

Chapter 11

The Role of Bahrain Local Food Production System in Ensuring Sustainable Food Security

Salma Saeed Ahmed Bani

Abstract Bahrain, severely constrained by limited agricultural resources such as limited water resources, poor and declining quality of the soil, and unfavourable climate as a result of which the country has low food sufficiency rates for the main food commodities, with the exception of some fruits and vegetables. As result of which agriculture sector contributes less than 1 % to Bahrain's real GDP, which means Bahrain remains heavily dependent on imports to meet its domestic demand for most agricultural products. In view of this therefore, with the world facing perfect storm of food scarcity, Bahrain needs to focus on lowering its food imports and increasing agricultural production in order to boost the contribution of agricultural sector to its Gross Domestic Product. The aim of this paper is to review the role of local production system in ensuring food security, focusing on the incentive framework aimed at diversifying the economies and increasing the level of food security. From the discussion it is therefore clear that Bahrain's Agricultural Policy is towards the right direction of creating impact on the role of local food production system embracing diversified production base focusing on strategic option for a sustained growth of productivity and diversification of economies in general. In specific it significantly emphasizes on non-traditional methods of production which in turn spells out a sound strategic option for ensuring sustainable food security in Bahrain.

Keywords Bahrain food production system • Food security • Policy approach to food security

S.S.A. Bani, Phd Scholar (✉)
Senior Executive Strategic Planning, Planning Department,
Ministry of Municipality and Urban Planning, Manama, Bahrain
e-mail: Salmabani@yahoo.com

11.1 Introduction

The Kingdom of Bahrain is an islands nation in the Arabian Gulf and consists of an archipelago of 36 low-lying islands. Due to arid climatic conditions the country is characterized by high temperatures, erratic and often scanty rainfall, high evapo transpiration rates and high humidity levels due to the surrounding Gulf waters. Temperature averages from 17 °C in winter (December–March) to 35 °C in summer (June–September). The rainy season runs from November to April, with an annual average of 83 mm, sufficient only to support the most drought resistant desert vegetation. The total arable land in Bahrain is estimated to be 64,000 dunam (Agricultural Statistics Year book 2009), in other words it is about 10 % of the total area which amounts to 622 km² square. Two thirds of this arable land is cultivated.

Agriculture in the Kingdom of Bahrain witnessed in recent years many obstacles that affected its role in the development process and achieving food security in the country. The value of agricultural output is 16.2 million dinars at a contribution rate of 23 % of the GDP. The value of food imports amounted to more than BD202 million Bahraini dinars, and the deficit of the balance of commodity trade in the Kingdom of Bahrain up to the borders of almost BD173 million dinars. Therefore, with the world facing perfect storm of food scarcity, Bahrain needs to focus on lowering its food imports and increasing agricultural production in order to boost the contribution of agricultural sector to its Gross Domestic Product.

The government applies an economic incentive strategy to enhance crop productivity. The productivity and sustainability of the Bahrain food system, especially under more severe climate change scenarios is a major concern for the government. Also, to ensure food security since the 1970s of last century, government of Bahrain becomes responsible for providing basic food commodities to the nation. However, since 2001 the government opened the doors for local merchants to import, store, distribute and sell these commodities in the local market. Besides, for food security purpose Bahrain government has established safeguard mechanisms for three strategic food commodities, including flour, imported Australian meat and locally produced chicken through rates of constraint put by the government.

Consequent to brief profile of Bahrain economy, the paper reviews and highlights the role of local production system in ensuring food security. A strategic option for sustained agricultural growth and increased food production will be laid out. Food security conceptual framework will be used to evaluate how government food policy interacts with the local food systems to produce food security. It will analyze the impact of these policies on sustainable agricultural development and will highlight the main achievements in terms of enhancing the level of food security.

