

به نام خداوند بزرگ

راهبردهای ترویج و توسعه کشاورزی:
کاربرد نظریه‌های جامعه‌شناسی محیط زیست

بوسیله
کوروش رضائی مقدم

پایان نامه
ارائه شده به دانشکده تحصیلات تکمیلی به عنوان بخشی از فعالیتهای لازم
برای اخذ درجه دکتری

در رشته
ترویج کشاورزی

از
دانشگاه شیراز
شیراز، ایران

ارزیابی و تصویب شده توسط کمیته پایان نامه با درجه : عالی

امضاء اعضاء کمیته پایان نامه:

دکتر عزت اله کرمی (استاد) (رئیس کمیته).....

دکتر غلامحسین زمانی (دانشیار).....

دکتر عبدالعلی لهسایی زاده (استاد).....

مهرماه ۱۳۸۴

IN THE NAME OF GOD

**EXTENSION AND AGRICULTURAL DEVELOPMENT
STRATEGIES: APPLICATION OF ENVIRONMENTAL
SOCIOLOGY THEORIES**

BY:

KUROSH REZAEI-MOGHADDAM


DISSERTATION

SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY (Ph.D.)

IN:

AGRICULTURAL EXTENSION
SHIRAZ UNIVERSITY
SHIRAZ, IRAN

EVALUATED AND APPROVED BY THE DISSERTATION COMMITTEE
AS: EXCELLENT

...E. KARAMI, Ph.D., PROF. OF AGRICULTURAL
EXTENSION (CHAIRMAN)

...GH.H. ZAMANI, Ph.D., ASSOCIATE PROF. OF
AGRICULTURAL EDUCATION

...A. LAHSAEIZADEH, Ph.D., PROF. OF RURAL
SOCIOLOGY

OCTOBER 2005

ACKNOWLEDGEMENT

My foremost gratitude is to Almighty God who has helped me every time.

A special word of appreciation goes to my supervisor, Professor Ezatollah Karami. With great sensitivity he provided not only enlightening and constructive advice and but also genuine warmth and encouragement during the writing of this dissertation. I would like to express my sincere gratitude to my advisors Professor Gholam Hosein Zamani and Professor Abdolali Lahsaeizadeh for their advices and reviewing the dissertation.

I wish to record my sincere thanks to Professor Joseph Woelfel and Hao Chen at Buffalo University for their supports and advices. Special thanks to Dr. Mohammad Bagher Bahardar for his taking the time to review this dissertation.

Moreover, I owe special debts of gratitude to the large number of people who have let me take their time and effort in interviews: Agricultural Jihad Organization (Sazman-e-Jihad-e-Keshavarzi) specialists' from Khuzestan and Fars Provinces, Farmers, board members of Green Development Society, board members of Lapuei's Sustainable Development Cooperative and Lapuei's Women Committee in Fars Province.

I am also grateful to my dear parents and my dear wife for their empathies, kinds and encouragements.

EXTENSION AND AGRICULTURAL DEVELOPMENT STRATEGIES: APPLICATION OF ENVIRONMENTAL SOCIOLOGY THEORIES

BY
KUROSH REZAEI-MOGHADDAM

ABSTRACT

After World War II, most development thinkers stated that the problem of “underdevelopment” or “backwardness” could be solved by application of modernization theory. Agricultural development and extension of Iran has been based on modernization theory in the late decades. However, analysis of development policies and extension activities shows that this theory has produced negative impacts such as uneven development, poverty, and environmental degradation. The concern for environmental problem was the major contributing factor to loss of faith in this path to development. The conventional development strategies are fundamentally limited in their ability to promote sustainable agricultural development of Iran. Theorists have failed to provide a conceptual framework for the development of agriculture. Therefore, in Iran the contemporary agricultural development and extension theory is in crisis. In attempt to provide an alternative theoretical perspective for agricultural extension and development, the main objective of this research is to develop a theoretical base for green agricultural extension. The research consists of five stages.

The purpose of the first stage is to classify the major schools of thought in environmental sociology. Environmental sociology is the study of the interactions and reciprocal influences between society and environment. It aims to contribute to the development of social theories on the interrelations of social action and environmental problems. At least three schools of thought can be distinguished when the character of modernity and its relation to the environmental crisis are considered: The neo-Marxist approach, different versions of postindustrial society theory, and the counter-productivity.

