

Effects of Urbanization on Food and Agriculture

Tulsiram Dahayat

Govt. Girls College, Damoh, (M.P.)
E-mail: tulsiram.dahayat@gmail.com

Abstract—Urbanization happens because of the increase in the extent and density of urban areas. The density of population in urban areas increases because of the migration of people from less industrialized regions to more industrialized areas. Urbanization usually occurs when people move from villages to cities to settle, in hope of a higher standard of living. Agricultural lands, which serves as the main source of livelihood, has been encroached by the process. This paper seeks to assess the impact of rapid urbanization on agricultural lands in developing cities. The research used to know the question that why farmers are not interested to do farming activities in urban areas, is there a problem of food security in future due to rapid growth of urbanization. Agricultural lands in the circumferences of the cities serve as transition zones from natural and rural habitats to urban landscapes. They serve as supplier of vital ecosystem services such as food, feed, clean air, soil and water to the urban areas and as buffer zones to diminish negative effects of the urban systems on the natural environment. The rapid and random expansion of urban centers has caused changes on land cover. Forests and water catchment areas are faced with the threat of a dense settlement. Agricultural capacity is reduced due to urban sprawl on high quality agricultural land. The farmers instead of the continuing farming activities it is better to sell the land at the higher price. Finally the high values of land are the main causes of destruction of agriculture by means of urbanization. Due to rapid growth of urbanization and scarcity of land we will face a challenge before us of severe food crisis in future. There is unable to food grain production in consistent with the increase of population. High agriculture research, management and distribution efficiency, urban management, multistory buildings, city plans are the fact that can be maintained the demand of food grains in future.

1. INTRODUCTION

Urbanization is defined by the United Nations as the movement of people from rural to urban areas, whose population is projected to amount to half of the world's population in 2008, rising to about 60 percent in 2030. As an increasingly higher number of people leave farms and villages to live in cities particularly in the developing countries. Urban centers will grow at a previously unseen in mankind's history.

According to the United State of the world population 2007 report 93 percent of urban growth will occur in developing nations with 80 percent as it occurring in Asia and Africa. Urbanization happens because of the increase in the extent and density of urban areas. The density of population in urban areas increases because of the migration of people from less

industrialized regions to more industrialized areas. Urbanization usually occurs when people move from villages to cities to settle, in hope of higher standard of living. Cities play a vital role in the social fabric of countries and in national and regional economies worldwide. In theory and popular opinion cities offer opportunities for education, employment, services, and cultural enrichment and the expectation of better health. National income and level of human development are strongly and positively correlated with level as urbanization (UNCHS, 2001). In rural areas people victims as unpredictable weather conditions such as drought and floods with can adversely affect their livelihood. Consequently many farmers move to cities in search of a better live. This further contributes of migration to cities. But in the context of towns due to urbanization the adjacent agricultural areas are affected and the urban sprawl further deteriorated the town and the villager.

Agriculture land in circumference to the cities serve as transition zone from national and rural habitants to urban land scrapes. They serve as supplies of vital eco-system services such as food, feed, clean air, soil and water to the urban areas and as buffer zones to diminish negative effects of the urban systems on the natural environment. The rapid and random expansion of urban centers has caused changes on land cover. Forests and water catchment areas capacity is reduced due to urban sprawl on high quality agricultural land. Which creates a food crisis in future? Agriculture faces multiple challenges it has to produce more food and fiber to feed growing population.

2. TRENDS OF URBANIZATION

According to the census 2011, Urbanization has increased faster than expected. This has reversed the declining trends in the growth rate of the urban population observed during the 1980's and 1990s. Also, for the first time since independence, the absolute increase in the urban population. This has huge implications for providing infrastructure and other civic amenities in urban areas.

According to the 2011 census the urban populations grow to 377 million showing a growth rate of 2.76 percent per year during 2001-2011. The level of urbanization in the country as

a whole increased from 27.7 percent in 2001 to 31.1 percent in 2011 an increase to 3.3 percent points during 2001-2011. Compared to an increase of 2.1 percent points during 1991-2001. It may be noted that the Indian economy has grown from about 6 percent per year during the 1990s to about 8 percent during the first decade of the 2000s. This clearly reflects the power of economic growth in bringing about faster urbanization during 2001-2011.

