



Developing a Conceptual Framework on Ecopreneurs and Sustainability Using ISM and MICMAC Methodology

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ABSTRACT

This paper explores the establishment of relationships between sustainability and ecopreneurship. The researchers have done a systematic literature review which is considered as a base for deriving the Interpretive Structural Model (ISM) and further MICMAC analysis is used to examine the driving power and dependence power of the variables. ISM is an approach which drives the researchers to study various aspects and relate variables. It highlights the important variables which have been arrived at, based on a systematic literature review, coupled with the interrelationship between the varied elements of the concept of ecopreneurship and sustainability. A conceptual framework has been developed to evoke debate and provide directions for future research. The framework proposed in this paper can be utilized to develop strategies toward sustainable development which are focused, practical and effective. A strong link is identified between entrepreneurialism and environmentalism.

INTRODUCTION

Ecopreneurship is a combination of two words “ecological” and “entrepreneurship”. A sustainable business framework includes developing new product and services and working on green business model and practices. Ecopreneurship is not only important because it provides new opportunities for the first movers who identify and exploit such opportunities, it also has the potential to be a major force in the overall transition to a more sustainable business paradigm.

Firms can be greener and focused on environmental business management and through such initiatives, entrepreneurs could lead towards sustainability (Choi & Gray 2008). Thus, it can be defined as entrepreneurship through an environmental lens. For a firm to have a positive environmental influence, a real improvement can be created only if the production processes, products and services are environmentally conscious. Ideally, ecopreneurship pulls the whole market towards more environmental progress.

Sustainability is a perpetual and ongoing process. It is a world recognized terminology (Shediac-Rizkallah & Bone 1998). But it is a difficult task to ascertain the extent of sustainability. A conceptual analysis focusing on the metaphorical and epistemological basis of the different definitions is the first step towards developing a theory on sustainability (Mebratu 1998). Different policies and strategy formulation on important agenda, leading towards sustainability, need to be conducted (Olsen 2007). Future

generation resources and present generation resources need to be paid attention, as the wealth of the nation (Sen 2013). It is necessary to translate the general principles and practices of sustainable development into business. This can be done by ensuring that sustainable development becomes more institutionalized with a concrete base in the regulations, norms, policies and mindsets of the youth (Bansal 2002).

As per the twelfth five year plan of the planning commission of India for the economic growth and development, environmental issues need to be addressed on an urgent basis and cannot be neglected. The green entrepreneur's activities have an overall positive impact on the natural environment and moves toward a more sustainable future. The nature of these entrepreneur business is structured and operated in such a way that every component has a neutral or positive impact on the environment. Environmental and social entrepreneurs, or ecopreneurs, lead socially committed, break-through ventures that are driven by environmental, social and economic goals.

In view of the above, the study proposes to develop a conceptual framework on ecopreneurship and sustainability using ISM and MICMAC analysis.

MATERIALS AND METHODS

Environmentalism: Entrepreneurialism and environmentalism are strongly connected to each other. The strong economic foundations of any business model should provide sustainability for the environmental and social objectives

of the organization. This would provide a practical framework for social and green entrepreneurship (Dixon & Clifford 2007). Ecopreneurship and moral dimension can lead to the power of environmentalism understood in terms of attitude and economic terms (Anderson 1998).

In a market system, sustainable development requires sustainability innovation and entrepreneurs who can achieve environmental or social goals with superior products or processes and are successful in the marketplace of mainstream customers. This can contribute to solving environmental problems and create economic value. They generate new products, services, techniques and organizational modes which substantially reduce environmental impacts and increase the quality of life. Cherrier et al. (2012) have examined the implementation of environmentalism in the corporate sector by taking into consideration the top level management, and as per their research, techno centrist, holist, ecopreneurs were supportive to corporate environmentalism. All stakeholders need to understand and implement the concept of sustainability in different stakes. Strategies of human resource are must for the successful implementation of sustainability (Dubey & Gunasekaran 2015). Luthra et al. (2015) have made an attempt to identify and analyse the critical success factors in relation to environmental issues towards sustainability in industries in the Indian perspective.