Stage two compares the Ecological Modernization (EM) and De-Modernization (DM) theories to examine their basic premises with regard to agricultural development policies to provide a conceptual framework for sustainable agricultural development. These theories

belong to two schools of thought in environmental sociology relating to environment and modernity i.e. post-industrial society and counter-productivity perspectives, respectively. Two competing polar conceptual paths for development of agriculture have been presented based on these theories. Based on DM theory, agricultural development issues become reduced to de-modernize agriculture by using indigenous practices to preserve the environment. On the other hand, through EM world-view agricultural development can be defined as transformation of conventional agriculture to hypermodern agriculture. It is concluded that the conceptual path based on DM theory, with great concern for environmental protection and less attention to increased production, does not seem to be a viable path to achieve sustainable agriculture. Then, it calls for the need to shift the paradigm if sustainable agriculture is to be realized.

The purpose of the third stage is to appraise the attitudes of Agricultural Jihad Organization (Sazman-e-Jihad-e-Keshavarzai) specialists' of two southern provinces of Iran (Khuzestan and Fars) toward the basic premises of EM- and DM- based sustainable agricultural development theories using Galileo method. The Galileo is a set of procedures which model thought processes. Study of agricultural specialists' attitudes towards alternative sustainable agricultural theories is proactive and can generate guidelines for future planning and development of agriculture. It is concluded that the present agriculture of Iran is close to DM- based agricultural theory. It illustrates that future agriculture is not like the present practices and there are major areas, which needs to be changed. Then, the ideal agriculture of Iran should be based on the basic premises of EM. In the specialists' attitude, three central premises of EM-based sustainable agricultural development theory i.e. application of "modern and clean-up technology", "scientific knowledge" and attention to "both production and environmental protection" in policies are of great importance for ideal agriculture of Iran.

Using data from Fars province of Iran, the purpose of the fourth stage is to use Analytic Hierarchy Process (AHP) to determine the priority of EM- and DM- based sustainable agricultural development theories. AHP is one of the most commonly applied multi-criteria decision making techniques. Farmers, environmentalists, board members of rural cooperative, rural women, experts and researchers participated in application of AHP. The stakeholders identified nine criteria for sustainable agriculture. These criteria could be classified into three main categories of economic, social and ecological.

Ecological criteria including wise use of resources, environmental protection and product quality were the most important criteria for sustainable agricultural development. The results of this stage indicated that EM- based sustainable agricultural development theory has a higher priority as the theoretical base for agricultural development of Iran.

The purpose of the last stage is to develop a “theoretical base for green agricultural extension” based on findings of the research. It is concluded that the diffusion theory based on the modernization thought appears to be neither desirable nor universally applicable because it is simply not sustainable. The position of environment is vague and receives little attention in this theoretical basis of extension. Considering the current crisis in agricultural extension theory, it is concluded that EM theory could be used to reconstruct the theoretical basis for agricultural extension of developing countries. In applying EM to construction of a sustainable agricultural development theory five dimensions of theoretical base for green extension including content, learning, negotiation, organization and policy have been discussed.

Contents

Title	Pages
Chapter 1.	
An Overview	1
1.1. Introduction	1
1.2. Modernity and environment: Environmental sociology perspective	3
1.3. A brief history of agricultural extension and development in Iran	10
1.4. Organization of the dissertation	13
References	21
Chapter 2.	
Conceptualizing Sustainable Agriculture: Iran as an Illustrative Case	26
2.1. Introduction	26
2.2. Theory and practice of agricultural development in Iran: A brief history	27
2.2.1. Period of development without theory (prior to 1960)	28
2.2.2. Period of Modernization theory (1960-1980)	31
2.2.3. Period of crisis in development theory (1980-present)	34
2.3. Defining Ecological Modernization and De-modernization	36
2.3.1. De-modernization theory	36
2.3.2. Ecological Modernization theory	38
2.3.3. Comparison of EM and DM on key issues	38
2.4. Implication of EM and DM to theorizing agricultural development	45
2.5. The need for a shift in paradigm: A critique of EM and DM theories	57
References	68

