

# **Evaluation of Rural Sustainability Criteria of Dena County based on a Communication View: the Application of AHP**

**Nooripoor M.\***

Assistant Prof. of Agricultural Extension Rural Development, Yasuj University

**Shahvali M.**

Professor of Agricultural Extension and Education, Shiraz University

Received: 15/01/2011

Accepted: 27/04/2011

## **Extended Abstract**

### **Introduction**

Nowadays, rural sustainability is one of the main issues of sustainable development programs in developing countries such as Iran. Of course not only it is useful to know rural sustainability criteria, but it is also more important to evaluate and prioritize them. Thus, based on a holistic view, this study carried out to categorize rural sustainability criteria more detailed than existent literature and then to prioritize the supposed criteria using Analytic Hierarchy Process (AHP).

### **Methodology**

The process of any development project is a communication process, because during this process, some development agents transfer different programs/technologies to customers via some communication channels. Today, the efficiency of such one way communication model is on question, so other alternative two way and interactive models are introduced. However the sub systems of new communication models are

---

\*Responsible Author: mnooripoor@ymail.com

different from each other and also from past models, but three major subsystems are common between all of them. These subsystems are Production, Transfer and Implementation of new technologies. Also, with regard to communicative nature of development projects, it is necessary to introduce a comprehensive communication model to identify major components or sub systems of communication process. A lot of specialists have introduced communication theories and models. In this study, rural sustainability attributes were considered based on the basic Rogers and Shoemaker's communication model including "source", "message", "channel", "receiver" and "feedback. According to this view, sustainability elements included: Development organizations as sources, Sustainable programs (socio-cultural, economic-technical, and environmental) as messages, Communication media as channels, Customers (farmers) as receivers and Monitoring and evaluation (M&E) of development programs as feedback subsystems. Therefore, a rural development as a communication process will be more sustainable if there is more: organizational sustainability, sustainable programs, and effective communication channels, focus on real costumers, and appropriate monitoring and evaluation (M&E) system. Sustainability criteria (attributes) for each one of the above elements (aspects) were determined in 2 stages. In stage 1, attributes were obtained from literature review and analytic research. The results of the primary (analytic) study showed that attribute such as decentralization, investment on sustainable activities, more attention to rural youth and women via getting their participation or investment on their special businesses; using two- way interactive methods of training; biodiversity, minimizing the consumption of un- renewable energy sources, minimizing using pastures and natural resources, decreasing soil erosion; increasing the rate of active population, decreasing the rate of rural- urban migration, income improvement, health, nutrition, housing, employment, availability of recreational opportunities are some main sustainability attributes in different aspects. In stage 2,

a survey method was used in Dena County of the K&B province to determine the most problematic criteria for study area. For this purpose, a questionnaire including attributes obtained from the first stage was designed with close-ended statements and Likert-type scale answers. The face validity of questionnaire was verified by five subject matter specialists.

### **Findings**

A pilot study with 30 samples out of research sample was conducted. The reliability coefficient between 0.72 - 0.86 was calculated using Cronbach's Alpha reliability coefficient. Using stratified random sampling, 250 farmers were selected for this stage of the study. The respondents were asked to assess problematic rural sustainability attributes in the region. Based on the mean score and variance, rural sustainability attributes were prioritized for the region. Finally, AHP was used to identify ultimate priority of the selected criteria. The first stage of AHP is the development of decision tree. Decision tree is a structure that shows the relations between ultimate goal and level(s) of attributes. The second stage is Pair-wise comparison of attributes. Decision maker(s) judge(s) about the relative importance of attributes with respect to ultimate goal. They compare and weigh attributes using a bipolar scale from 1 to 9. AHP can be used either to prioritize alternatives and to select optimum one, or to prioritize criteria (attributes). Of course, no alternatives were considered in this study, because the aim of the study was to prioritize just criteria (attributes). The results of AHP showed that "reducing corruption" and "central monitoring" are the main criteria of organizational sustainability, also "youth employment increase" should be considered as the main social sustainability criteria. About environmental sustainability, "proper time of spraying" and "integrated management of plants' pests and diseases" are more important. Analysis of the results also showed that other rural sustainability aspects i.e. using proper

communication media, selecting real customers and effective evaluation- feedback system are generally poor in the study area and should also be considered seriously in rural sustainability programs.

### **Conclusion**

Based on the above mentioned results, it seems that a real refocusing of the programs such as research and extension activities should be followed in the study area especially in the context of the rural sustainability aspects and criteria. More detailed results are presented in the body of the paper.

**Keywords:** Rural sustainable Development, AHP, Communication, Dena County.

### **References**

- Asgarpoor, M.J., 2002, **Multiple Criteria Decision Making**, Tehran University Publications, Tehran – Iran, In Persian.
- Axin, J.H., 1991, **Alternative Approaches in Extension**, Translated by E. Shahbazi, Agricultural Extension Organization Publications, Tehran- Iran, In Persian.
- Blum, A., 1996, **A Confederate Agricultural Knowledge System: The Special Case of Switzerland**, Journal of Agricultural Education and Extension, 3(3), PP. 23-27.
- Chambers, R., 1997, **Whose Reality Counts?** Intermediate Technology Publishers, Southampton, London.
- Ebrahimi, H. R., 1997, **Evaluation of Farmers' Rationality in Selecting Irrigation Methods, the application of AHP**, M.Sc. thesis of Agricultural Extension and Education, Shiraz University, Shiraz, Iran. In Persian.
- Fetterman, D. M., 1997, **Empowerment Evaluation: an Introduction to Theory and Practice**, Sage Publication- New Delhi, India.

