Assessment and Evaluation of Sustainability in Rural Areas: Using TOPSIS- FUZZY Multi-criteria Decision Making Technique

Khosrobeigi R.
Ph.D. Candidate in Geography and Rural Planning, Ferdowsi University of Mashhad

Shayan H.
Associate Prof. of Geography, Ferdowsi University of Mashhad

Sajasi Qidari H.*
Ph.D. Candidate in Geography and Rural Planning, Tarbiat Modares University

Sadeghloo T.
Ph.D. Candidate in Geography and Rural Planning, Tehran University

Received: 21/11/2010      Accepted: 27/04/2011

Extended Abstract
Introduction
Sustainability assessment has become an important tool to aid in the shift towards sustainability. However, this is a new and evolving concept and there are very few examples of effective sustainability assessment processes implemented throughout the world. The concept of sustainable development can be a state of balance between different aspects of development that aims to dispel the needs and improving quality of life of humans. Therefore, to achieve sustainable development to take advantage appropriate resources and create an equal and balanced relationship between human society and nature, purpose program planners and

* Responsible Author: ssojasi@yahoo.com
Managers of development and rural development is particularly. With the change of development paradigm from traditional and classic approaches to new paradigm of sustainable development, other approaches such as participatory approach, empowerment, capacity building and evaluation literature of planning and management have also changed and compass to strategic planning and management. Based on this, nowadays, to implement the sustainable development paradigm, need to new pattern of planning, until with comprehensive and providential attitude, can responded to developmental needs in different levels of planning. During this time, a number of studies have been undertaken to assess strategic and co-ordinate action for sustainable development (SD). The introduction of sustainable development to government or the private sector raises difficult management challenges, because the concept is multi-faceted and broadly-defined. These challenges, however, are not unique. Governments and corporations have faced them before when they have integrated new values into their policies and organizations (e.g., gender equity, occupational health and safety, results-based management). The success of this integration is typically a function of process aspects such as leadership, planning, implementation, and monitoring and review. The latter represent some of the fundamental tenets of strategic management.

**Methodology**

It is possible when forming a framework to select appropriate indicators and represent sustainable development and efficient tool to analyze, measure and evaluate them. Because the framework of appropriate and efficient tool to evaluate and measure the sustainability, are credibility findings that promote scientific research and increase the reliability of space-making decisions managers and policy makers. Accordingly, is applied since the model and techniques several different levels to assess and evaluate sustainable development, but have not achieved a good
framework for sustainability evaluation, especially in rural areas. Therefore the key objective of this paper is to identify several evaluation methods of sustainability and with this comprehensive approach the choice to assess the sustainability evaluation. Therefore, theoretical literature was considered an integrated approach for assessment and evaluation of the sub-based on multi criteria techniques to study TOPSIS- FUZZY. More was selected to study village of Komijan county as case study, based on approach measures form Cochran sample of 430 households questionnaire were collected data.

Results & Discussion
The main objective of this paper is to combine and integrate environmental, economic and social impact assessment procedures in order to support decision-making in the context of rural sustainable development in the Komijan County. Calculation results showed grace villages respectively are entitled Fazlabad Aliabad score 0/696 and 0/666 of high and stable levels of rural Chalmyan and Ksrasf level less stable than other settlements. Thus Chalmyan and Ksrasf have a low degree of sustainability in the other rural Points area and this model could well express the sustainability gradation among rural of this region. So the result of study and observation are adopted with current objectivity in rural settlement.

Conclusion
The conclusion of this combination of literature and field studies is that if SDIs are to contribute substantially to the increased sustainability of rural systems, they must be applied in planning and decision making. Sound accounting and reporting practices are prerequisites for other SDI applications. In the fields of accounting and reporting, the rural studied can learn from the world experience and its implementation of tools such as EMS and sustainability reporting, a process that has
already started. Business, on the other hand, broadly speaking and judging from the literature studied, could most likely increase its sustainability performance by learning from the comparatively deep understanding of environmental issues, including cause-effect relationships. For rural areas of significant characteristics with particular problems and situations, suitable and accordant rural development measures have to be prepared and implemented. Still, a good understanding of rural sustainable issues among practitioners, will not lead to any practical changes as long as this understanding does not reach decision makers in rural area, which again points to the importance of SDA in planning and decision making.

**Keywords:** Sustainable development, Sustainability evaluation, Decision-making techniques, TOPSIS-FUZZY, Komijan County.

**References**


Clark, W.C., 1989, Managing Planet Earth, Scientific American, 261, PP. 47-54.


Finland's Ministry of the Environment, 2007 Existing Assessment Tools and Indicators: Building up Sustainability Assessment, Some Perspectives and Future Applications for Finland, Finland.


Lee, K.N. & Greed, 1993, Scale Mismatch and Learning, Ecological Application, 3, PP. 560-564.


Miranda, J., 1999, Evaluating Sustainable Agriculture Utilizing Multi Criteria Analysis: The Case of Guaira, Sp, Brazil, Clark University, United State.


Nordin, M., 2000, Indicators of Sustainable Development: The Malaysian Perspective, University Kebangsaan, Malaysia.


Patrick, R., 2002, Developing Sustainability Indicators for Rural Residential Aareas: The Public Transit Connection, Simon Fraser University, United State.


Winograd, M., 2010, Sustainable Development Indicators for Decision Making: Concepts, Methods, Definition and, International Centre for Tropical Agriculture (CIAT), Cali, Colombia