11.2 Food Production System in Bahrain

Bahrain was one of the richest countries in the Arabian Gulf prior to the discovery of oil resources in 1932. Its' pearl was the famous and best in the region, an important agriculture and trading centre. But due to urbanization and expansion of new towns and communities, as well as industrial sector land consumption, the pressure on agricultural land in Bahrain becomes enormous. The biggest challenges Bahrain agriculture is facing are limited agricultural lands and shortage of water resources. The total arable land in Bahrain is estimated to be 64,000 dunam (Agricultural Statistics Year book 2009), in other words it is about 10 % of the total area which amounts to 622 km² square. Two thirds of this arable land is cultivated. The agriculture products produced locally covers only 12 % of total consumption needs. The major crops grown are dates and fruit trees with a yield of 7.5 tons/ha, vegetables, mainly tomatoes, with a yield of 11.7 tons/ha, and fodder crops, mainly alfalfa, with a relatively high yield of 74.5 tons/ha. The government assists agricultural producers mainly by offering subsidies for a number of inputs, such as pesticides, veterinary drugs, machinery services, and irrigation material.

11.2.1 *Concept of Sustainable Food Security*

At the very centre of concern about overall economic development there must be a concern for food, agriculture, and people. The concept of sustainable food security combines above three elements in to a major objective that is fundamental to economic development. Achieving sustainable food security will require more than improving farm productivity and profitability while minimizing environmental impacts. The concept is broader than sustainable agriculture; it aggregates the goals of household food security and that of sustainable agriculture.

Various definitions of food systems and food security have been developed over time, which reflect particular worldviews expressed by both economists and food security analysts. Analysts have shifted from a focus on agricultural production towards including the question of access to and affordability of food into the notion of food security. Today both food utilization and stability of food systems are also, recognized as determinants governing the food security status of a household or a nation (Maxwell 2001; Ericksen 2008). Food security is not just a poverty issue; it is a much larger issue that involves the whole food system. Food security is the outcome of food system processes.

Food systems encompass all activities from production through to consumption, along with other key determinants of food security. The outcomes of these activate contribution to food security (food availability; food access; and food use). The food system operates within and is influenced by social, political, economic and natural environments. A country is said to be food secure when its food system operates in such a way as to remove the fear that there will not be enough to eat.

In particular, food security will be achieved when household have access to the food they want.

Food security arises when all people at all times have access to enough food that is affordable, safe and healthy, culturally acceptable, meets specific dietary needs, produced in ways that are environmentally sound and socially justified. Thus food security should be treated as a multi-objective phenomenon. Considering complexity of the food system, it is easy to see that many factors determine food security.

Food security historically referred to food supply and shortfalls in supply compared to requirements. However, the term has been broadened beyond notions of food supply to include elements of access (determined by food entitlements, Sen 1981), vulnerability (Watts and Bohle 1993), and sustainability (Chambers 1989).

Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (World Food Summit 1996). This widely accepted definition points to the following dimensions of food security: Food availability; Food accessibility; Utilization; and Stability or Sustainability.

Deriving from this definition, achieving food security requires that the aggregate availability of physical supplies of food is sufficient, that households have adequate access to real food supplies through their own production, through the market or through other sources, and that the utilization of such food supplies is appropriate to meet the specific dietary needs of individuals. Therefore, food security needs to be ensured at national, household and individual level.

11.2.2 Government's Policy Approach to Food Security

Despite aiming for food security since a long time, Bahrain is able to produce only a quarter of the total food demand due to unfavourable climatic conditions and limited availability of arable land. As result of which the high dependence on imports for the country is going to continue and this makes the issue of food security critical for the country. The governments realized the need to undertake the necessary steps to secure food imports for the growing population.

