Article

Coping with Drought: The Case of Poor Farmers of South Iran

Psychology and Developing Societies
22(2) 361–383

SAGE Publications
Los Angeles, London,
New Delhi, Singapore,
Washington DC
DOI: 10.1177/097133361002200206
http://pds.sagepub.com

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Abstract

The slow-onset disasters, like drought, consistently deplete farmers' resources at a faster rate than they can be replenished. Drought has been a recurring phenomenon in the southern regions of Iran and it has repeatedly been a leading cause of declining production and great human suffering. In view of the fact that poor and small farmers are more vulnerable, it is expected that they would be the main victims of such conditions. Investigation of rural poor strategies in drought conditions and assessing the impact of the governmental interventions to mitigate the drought consequences, especially on the poor state, constituted the main objectives of this study. Case study was the research method and an in-depth interview was used as the main technique of data collection. Findings revealed that farmers' attitude towards drought was mostly metaphysical rather than physical and environmental. Poor farmers were harshly affected by the drought. It hurt them not only because of their attitude or belief, but also because of their low socio-economical

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position. Moreover, governmental interventions worsen the poor farmers' situation because they treated all the farmers' homogeneously. Much of governmental supportive services were benefited by non-poor farmers. On the contrary, the poor farmers' who were in dire need, benefited the least. Therefore, governmental interventions fail to support the poor farmers, because it considers all stratums similar and it only focuses on productive policies. Some recommendations are presented at the end of the article based on research findings.

Keywords

Poor, drought, drought management, governmental intervention, poor farmers

Introduction

In spite of over a century of research into poverty, the challenge of poverty remains. Indeed, the twenty-first century has been identified by the UN as the century in which the challenge of poverty must be confronted. The decade from 1996 to 2006 was named as the International Decade for the Eradication of Poverty (Mayor, 1995). Further, poverty eradication was the focal concern of the Johannesburg Summit (United Nations, 2002). These observations point to the continuing centrality of poverty in debates about development at national and international level.

Poverty alleviation interventions are designed by governments. But an examination of the intervention programme must not only be used to understand the concept of poverty, but also appreciate it from the point of view of the local context in which it occurs. Poverty is recognised as a complex (Bevan & Joierman, 1997; Sullivan, 2002) multidimensional (Chambers et al., 1989; Jazairy et al., 1992; Mellor & Desai, 1985; Van Koppen, 1998; World Bank, 1990), deceiving and confusing (El Naayal, 2002) and a fuzzy phenomenon (Bevan & Joireman, 1997; Filipone et al., 2001).

Poverty can be manifested in many ways: basic needs are unfulfilled, food consumption may be below the minimum calorific requirement during part if not the whole year, incomes are often too low to satisfy

basic food and non-food needs, access to health facilities, schooling, minimum housing and clothing, safe drinking water and sanitation is often lacking. At times of crisis such as illness, accidents, natural or man-made disasters, or events requiring lump-sum expenditure, the poor lack the assets or social security nets to overcome these setbacks and they risk getting trapped in a downward spiral. Material deprivation is compounded by physical and psychological harassment, stereotypes and prejudices. These different physical, economic, social, cultural and socio-psychological dimensions are distinct but related, and illustrate the multifaceted nature of poverty.

Aggregate evidence shows that rural poverty is much more pervasive than urban poverty. The incidence and depth of poverty is greater in rural than urban areas (Okidegbe, 2001). Iran is not an exception in this case. According to Word Bank and UNDP, two thirds of the poor of the world live in rural areas of developing countries. They do not have access to sufficient nutrition, basic commodities, services, markets or information (UNDP, 1995, 1997; World Bank, 1990). International Fund and Agricultural Development (IFAD), in its rural poverty report, stated that, "… over 70% of the world's poor are now rural, and over 60% are likely to be rural in 2025" (IFAD, 2001).