Youth education: Youth engagement in general is critical to positive youth development. Positive youth development aims to provide an environment where youth become empowered through the acquisition and development of skills that expand their personal resources. It provides opportunities for responsibility of activities that affect others. This responsibility moves youth toward mutually responsible and mutually rewarding involvement with others that constitutes social maturity (Coleman 1972). Youth development education can be directly related to freedom (Bandura 1969, Cisek & George 1985, Pittman 1991, Moser 1980). The intention of youth development can be derived from a definition of developmental education from Mosher (1979). The focus is on earth education at the global level which shows an intersection between education and sustainability. The role and responsibility of stakeholders in educating the youth is necessary for understanding sustainable development (Castor 2014).

Youth can create a sustainable business environment (Kopnina 2011). The context for learning is a social setting or relationships which include the attitudes and behaviour of both the adult and a young person (Kohl 1982) that contribute to development. Providing information and education to youth helps channelize their participation towards

sustainability. The concern for sustainability is a success through innovation, competitiveness and improved quality of education (Harley et al. 2014).

From another perspective, youth development education is directly related to freedom when freedom is defined as the number of options available to people and their right to express them (Bandura 1969, Cisek & George 1985, Pittman 1990, 1991). A clear cut connection can be established between the changing concerns about the environment and the problems associated with it, and the way environmental education is defined and conventional approaches to education varies from environmental education (Tilbury 2011).

Youth ecopreneurship: Youth are essential partners in community building, and community building can provide developmental opportunities for youth. The meaning of youth leadership development, leads to the potential connections, as well as the potential tensions and conflicts, between the inside and outside approaches (Libby et al. 2006). Ecopreneurship is one of the ways of doing business in a more environmentally friendly way. Entrepreneurship theory and sustainability studies are positively related. The three sub-concepts of ecopreneurship are: Eco-Innovation, Eco-Commitment and Eco-Opportunity (Melay et al. 2012, Moghavemmi 2012).

Youth participation has eight levels: manipulation; decoration; tokenism; assigned but informed; young people consulted and informed; adult-initiated, shared decisions with young people; young person-initiated and directed; and young person-initiated, shared decisions (Kothari 1996).

Youth participation has been defined as an “ongoing, inevitable process in which all youth are engaged and all youth are invested” (Pittman 1991). Matthews (2004) analyzed a consolidated theoretical framework for leadership. Entrepreneurship can be driven by moral attitudes (Anderson 1998, Buller 1989). Ecopreneurship is significant to finding new technologies to protect the environment, and to ensure that there are enough resources to fill the needs of both, the current population and future generations (Volery 2002).

The study conducted by Tommaso et al. (2014) highlights the different attributes and the reaction to the influence from the environment, culture and norms. This provides guidance about promising avenues for future research and encourages policy attention in the field of youth entrepreneurship. The entrepreneurship field helps youth to avoid the pitfalls experienced by experienced leaders (Cogliser & Brigham 2004).

Youth leadership includes clear criteria of positive environmental attitudes, behaviour, initiative, and involvement (Arnold et al. 2009). At the global level, the indications are to assess the world's eco system with human well being. For the solution of global problems, youth needs to be connected to the environment.

Green work business model: A model called as Green-Works business model has been developed for attaining sustainability of the environment and social objectives of the organization (Dixon 2007). The success of the Green-Works business model stems from the business's symbiotic relationships: firstly with large corporate bodies, which are keen to quantify their CSR efforts; secondly, with the community and social partners, who provide employment and training for disadvantaged people and a route to relatively risk free growth; and thirdly, with government and social institutions, which provide special concessions and support. The strong economic foundations of the model provide sustainability for the environmental and social objectives of the organisation (Dixon & Clifford 2007).