Bahrain's environment is hostile to agriculture, characterised by extreme heat, water scarcity and high soil salinity as result of which domestic production is insufficient to meet the current food requirements for consumption. Bahrain, like the other Gulf States, imports up to 90 % of its food requirements for consumption. as result of which food imports in the kingdom of Bahrain stood at USD 1.7 billion in 2010. High dependence on imports makes the country food supply very vulnerable and highly dependent on the world food market. Disruption in food imports, either due to policy restrictions by exporting countries or natural calamities has affected the region significantly. As a result, foodsecurity is an important issue for the country and government of Bahrain has taken initiatives to enhance domestic production and at the same time to secure food imports through international agricultural investments.

Food security is a concern to the governments in the region as a whole. Bahrain governments along with other Gulf Cooperation Council (GCC) countries are currently pursuing a strategy in order to secure their food supply. First, investing in agriculture in countries where there is surplus land and has favourable climate. Secondly, encouraging the domestic food processing industry so that imports of processed food decrease. The aim is to source domestic and foreign raw materials from outside and then processes them within the region. Thirdly, building strategic food reserves along the lines of energy reserves in the US and food stockpiles in India.

The government of Bahrain offers subsidies on three basic commodities: red meat, poultry and flour. According to the Bahrain Chamber of Commerce and Industry (BCCI), the country provided subsidies totalling BD 4.2 million in 2010; the figure is estimated at BD 6.5 million in 2011. Ministry of Industry and Commerce encourages the foodstuff processing industry to preserve agricultural and animal products through processing. According to the ministry of industry and commerce, more than 112 factories manufacture various food products in Bahrain. Also, in order to ensure food security the country is undertaking various initiatives, such as a scheme that encourage the private sector to produce leafy vegetables in greenhouses. It is also supporting the private sector to produce fish, poultry, sugar and dates. Both the government and private sector firms are investing in the overseas markets to acquire farmland for the production of fruit, vegetables, rice and corn in an attempt to meet the rising demand. Bahrain has purchased farmland in India, Pakistan, Philippines, Thailand, and Turkey and Sudan.

11.2.3 Interactions with the Local Food System to Ensure Sustainable Food Security

People are food secure when they have regular access either through production or purchasing power to sufficient food for healthy and productive life. Framework in Fig. 11.1 shows that the major activities and actors involved in various food systems. The four major components of food security are availability, accessibility, utilization and stability. These four elements are influenced by food system activities.

Food availability refers to the physical existence of food, be it from own production or in the markets. On national level, food availability is the function of the combination of domestic food stocks, commercial food imports, and domestic food production, as well as the underlying determinants of each of these factors. The three elements of production, distribution, and exchange contribute to food availability. The determinants of availability from local production include land holding sizes, resource tenancy arrangements, economic returns to labour, human capital; the determinants of distribution include transportation and infrastructure, public safety nets, storage facilities and the determinants of exchange include income levels and purchasing power, markets, and subsidies.

