

## Agriculture Development and Eradication of Rural Poverty in I.R.Iran

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**Abstract.** Poverty is rampant in the rural areas of Iran, where people are in a state of deprivation with regard to incomes, clothing, housing, healthcare, education, sanitary facilities and human rights. Agriculture generates nearly 20.9 percent of the country's GDP and provides employment for 43.4 percent of its workforce. Most importantly, 40 percent of the population living in rural areas is directly or indirectly dependent on agriculture for their livelihood. Rising population, shrinking agricultural land, increasing demand for water resources, widespread land degradation and inadequate infrastructure appear to be major concerns of the agriculture sector in Iran. An attempt has been made to examine the population growth–agriculture growth–poverty alleviation linkage. It is argued that agriculture will continue to be one of the most important sectors of Iran's economy for years to come. To alleviate poverty, it is suggested that Iran enhance the productivity of the agriculture sector through the provision of a series of inputs including provision of easy credit to the small farmer, availability of quality fertilizers and pesticides, tractor and harvester services, improvement in the effectiveness of the vast irrigation system and, finally, farmer education. It is concluded that the high rate of population growth needs to be curbed for increased agricultural productivity to have any significant effect on poverty in rural areas of Iran.

**Keywords:** Rural Economic, Agriculture development, rural development, Islamic Republic of Iran.

### 1. Introduction

In Iran the increasing rate of poverty in rural areas has prompted debate on growth and productivity trends in the agriculture sector. The average annual growth in agriculture was over 3.52% from 1995–96 to 2004–05; however over the last five years agriculture growth has witnessed mixed trends (See Table 1). Consequently, the rate of poverty in rural areas reached 38.65% in 2002–03. Poverty is rampant in rural areas, where people are in a state of deprivation with regard to incomes, clothing, housing, healthcare, education, sanitary facilities and human rights. Due to increasing population, natural resources are gradually depleting, putting major constraints on the efforts to eradicate poverty. The complex and enormous problems include declining availability of agricultural land and workforce, marginal producers with small land holdings, decreasing per capita land availability, conflicting demand for scarce water resources, urbanization and youth evading traditional farming. In the coming years, Iran will require food production for larger populations from less and less land. The biggest challenge is how to increase output from the shrinking agricultural sector, while sustaining the productivity potential of the available natural resources.

### 2. Role of Agriculture in Economy

Early classical theory viewed economic development as a growth process requiring the systematic reallocation of production factors from a primary sector characterized by low productivity, traditional technology, and decreasing returns to a modern industrial sector with higher productivity and increasing profits (Adelman, 2001). Agriculture was seen as a low-productivity, traditional sector that only passively contributed to development by providing food and employment. Beginning in the 1960s, a major revision in development thinking contended that agriculture had a central role as a driver of growth, especially in the

early stages of industrialization. This strategy was later labeled agricultural- demand-led-industrialization (ADLI) (Johnston and Mellor, 1961; Schultz, 1964; Adelman, 1984).

Table 1: Economic indicators of Iran

Facial year inequality	population	GDP growth		agriculture		poverty indices:				income
		Growth rate %	rate	Growth rate %	rate	head-count(percentages)				
						Rural%	urban%	total%	gini	
1990-91	5.6	5.00	25.20	26.60	26.10	0.41	6.0	47.4		
1991-92	2.87			9.50						
1992-93	2.40	-5.30		24.60	28.30	26.80	0.37	7.0	44.8	
1993-94	2.28	4.4	5.20	25.40	26.90	25.70	0.40	7.4	43.1	
1994-95	2.24	5.1		6.60						
1995-96	2.40	6.6		11.72						
1996-97	2.34	1.7	0.12		33.1	22.6	29.8	0.41	7.3	49.3
1997-98	2.36	3.5		4.52						
1998-99	2.23	4.2	1.95		34.7	20.9	30.6	0.40	6.9	46.8
1999-00	2.20	3.9		6.09						
2000-01	2.11	1.8		-2.20	39.0		22.7		32.1	
2001-02	2.13	3.1		-0.10						
2002-03	2.20	4.7		4.10	38.65		22.39		31.80	
2003-04	2.40	7.5		2.30						
2004-05	2.26	8.6	6.70							

