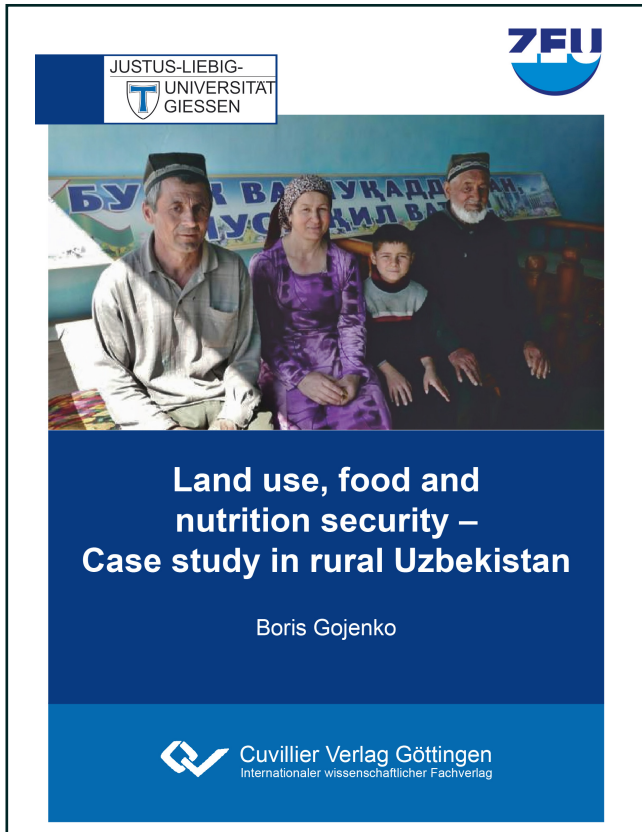




Boris Gojenko (Autor)  
**Land use, food and nutrition security**  
Case study in rural Uzbekistan



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# 1. INTRODUCTION

This chapter shortly describes the current statement of food and nutrition situation in the global context. Food and nutrition situation in Central Asian countries and particularly in Uzbekistan are also exposed by this chapter.

## 1.1 Background of the study

“Halving hunger by 2015” has been defined as part of the First Millennium Development Goal. However, recent statistics paint a very gloomy picture about actually being able to achieve this Millennium Development Goal. Although the relative number of hungry people has decreased, 852 million people are still chronically or acutely malnourished (Klennert, 2005).

According to the FAO (2004) in the last decade alone the number of people affected by malnutrition all over the world has grown by 18 million and now comprises over 852 million. Among these people 815 million are in developing countries, 28 million live in transition countries (former socialist countries), and 9 million reside in developed countries. Every year over 20 million children in developing countries are born underweight and malnutrition results in the death of five million children, while the survivors are susceptible to various diseases (UNDP, 2010).

Hunger and the consequences of hunger causes the death of approximately 40 million people each year, around 13 million of them are children. Moreover, more than 40 percent of the world’s population suffers from micronutrient deficiencies, also called the “Hidden hunger”: roughly 2 billion people, especially women, are affected by iron deficiency and about 1.6 billion people live in regions where iodine deficiency is endemic. Approximately 230 million children worldwide suffer from vitamin A deficiency (FAO, 2002).

Due to the worldwide media coverage of conflicts, crises and catastrophes most people believe these are the main causes of hunger and malnutrition. In fact, 90 percent of the world’s hungry people suffer from chronic food and nutrition insecurity as a result of structural deficits within their own countries and not because of an acute food shortage due to manmade or natural calamities. In particular the poor suffer from chronic food and nutrition insecurity which prevents them from realizing their physical and intellectual potential. This, in turn, hampers the economic development of whole regions (Klennert, 2005).

In order to maintain global food security the global food production has to be doubled in the coming 25-30 years (Schultz et al., 2009).



Guaranteeing food security is of critical importance for the Central Asia region due to its landlocked nature, big numbers and low incomes of rural population, and transition from planned centralized economy to the market economy.