Chapter 3.	
The Agricultural Specialists' Attitudes Toward Alternative Sustainable Agricultural Paradigms: A Galileo Method Analysis	74
3.1. Introduction	74
3.1.1. Defining De-modernization and Ecological Modernization theory	75
3.1.2. Comparison of EM and DM on key issues	77
3.2. The Galileo	80
3.3. Research method	82
3.3.1. Concepts and definitions	83
3.4. Results and discussion	86
3.4.1. Cognitive maps	86
3.4.2. Mean matrix regarding present agriculture in Iran (PAG)	89
3.4.3. Mean matrix regarding ideal agriculture for Iran (IAG)	92
3.4.4. Cumulative DM and EM concepts: Advancement of Galileo method	95
3.5. To Conclude: A path to sustainable agriculture	97
References	105
Chapter 4.	
A Multiple Criteria Evaluation of Sustainable Agricultural Development Models Using Analytic Hierarchy Process (AHP)	109
4.1. Introduction	109
4.1.1. The two alternatives	111
4.2. The AHP	116
4.3. Research method	121
4.3.1. The groups involved in the decision process	122
4.3.1.1. Stage one: Selection of criteria	123
4.3.1.2. Stage two: Pairwise comparison of criteria	126
4.3.1.3. Stage three: Pairwise comparison of alternatives with regard to criteria	129
4.4. Results and discussion	129
4.4.1. Decision hierarchy model	129
4.4.2. Pairwise comparisons	132
4.4.3. Comparison of the sustainable agricultural development models with respect to the criteria	135

4.4.3.1. Synthesizing judgments	136
4.5. Conclusions	139
References	145

Chapter 5.

Towards A Theoretical Base for Green Agricultural Extension: An Environmental Sociology Perspective **149**

5.1. Introduction	149
5.2. A brief history of agricultural extension in Iran	150
5.2.1. Period of no formal extension organization	151
5.2.2. Establishment of formal agricultural extension service	152
5.2.3. Period of crisis in extension theory (1980-present)	154
5.3. Defining De-Modernization and Ecological Modernization theory	155
5.4. New trends for agricultural extension in Iran	157
5.5. What is agricultural extension theory?	161
5.6. Conclusion: Implication of EM in theorizing green agricultural extension	164
References	183

Chapter 6.

Conclusion and Recommendations **188**

References	200
Appendix	202

Tables

Title	Pages
Chapter 1.	
Table 1-1. General characteristics of three schools of thought in environmental sociology	6
Chapter 2.	
Table 2-1. Comparison of Ecological Modernization and De-modernization theories on key issues	41
Chapter 3.	
Table 3-1. Specialists' perceptions of the distance between present agriculture in Iran and EM and DM concepts	90
Table 3-2. Specialists' perceptions of the distance between ideal agriculture for Iran and EM and DM concepts	93
Chapter 4.	
Table 4-1. The comparison scale in AHP	119
Table 4-2. The criteria for sustainable agriculture	125
Table 4-3. Synthesized priorities and ranks for criteria	134
Table 4-4. Summary of results for AHP analysis	137

Figures

Title	Pages
Chapter 1.	
Fig. 1-1. Stages of research process	15
Chapter 2.	
Fig. 2-1. Major periods in agricultural development in Iran	30
Fig. 2-2. Trajectory for shift in agricultural paradigm	61
Chapter 3.	
Fig. 3-1. Cognitive map of Khuzestan (A) and Fars (B) provinces agricultural specialists' attitude toward DM and EM based agricultural paradigms	88
Fig. 3-2. Cognitive map for aggregate data of Khuzestan and Fars provinces agricultural specialists' attitude toward DM and EM based agricultural paradigms	98
Fig. 3-3. Cognitive map of specialists' attitude with regard to cumulative DM and EM premises	98
Chapter 4.	
Fig. 4-1. Comparison of major issues of agricultural development based on DM and EM theories	113
Fig. 4-2. Hierarchical model for selection of sustainable agricultural development model	131
Fig. 4-3. Priority of EM- and DM- based sustainable agricultural development models as perceived by Elite Farmers (A), Lapuei Women Committee (B), Lapuei Sustainable Development Coop (C) and Green Development Society (D)	138
Fig. 4-4. Priority of EM- and DM- based sustainable agricultural development models as perceived by overall participants	140

Chapter One

An Overview

1. 1. Introduction

The search for a macro-theoretical framework capable of ordering the wide range of comparative observations on economic development and social change has been a major preoccupation of social scientists over the past two or more decades. The concept of modernization denotes a “total” transformation of a traditional or pre-modern society into the types of technology and associated social organization that characterizes the “advanced”, economically prosperous, and relatively politically stable nations of the Western world. Based on this theory, development takes place through the modernization of technology, the commercialization of agriculture, the industrialization process and urbanization (Long, 1980). The modernization theory formulates a generalized linear model of socio-economic development which accords analytical priority to the role of exogenous factors in promoting change.