Based on a recent UNDP report (2009), Iran ranks 88th according to Human Development Indicators. Such a position is not desirable for Iran, considering it to be a big oil-producing country. There is an ambiguity as regards the extent of poverty and the exact number of the poor population in the country. Formal institutions are not willing to declare any information regarding the exact number of poor population. Another uncertainty surrounding the extent of poverty can be attributed to the failure on part of the earlier researches on poverty, in rural Iran, to study the phenomenon in sufficient depth. Thus, the durability of poverty can be seen, in part, as a failure of the past approaches to address the problems, and the unwillingness to adopt new development paradigm which gives certainty to poverty eradication.

In fact, many of the activities and interventions, which have been executed in rural areas of Iran as development programmes, have not succeeded in decreasing the social gap between rural social strata and some have even widened this gap (Karami & Fanaie, 1994). One of the main reasons for this poor performance is that governmental interventions in Iran are based on a false paradigm. This has resulted in interventions

being biased towards larger farmers and rural elites. Another reason might be partly due to the fact that separate (i.e., non-integrate) intervention projects do not have long-term effects on the rural poor conditions. The objective of this study was to investigate how rural poor cope with drought and also to probe the effects of governmental interventions to mitigate the drought consequences on the poor states.

Drought as Slow-Onset Threat for Poor

Iran is a water scarce country with a mean annual precipitation of 250 mm. Therefore, such a natural disaster as drought has repeatedly been a leading cause of declining production and great human suffering. It has been a recurring phenomenon in the south region of Iran and farmers must continually cope with high rainfall variability.

The drought results in widespread crop failures and livestock losses; increased drinking water and food shortages; increased disease, stress, and other social problems; reduced hydropower generation and increased soil erosion and fire occurrence; forced mass migrations to urban areas and other countries; and generally increased debt and reduced security at the local and national levels (FAO/NDMC, 2008).

Unlike sudden-onset disaster, drought is a chronic stressor that can last longer and extend across larger areas than hurricanes, tornadoes, floods and earthquakes (Kinsey et al., 1998). They are a complex physical and social process of widespread significance (Owens et al., 2003). Depending on their scope, duration and extend, they are more likely to affect long-term nutrition status by affecting one or more components of the food chain, than fast-onset disasters (Zarafshani et al., 2005).

Drought is one of several types of natural disasters with psychological consequences. Most drought situations lead to stress that can result in a variety of responses. There is the potential for serious emotional and mental health problems, and also the potential for family distress and conflict, divorce and even suicide (Krimson et al., 1998). Deaths associated with drought are usually related to a heat wave or a disruption in flood supply leading to malnutrition and, possibly, famine. It is one of the several physical factors, along with floods and locusts, which may trigger famine (Zarafshani et al., 2007).

Studies of drought have tended to focus more on its economic consequences as well as agricultural adjustments with sustainability, and less on the psychological adjustments. The agricultural adjustments most commonly reported include: sale of livestock, early sowing of seeds, herd diversification, plant protection, purchasing forage, investing in shallow or deep borehole, and cultivating more water-efficient crops (Blench & Marriage, 1999; Hanson & Weltzin, 2000; Keenan & Krannich, 1997; Kinsey et al., 1998; Krimson et al., 1998; MacDonnell et al., 1995; Mortimore, 1989; Mortimore & Adams, 2001; Owen et al., 2003; Rockstrom, 2003; Skoufias, 2003; Young, 1995).

Drought conditions also lead to psychological consequences. Emotional, physical, behavioural, and psychological, are the most common symptoms of farm stress. The most frequently reported symptoms, as reported by the farmers were: Chronic fatigue, forgetfulness, loss of temper, concentration difficulties, back pain and sleep disruption (Walker & Walker, 1988).

Long term effects of stress on rural families have been traced by Soderman (1991). Anger, anxiety, agitation and aggressiveness were the common aspects. Among farm stressors, drought can prove just as stressful as family breakdown or serious illness. It can leave many people feeling trapped in a situation which is not of their making and which is beyond their capacity to resolve (Zarafshani et al., 2005). Fetsch (2003) revealed that drought as a slow-onset disaster can have serious consequences for peoples' well being, especially in rural areas, where farmers and rural residents' livelihood depends to a large extent on climate patterns. Based on World Disaster Report (1999), drought and famine ranks second in causing injuries, making people homeless, and affecting large number of populations.