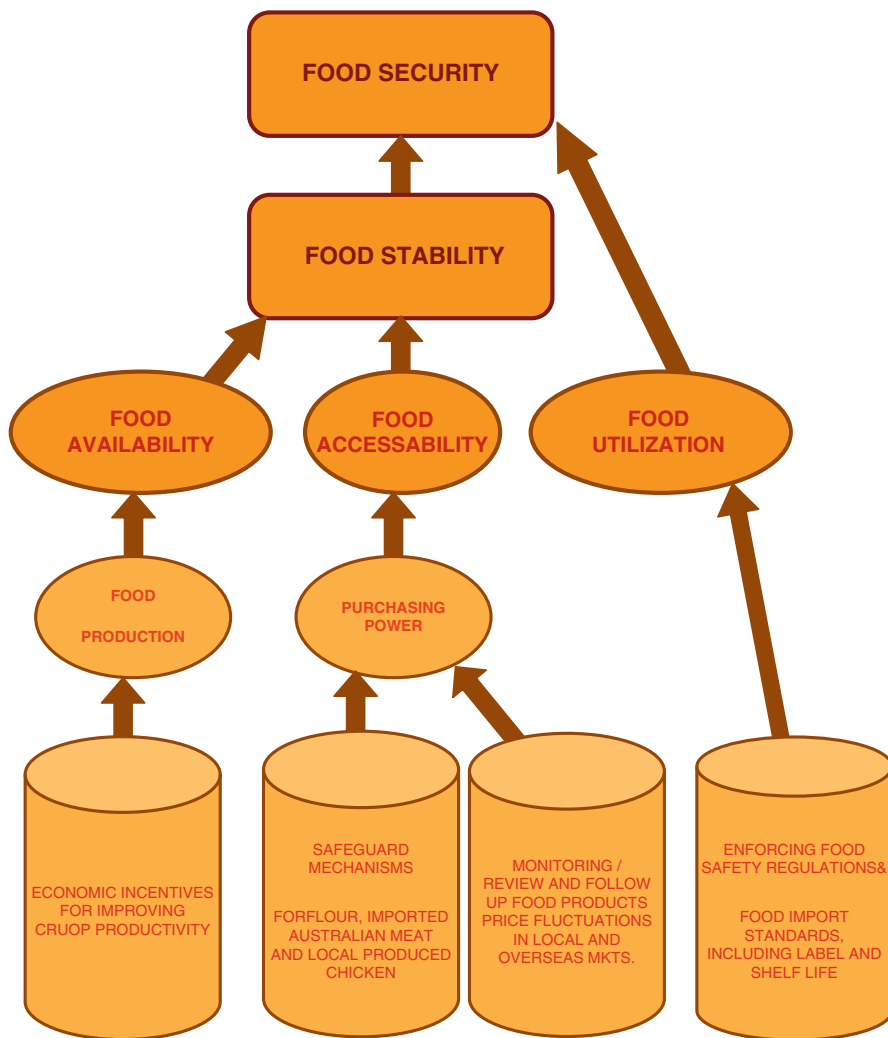


Fig. 11.1 Interactions with the local food systems to ensure sustainable food security

Food availability is achieved when sufficient quantity of food is consistently available to all individuals within a country. Such food can be supplied through household production, other domestic output, commercial imports or food assistance. Despite limited land and water resources and constraints of climatic conditions, the government of Bahrain has been encouraging agricultural development in both public and private sectors by providing various facilities, and strengthening research and extension activities. This comes within the government’s long-range aims of achieving a higher level of self-sufficiency in various agricultural products and in particular high-quality fresh vegetable crops.

The policy of Bahrain government to diversify its economy and to increase the level of food self-sufficiency focused on economic incentives for improving crop productivity. Government provides subsidies in several forms. The agricultural production is supported through provision of subsidies such as 84 % of the cost of machinery services; 40 % of the price of modern irrigation equipments; and 50 % of the price of pesticides; 40 % of the price of plastic sheet; 50 % of the price of veterinary drugs and animal vaccines; and 5 % of the price of local poultry meat. Low interest Loans are also, provided to farmers intending to launch programmes to protect date palms, and other farming activities.

To ensure food availability Bahrain government has taken a number of actions regarding food subsidy since late 1970s of the past century. In 1975, the government established a directorate to control the subsidy through the Amiri Decree No. (7)-1975 to establish the Department of Supply and Price Control within the Ministry of Commerce, Agriculture and Economy, which among other things is responsible for direct provision of food to the merchants and achieve the following:

- Monitor implementation of the provisions of the legislative Decree No.18 – 1975 regarding Price setting, Control, and its implementing decisions and to demonstrate a violation of crimes that happen to them.
- The Implementation of policy measures to prevent monopoly and to compel merchants to adhere to specific and non-price manipulation.
- Control of local markets in terms of prices or quantities and the pursuit and study of developments in world prices in order to propose foundations for determining a fair price and to combat the root of the adjournment unjustified in the country.
- To regulate payment of subsidy by differences in prices the government decided to pay a subvention to the differences in prices, determined by a resolution issued by the Ministry of Commerce, Agriculture and Economy, as well as overseeing the way of sales to achieve justice in the distribution of reduced prices to consumers.