Food security is of paramount importance to Central Asian countries, whose populations are so severely impacted by fluctuations in food prices. The primary concern surrounding food security in the region is the relatively high level of poverty faced by Tajikistan and Kyrgyzstan, and to a lesser extent Uzbekistan (Sedik et al., 2011).

During the transition from planned to market economies, the Central Asian Republics (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) experienced rising poverty, food insecurity and malnutrition as well as serious degradation of natural resources, in particular of water and land. The transition to a market oriented economy has not been adequately supported by institutional development which resulted in a decline in the living standards of the population and which has further caused in high levels of food insecurity and malnutrition (Babu and Tashmatov, 2000).

Land use strategies in Uzbekistan determine the level of own food security. While the area of rangelands is vast, the livestock farming and production of grains, fruits and vegetables play a major role in food security and also are the basic source of rural population income. During the years of independence (i.e. beginning from the year 1991) Uzbekistan has undertaken a number of measures and has reached food security which is guided on self-sufficiency with a foodstuff. It is basically grain, but does not consider the availability as well as balancing food for the population (Yakhshilikov, 2006).

### **1.2 Problem statement**

Since declaring independence in September 1991, Uzbekistan has adopted a rigid approach to food security that prioritizes self-sufficiency but lacks an emphasis on balanced nutrition and affordable food. According to Yakhshilikov (2006) although Uzbekistan produces adequate calories to supply its population by food, almost 30 percent of its people live below the food poverty line, and large nutritional disparities exist among income groups.

From 2000 to 2007, agricultural production rose steadily by at least 6 percent per year, significantly outpacing the population growth rate. Owing to a successful wheat self-sufficiency policy, the wheat harvest expanded almost nine-fold between 1991 and 2006. At the same time, import restrictions and a policy to produce import substitutes reduced food imports by one-third (Yakhshilikov, 2006).

However, food security also encompasses affordable food and a diverse diet that includes essential nutrients. The poorest Uzbek population spends an average of 60 percent of their income on food and consumes a diet dominated by cereals. Wheat and



cotton together account for almost 80 percent of the country's cultivated land, reducing the area devoted to other crops and livestock fodder, and narrowing the selection of available nutrients. Yet average wheat yields remain quite low and in some provinces have achieved the pre-Green Revolution levels (UNDP, 2010).

### 1.3 Study objectives

The main objective of the present study is to empirically analyze the current food and nutrition status of farmers' households in two study regions of Uzbekistan: Markhamat region of Andijan province and Denau region of Surkhandarya province.

Following the main objective of the study, the specific objectives were developed. Specific objectives of the present study are as follows:

1. To analyze the income, food and nutrition situation of households according to producing cash and food crops on farmland, and/or on homestead plot (including/excluding the livestock keeping);
2. To analyze the relationship between the number of food crops produced on homestead plots and household's food security.

### 1.4 Methodological approach

The principal instrument of the present study was a primary data collection through the field study. Field study was conducted by the investigator and his helpers using different questionnaires described in detail in Chapter 4.

First of all, the structured household questionnaire was used in order to obtain the socio-demographic data, socio-economic data, and dwelling unit data.

Additionally, modified Household Food Security Survey Module (HFSSM), Food list recall, and Food Consumption Score questionnaire (FCS) were applied to clarify the food security and food consumption status of investigated households.

The analytical tools were developed based on the investigations of factors influencing food security and food consumption status. Here the data on household composition, education of household head, level of income, and crop production on farmland and homestead plots was used.

Further, the descriptive statistics were used in order to classify the study households into the groups, taking into account their food security and food consumption status. This tool permitted to define the threshold between food secure and food insecure household, as well as the households with a high food consumption and low food consumption status.



U-test and t-test help to understand the dependency of different variables as the linkage between the level of education and level of income, crops production and level of income, level of education and food consumption.

Finally, the logistic regression was used in order to better understand the factors which influence food security and food consumption status of the households.

