Rao, 1996; Carroll, 1984; Carroll and Barnett, 2004; Hannan and Freeman, 1977). Competition enhances organizational learning and innovation, including accounting changes to improve current performance (Lant and Mezias, 1992). It needs to be noted that when there is an increase in the number of competitive organizations within the same population, this creates resource constraints, and in turn, intensifies competition contributing to organizational death for those weakest and under-performing organizations. Consequently, only the “fittest” performing organizations survive (Freeman, 1982; and Pfeffer, 1985).

Accordingly, learning, selection and competition become deterministic factors in organizational growth. Barnett et al. (1994) argued that, when there are volatile and persistent environmental changes, organizations respond to these changes as part of the learning process; otherwise, they die. Those that are the weakest tend to be those organizations that are not able to learn, adapt, and survive. They will be eliminated by a natural selection process. Large organizations, even if they are weak, are more likely to survive because of their size, structure, and market position when compared to smaller organizations, and because they have the potential to reduce competitive forces and pressures through organizational strategic changes.

For example, Singh and Lumsden (1990) noted that, if a convergence between ecological and institutional research occurs, researchers will be able to examine the extent to which institutional environment variables have influenced the ecological dynamics of organizational populations, and what the role of legitimacy and institutionalization is in population dynamics. Institutional

variables such as customers, competitors, suppliers, and government regulatory agencies have profound effects on organizational vital rates: founding, disbanding, mortality/death or performance change rates. It can be argued that legitimacy or external institutional visibility obtained through sustainability could have the potential effect of reducing selection pressures on organizations. In general, legitimacy in institutional environment “provides access to resources, which reduces mortality rates” (Singh and Lundersen, 1990, p. 184). Many business organizations have accepted sustainability as a legitimate business competitive and product differentiation strategy that could enable them to compete and survive dissolutions, and eventually prevail by minimizing the potential risks associated with selection and organizational mortalities/death. While new organizations lack credibility and institutional support because of “newness liability” assumptions, on the other hand, those established organizations that have acquired institutional legitimacy are able to access resources relatively easily in order to compete. This, then, reduces their mortality rates.

While organizational ecology addresses the process of environmental and structural changes, including social change and adaptations; ecological anthropology, on the other hand, examines the influence of national and local organizational and political systems and their subsequent influences on culture, people, and, in general, socio-cultural systems. Ecological anthropologists have primarily studied the economies and political systems of emerging societies in developing nations. They have long recognized the role of politics in societies and communities as governing agricultural land use, farming practices, pastoral herding activities, and population migration movements. The literature suggests that national and local politics govern human land relations and interactions with the natural and social environments. At the same time, organizational systems influence the formation and operations of class and economic structures to regulate social and political order as well as environmental resources management. The process of natural selection influences social behavior and interactions among groups, physical and psychological adaptations, and the social structure of organizations (Gray, 2000; Pierce and White, 1999. See also Kottack, 1999; Dietz and Burns, 1992; Feldman, 1986 and 1988; Haenn, 2000; Mog, 2004).

THE CORPORATE VIEW OF SUSTAINABILITY

Business stakeholders, including customers have shown appreciation to corporate environmental programs. More recently, socially conscious and affluent customers have expressed preferences to invest in companies whose investment portfolios included sustainable development and ecological conservation policies (Koellner et al., 2005). Accordingly customers have responded positively and are willing to pay a premium for products and services delivered by companies with reputable environmental sustainability programs Sustainable Asset Management (SAM), 2010; Sustainability Index, 2010). For example, paper and bottle recycling companies are advancing social and environmental causes by working with not-for-profit organizations (NFPs). They are placing garbage collection facilities in parks and recreational areas. They also provide sanitation training to public and NFP employees. They work closely with service sector organizations, for example, hotels and restaurants to promote water conservation and marketing of green based products. These reform efforts also have been supported by governmental policies and international organizations in their resource allocations to advance the development

of environmentally sound technological innovations. When marketing strategies that focus on cultural and humanistic values are used to promote product sales, increase market share and coordinate synergy of production, marketing and distribution linkages, they contribute to the advancement of both environmental management, and improved business competitiveness and financial performance (Dilling, 2009).

Environmental concerns have attracted public interests and desires. It is, therefore, critical that top management recognizes the importance of ecological management programs as mechanisms in resolving contending environmental issues among several interest groups. Environmental management can thus become part of any organization's best management practices. The principles of sustainability have become sources of legitimization that are embedded in corporate citizenship and responsibility and accountability. Accordingly sustainability has served as operating guidelines to increase the frequency of corporate environmental and social disclosures to their stakeholders (i.e., institutional investors).