Empirical drought-studies have shown that social networks also play an important role in moderating the effect of slow-onset (such as drought) disasters (Zarafshani et al., 2007). During hard condition, many individuals and families moderate the effect of economic adversity by investing in social support systems, especially in rural areas (Fetsch, 2003). In other words, those farmers who have large social networks, or a higher socio-economic status, received more support during drought condition. Moreover, the higher resourcefulness of social networks may be another process explaining why more resourceful individuals may be less vulnerable to further resource loss. Less resourceful people may be forced to

invest resources that are not so easily replenished, with the smaller chance of success (Hobfoll, 1988).

In fact, in slow-onset disaster like drought, pressures of prolonged drought consistently deplete farmers' resources at a faster rate than they can be replenished (Bower & Pace-Nichols, 1999). Campbell (1999) found that resource depleted farmers were conservative and opportunistic in their choice of coping with drought. He concluded that they acted by holding on to trusted friends and neighbours, but missed opportunities afforded by changing socio-economic conditions.

Farmer's Strategies in Drought Management

A distinction between physical vulnerability and social vulnerability is often drawn (Brouwer et al., 2007). The former refers to the exposure to stress and crisis resulting from physical hazards, and the latter refers to the capacity of individuals and communities to respond to physical impacts. Farmers use different strategies for reducing vulnerability produced by drought (Ingram et al., 2002; McIntire, 1991; Paul, 1998). For instance, they develop strategies to accommodate a full range of potential rainfall outcomes (Ingram et al., 2002). Such coping strategies are "risk spreading" by nature and are designed to mitigate the negative impacts of poor seasons for reducing vulnerability (Cooper et al., 2008; Krimson et al., 1998; Sumba, 2001).

Without the use of these coping strategies and adjustments, people will experience lower-than-expected food production which may threaten their food security (Paul, 1998). Coping capacity can then be considered to be directly linked to entitlements, or the set of commodity bundles that a person can command, and thus consumption in the face of an adverse event (Eriksen et al., 2005). These strategies can be divided into different categories.

The first category is agricultural or technical adjustments. Farmers usually use agricultural or technical adjustment to compensate for crop such as: buying of irrigation equipments, resistant species and shaft drilling (Elfaig, 2000; Paul, 1998; Speranza et al., 2007). Another category is non-agricultural practices such as production of hand craft and trade

(Copper et al., 2008; Ingram et al., 2002; Paul, 1998). Migration especially by young men to cities or other places is yet another category (Cooper et al., 2008; Ingram et al., 2002; McIntire, 1991; Paul, 1998; Speranza et al., 2007).

Farmers in drought period are often obliged to borrow money and food and/or sell their land and other belongings; or friends, neighbours or relatives may aid drought victims by providing food, cash, loans and clothing (Paul, 1998; Speranza et al., 2007). Paul (1998) believed, the national government generally assumes responsibility for minimising hardships by organising relief work, providing loans and grants, and generating employment for hazard victims or by initiating various public work projects, such as excavation and re-excavation of fishponds, repair of village roads and construction of new roads.

Brouwer and his collegians (2007) believed that these strategies differ on the basis of their usage either before (Ex-ante) or after (Ex-post) drought. But Cooper and his collegians (2008) believed these coping strategies are Ex-ante, In-season and Ex-post. We believed that the latter division was more comprehensive than the former.

Another important point is the relation between farmers' attitudes and their behavioural management (Zarafshani et al., 2005, 2007). In this regard, Kromker and Moser (2002) believed that people's attitudes can affect their assessment, adoption and coping and also the manner of safeguarding themselves.

In fact, the household resource access profile largely defines which particular strategy is selected and, when and how it is enacted (Ingram et al., 2002; Speranza et al., 2007) and income inequality also plays a main role in determining sources of vulnerability (Brouwer et al., 2007; Eriksen et al., 2005; Paul, 1998). Brouwer and his collegians believed that poor people tend to be more (often) exposed to environmental risk than wealthy people. The latter are furthermore able to take protective measures or are able to avoid certain environmental (health) risk.