### **1.5 Organization of the study**

The study is organized in ten chapters. The first chapter provides the introduction and general overview of the food and nutrition situation in the world and in Central Asian countries. This chapter also consists of the introduction to food security situation in Uzbekistan. The problem statement, general and specific study objectives, the methodological approach are also explained in this chapter.

The second chapter shortly describes the main theoretical approaches of food security. The overview of evolution, definitions, dimensions and characteristics of food security are given in this chapter. The main causes, consequences and coping strategies in the context of developing countries are also highlighting by this chapter.

The third chapter provides the literature review on factors influencing food and nutrition security in developing countries and in Uzbekistan. Based on the literature review, study hypotheses were developed. These hypotheses are also described and justified in this chapter.

The fourth chapter introduces the specific conditions of Uzbek land use, agricultural production and food security status. The main stages of agricultural and food policy reforms are presented in this chapter. The main characteristics of study regions are also described here.

Chapter five exposes the study and sampling design, the methods of data collection and data processing.

Chapter six provides descriptive findings of the study. Here only univariate indicators are described.

Chapter seven highlights the results of bivariate analysis which indicate the factors influencing food and nutrition security of investigated households.

Chapter eight describes the logistic regression modeling of food security and food consumption status of investigated households.

Chapter nine is focused on discussion and comparison of obtained results with the data from local and international scientific literature. The limitations of the study are also presented in this chapter



The thesis is finalized by the chapter ten with conclusions and recommendations of the author.





## **2. THEORETICAL APPROACHES FOR FOOD AND NUTRITION SECURITY**

This chapter describes the theoretical background and gives an overview concerning food and nutrition security. The chapter presents scientific definitions, aspects and main characteristics of food and nutrition insecurity as well as the basic measures and indicators of it. This chapter also covers the causes and consequences of food and nutrition insecurity. The final part of the chapter discusses the coping strategies for food and nutrition insecurity as a whole and in particular in developing countries.

### **2.1 Evolution, concepts and definitions of food and nutrition security**

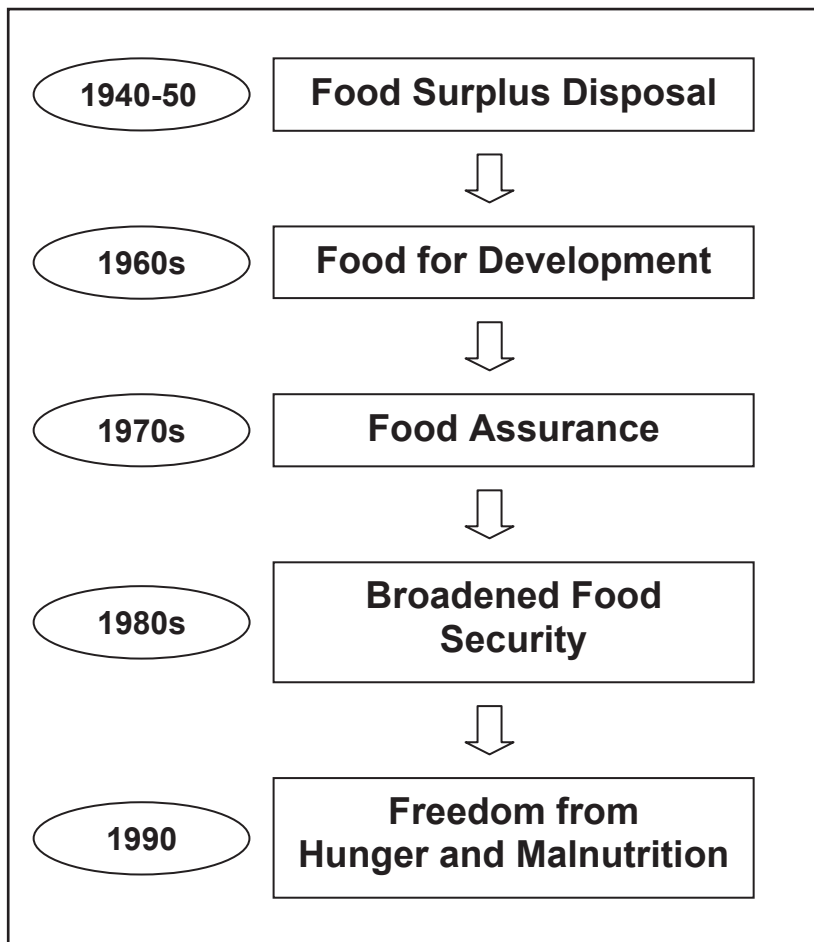
Global food and nutrition security concern has a history of more than sixty years (see Fig. 2.1), and has evolved through a sequence of definitions and paradigms. The concept of a “secure, adequate and suitable supply of food for everyone” was accepted internationally on the historic “Hot Spring Conference of Food and Agriculture” in 1943. After that conference the bilateral agencies from donor countries such as the USA and Canada were created in the 1950s and started to dispose of their agricultural surplus commodities overseas (Gross et al., 2000).

