

## Urbanization, sustainable agriculture, and food security: issues and challenges

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### Abstract

*Influences on food and farming in an increasingly urbanized world and the declining ratio of food producers and cultivable land area were studied in the present study. the population of rural areas migrates to the urban centers but in 2008, the world's urban population exceeded its rural population. UN projections expected growth of more than a billion urban people between 2010 and 2025. Development of urban areas was encroaching on the fertile land but also deteriorating the fertility of the land. urbanization has a profound effect on all dimensions of food security and investment in the city infrastructure will be particularly needed in small and medium-sized cities.*

**Keywords:** Food security, Migration, Rural population, Sustainable agriculture, Urbanization.

### Introduction

The objective of the present work was to discuss the influences on food and farming in an increasingly urbanized world and the declining ratio of food producers and cultivable land area.

Globally, agricultural production has managed to meet the demands of rapid growth in the proportion of the workforce not producing food (Satterthwaite et al 2010) and rapid changes in food demands towards more energy and greenhouse gas emission-intensive food. Hundreds of millions of urban dwellers face undernutrition today. The work also addressed the influence of the urbanized world on sustainable agriculture and food security. India is a country of more than one billion population on 2.4 % land area of the world (India: Comprehensive geography) (Khullar 2011). Arranging two times meals

for such a huge population is a challenge in itself whether it is in terms of production, affordability, and accessibility.

### Process

Urbanization is the process of being urban (Vlahov and Galea 2002). Generally, the population of rural areas migrates to the urban centers, and in this process existing urban centers spread or expand themselves on existing agricultural land which causes the shrinking of agricultural land (Bhatia 1992). In 2008, the world's urban population exceeded its rural population for the first time. Today, agriculture provides the livelihood for around one-third of the world's labor force and generates 2–3% of global value-added—although this is misleading in that a significant proportion of industry and services are related to the production, processing, distribution, and sale of food, and other agriculture products.

UN projections suggest that the world's urban population will grow by more than a billion people between 2010 and 2025, while the rural population will hardly grow at all (U N 2012) It is assumed that the proportion of the world population not producing food will continue to develop, as will the number of middle and higher-income consumers whose dietary choices are more energy and greenhouse gas emission-intensive (and often more land-intensive) and where such changes in demand also bring major changes in agriculture and the supply chain.

Urbanization is inevitable in developing because they are yet to achieve saturation like in the developed world. India is also facing the same problem of haphazard growth of population and sprawl of satellite towns on fertile land (Dev 2008). To meet the need for a growing population expansion of agricultural activities on fertile land is required because of low productivity.

Urbanization is not a negative aspect, being urban has various aspect as urban areas has good economic growth and amenities but being prosperous at the cost of basic needs and livelihood of others can't be justified.

Urban sprawl and infrastructure development on fertile land encroaching the cultivable land which is directly affecting the availability of food and going to decline food availability in the coming future, when excessive use of fertile and pesticides will not be fruitful and show adverse effects. Areas around the town and cities are more fertile as has been mentioned in the concentric zone theory of Von Thunen (Clark 1967), encroachment of this area has a more adverse impact.

Food security has three components: first is food availability, which depends on food production and imports, if we depend on imports then it will increase the cost of products, and households of the low-income group would suffer, from

malnutrition. Thus it can be said that food security is the link to nutrition security and human development and ultimately to the productive economy of the country. second is food access which depends on purchasing power and the third is good absorption which is a function of safe drinking water, environment, hygiene, and primary health care. All three components of food security are very much linked to urbanization (Dev et al 2003).

Sustainable agriculture can be defined as agriculture that meets the need of the present without compromising the ability of future generations (Lichtfouse et al 2009). It is fact that agriculture production is increasing despite the shrinking of agricultural land, it is because of excessive use of fertilizers, pesticides, and irrigation facilities but all these methods have their limitations, their use cannot be increased beyond a limit. Their excess use after the green revolution has started showing negative consequences in terms of fallow land, saline, and alkaline land, which further declined the availability of land for agriculture. It clearly shows that the need for land area can't be undermined by the name availability of other tools.

### **Rural to urban migration**

Rural to urban migration is an important cause of urbanization; a check on this migration is needed. This can be done by providing urban amenities in rural areas and developing small and medium population centers rather than focusing on large urban centers.

Inclusive development can solve the discussed problem. Unidirectional development causes another problem. Because of being a monsoonal country that is characterized by untimely and unequal distribution of rainfall, without irrigation facilities, food requirements cannot be fulfilled. But the development of irrigation facilities in every area is also not possible because of the constraining of resources

and topographical conditions of a country. The larger part of India is suitable for dry land agriculture. Which country will have to focus on research in this field as the development of a drought-resistant variety of seeds? An increase in the production of food grain will not only meet the need for increased demand for food grain but also the affordability of households of that region because of the increase in their income. Another measure that can be adopted is the development of micro irrigation projects and the linking of rivers wherever possible.

The development of urban areas is not only encroaching the fertile land but also deteriorating the fertility of the land in peripheral areas through discharging untreated industrial waste and polluting rivers and canals (Bhuvan 2013). For example, the Agra canal which originates from the Yamuna near Okhla (Delhi) is polluted by the discharge of industrial waste from the Okhla industrial region, affecting the agriculture of Agra and Mathura regions which are benefited from this canal.

### **Negative impacts on agriculture**

Urbanization is often considered as having negative impacts on agriculture, for instance, from the loss of agricultural land to urban expansion and an urban bias in public funding for infrastructure, services, and subsidies (Bezemer and Headey 2008). But the scale of urban poverty proposes a slight indication of municipal bias for much of the urban people and obviously, urban demand for agricultural products has great importance for rural incomes. The farmers and rural consumers also rely on urban-based enterprises for an extensive range of goods and services-including access to markets. So the key question is whether the growing and changing anxieties for food (and other agricultural products) that a progressively urbanized people and economy bring can help underpin agricultural and rural success and

sustainability within a worldwide decline in agricultural land area per person and water constraints. To this is now added the need to adapt to the influences of climate change that can disrupt agriculture and urban demand, and the town enterprises that provide the manufacturer and consumer services to rustic populations. We found that urbanization has a profound effect on all dimensions of food security and investment in the city infrastructure will be particularly needed in small and medium-sized cities.

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