Farmers without the tools and implements are likely to plough and plant late, as compared to those who have. Those without are, therefore, exposed to the risk of missing the first rains which are crucial for crop growth, thereby jeopardising the harvest prospects for the particular season in question. These elaborations highlight the central role of poverty in constraining agro-postal activities (Speranza et al., 2007). Smallholder

farmers are affected more during drought time because of shortage of facilities and supporting resources (Paul, 1998). Thus, as it was mentioned, the relationship between poverty and vulnerability is direct and poverty is an important determining factor in environmental risk. Hence, it directly or indirectly affects vulnerability.

Methodology

Case study has been used in this research. Cases were selected using purposive sampling. The researchers requested the local informants to introduce them to some rich, moderate and poor farmers residing in the regions which were affected by drought. These people were then interviewed by the researcher using in-depth interview method. The other samples were selected based on snowball sampling method.

Findings and Discussion

The Poor Attitude towards Drought and its Management

Sample farmers in this study believed that drought is because the Lord is not on speaking terms with them anymore. Rural farmers were convinced by the fact that the God was angry with them as they had been accustomed to sin, telling lies and not being cooperative. They considered drought as the Lord's reactions for their cruelty and injustices. They believed they are being punished for their lack of faith in God. They also strongly believed that since no one had paid alms, God was taking his own portion, in this way. They said:

> The drought is God's will, cause we became heretics, tell lies and do bad things.
> We have been faithless in God and some of our behaviour testifies that. Formerly, we paid alms, shared small parts of our crops and our incomes to those who were poor and deprived, but not now. Actually, we have been disloyal to God and often we have forgotten him. God wants to take the revenge by restraining rain.

It has been proved that these farmers use denial attitude (Krimson et al., 1998; Zarafshani et al., 2007). The findings show that the attitude towards drought is more or less affected by the culture and religion, as the rich farmers also have similar conceptions about drought. A rich farmer stated "*God wants to punish people in drought condition*".

The attitude towards drought management was studied, too. All sample farmers believed that they cannot do anything about drought. They theorized that it was the government's duty to help those who are too weak to do anything themselves. In the answer to the question as to what can be done to manage drought, a farmer said: "*Nothing, we are too weak, it is the government business to help us, because it is powerful*".

On the other hand, farmers' perception towards drought was accompanied with a feeling of tension and it was considered as damaging. They did not evaluate drought positively. They claimed that it hurt them in all respects: "Drought *is a disaster. It ruins everything and hurts everyone. Even animals and plants are not safe. Illnesses grow*".

Another one said: "Illnesses*, argues, drugs and sadness go up along with drought*".

These answers made the researchers to further investigate the aspects of drought influences on farmers.

Drought Effects

In the answer to drought effects, all the poor farmers indicated that since the last three years, they had no crops. This answer is sensible though these farmers have only dry farming lands.

The poor farmers reported that drought strongly affected the amount of food consumption and decreased the educational and health standards. One confessed that he could not afford buying some meat for the family: "It's a long time that I am not able to buy some meat for my family. The value of our food is near zero".

It was found that there was inequality in the food they eat, daughters had been forced to stop studying at school and if there was some money to buy a cloth, it was distributed in the following order: father, sons, women and daughters. Most of the time, nothing was left for women and daughters. One said: "First *me, second my sons who work, then the wife and at last daughters*".

Another added: "*I can't buy books and note books for my kids, so they borrow neighbour's books. It caused my kids not be inspired enough*".

These findings show that drought had drastic effects mostly on the women. And, gender discrimination increases. Drought influences continue to the point where rural poor farmers are not able to buy drugs to cure an illness in their family.