Source: Jihad-Keshavarzi Ministry, 2006

Government of I.R. Iran, 2007. Statistical center of Iran 2005-2006

The ADLI strategy stressed the central role of increased agricultural productivity in achieving industrialization through expanding demand for goods produced by domestic industry. Two key characteristics of agriculture during the early stages of development justified its place in early development thinking. First, agriculture produces goods that directly satisfy basic human needs. Second, agricultural production combines human effort with natural resources, such as land and agro-ecological assets. Since natural resources were

Assumed to be freely available, early development theorists believed that agriculture could grow independently of other economic activities. It was also recognized that traditional agriculture could be transformed rapidly into a modern sector through the adoption of science-based technology, thereby making a large contribution to overall growth.

Beyond its direct contribution to growth, a number of features specific to the sector enhance its contribution to pro-poor growth, including the concentration of the poor in the sector, the large size of its growth linkages to other sectors, and the positive externalities from assuring food security and reducing food prices (Byerlee et al., 2005).

### 3. Agriculture Growth and the Role of Gender

In Iran, women typically do not own land and, when they do, they typically do not control it. Land rights are regulated by Islamic law; however, general practice deviates from principle to the detriment of women. According to Agarwal (1994) in South Asia the gap between female ownership and control is due to a mix of interrelated factors including, among other things, norms which circumscribe women's mobility and social interactions, illiteracy, and male control over (access to) technology, information, and labor. The productive work done within the household and in agriculture fields by women has been ignored and not much attempt has been made to incorporate the value of such activities within the national accounts. This is the main reason behind the exceptionally low female labor participation rate of 18.93% compared to 71.97% for men in Iran (statistical center of Iran, 2007). In order to strengthen the roles of women in agriculture, and thereby improve their status, women should be paid and have control over the cash earned as a result of their labor.

Greater control of income by women will enhance their control over decision making, positively affect the wealth of the family, especially girls, and may help in closing the income and education gaps between genders (Morrison et al., 2007). Increasing the education and income level of women, in the long run, will not only contribute to the quality of the labour force and hence to productivity, but also to food security through a lower rate of population growth.

#### 4. Land Reform and Security of Land Tenure

The literature has consistently underlined the key role of relatively equitable land distribution and the dominance of small-scale family farming in realizing the potential of pro-poor growth. Work carried out by Vollrath (2006) shows a significant negative relationship between land inequality as measured by the Gini coefficient and output per hectare. A drop in the Gini coefficient for the size of operational land holdings of one standard deviation would increase output per hectare by 8.5%. Jeon and Kim (2000) have documented significant productivity gains from the land reforms undertaken in Korea in the 1950s which limited the amount of land any individual could own. Besley and Burgess (2000) find that land reforms in India were associated with lower poverty and higher agricultural wages. They do find that land reforms had their greatest effect in those Indian states with the greatest initial land inequality. On the other side, increase in population is proportionate to the decrease in the number of large and mid-sized farms. Excessive land fragmentation and sub-division of landholdings from generation to generation are also causing a persistent decline in the size of farms and therefore in agricultural productivity. The poor households in all the countries studied had a larger family size with a greater dependency ratio. Landlessness and the limited access to land is a glaring feature of rural poverty in Iran. Smaller farms tend to be less diversified and unable to cope with vulnerability. Table 2 shows the agricultural land distribution by farm size in Iran. Land distribution is much skewed. Eighty-one percent of farms owned are less than 5 hectares in size and cover only 38.7% of the total farm area.