- Gitta, R., 2001, **The Position of Farmers' Local Knowledge Within Agricultural Extension, Research and Development Cooperation**, *Indigenous Knowledge and Development Monitor*, 9(3) PP. 10-12.
- Hatfield, J. N. & D. L. Carlen., 1997, **Sustainable Agriculture Systems**, Translated by E. Koochaki; M. Hosseini & H. Khazaei, Mashhad University Publications, Mashhad, Iran. In Persian.
- Karami, E. & A. Fanaee, 1995, **Analysis of Agricultural Extension Theories**, 2nd Volume, Agricultural Extension Organization Publications, Tehran- Iran. In Persian.
- Karami, E., 1995, **Agricultural Extension: the Question of Sustainable Development in Iran**, *Journal of sustainable agriculture*, 5(1-2), PP. 61- 71.
- Lahsaeizadeh, A., 2002, **Sociology of Rural Development**, Zar Publications, Shiraz, Iran. In Persian.
- Meyer, E.C., 2000, **Social Aspects of Sustainability**, Westfalische Wilhelms Universitat Munster, PP. 1- 17.
- Newly, P.D. & N.L. Treverrow, 2006, **Sustainable Horticulture**, Prime fact 144. New South Wales Department of Primary Industry, Available: <http://dpi.nsw.gov.au/primefacts/>.
- Paliwal, R., 2006, **EIA Practice in India and Its Evaluation Using SWOT Analysis**, *Environmental Impact Assessment Review*, 26, PP. 492- 510.
- Pearce, A.R., 2006, **Sustainable Building Materials: a Primer**, Sustainable Facilities and Infra Structure Program, Georgia Tech Research Institute, Available: [maven.gtri.gatech.edu/sfi/resources/pdf/TR/TR015.pdf](http://maven.gtri.gatech.edu/sfi/resources/pdf/TR/TR015.pdf).
- Picou, J.S., 1999, **Theoretical Trends in Environmental Sociology: Implications for Resource Management in the Modern World**, Social and Economic Planning Conference, Minerals Management Service, Park City, Utah, USA.
- Rawan, S.M., 2002, **Modern Mass Media and Traditional Communication in Afghanistan**. Routledge, part of the Taylor & Francis Group, 19 (2), PP. 155- 170.

- Rivera, W. M., 2000, **The Changing Nature of Agricultural Information And the Conflictive Global Developments Shaping Extension**. Journal of Agricultural Education and Extension. 7(3), PP. 22-25.
- Rogers, A., 1992, **Adult Learning for Development**, British Library Cataloging in Publication Data. Great Britain.
- Rogers, E.M. & F.F. Shoemaker, 1997, **Communication of Innovations, an Intercultural Approach**, Translated by E. Karami and A. Fanaee, Shiraz University Publications. Shiraz, Iran. In Persian.
- Rolling, N.G. & J. Jiggins, 1995, **The Ecological Knowledge System**, Second Symposium of the association of farming systems Research & Extension, Granada.
- Rolls, M.J., 1994, **International Perspectives for Agricultural Extension**, Agricultural progress, PP. 107- 117.
- Rowley, T. & S.L. Potterfield, 1998, **Can Telecommunication Help Rural Areas Overcome Obstacles to Development?** Rural Development Perspective, 8(2), PP. 2-6.
- Sarmad, Z.; A. Bazargan and E. Hejazi, 2000, **Research Method in Behavioral Sciences**, Agah Publications, Tehran- Iran. In Persian.
- Segnestam, L., 2002, **Indicators of Environment And Sustainable Development: Theories and Practical Experience**, World Bank Environmental Department, Washington DC, USA.
- Shahvali, M., 2005, **A Review of The Book: Groundwork for Community-Based Conservation: Strategies for Social Research**, Community Development Journal, Oxford University Press.
- Shahvali, M., 2005, **A Review of the Book: Groundwork for Community- based Conservation: Strategies for Social Research**, Community Development Journal, Oxford University Press.
- Sharma, P., 2003, **Using Folk Media for Development: Some Lessons from India**, Available: <http://www.licd.org/stories/articles/story/import5035>.

- Stevis, B., 1989, **Agricultural Extension for Small Scale Farmers**, Translated by A. Zamanipoor, Mashhad University Publications, Mashhad, Iran. In Persian.
- Stringer, R., 1998, **Environmental Policy and Australia's Horticultural Sector**, Policy Discussion Paper, Center for International Economic Studies, University of Adelaide, Australia.
- Tiffin, R. & Tiffin, A., 2005, **The Adoption and Use of Computers in Agriculture in England and Wales**, University of Reading, UK.
- Trianthaphylou, E. & K. Baig., 2005, **The Impact of Aggregation Benefit and Cost Criteria in Four MCDA Methods**, IEEE Transactions on Engineering Management. 2(2), PP. 213- 226.
- Trianthaphylou, E., 2001, **Two New Cases of Rank- reversals when the AHP and some of its Additive Variants are Used that do not Occur with the Multiplicative AHP**, Journal of Multi-Criteria Decision Analysis, (10) PP. 11-25.
- Wallace, I., 1994, **Creating Learning Networks between Formal Agricultural Institutions and Rural People: the Potential Role of Local Non-government Organizations as Intermediaries**, Journal of Agricultural Education and Extension, 1(2), PP. 1- 14.
- Warren, M.F., 2002, **Adoption of ICT in Agricultural management in the United Kingdom: The intra rural digital divide**, Agricultural Economics, 48 (1), PP. 1-8.
- Zamanipoor, A., 1994, **Agricultural Extension in the Process of Development**, Mashhad University Publications, Mashhad, Iran. In Persian.