

Analysis of Farmers' Perception of Climate Changes and Adaptation Strategies

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Extended Abstract

Introduction

Agriculture is the most important sector of the economy in Iran and it is highly dependent on the climate. The impact of global climatic change on agriculture has recently become an issue of increasing importance. The global climate change has been drawing attention of many to this very important topic of climate change, though it was a difficult proposition for many to accept whether or not the farmers have the ability to perceive the changes in the climate that have already occurred. Understanding global climate and its changes is prerequisite to take appropriate initiatives to combat climate change. Adaptation to climate change requires the farmers to first notice that the climate has altered. The farmers then need to identify potentially useful adaptations and implement them. Changes in the climate impact on cropping patterns, water availability and to some extent, productivity of crops as well. Climate change is expected to have serious environmental, economic, and social impacts. In particular, rural farmers, whose livelihoods depend on the use of natural resources, are likely to bear the brunt of adverse impacts. The extent to which these impacts are felt depends, in large part, on the extent of adaptation in response to climate change. Adaptation is widely recognized as a vital component of any policy response to climate change. Without adaptation, climate change would be detrimental to the agricultural sector, but with adaptation, vulnerability can be significantly reduced.

Methodology

The purpose of this descriptive correlation study was to explore farmers' perception and adaptation to climate change and investigate the factors affecting the adaptation process with a survey research method. The population of this study was 5746 farmers. Research samples were selected with randomly stratified method using the Krejcie and Morgan (1970), (n=362). The research tool was a questionnaire designed by the researchers based on the findings and the theoretical framework. The questionnaire was divided into several sections. The first section was designed to gather information about the personal characteristics of the respondents (age, farming experience, education, field size, contact with extension agents, and innovative access to media). The second section was designed to measure the perception and curiosity of the respondents about climate change. The third section was designed to analyze the impacts of climate change on the livelihood of the farmers. The fourth section was designed to analyze farmers' strategies for adapting to climate change. The fifth section measured the application adaptation strategies with a two class yes / no question. The content and face validity were established by a panel of experts consisting of the Department of Agricultural Extension and Education. Minor wording and structuring of the instrument were made based on the recommendation of the panel of experts. The reliability analysis was conducted by completing 30

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questionnaires and Cronbach's alpha coefficients for variables of the second, the third and the fourth parts were calculated, 0.79, 0.88, 0.91 respectively. This indicated that the questionnaire was highly reliable. Findings of farmer perceptions regarding changes in the climate indicated that most farmers perceived that the temperature distribution has undergone a significant shift in addition to an overall increase in temperatures. By contrast almost none believed they had decreased.

Results

The results for precipitation show a similar uniformity of opinions across the sample. The majority of farmers believed that the rainfall levels had decreased. Similarly, the overall perception on changes in precipitation is that the region is getting drier and that there are pronounced changes in the timing of rains and frequency of droughts. A sizeable minority of respondent farmers also believed they had witnessed uneven distribution and unpredictable behavior of rain. Examined views of farmers about the impacts of climate change show that most identified effects were negative. Migration of young people as a consequence of adaptation measures was mentioned by many farmers. The absence of young people in the families who have migrated to the city in search for work and older people to remain in the household is of the indirect negative impacts of climate. This problem is a response to reduced and diminished opportunities in agriculture. Other effects that have been mentioned by the farmers include loss of product, unemployment, reduced income, reduced water supply, diminished health of livestock, loss of forage, reduced soil fertility and loss of vegetation cover and animals.

Conclusion

Analysis of adaptations made by all respondents revealed that an integrated farming system was considered to be one of the most important adaptation strategies in response to climatic vagaries. Adjusting the cropping sequence, including changing the timing of sowing, planting, spraying and harvesting are among the measures to take advantage of the changing duration of growing seasons and associated heat and moisture levels. Finally, the results of the logistic regression analysis show that farming experience, credit availability, farm size, access to extension services, soil fertility and having a non-agricultural occupation explained 86 percent of the variance use of adaptation strategies among farmers.

Keywords: Agriculture, Climate change, Farmer, Perception, Adaptation

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