Environmental impacts of modernization and their long-term future have emerged as major development (policy) issues in recent years. In fact, many of the most severe environmental problems are a direct result of modernity (Albrecht and Murdock, 2002). The public

was broadly aware of the fact that environmental degradation, whether at the global, national or local level, is a result of human intervention in natural systems and, in particular, our current patterns of economic development and social organization which place a burden on the earth's resources which are unsustainable in the long run (Benton, 1997). Failures, misconceptions and lack of success in the practice of development aid led to a distrust of modernization theory and its sociological underpinnings (Glaeser, 2000). The environmental crisis is not simply a flaw, whether correctable or fatal, of modernity but rather something that starts early in modernity's history and now runs broadly through it (Norgaard, 2000). Small wonder, therefore, that in the last two decades committed minds from all corners of the world have been calling for "alternative models of development" (Sachs, 2000).

There is a clear and urgent necessity to address questions as to the socio-economic and political conditions and causes of technical changes in relation to their environmental effects. These have encouraged belief that ecological concern is central to the politics and practice of development (Yearley, 1997). Sustainable development, as a field of discourse, emerged in the 1980s out of the marriage between developmentalism and environmentalism. Before that, "development" and "environment" were seen as distinct, if not contradictory corners. Within the new concept, the notion of a manageable nature was thus fused with the notion of a multioptional development (Sachs, 2000). Then, it was contended that development and the environment form a dialectical union, the separation of which would bring harmful results for the social development (ecodevelopment) (Glaeser, 2000).

1.2. Modernity and environment: Environmental sociology perspective

The social sciences have a more significant role to play in understanding and responding to environmental crisis than has been widely assumed in the past (Benton and Redclift, 1997). Now that scientific consensus is emerging concerning the growing scale of local and global impacts of human activities on the environment, social scientific knowledge has become a much more valuable commodity given its relevance in identifying approaches to minimize the local and global environmental impacts of human activity. According to Stern, the scientific community “need(s) a second environmental science – one focused on human-environment interactions- to complement the science of environmental processes” (Zavestoski, 1998). By applying sociological lenses, we can see “environmental” problems as problems of human- environmental interaction.

Environmental Sociology has its core connections to general sociology, philosophy, and the humanities. Yet the legitimacy to study the environment within a sociological framework was slow to emerge. A number of sociologists, including Denton Morrison, Allan Schnaiberg, Riley Dunlap, William Catton, Craig Humphrey and Fred Buttel, played important roles in institutionalizing this era of study, especially in graduate programs in sociology (Field *et al.* 2002). The basic presumptions of environmental sociology in Europe are more likely to appear in the works of leading theorists such as Giddens and Beck (Foster, 2002).

Environmental sociology is the study of the complicated and diverse symbolic and non-symbolic interactions and reciprocal influences between society and environment, which includes not only

social and cultural aspects, but also physical and biological ones (Hughes, 2000), with emphasis on how groups of people perceive the natural world and behave relative to it (Davis, 2001). It concentrates on the reciprocally influential relationships between the environment-social and physical- and human behaviour (Dunlap, 2000; Dunlap, 2002). Environmental sociology aims to contribute to the development of social theories on the interrelations of social action and environmental problems. It explores the ways in which sociology can deal with the environment as a social problem, and how sociologists can make a contribution to the environmental sciences in general (Home Environmental Sociology, 2003). Environmental sociologists sought nothing less than the reorientation of sociology toward a more holistic perspective that would conceptualize social processes within the context of the biosphere (Buttel, 1987).

Environmental sociology has become “a major component of the development planning process rather than... a pure research activity”. Today, environmental sociologists are applying their knowledge and experience with social adaptation to building designs and engineering project developments, with attention to local and regional effects as well as the worldwide consequences of these human activities for the global environment (Payne and Cluett, 2000). Therefore, “environmental sociology” is a necessary and welcome development (Darier, 2000).

At least three schools of thought can be distinguished when the character of modernity and its relation to the environmental crisis are considered. Each emphasizes different aspects of modernity and seeks to promote different solutions to the disturbed relation between modern society and environment as its sustenance base: the first is