

## Chapter 2: Food Security

### Introduction

Food security is a very important issue in today's world.

It does not only mean "having enough food," but also having access to healthy, nutritious, and consistently available food.

With population growth, climate change, and economic crises, many countries are striving to ensure sufficient and stable food for everyone.

In this chapter, we will understand:

- what food security means,
- what its main components are,
- and how it can be protected through different policies.

### I. What Is Food Security ?

#### 1. Definition (FAO)

According to the FAO,

"Food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life."

In other words, food must be available, accessible, of good quality, and sustainable over time.

These ideas form the **four pillars of food security**.

#### 2. The Four Pillars

##### a. Availability

This refers to the amount of food present in a country.

It depends on agricultural production, imports, and sometimes food aid.

**Example:** If wheat production is low due to drought, bread becomes rarer and more expensive.

##### b. Access

Even if food exists, not everyone can always afford to buy it.

Access depends on income, food prices, and economic stability.

**Example:** If the prices of milk or oil increase, some families reduce their consumption.

##### c. Utilization

It is not enough to eat — food must also be used properly.

This means that it must be healthy, nutritious, and well-prepared.

**Example:** A diet made only of bread and pasta provides calories but not enough vitamins or proteins.

##### d. Stability

Food security must be constant over time.

It should not disappear during a crisis, war, or drought.

**Example:** If a country depends too much on imports, a war may block deliveries and cause shortages.

## II. Factors Influencing Food Security

### 1. Natural Factors

Climate, water availability, and soil quality influence agricultural production. Droughts, floods, or land degradation can reduce the amount of food produced.

**Example:** A prolonged drought reduces cereal harvests and therefore food availability.

### 2. Economic and Social Factors

A country's economy directly affects food security:

- family income,
- poverty levels,
- food prices,
- inequalities between regions.

**Example:** Even if food is available in supermarkets, poor people may not be able to afford it.

### 3. Political and Technological Factors

Agricultural policies and modern technologies can strengthen or weaken food security. Governments can support farmers, encourage local production, or import essential products. New technologies (seeds, irrigation, preservation) can increase productivity and reduce losses.

## III. Global and Local Challenges

### 1. Worldwide

Despite scientific progress, millions of people still suffer from hunger. The causes are multiple: poverty, conflicts, climate change, and economic crises. Food security is therefore a global challenge that all countries must face together.

### 2. In Developing Countries

In many southern countries, agricultural production is insufficient and often depends on rainfall. These countries import a large part of their food, which makes them vulnerable to global crises.

👉 **Example:** An increase in the international price of wheat can affect several African countries.

### 3. In Algeria

Algeria has implemented several programs to strengthen agricultural production (wheat, milk, oil).

However, the country still depends on imports for several food products.

The main challenge is to ensure sufficient and sustainable local production while maintaining affordable prices for the population.

## IV. Strategies and Policies for Food Security

Achieving food security requires integrated actions at national and international levels, focusing on technology, sustainability, and cooperation.

### 1. National Strategies

Countries strengthen food security through agricultural investment, farmer support, and rural development.

- ◆ **Agricultural investment:** Modern machinery, improved seeds, and training increase productivity and reduce import dependence.
  - ◆ **Farmer support:** Financial and technical assistance help small farmers improve yield and quality.
  - ◆ **Rural infrastructure:** Better roads, cold storage, and markets ensure efficient food distribution.
  - ◆ **Agro-industries:** Processing local crops adds value and minimizes food waste.
- 👉 *Example:* Modern irrigation in Algeria raises wheat yields and limits drought losses.

### 2. International Strategies

Global cooperation enhances resilience and equality in food systems.

- ◆ **FAO:** Develops agricultural policies and promotes sustainable practices.
  - ◆ **WFP:** Provides food aid and nutrition programs for vulnerable populations.
  - ◆ **IFAD:** Funds rural projects and strengthens small farmers' capacity.
- 👉 *Goal:* Knowledge exchange and technology transfer to build sustainable and fair global food systems.

### 3. The Algerian Approach

Algeria focuses on reducing import dependence, adopting technology, and supporting rural economies.

- ◆ **Local production:** Promoting cereals, milk, and vegetables to limit exposure to global market fluctuations.
- ◆ **Technology:** Encouraging precision farming and drought-resistant seeds to boost productivity.
- ◆ **Rural economy:** Supporting small industries and improving local supply chains.
- ◆ **Core principles:** Sustainability, equity, and resilience.

## V. Perspectives and Future Challenges of Food Security

Ensuring future food security requires adapting to demographic, environmental, and economic transformations.

### 1. Population Growth and Urbanization

By 2050, nearly 10 billion people will require a 60% increase in food production. Urban expansion reduces farmland, complicating sustainable production.

👉 *Example:* City growth in Algeria decreases wheat-growing areas.

## 2. Climate Change and Environmental Degradation

Changing climates affect rainfall, soil quality, and yields.

Droughts and floods threaten agricultural stability, making climate-smart agriculture essential.

👉 *Example:* Drought-resistant crops help maintain yields in dry seasons.

## 3. Economic Inequalities and Food Access

Even when food is sufficient, many cannot afford it.

Policies must address fair distribution and purchasing power, not only production.

👉 *Example:* Food subsidies in Algeria improve access for low-income families.

## 4. Innovation and Sustainable Solutions

Technology drives the future of food security:

- ◆ Precision agriculture optimizes inputs.
- ◆ Artificial intelligence predicts shortages.
- ◆ Biotechnology develops resilient, nutritious crops.

## 5. Towards Sustainable and Equitable Food Systems

A secure food future depends on systems that are both productive and fair.

Protecting the environment, empowering farmers, and ensuring social justice are key.

Only a collective and responsible approach can guarantee food for all—today and tomorrow