Table 2: Classification of farms in Iran by size

Size of farm (acres)		Number of farmers (%)					Farm area (%)			
1990	2000	1960	1972	1980	1990	2000	1960	1972	1980	
Under 5	11.3	19.0	28.2	34.1	47.5	57.6	3.0	5.2	7.1	
5 to < 12.5	27.9	44.3	39.9	39.4	33.4	28.1	23.6	25.2	27.3	
12.5 to < 25	21.5	23.8	21.1	17.3	12.2	8.8	27.0	26.6	24.7	
25 to < 50	15.8	9.0	7.7	6.5	4.7	3.9	19.0	18.8	17.8	
50 to < 150	13.9	3.3	2.7	2.4	1.8	1.2	16.0	15.1	14.7	
> 150	8.5	0.5	0.4	0.3	0.3	0.2	0.2	11.5	9.1	
Total	100	100	100	100	100	100	100	100	100	

Source: Jihad-Keshavarzi Ministry

Only 6.8% of large farms hold more than 10 hectares, accounting for 39.8% of the farm area. Small farms tend to use farming systems that are more labour intensive and less risky, while big farms prefer farming systems that are more intensive in capital as they can afford to take risks in the hope of higher returns. Because of highly skewed distribution of land ownership, the incidence of sharecropping in Iran has increased in recent years. Poverty among sharecroppers has been found to be considerably higher. However, further research is needed to understand tenancy and share-cropping arrangements and to find ways to address poverty among those groups. In general, ways that increase the opportunity of the poor to earn increased incomes and methods to heighten their security and empower them will lead to poverty reduction. This suggests broad based land reforms are required to ensure equitable access to productive resources and the restructuring of rural society on an egalitarian line. Such efforts have met with varying degrees of success

in different countries depending on the correlation of socio-political forces. There is also a need to concentrate more on income sources that are independent of land in order to reduce rural poverty. And, in order to reduce the dependence on the agricultural sector, there is a need for generating off-farm employment opportunities. This suggests providing easy access to credit, technology and information in the short run. In addition, there is an urgent need in the long run to enhance human capital through better quality education, training and health.

## 5. Technological Developments in Agriculture

Agriculture has strong direct forward linkages to agricultural processing and backward linkages to input-supply industries (Johnston and Mellor, 1961). It is known empirically that a large share of manufacturing in the early stages of development is agriculturally related (Pryor and Holt, 1999; Gemmellet al., 2000). In addition, technological change and productivity growth in agriculture were linked to lower food prices, which in turn held down urban wages and stimulated industrialization and structural transformation.

Table 3: Value addition and potential yield gaps of various crops in Iran

Crops	share in total value added in	share in GDP(%)	national average Yield	Potential Yield
Yield Gaps	Agriculture (%)			(Tonnes per hectare)
(Tonnes per hectare)	(Tonnes per hectare)			
Cotton (lint)	8.6		1.9	0.682
1.4	0.718			
Wheat	13.7		3.0	2.61
6.4	3.8			
Rice		6.1		1.3
2.11	79.5	7.38		
Sugar cane	3.4		0.7	48.86
160.0	111.15			
Maize		—		—
3.48	6.9	3.42		

Source: Jihad-Keshavarzi Ministry

Current globalization has affected all countries with an aggressive market based economy. The industrial sector is dominating and agriculture is getting commercialized due to private sector investment. The technologies are generated based on demand. These technologies may not be within the reach of the small farmers and the old technologies are also getting outdated as the products are not of the right quality to compete in the new global markets. Improved crop varieties could easily be adopted by small farmers, but it may not be the case with other technologies such as irrigation, machinery, high tech agriculture, etc. These are more favorable to commercial farmers; the poor may not adopt them or may do so with a long time lag when conditions become favorable. Agricultural research has led to significant increases in productivity and enhanced incomes in developing countries (Lipton and Longhurst, 1989). The development of improved cultivators and management practices, mechanization, improved plant nutrition and crop protection technologies have been in the forefront of contributions to increased crop yields in many developing countries. The green revolution, which predominated in the early 1960s contributed to unprecedented increases in food production. Wheat and rice yields increased several fold. In the 1970s, due to the impact of the green revolution, rural poverty declined as agricultural growth and purchasing power of the people rose.