Table 1: Trends in Urbanization in India (1961-2011)

Census year	Urban Population (in millions)	Percentage of Urban Population	Annual Exponential Urban growth rate (%)
1961	78.94	17.97	-
1971	109.11	19.91	3.23
1981	159.46	23.34	3.79
1991	217.18	25.72	3.09
2001	268.12	27.86	2.75
2011	377.10	31.16	2.76

Source: Census of India various years.

Table no.1 shows that India had an urban population of about 79 million in 1961 which constituted about 18 percent of the total population. The average growth rate of the urban population was 2.32 percent during 1951-61 which accelerated up to 3.79 percent during 1971-81. This was the highest urban growth since independence, after 1981 the urban growth rate decelerated to 3.09 percent during 1991-2001. However the declaring growth rate was slightly reversed during 2001-2011. This expansion of urban community in developing countries brings about severe challenges for assuring household food security and access to basic services such as adequate housing, water, sanitation, education and health care facilities.

3. URBANIZATION AND AGRICULTURE

Agriculture which is the main source of livelihood of people living in circumference to urban area is seriously being threatened by rapid urbanization because of the problem of scarcity of land for agricultural purposes that will arise. Thus, the allocation of agricultural land for residential development has resulted in a reduction in the quantity (size) and quality of land. Farmers are therefore, often left with little or no land to cultivate and this renders them vulnerable. Agriculture, in general and the food production for the urban population was and still is, through to take place in the rural sector only. Substantial amount of their farm lands has been lost to other land uses as a result of rapid urbanization of the area. Land development are fast consuming agricultural land. Most farmers have lost their farm lands to other uses in one way or the other. The single women and men appeared to be quitting farming mostly because of the rapid conversion of their farm lands into other land uses causing them to landless and also because they were forced to move farther away from their homes in order to access land farming. The youth who are

rejecting farming the situation does not augur well for continuity. In farming business which mostly is a family business in India.

No doubt that urbanization made an impact on agriculture. Due to urbanization when compared with others small farmers are more affected. The farmers do not want to farming activities in urban areas. The reasons for not continue the farming activities are as follows :

1. Inclement monsoon.
2. Surrounding fields are converted in to plots.
3. Plots reduced the water column.
4. Stagnation of water due to plots.
5. Forced by the real-estate people.
6. Construction of bypass roads.
7. Unable to take up agricultural implements.
8. Water channels are disturbed or closed.
9. Higher value of land.

The main reason for not continuing the farming activities are the fields of farmers surrounded by the plots forced by the real-estate people to sell and water shortage or non-availability of water made them to continue the farming activities.

Moreover they felt that instead of continuing the farming activities it is better to sell the land at the higher price and the income could be deposited that fetches regular income instead of loss.

To keep their social status and prestige the marginal and large farmers are keeping their land and some are expecting that further urbanization may increase the value of the land. Finally the above reasons are the cause of destruction of agriculture by means of urbanization.

4. URBANIZATION AND FOOD

The food and agriculture organization of the united nation's (FAO) defines food security as a situation that "Exists when all people at all times, have physical and economic access to sufficient, safe and nutrition's food to meet their dietary needs and food preferences for an active and healthy life". Their definition comprises four dimension of food security availability, stability, safety and access. Urbanization affects all four dimensions of food security.

In the future, agriculture will be challenged to meet the demand of a population that is projected to grow and to urbanize. This implies that more food will demanded by a population of net food buyers and food demand will have to be met by rural and pre-urban areas. Yet, sprawling cities may put constraints on the ability to meet new demand patterns due to among other factors, land use changes associated with urbanization and increased comparison for irrigation water.

As cities expand, prime agriculture land is converted in to residential or industrial areas. An immediate consequence is the crowding our pre-urban agriculture. Which often plays a significant role in supplying perishable food stuffs to cities. In addition, already weak tenure agreements may be challenged and agricultural production may shift to less productive areas. Which could creates result in field losses land use changes due to city expansions can also imply irreversible losses in biodiversity.