However, there are concerns whether or not the concept of sustainability can be extended to corporate and organizational responsibilities. Gray (2010) has attributed these limitations arising from the constraints associated between private and public interests. He articulated that it is not necessarily compatible for private business interests arising from managers, corporate board members and stockholders to have communality with sustainability issues where politics, religion, morality, and national and local interests interact in determining social and ecological sustainability issues. In spite of these conceptual constraints, Hopwood (2009) has welcomed the societal focus of sustainability by drawing from his involvement as Chair of the Prince of Wales Accounting for sustainability Forum. He noted that human and organizational interactions with the environment affect sustainable development unless production and preservation of biodiversity and natural habitats are maintained. He argued that business developments depart from short term to long term "environmentally sustainable approaches" in all sectors of the economy besides "energy and transportation" (p. 434). He suggested that accounting contribution lies in minimizing the future consequences of technologies on the environment. Although differences exist in the scope of societal and corporate sustainability issues, we suggest that sustainability programs that focus on community development sustain long term business interests, and that corporate economic goals are dependent on the overall growth and progress of societal development (Mog, 2004).

CONCLUSION

Ecologically responsible companies have provided descriptive and in some instances detailed social and environmental disclosures in their annual reports to document their sustainable management strategies (Wiedmann and Lenzen, 2006). They have reported their sustainability use of environmental resources, including energy conservation, development of alternative sources of energy, and management of nonrenewable energy sources such as oil, petroleum products, natural gas and coal as well as renewable energy sources such as trees (Dilling, 2009). Many institutional investors have supported sustainability programs of corporations, because they anticipate positive economic returns in their investments. They have shown appreciation to invest in corporations that are listed in the Dow Jones Sustainability Index (DJSI) (see DJSI,

2008, 2009 and 2010; Morgan Stanley Index, 2010; Sustainable Asset Management Sustainability Index, 2010). They perceive the benefits obtained from socially responsible investment policies outweigh the costs associated with these investments.

Sustainability related strategic planning and performance issues have thus linked sustainability with corporate strategy where there evolved rethinking of the corporation resources as being shared by all stakeholders, not only by shareholders (Bansal, 2005). Sustainability thereby creates wealth for all groups including the society and the community where the corporation is founded and/or located. There is the concept of merging private corporate profit and public good to commonly share as practiced in some of the emerging economies that have instituted micro-small business lending programs to start community projects: like dams and irrigation projects (Mog, 2004). These practices combine private business interest with the public goods to promote sustainability philosophy, environmental responsibility, social responsibility, community benefits, and public safety. There is an emphasis on stakeholder analysis that defines and identifies the value chain between internal organizational wealth creation for employees, managers as well as shareholders and external stakeholders including benefits for community members, and government agencies, which extended the trickle bottom down effects of sustainability growth (Gray, 2006). These are defining procedures and key performance indicators for community welfare and corrective action measures to counter the effects of unbalanced economic growth by promoting equity, redistribution and improved quality of life for all citizens.

References

Aldrich, H.E. 1979. *Organizations and Environments*. Englewood Cliff, NJ: Prentice-Hall.

Amburgey, T. L. and Rao, H. (1996). "Organizational ecology: Past, present, and future directions," *Academy of Management Journal*, 39 (5): 1265-1286.

Aras, G., and Crowther, D. (2008), "Developing sustainable reporting standards," *Journal of Applied Accounting Research*, 9 (1): 4-16.

Astley, W. G. 1985. "The two ecologies: Population and community perspectives on organizational evolution," *Administrative Science Quarterly*, 30 (2): 224-241.

Bansal, P. 2005. "Evolving sustainability: A longitudinal study of corporate sustainable development", *Strategic Management Journal* 26 (3): 197-218.

Barnett, W.P., and Carroll, G. R. (1995). "Modeling internal organizational change," *Annual Review of Sociology*, 21: 217-36.

_____, Greve, H.R., and Park, D.Y. (1994), "An evolutionary model of organizational performance," *Strategic Management Journal*, 15: 11-28.

_____, and Hansen, M.T. (1996). "The red queen in organizational evolution," *Strategic Management Journal*, 17: 139-157.

Bozzoli, M.E. 2000. "A role for anthropology in sustainable development in Costa Rica," *Human Organization*, 59 (3): 275-279.

Brundtland Report. 1987. *Our Common Future*, The World Commission on Environment and Development. Oxford University Press, New York, NY.

Carroll, G. R. 1984. "Organizational Ecology", *Annual Review of Sociology*, 10: 71-93.

Carroll, G.R., and Barnett, W.P. (2004), "Organizational ecology: An introduction," *Industrial and Corporate Change*, 13: 1-1.