According to the findings, drought has not only economical effects, but also sociological and mental. Youth migration is the important one. The poor farmers send some of the family members to industrial regions as workers in order to obtain income to survive. They send children to work at all the times throughout the year, while moderate farmers send their children to work only during school vacations. Therefore, children in poor farmers' families are more prone to abandon their education. These two social effects (emigration and education abandonment) are not true for the rich farmers. Emigration and education abandonment among the poor has a long time effect on their social status. On one hand, education abandonment leads the family to stay in low educational level, and on the other hand, those who emigrate do not come back to their village, so the family loses its working capital. Therefore, the poor farmers' conditions do not improve, and by the leaving of the young potentials of agrarian families, they continue to stay in a retrograde cycle.

Drought also leads to a condition of disloyalty and contradiction. It means social capital is missing in rural regions. Farmers said that drought condition makes them lose confidence in each other. The poor said: "*The rich take all loans and credits. Drought is an opportunity for usurers to take our lands out of our hands*".

On the one point, farmers believe that this disastrous condition brought by drought, is an opportunity for rich farmers to lend some money to poor farmers with the intention of possessing their lands. This situation leads to the strengthening of the rich domination on the poor and increases their exploitation. On the other hand, the rich farmers explain that drought worsens the poor situations, so that it enables them to rob rich farmers' assets. A rich stated: "*Robbing is booming up. Thieves are mostly the kids of families whom farms suffered from drought, badly*".

Another factor of reducing social trust in drought situations is the rising number of labours—who are poor farmers—with minimal wages. This situation makes the poor think of being abused by the rich farmers.

A poor farmer said: "*Rich farmers pay our wives and kids low, instead of helping us. And if there is a nag, they dismiss us and hire another, quickly*".

It has been assumed that drug business and smugglings enhance, social tensions rise, number of addicts increase and affordability for holding social ceremonies decreases. Some of the poor farmers stated they were not able to help their children to get married or to have a wedding party. And to add on to this, all three sample groups mentioned the effect of drought on increasing unemployment.

Drought has some psychiatric impacts, too. All the poor farmers said that the situation results in lack of crop production, debts, abandonment of children's education, unsatisfying wage amount for wives and children, emigration and unemployment which leads them to depression and loss of self confidence. One of the poor said: "*I'm bored to do anything, why am I alive? Why did God create us if he would forget us?*"

Drought addresses them to lower happiness. The majority (all three sample groups) said that they feel sad by watching the result of drought such as none prolific farms, river and stream dryness, destruction of agrarian productions and lower level of water in boreholes: "*When I look at fields, I feel poor and unhappy*".

All the poor and moderate farmers mentioned that in the past, they could participate in feasts, religious ceremonies and help relatives or friends when they were in need in situations such as parties and funerals. It has been assumed such activities let them brimming with confidence. But now, that social interactions have been reduced, farmers can do none of those, so that they go to solitude. They are brimming with depression, instead. As a result a question comes up: what has been done to reduce drought vulnerability?

Drought Management

In this study, drought management was divided into three categories, and data was collected on the basis of this division.

Before Drought (Ex-ante)

Findings revealed that the majority of farmers in sample groups had done no technical management to deal with drought. Only one of them had

planned to change his cultivation. They said: "Our *methods work for thousands of years, we won't change them*".

They explain, although they were aware of climate predictions by Iran Meteorological Organization since three years through the media, they cultivated in the same dry way. All in all, they had no faith in weather prediction. They believed that rain was a gift of God: "*Raining is God's will. If God wills it will rain, it doesn't have anything to do with Meteorological Organization. It always says 'probably', so its prediction is not trustable*".

Indeed, they confessed that they had sown the seeds at the time just as their ancestors did in the past years: "*It's a routine time of year for sowing as our descendents did. We wait for God's gift. We aren't doubtful about his kindness*".

Only one of rich farmers ploughed deeper for preserving water, used stronger kind of seeds and put small piece of land under cultivation. More conversations with farmers revealed that each group had some specific reasons for not attempting to diminish the surface of their cultivation. For the rich farmers who have got vast lands (over 250 ha.), tillage is a means of saving territory for other farmers and government. There are possibilities for which land is to be used by neighbours or to be pronounced as national fields by government. This group receives seeds in June, however, cultivation time is in September and rains fall in December. Therefore, they had to sow seeds. Findings related to the moderate farmers were the same as the rich farmers. They have had agrarian insurance for their wheat production. However, results for the poor farmers were totally different. They had to cultivate as they had no another source of income apart from their land's production. Also, the poor could not afford any kind of insurance. All three groups stated praying for rain.