Agriculture production will be further challenged by the expanding cities substantial thirst for water from ground water source in of close to the city. Yet with a raising demand in water for domestic and industrial purpose, caused by higher urbanization rates. This puts pressure on distant eco-systems and lower water label, which may lead to increasingly dry zones in soils.

More and more food will have to be transported to and distributed within the cities. This will put additional pressure on rural infrastructures, transport, technology and food distribution outlet. For a city of about four million in habitants, Food requirements average about 3000 tons a day. This implies about two three ton trucks entering the city every three minutes. Staple food materials, vegetable, fruits, fish, mat etc will originate from different areas. This will pose logistical challenges in view of transportation, city traffic, sheer quantity and variety needed handling etc for most cities these challenges would apply to domestically produced and important food alike.

5. FUTURE PROBLEM

We can observe the growth rate of population and agriculture. The growth rate of agriculture is 1.3 percent where as the population growth rate is 1.64 percent that is greater than the growth rate of agriculture. With the uncertainties in agriculture the growth in agriculture can be a good symbol. But the growth of population can be big problematic subject.

Table 2: Projection of change in food grain demand in Indian Economy

Element	Before (1970-2010)		Future (2010-2050)	
	Variations	Percentage change in growth rate	Variations	Percentage change in growth rate
Population	2.19	1.98	1.37	0.78
GDP	8.29	5.34	10.29	6.00
PCI	3.60	3.25	7.29	5.18
Total Food grain	3.10	2.85	4.53	3.82
Per Capita Food grain	1.41	0.87	3.32	3.04

Source : www.ncap.res.in

In table no.2 the observations shows that the population has been increases more than double in previous 40 years and it is projected to increase about 37 percent in 2050. In 1970-2010 the food grain demand has been increases three times and it has to be increases 4 to 5 times in future 40 years. The estimated growth of per capita income is 5.18 percent per year. The food grain demand is projected 3 percent per year which must be increase both forms as a qualitative and quantitative. There is also a variations in the demand of food commodities. The per capita food grain will be increases endways the consumption of high value food commodities like edible oil, fruits, vegetables, milk, meat, fish will increases. In 2050 the total food grain demand will be 359 million ton which is 83 percent more than 2009-10.

It is not possible to increase the productivity of agriculture as faster than population because the lands are limited. As a result the situation of food inflation is arising. The demand for food will be double in future in compare with current situation. For the production of 1 ton food grains there will be requirements of 1000 ton liter water. In future the climatic condition will be different so as a result the problem will be bigger. According to population prediction the population of India in 2050 will be near about 162 cr. That will be centered toward urbanization and on health and wealth. The demand for food grains will increase not only in quantity but also in quality. In 2050 the per capita income will be near about 4 lakh per annum and consumer will spend 10% of income on consumption on food. It means the expenditure will be 23% greater than 2010.

The main challenge of agriculture research is to develop technology, based, high yielding verity seeds, which conserve human and animal health. In future we required to meet the following fact for equilibrium of demand and supply of agricultural products.

- To increase four times in agriculture productivity.
- To increase three times in water productivity.
- To increase two times in energy use efficiency.
- To increase six times in labour productivity.
- Regulation of agriculture field is needed.
- Conversion of agricultural land in residential area should be stopped by a government order.
- Farmers are to be provided all infrastructural facilities to continue farming instead of selling.
- To encourage for multi story buildings.

Due to rapid growth of urbanization and scarcity of land we will face a challenge before us of severe food crisis in future. There is unable to increase grain production in consistent with the increase of population we unable to proper use of efficient management and technical capability. The multinational company purchase food products and increase a mall culture due to this the price of food products go high. In future by the

cause of globalization the no. of multinational companies increases which is able to dominance supply, price of food grains. High agriculture research, management and distribution efficiency, urban management, multistory buildings city plan's are the fact that can be maintained the demand of food grains. But the question is that we have a will power to handling a increasing food demand and challenge of limited resources.

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