Innovative potential of environmentally conscious entrepreneurs, called ecopreneurs, will encourage more startups that would create the environmental technologies needed to address the existing environmental problems (McEwen 2008). Ecopreneurs gain core advantages over traditional entrepreneurs by forming mutually beneficial relationships with corporations, community organizations and governments. The corporate relationships allow Green-Works to charge more for its products as firms are eager to purchase socially responsible products and services (Dixon & Clifford 2007). The definition of efficiency in manufacturing systems has changed over a period of time and global awareness of environmental risk is an inevitable part of it leading manufacturing systems towards green manufacturing (Deif 2011). Strategies for global sustainability and growing the green economy must address current economic models driving today's unsustainable forms of globalisation (Henderson 2007).

Long term sustainability: Ecopreneurship is highly important because eco-innovations will be the future competitive advantage for companies and countries. Klimova & Zitek (2011), argued that if companies and countries want to be successful in the international market, they have to rely on new and innovative environmental technologies, services and processes, which will be the more important sources of competitive advantage. The long term sustainability of our economic system does not depend only on quantitative growth, but also on the ecological aspects of the growth and sustainable development. The green entrepreneur and business opportunities can help save the earth (Berle 2005). The world population is expected to increase

by 50% by 2050 and with it will come an increase in consumption. Ecopreneurship is to be given a serious consideration as we are rapidly losing our natural resources which are the true capital of any nation.

Inclusion of discussion of policies for promoting sustainable development through investing in children is must for economic development (Hess 2010). Positive indications, sustainable development represent potential threats to the success of global sustainable development. Four concepts must for economic progress are-science, community, culture, and sustainability. These concepts are important in community based participatory research and to the targeting, refinement, and adaptation of enduring interventions (Schensul 2009).

Sustainable development requires sustainability innovation and youth entrepreneurs who can help to achieve environmental goals (Schaltegger 2002).

RESEARCH METHODOLOGY

The study includes an extensive literature review, survey-based research, interpretative structural modelling from Ebsco, Emerald, Scopus, Jstor, Thomson Reuters and Google Scholar. In this study, the researchers have opted for systematic literature review (SLR). To understand the relationship among various variables that play a vital role in ecopreneurship and sustainability, isometric modelling technique (ISM) proposed by Warfield (1973) is used. This model is further analysed using MIC MAC analysis. Seminal articles related to the research topic have not been identified, eight variables based on SLR have been identified which occurred multiple times in the review of literature.

ISM Modelling

Without compromising and deviating from the actual properties of the original elements/issues, interrelation can be established between two or more variables (Morgado et al. 1999, Mishra et al. 2012, Ahuja et al. 2009). This modelling technique helps to communicate the results of that thinking to others in a systematic manner (Singh 2013). The term 'interpretive structural modelling' indicates a systematic application of elementary notions of graph theory in such a way that theoretical, conceptual, and computation leverage is exploited to efficiently construct a pattern of a contextual relationship among a set of elements (Malone 1975, Jharkharia & Shankar 2005). Dubey et al. (2015) supports extant literature to adopt total interpretive structural modelling technique to generate theory.

Structural self-interaction matrix: Bolanos et al. (2005) stated that several forms of contextual relations can exist

between different pair-wise variables depending on the nature of that variable. V is used for the relation from i to j (i.e. if variable i “will help achieve” variable j). The following is denoted in Table 1.

A is used for the relation from j to i, X is used for both direction relations and O is used for no relation between i and j

Reachability matrix: SSIM developed from contextual relationships was then converted into binary matrices called initial reachability matrices as shown in Table 2. The following substitution rules were used to prepare the direct reachability matrix. If SSIM is V, entry becomes 0, for A entry is 1, for X entry is 1 and O entry is 0.

Based on the reachability matrix the driving and dependence power is further derived.

Level partitions: Based on the reachability matrix, the antecedent set and reachability set is determined.

Thus from Table 3, it appears that variables 4 form level 1 of the model i.e., long term sustainability (V4) .