While Drought (In-season)

About management strategies during drought conditions, the poor farmers did not have anything for the survival of their farms in drought. They did not have boreholes which could be used in urgent situations for irrigation purposes. Besides this, they did not have enough money to equip water pipes or to have Sprinkler Irrigation Systems. The poor farmers were busy working as labours in the rich farms or did some non-farm

activities as simple workers. Also, they had sent their children and wives as farmhands to the rich farmers' land.

A poor declared: "*We must work in the rich farms. Our wives and children have to weed and to harvest there, too. But the wage is low*".

The moderate farmers as well as the poor had done nothing to manage drought. But, when in drought condition, they focused on their second job, which could cover some of their costs and helped in their survival. These farmers ousted their workers and used their own family members to do farming chores. Though, they have a better position in comparison to the poor.

But, the rich farmers had done several activities for managing drought. They were able to change some parts of their lands (around 15–20 ha.) from dry cultivation to irrigated (such as Sprinkler Irrigation Systems) which were near to their boreholes by benefiting from the governmental loans, which covered some parts of their costs. Also, they made Drip Irrigation system in some parts of farms. They were successful to deepen their boreholes with governmental helps. They made a pool and rebuilt water canals in their gardens. One was also able to remove his borehole by accessing governmental loans. All in all, it seems that the rich farmers were benefiting themselves in drought in some ways. Moreover, all three sample groups reinforced themselves by vow and praying activities to deal with drought condition.

After Drought (Ex-post)

In this period of time, the three sample groups adopted different means to cope with drought. The poor farmers said, they had to borrow some money, to sell their animals, to deposit documents of their lands and to request help from relatives.

> When there is no land production, the first thing I can do is, to ask for money and help from friends or relatives. But the fact is they are in the same situation as I am. After that we start selling animals, then it's the turn for assets and at last our lands.

They could not take supportive loans offered by the government in case of drought. They believed those loans suit the rich. This latest confession is one of the items which led to a decrease in social trust and increased

contradiction in rural society. The moderate farmers could receive governmental loans, sell some unnecessary assets and mostly received help from relatives. Relatives or friends' help in drought is most sought by the moderate farmers; on the contrary, the poor seldom have any chance of friendly help. One expressed: "*My friends are in the same position as I am. They're in difficulties themselves. How can they help me*".

The rich farmers had totally different positions. They said that they had been able to access governmental help and to get ready (by leveling farms and using Drip Irrigation System) for next year cultivation.

Although all farmers felt hopeful for the next year's rain, they put vows and prayers on the top priority.

Governmental Interventions

Most of the farmers believed that managing drought was out of their abilities, and it was a governmental duty. The Iranian government pays a lot in drought condition through its management schemes such as: insurances, exemption of pay off farmers' previous loans, drought loans and loans for land levelling, developing irrigation systems, canalling, and boreholes rebuilding. The result revealed that the central government considers all farmers homogeneous. It hopes farmers receive its help equally. Unfortunately, there is no equivalence among those seeking governmental help. Rich farmers are those who gain maximum from it and, thus governmental interventions increase income gaps. For instance, the poor farmers were not able to receive Agricultural Insurance Fund because the insurance premium was high or the due date was when the farmers had shortage of money: "*We didn't have any money to pay for insurance premium*".

In drought condition, the Iranian government cancels the pay-off of farmers' previous loans and postpones their time of repayment. One of the important ways of managing drought is to pay low-interest loans. They can improve and rebuild irrigation systems. In recent drought, the Iranian government paid the complete amount of money to farmers who were supposed to develop irrigation methods and their implementations. These loans were half-gratuitous and half with low-interest. However, the poor farmers who were interviewed did not take any loans. Generally, these loans go to the rich farmers and they take advantage of these

exemptions: "*My lands are under dry farming. They are far from rivers, so I can't retrieve water to irrigate. Well…what can I do with the loan? It's for the one who owns a borehole*".