Cohen-Rosenthal, E. (2000). "A walk on the human side of industrial ecology," *American Behavioral Scientist*, 44: 245-264.

Dietz, T., and Burns, T.R. (1992), "Human agency and the evolutionary dynamics of culture," *Acta Sociologica*, 35: 187-200.

Dilling, P.F.A. (2009). "Sustainability reporting in a global context: What are the characteristics of corporations that provide high quality sustainable reports- an empirical study?" *International Business & Economics Research Journal*, 9 (1): 19-30.

Dow Jones Sustainability Index (DJSI). (2010). Dow Jones Sustainability Indexes in Collaboration with SAM. <http://www.sustainability-index.com/>

Dow Jones Sustainability Indexes (2009), *Corporate Sustainability*.
http://www.sustainability-Index.com/07_html/sustainability/corpsustainability.html

Ehrenfeld, J.R. (2000). "Industrial ecology: Paradigm shift or normal science," *American Behavioral Scientist*, 44: 229-244.

Global Reporting Initiative. (2010). "G# Guidelines, G3.1 Developments and Organizational Stakeholders". <http://www.globalreporting.org/ReportingFramework/>

Global Reporting Initiative (2009). "About GR". <http://www.globalreporting.org/AboutGRI>.

Global Reporting Initiative (2008). "Sustainability Reporting Guidelines".
<http://www.globalreporting.org/ReportingFramework/ReportingFrameworkDownloads/>

Gray, R. (2010). "Is accounting for sustainability actually accounting for sustainability...and how would we know? An exploration of narratives of organisations and the planet", *Accounting, Organizations and Society*, 35 (1): 47-62.

Gray, R. (2006). "Social, environmental and sustainability reporting and organizational value creation? Whose value? Whose creation," *Accounting, Auditing & Accountability Journal*, 19 (6): 793-819.

Hopwood, A.G. (2009), "Accounting and the environment," *Accounting, Organizations and Society*, 34 (3-4): 433-439

Koellner, T., Weber, O., Fenchel, M., and Scholtz, R. (2005). "Principles for sustainability rating of investment of funds," *Business Strategy and the Environment*, 14 (1): 54-70.

Kottack, C. P. (1999). "The new ecological anthropology," *American Anthropologist*, 101 (1): 23-35.

Meadows, D.; Meadows, D.; and Randers, J. (2004). *Limits to Growth: The 30-Year Update*. New York City, N.Y.: Chelsea Publishing.

Mog, J.M. (2004). "Struggling with sustainability – a comparative framework for evaluating sustainable development programs," *World Development*, 32 (12): 2139-2160.

Morgan Stanley, 2010. Sustainability

<http://www.morganstanley.com/globalcitizen/sustainability.html>

Pierce, B.D., and White, R. (1999). "The evolution of social structure: Why evolution matters," *Academy of Management Review*, 24: 843-853.

Pfeffer, J. (1985), "Organizational demography: Implications for management," *California Management Review*, 28: 67-81.

Singh, J.V. and Lundsden, C.J. (1990). "Theory and research in organizational ecology," *Annual Review of Sociology*, 16: 161-195.

Sisaye, S., Bodnar, G., and Christofi, P. (2004). "Total Quality Management and Sustainability Reporting: Lessons from Social Soundness Analysis," *Internal Auditing*, 19 (5): 32-39.

Stone, M. (2003). "Is sustainability for development anthropologists?" *Human Organization*, 62 (2): 93-99.

Sustainable Asset management (SAM). (2010). "Sustainable investing." <http://www.sam-group.com/html/main.cfm>

Sustainability Index. (2010). (http://www.sustainability-indexes.com/06_html/indexes/djsiworld_supersectorleaders.html).

Vondal, P.J. (1988), "Social and institutional analysis in agriculture and natural resources management project assistance: Suggestions for improvement from Africa Bureau experience." USAID, Bureau of Africa: Social/Institutional Analysis Working Paper No. 2, Office of Development Planning, March.

Wallage, P. (2000). "Assurance on sustainability reporting: An auditor's view," *Auditing: A Journal of Practice and Theory*, 19, Supplement: 53-65.

Wiedmann, T., and Lenzen, M. (2006), "Triple-bottom-line-accounting of social, economic and environment indicators: A new-life-cycle software tool for UK businesses," Third Annual International Sustainable Development Conference, Sustainability – Creating the Culture. Perth, Scotland, 15-16 November.

Wilbanks, T.J. (1994). "'Sustainable development' in geographic perspective," *Annals of the Association of American Geographers*, 84 (4): 541-556.