From Table 4, indication is given that that variables 2 forms level 2 of the model i.e., green work business model (V2)

Table 1: Structural self interaction matrix.

i j → ↓	V5	V4	V3	V2	V1
V1	A	X	X	A	
V2	A	X	X		
V3	A	X			
V4	X				
V5					

Table 2: Reachability matrix.

i j → ↓	V1	V2	V3	V4	V5	Driving Variables
V1	1	0	1	1	0	3
V2	1	1	1	1	0	4
V3	1	1	1	1	1	5
V4	1	1	1	1	1	5
V5	1	1	0	1	1	4
Dependent Variable	5	4	4	5	3	

Table 3: Level partitioning level 1.

i j → ↓	Reachability Set	Antecedent Set	RS ≈ AS	Level
V1	1,3,4	1,2,3,4,5	1,3,4	Level 1
V2	1,2,3,4	2,3,4,5	2,3,4	
V3	1,2,3,4,5	1,2,3,4	1,2,3,4	
V4	1,2,3,4,5	1,2,3,4,5	1,2,3,4,5	
V5	1,2,4,5	3,4,5	4,5	

From Table 5, it is clear that variables 1, 3 and 5 form level 3 of the model i.e., environmentalism, youth ecopreneurship and youth education .

Building the isometric model: After partitioning the levels, relationships between various factors are depicted by drawing a node for each variable and connecting those nodes by arrows as per the direction of relationship.

Fig. 1 shows some very interesting results. Long term sustainability emerges as the starting point for ecopreneurs. Business is about sustenance and long term. Any business venture is started with the aim to see it progress and grow over the years. The emergence of long term sustainability as an important factor is therefore in way endorsing the nature and growth of business as observed over the ages. The very definition of green business model endorses longevity, social contribution and profitability. Education provides information and empowers the youth to work towards the success of this model. Youth education with a positive attitude towards the environment leads to a green work business model. Similarly, there is a positive and two way correlation between environmentalism and green business model and also between youth ecopreneurship and green business model.

Table 4: Level partitioning level 2.

i j → ↓	Reachability Set	Antecedent Set	RS ≈ AS	Level
V1	1,3	1,2,3,5	1,3	Level 2
V2	1,2,3	2,3,5	2,3	
V3	1,2,3,5	1,2,3	1,2,3	
V4	1,2,5	3,5	5	
V5				

Table 5: Level partitioning level 3.

i j → ↓	Reachability Set	Antecedent Set	RS ≈ AS	Level
V1	1	1,2,5	1	Level 3
V3	1,2	2,5	2	Level 3
V5	1,2,5	5	5	Level 3

Table 6: MICMAC matrix.

Factors	Variables	Driving Variables	Dependent Variables
Environmentalism	V1	3	5
Youth ecopreneurship	V2	4	4
Green work business model	V3	5	4
Long term sustainability	V4	5	5
Youth Education	V5	4	3

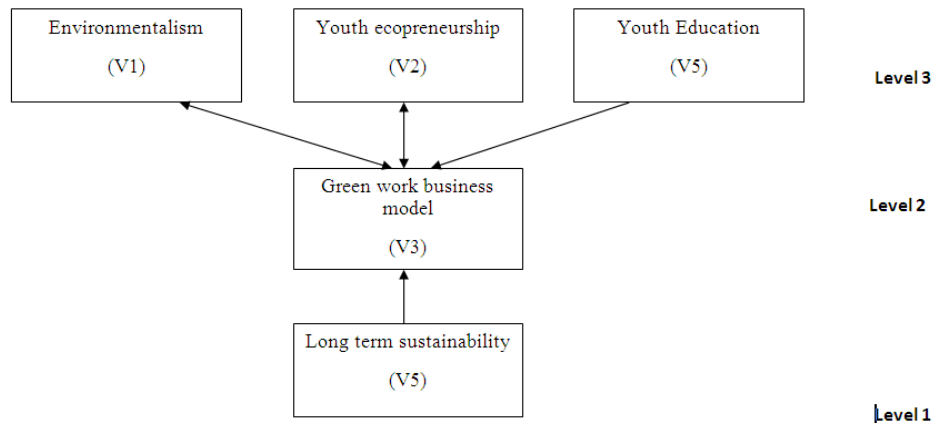


Fig.1: ISM Model for Success Factors for first generation entrepreneurs through ecopreneurship.