Observations show that the rich farmers were able to change their traditional methods to modern ones. They level their lands; have Drip Irrigation Systems and convert dry wheat farms which were near boreholes to irrigated farms. A rich farmer explained: "*Before recent drought, I used traditional irrigation's method. Now with governmental loans I am using Drip Irrigation System. I doubled my lands under cultivation*".

Another rich farmer declared: "*By leveling and Drip Irrigation System, my lands under irrigated cultivation grow greater so I will put them for rent*".

Another kind of loan paid to farmers was, the drought loan to compensate for no production. Still, the poor farmers were not benefited by it because they did not have land's documents or a guarantee. Or they were debtors to banks. A poor farmer expressed: "*The drought loan would help me a lot, but I have no land document, nor the one to support me as guarantor*".

Another poor farmer added: "*For recent drought, I haven't been able to pay off my previous loans to banks. Then I couldn't take the advantages of new loans*".

The last but not the least, the Iranian government invested a lot on watershed management, making canals and rebuilding them for rural farmers. However, they all were for the rich, directly. The poor usually own marginal and dry farms. Therefore, governmental interventions do not have effects in improving the situations of the poor.

Conclusion and Recommendations

The findings of this study revealed that farmers' attitude towards drought is mostly metaphysical rather than physical and environmental. It means they count on it as God's will, the Lord's anger or punishments for the sins committed by them, rather than lack of suitable irrigation or climate changes. Subsequently, they believe in adapting with drought and accepting it rather than confronting it. Their attitude is passive. Therefore,

neither do they do anything to confront and manage drought or reduce its influences, nor do they change their methods for the next year. The same results were found by Brouwer's study (Brouwer et al., 2007) who assumed such reactions on part of the farmers as cultural adaptation. This reaction was common among all three sample groups, not only the poor.

However, the poor farmers were harshly affected by the drought. Drought hurt them not only because of their attitude or belief, but also because of their low socio-economic position. They have no saving budget, no credits to receive loans, no second jobs, have small-sized farms, dry farming methods, no extra water resources, no developed mechanical equipments and no friends to provide support. They also have been hurt in non-economic ways. It was found that emigration and quitting their education—with economic intentions—was common among the poor farmers' families. This leads to an increase in gender inequality, lack of trusting manners, raising criminals and addiction, enhancing hopelessness and depression. All in all, the poor farmers suffered psychologically, socially and economically in drought conditions.

Iranian governmental interventions worsened the poor farmers' situation. It considers all farmers homogenously. It allocates large budget of money for dryness loans, pay off previous loan exemptions and cash donations to mitigate the negative consequences of the drought situations. The matter of fact is Iranian government neglects the poor farmers' powerlessness. It does not notice that all those strategies should be more supportive towards the poor farmers. Most of these services benefited others and not the poor. On the contrary, the poor farmers, who are in need, received the least. Governmental activities are all about agricultural hardwares—such as developing irrigating systems, building and rebuilding canals—to improve irrigation system's efficiency.

On the one hand, these policies attempt to cultivate more land under irrigated cultivation which might, with climatic changes, lead to more droughts in the near future, and so, more negative consequences. On the other hand, these direct governmental interventions address farmers—even rich ones—with high expectations. And most of the time, they lose their independence and react passively. And as the government cannot be supportive forever, finally everything will end with the farmers becoming dissatisfied and cynical.

For instance, Higgins and Herbert (Higgins & Herbert-Cheshire, 2004) believe that in those countries which have a long history of governmental interventions in the form of subsidies and infrastructural implementation, on a large scale, there is some dependency on the government. And when it fails in offering more services, farmers react nervously and weaken their managing abilities. This research proved that farmers are too dependent on the government. Indeed, such types of governmental interventions enhance the gaps between strata in society and make the poor, poorer.