## 6. Poverty and Land Degradation

The impact of population on agricultural production includes low land per capita, intensive use of land, and a higher household income generation dependency ratio on land. The two most important driving forces behind the land degradation in Iran are limited land resources and increase in population. The result is small farms, low production per person and increasing landlessness. Land shortage and poverty, taken together, lead to non-sustainable land management practices, the direct cause of degradation. Poor farmers are forced to clear forests,

Cultivate steep slopes without conservation, overgraze rangelands and make unbalanced fertilizer applications. Land degradation then leads to reduced productivity: a lower response to the same inputs or,

where farmers possess the resources, a need for higher inputs to maintain crop yields and farm incomes. This increases land shortage thus accentuating the cycle.

## **7. Poverty Reduction Strategy**

Over the past several decades, there has been increasing acceptance worldwide that rapid economic growth over a prolonged period is essential for poverty reduction. At the macro level, economic growth implies greater availability of public resources to improve the quantity and quality of education, health and other services. At the micro level, economic growth creates employment opportunities, increases the income of the people and, therefore, reduces poverty. Economic growth also benefits the poor, but only if effective measures are taken focusing on and directly empowering them. Therefore, rapid growth is vital, but it has to be sustained and targeted for a meaningful reduction in poverty. However, accounting for the rising trends in poverty during the 1990s, the Government adopted a strategy for poverty reduction in 2001. This strategy focuses mainly on five areas which include i) accelerating economic growth and maintaining macroeconomic stability; ii) investing in human capital; iii) augmenting targeted interventions; iv) expanding social safety nets and v) improving governance (statistical center of iran, 2003). Agriculture plays an important role in economic development, such as provision of food to the nation, increase in exports, transfer of manpower to non-agricultural sectors, contribution to capital formation, and securing markets for industrialization. Improvement in agricultural productivity is the answer to realization of each of these goals. A successful strategy for alleviating poverty and hunger in developing countries must begin by recognizing that they are mainly rural phenomena and that agriculture is at the heart of the livelihoods of rural people. The dilemma of Iran's poverty reduction strategy is that it is aimed at poverty reduction without boosting agriculture. All our poverty reduction strategies should primarily focus on development of the agriculture sector for the sake of the poor and industrialization for employment generation leading to reduction of poverty. Other issues that need to be addressed are, (i) soil erosion and degradation; (ii) inappropriate fertilizer and pesticide use; (iii) inadequate availability of quality seed; (iv) inadequate markets infrastructure; (v) non-availability of adequate farm power; and (vi) weakness of agricultural research and extension services. All measures that are supposed to alleviate poverty must target the poor strata, providing them with the means of living, helping them build productive assets and generate income.

## **8. Conclusion**

The analysis brings out the correlation among rural poverty, access to land, population growth and agricultural growth. Agriculture continues to be one of the most important sectors of Iran's economy and has the potential for addressing unemployment, for the medium term at least, since it has higher employment elasticity than industry. Rising population, shrinking agricultural land, increasing demand on limited water resources from the expanding industrial and urban sectors, widespread land degradation and inadequacy of governing infrastructure are major concerns in the agriculture sector. Iran should give high priority to enhancing the productivity of the agricultural sector through the provision of required capital inputs. These inputs range from provision of easy credit to the small farmers, availability of unadulterated fertilizer and pesticide, tractor and harvester services, improvement in the efficiency of the vast irrigation system, utilization of cultivable wastes and farmer education. The development of irrigation, rural electrification and rural roads and transport should also receive high priority in the development plans of the country giving impetus to the growth of agriculture and rural industries, raising the incomes of small farmers and artisans and increasing the employment opportunities for the rural poor, in general. The above trend in agricultural growth will increase income and reduce poverty. The high rate of population growth needs to be checked for the increased agricultural productivity to have any significant effect on poverty. Greater control of income by women will positively affect the wealth of the family, especially girls, and help to close the income and education gaps between genders, and should increase food security through a lower rate of population growth. Legitimate efforts are required to review biotech approaches in respective fields and future research work should be based on novel ideas that have direct impacts on food crops grown by small-scale farmers. Efforts should be made to rehabilitate degraded landscapes for production of high quality commodities. Exploitation of biological alternatives employed for sustainable crop production and environmental

remediation should be promoted at academic and research institutes to resolve the different agricultural and environmental issues.

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