Since 2002, Bahrain government has established safeguard mechanisms for three strategic food commodities, which are: flour, imported Australian meat and local produced chicken through rates of constraint put by government. The other imported food commodities ministry of commerce is responsible for, is to monitor the markets; review and follow up food products price fluctuations in local and overseas markets; supervise commodities price specifications, which are under mandatory pricing; maintain information regarding national stocks of essential goods and commodities to form the basic data for rationing in times of national emergency.

Food access is ensured when all households and all individuals within such households have sufficient resources to obtain appropriate foods for nutritious diet (Riely et al. 1995). Food access depends upon income available to the household, distribution of income within the household and on the price of food. Three elements describing the accessibility of food are affordability, allocation, and preference.

Affordability is the purchasing power of households relative to the price of food. The determinants of affordability include pricing policies and mechanisms, seasonal and geographical variations in price, local prices relative to external prices, income, and wealth levels.

Allocation is the mechanisms governing when, where, and how consumers can access food. Markets are key determinants of food allocation; government policies often are designed to correct market failures. Ministry of commerce is responsible for monitoring the markets; review and follow up food products price fluctuations in local and overseas markets; supervise commodities price specifications, which are under mandatory pricing; maintain information regarding national stocks of essential goods and commodities to form the basic data for rationing in times of national emergency.

During 1970s of last century, the Government was responsible for providing the basic food commodities to the nation, but since 2001, the government opened doors for the local merchants to import, store, distribute and sell these commodities in the local market. Nevertheless, the ministry of Industry and commerce has established the Consumer Protection Directorate to:

- Review and translate statistical publications regarding food products which are issued by international organizations.
- Review and follow up food products price fluctuations in local and overseas markets.
- Supervise commodities price specifications which are under mandatory pricing.
- Maintain information regarding national stocks of essential goods and commodities to form the basic data for rationing in times of national emergency.
- Scrutinize and maintain companies' budgets of companies receiving government subsidy.

The government ensures right of access to food for its people and it has established different social and welfare programs by implementing its social policy targeted towards affecting life of the society individuals of all categories where in the first place it adopts the development of human being, upgrading him, realizing his capabilities, ensuring equal opportunities, and fairness in the distribution of society gains among all of its elements. The ministry of industry and commerce is active in protecting the market from unfair trade practices, which includes eradication of monopoly and restrictive trade practices such as cartels and resale price maintenance, as well as ensuring that sufficient quantity of strategic supplies is available for local consumption.

The Policy on the right to adequate food for Bahrainis, government intervenes in the market by assuring low prices of basic food commodities; stability in retail prices and availability in all seasons during the year. There is solid coordination among all related ministries like Ministry of Industry and Commerce, Ministry of Social Development, Ministry of Municipalities Affairs and Agriculture, Ministry of Health and the National Commission for price control.

Food utilization is the proper biological use of food, requiring a diet providing sufficient energy and essential nutrients, potable water, and adequate sanitation.

The three elements of food utilization are nutritional value, social value, and food safety. Food safety encompasses the dangers introduced from addition of chemicals during production, processing and packaging, and food-borne diseases. The main determinants of this are procedures, standards, and regulations for food production, processing, and packaging.

Regarding the Policy of Food Standards in Bahrain, since January 1995 Bahrain has been WTO member on food trade, including the Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT) agreements. The Public Health Directorate (PHD), Ministry of Health (MOH), in conjunction with the Directorate of Standards and Metrology, Ministry of Commerce (MOC) are all responsible for formulating food regulations.