In other words, although drought has some direct consequences, equal treatment of farmers by the government leads to secondary consequences (as shown in Figure 1). As the figure indicates, during drought conditions, some antecedent variables such as cultural aspects, religious beliefs, dependency on the government, low social network/support, farm-based income and vulnerability, can exacerbate the drought condition as antecedent variables. It leads to the first level of consequences. In the beginning, drought affects economically and environmentally, such as crop reduction and damage of such natural resources as water, plants and animals. Then, these impacts, concomitant with social and psychological aspects affect farmers (rich, moderate and poor) differently (notice the different sizes of arrows in Figure 1). Therefore, drought has maximum effect on the poor. The rich farmers suffer less compared to the poor.

Governmental interventions fail to support the poor farmers because it considers all strata similar and it only focuses on productive policies. Therefore, secondary consequences, such as social capital reduction, unsustainable resource exploitation, increasing social gap and inequalities, more poverty and greater dependency, enhance to the point that dealing with drought condition turns more difficult in the future.

Some recommendations are presented here: Governmental interventions should not be limited to hardwares proceeding (such as drought loans or exemption of pay off farmers' previous loans, developing canalling, boreholes rebuilding, and so on). Instead, the majority should be focused on psychological coping strategies in drought conditions, with special attention to poor farmers. Farmers should be taught to get involved in drought management actively and to be responsible about it. This management should at the level of the risk management and not at the crisis one. Consequently, farmers can prepare themselves before the

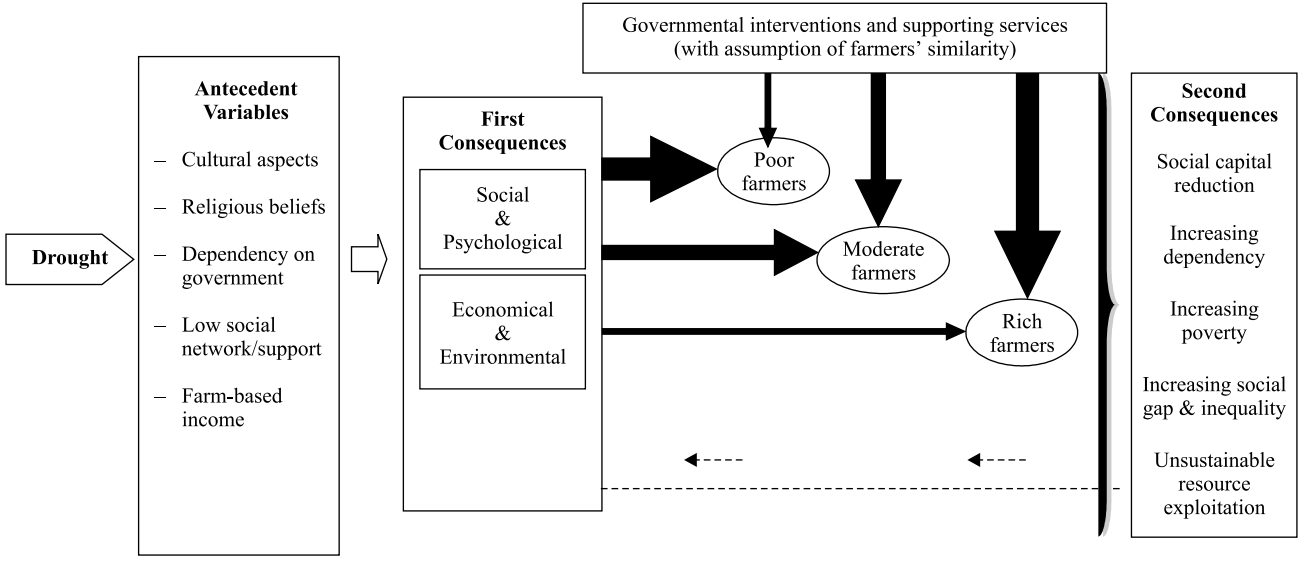

Figure 1. Consequences of Drought and Governmental Intervention

Source: Authors' own.

drought. It is better for the government to supply some suitable supportive packages for poor farmers to help them survive. It is clear that real perception of poor conditions would lead to the creation of appropriate packages, to improve their conditions.

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