In the 1960s when it was acknowledged that food aid may hinder for developing self-sufficiency, the concept of food for development was introduced and institutionalized. The best example to demonstrate this could be the creation of the World Food Program (WFP) in 1963.

According to Weingartner (2005), the food crisis of the years 1972/1974 marked a dramatic turning point from the past era of food abundance of donor countries to highly unstable food supplies and prices on the world market. As a result in the 1970s food security insurance schemes were developed. These schemes assured international access to physical food supplies.

In the 1980s following the Green Revolution achievements which helped to increase food production and availability, it was recognized that food emergencies and even famines were not caused as much by catastrophic shortfalls in food production as by sharp declines in the purchasing power of specific social groups. Therefore, food security was broadened to include both physical and economic access to food supply. Thus, poverty alleviation and the role of women in development were promoted in this decade (Gross et al, 2000).





**Figure 2.1: The evolution of food and nutrition concerns**

Source: Gross et al. (2000), Weingartner (2005)

In order to eradicate or at least to reduce hunger and malnutrition drastically, concrete plans were defined in the 1990s. Moreover, the human right to adequate food and nutrition was internationally reaffirmed and committed national governments to a more proactive role. Finally, reduced international public support of donor agencies reduced food aid to crisis management and prevention (UNDP, 2010).

In the 2000s, decreasing hunger and malnutrition has increasingly come to be seen in the context of overall development, poverty reduction and achievement of the Millennium Development Goals (UNSCN, 2004). Exclusively, in cases if adequate food and nutrition are ensured for all members of a society, these internationally accepted development targets can be achieved (Gross et al., 2000; Weingartner, 2005).

The concept of food security was initially proposed in 1974 at the World Food Summit as *“the availability, at any time, of sufficient global reserves of basic food items to maintain sustainable growth of food consumption and compensate for fluctuations in production and prices”* (FAO, 2006. p.1). In subsequent years the definition of food security was widened to encompass the safety and dietary value of food items, as well as indi-



vidual preferences. The current literature on food security provides over 200 definitions and 450 indicators.

According to a currently accepted definition (FAO, 2008. p. 2), “*Food Security*” is achieved when “*all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life*”. Food is defined as any substance that people eat and drink to maintain life and growth. As a result, safe and clean water is an essential part of food commodities. This definition already includes aspects of nutrition but yet insufficiently (FAO, 2008). Despite of it, this FAO definition of food security had been taken as the own definition for food security in the context of the present study.

The necessity to include nutrition into food security evolved over time. The nutrition focus adds the aspects of caring practices and health services and healthy environments to this definition and concept. This aims at what is more precisely called “*Nutrition Security*”, which can be defined as adequate nutritional status in terms of protein, energy, vitamins, and minerals for all household members at all times (Quisumbing, 1995) and thus, in principle is more than food security.