The Public Health Directorate, Food and Water Control Section (FWC), MOH, is responsible for enforcing food safety regulations. For example, the FWC is responsible for visually inspecting all imported fresh and processed food products, verifying compliance with label regulations and, if deemed necessary, drawing samples for laboratory testing by the MOH. However, not all shipments are subject to laboratory analysis. In general, new-to-market products and products that failed previous inspections are targeted for thorough examination at the time of import. The Food Safety Committee (FSC), an inter agency committee composed of representatives from MOH, Directorate of Standards and Metrology, MOC, and Directorate of Agriculture, Ministry of Municipal Affairs and Agriculture (MMAA), decide all food safety and control issues, including ban imposition. The Directorate of Agriculture, MMAA, inspects live animals and plants, feedstuffs and horticultural products at port of entry.

11.3 An Incentive Framework Aimed at Diversifying the Economy and Increasing the Level of Food Security

Despite limited land and water resources and constraints of climatic conditions, the government of Bahrain has been encouraging agricultural development in both public and private sectors by providing various facilities, and strengthening research and extension activities. Development efforts in agriculture have included the promotion of intensified farming and further development of existing agricultural resources according to National strategy for sustainable agricultural development (2010). Bahrain is implementing a 2004–2015 plan for sustainable agriculture development to improve production and raise productivity. This development plans for improved agricultural production aim to enhance the productivity and competitiveness of Bahrain's agricultural products in domestic and regional markets. Framework in Fig. 11.2 shows that Bahrain's Agricultural Policy is towards the right direction of creating impact on the role of local production system embracing diversified production base focusing on strategic

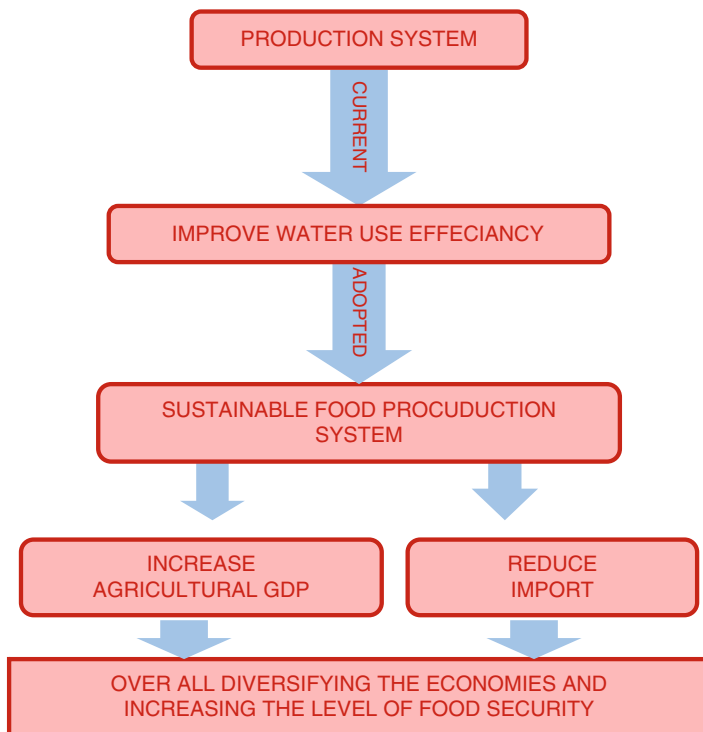


Fig. 11.2 An incentive framework aimed at diversifying the economy and increasing the level of food security

option for a sustained growth of productivity and diversification of economies in general. In specific it significantly emphasizes on non-traditional methods of production which in turn spells out a sound strategic option for ensuring sustainable food security in Bahrain.

11.4 Conclusion

The biggest challenges Bahrain agriculture is facing are limited agricultural lands and shortage of water resources. As result of which, domestic production is insufficient to meet the current requirements and food imports in the kingdom. Thus Bahrain, in order to overcome the deficit between food production and imports need to achieve relative food security relying on local production of certain strategic items and to encourage agricultural investment and optimise the role of the private sector in developing the sector.

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