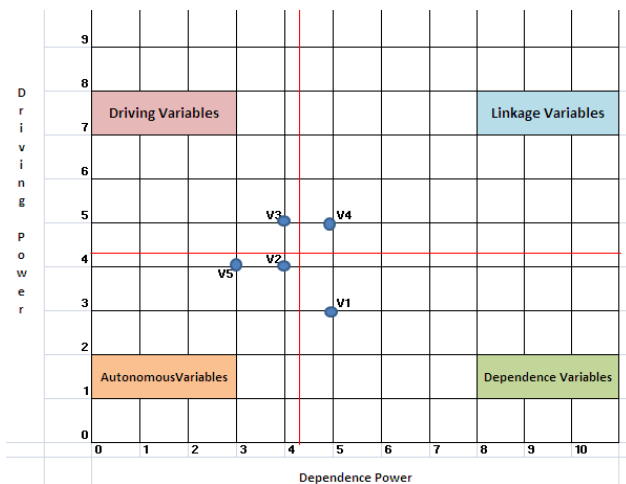


Fig. 2: Cluster of variables.

The model paves way for an important interpretation: Caring for the environment and making profits can both survive today in a mutually compatible environment. When combined with business, social contribution to society, developing entrepreneurship among youth, it leads to a model which defines the importance of all and their relation to each other.

MICMAC ANALYSIS

MICMAC is an abbreviation of Matrice d’Impacts Croises-multiplication appliqué an classment (Cross-Impact Matrix Multiplication to Classification). It is used to examine the driving power and dependence power of the variables; based on which they have been classified into four categories viz. autonomous, linkage, dependent and driving variables as shown in Table 6.

Fig. 2 is explained as follows: Youth ecopreneurship and youth education have been identified as an auto-

nous variable, long term sustainability has been identified as linkage variables, environmentalism is the dependent variable, green business model and government are the driving variables.

CONCLUSION

A look at the classification of variables presents an interesting reading. Long term sustainability emerges as a linkage variable which means it has a strong driving power and strong dependence power. It has the capability to initiate and yet develop a dependent relationship. Green business model has a strong driving power and thus can help in providing the required propelling force. Environmentalism has strong dependence power. Comparing the hierarchy of variables in the various classifications is a rich source of information. There is a solid theoretical rationale for ecopreneurship. Both the schumpeterian and the ecological modernization theories clearly explain why ecopreneurship is one of the best solutions for environmental problems. Green businesses are models that can help show the way to increase productivity while reducing resource use in a manner that is harmonious with human health and the sustainability of non-human species as well. Green start-ups make it easier to ‘fix ‘environmental components and processes from the outset. The primary advantage of this analysis is that it stimulates thought and generates ideas among group members. Usually there is no single official reading of the MICMAC results and it is suggested that the group form its own interpretation. Through this analysis also, the researchers have attempted to develop a conceptual model with possible explanations and directions to develop ecopreneurship. Our study is unique and innovative in that we focused on exploring the different effects of the relationship between ecopreneurs and sustainability.

The conclusion drawn from the ISM hierarchy shows a high interrelationship and interconnectivity between ecopreneurs and sustainability. The conceptual framework reconciles the contribution of ecopreneurs in various ways towards sustainability. The analysis is based on extant literature review which is supported through ISM and MICMAC.

Limitations: The research limits itself to the deduction and understanding of the concept of ecopreneurship towards sustainability and its core elements; however it does not probe the nitty-gritty's of the elements at a microscopic level. The model includes factors at macro level. The outcome is based on intensive literature review.

Further research directions: The limitations of the present study can further be extended in future. The future research directions are outlined as: The ISM-based model is only hierarchical and does not reveal the relative weights associated with each factor (Kannan et al. 2009). This can be done using the analytic network process. For understanding reasons behind the relationships, an advanced ISM technique, total interpretive structural modelling can be used. Also, structural equation modelling can be used for testing the validity of the model.

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