All terms described above shows that the definition of food and nutrition security is the following: “*Food security is achieved, if adequate food (quantity, quality, safety, socio-cultural acceptability) is available and accessible for and satisfactorily utilized by all individuals at all times to live a healthy and happy life*” (Gross et al., 2000. p. 4). Consequently, food has to meet physiological requirements in terms of quantity, quality, and safety. Moreover, food must be socially and culturally acceptable.

## 2.2 Dimensions and characteristics of food and nutrition security

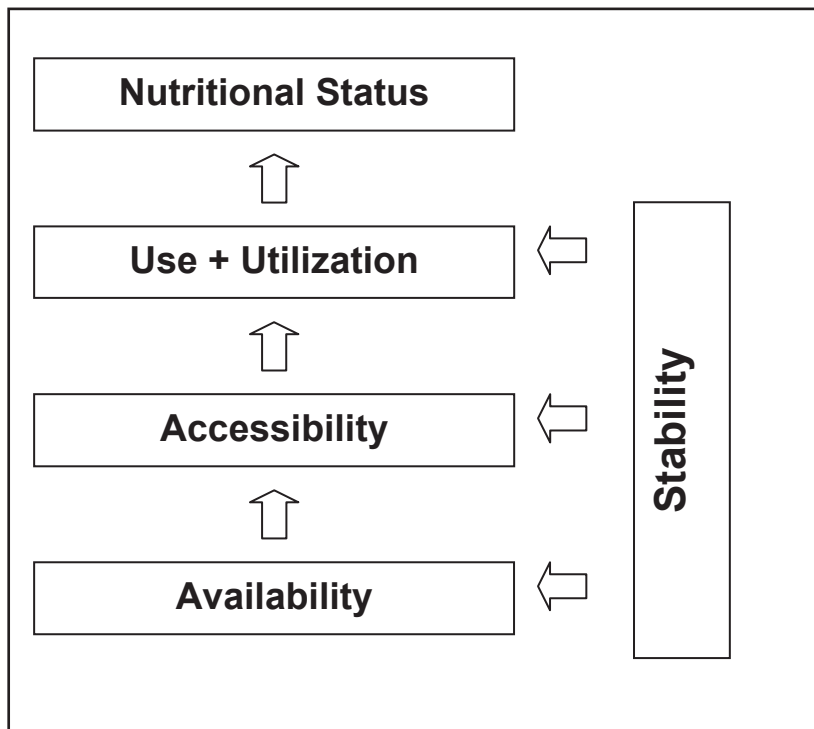
According to Gross et al. (2000), food and nutrition security depends on three dimensions:

- categorical,
- socio-organizational, and
- managerial.

Each of these dimensions (or characteristics) will be detailed discussed below.

### 2.2.1 Categorical and temporal dimensions of food and nutrition security

There are two determinants influence the framework of food and nutrition security: a physical and a temporal determinant. Figure 2.2 illustrates the relationship among the categorical elements within the conceptual framework of food security.



**Figure 2.2: The conceptual framework of food and nutrition security**

Source: Gross et al. (2000), Weingartner (2005)

The temporal determinant of food and nutrition security refers to stability, which affects all three physical elements, i.e. availability, accessibility, and utilization.

In this context *availability* refers to the physical existence of food from own production and/or from the markets. On the national level food availability is a combination of domestic food production, food imports, food aid, and domestic food stocks. Use of the term availability is often confusing since it can refer to food supplies available at both the household level and at a regional or national level. However, the term is applied most commonly in reference to food supplies at the regional or national level (Riley and Mook, 1995).

*Access* is ensured when all households and all individuals within those households have sufficient resources to obtain appropriate foods for a nutritious diet (Riley and Mook, 1995). It is dependent on the level of household resources which are: capital, labor, and knowledge; and on food prices. Hence, adequate access can be achieved without households being self-sufficient in food production. More important is the ability of households to generate sufficient income which together with own production can be used to meet food needs (Weingartner, 2005).

Following the definition of food security and accordingly with Dukhovny et al. (2012) three types of access could be marked out:

- Physical access is determined by an ability of the country to produce and/or to import necessary quantities of required food on the basis of food balance reflecting needs and production;