THE ROLE OF THE ENVIRONMENT IN TRIGGERING THE SYRIAN CRISIS

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The Syrian Arab Republic, located in Southwest Asia, is bordered by Irak, Jordan, Israel, Lebanon and Turkey; displaying to the west it has a 180 km long coastline on the Mediterranean Sea. From 1963 to 1970 Syria was governed by the socialist Baath Party, and since 1970 it has been ruled by the Al Assad family (Hafez al-Assad and Bashar al-Assad, the latter since the year 2000), who had the same political orientation. The delay in political and democratic reforms, in a country placed since 1963 under a state of emergency, the government inefficiency in dealing with the socio-economic problems, as well as the events that occurred in Tunisia, Egypt or Lybia, have led to the outbreak of violent protests, first in the city of Deraa, in March 2011, then in Baniyas, Latakia, Horms, Hama, Aleppo or Damascus, which resulted in more than 9000 casualties. Moreover, in Syria the natural environment is a restrictive factor for the social-economic development as more than half of the country is semi-arid or arid, enjoying less than 200 mm of precipitation per year. As far as the soil cover is concerned, in the areas where precipitation is less than 250 mm per year aridisols are common. Syria has a population of about 22 million people, while the annual growth rate is 2%. In the last decades the population has increased more than four times in comparison to the figure registered in 1960, when it numbered only 4.5 million inhabitants. This proves the state's inefficiency in adopting family planning measures, aimed at regulating the growth in accordance with the natural resources. The present political crisis, generated by people's complaints, has been triggered by the serious drawbacks of the democracy, the inefficient management of the population growth and the slow socio-economic development, which can be explained by the restrictive geographical environment, so vulnerable to degradation and possessing limited resources.

Keywords: *Syria, political crisis, restrictive geographical environment, anthropogenic pressure, economic situation.*

Introduction

The Syrian Arab Republic is a country in Southwest Asia, bordering Iraq, Jordan, Israel, Lebanon and Turkey, while to the west it has a 180 km long coastline on the Mediterranean Sea (fig. 1). Syria covers 185,000 km^2, including the 1,295 km^2 which are under Israeli occupation since 1967 (the Golan Heights). Owing to its good geographical location, which granted it significant commercial benefits, this region was inhabited in ancient times by Arameans, who established their capital at Damascus. The city was to develop into a prosperous and

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influential center, while Aramaic became a language of trade, which was used throughout the Middle East. Later the territory was ruled in turn by the Assyrians, Babylonians, Persians, Macedonians, Seleucids, Romans, Byzantines, Arabs, crusaders, Ottoman Turks and French. Twelve years after gaining its independence on April 17, 1946, Syria concluded a union with Egypt (United Arab Republic), which was not to last long (between 1958 and 1961). In 1967 the war with Israel broke out in the aftermath of which Syria lost the Golan Heights.

Between 1963 and 1970 the country was led by the Baath Party, of socialist inspiration, period during which it was taken over by the Al Assad family (Hafez al-Assad and Bashar al-Assad), who had the same political orientation. The delay of political and democratic reforms in a country that has been under an emergency state since 1963, the government's inefficiency in dealing with the socio-economic issues, and the political events that have occurred in Tunisia, Egypt and Lebanon, led to the outbreak of violent protests on March 2011. The riot started in the city of Deraa, and then it spread in Baniyas, Latakia, Homs, Hama, Aleppo and Damascus (*Fig. 1*), finally resulting in more than 9,000 casualties *(BBC News, 2012*).

Even though the crisis trigger has been the authoritarian regime, the conflict is rooted in the restrictive environment, which has been subjected more and more to an intense anthropogenic pressure, as a result of the significant population growth. In consequence, the living standards of the population have dropped; unemployment has grown, especially among the younger generation, and poverty has left its imprint upon the people.

Fig. 1. Syria – General map

The Physical Background

In Syria, the natural environment is a restrictive control for the socio-economic development. More than half of the country's area is either semiarid or arid (*Fig. 2*), as a great part of it receives less than 200 mm of rainfall per year, or in some places even less than 50 mm (Ali *et al*., 2007). In many regions, the summer temperatures often exceed 40^0C, while the sandstorms, so common during the interval February – May, cause severe damage to agriculture. Water resources are scarce. The Euphrates (Al Furat), originating in eastern Turkey, which is the longest and the most import watercourse, accounts for 80% of the Syria's water resources. The river crosses the country on 610 km, having an average discharge of 583 m^3/s (BCS, 2011). The other rivers, like Orontes (Nahr al-Asi), Barada, Sinn, Al-Awaj or Queiq, generally have average discharges less than 6 m^3/sec. In arid lands the valleys have a temporary flow.

In order to ensure the necessary water for agriculture and other uses (hydropower generation, flow regulation) a number of hydrotechnical engineering works have been accomplished. Of these, the most important is the Tabqa dam on the Euphrates, lying upstream the Ar Raqqah city, which came into operation in 1973. The dam gave birth to a large reservoir called Al Assad (Buhayrat al Assad), with an area of 665 km^2 and a water volume of 14 billion cubic meters. In the areas where surface flow is insufficient or inexistent, groundwaters have been used since ancient times to meet the water demands of the population. At present, of the 1.3 million irrigated hectares, 726.000 ha, i.e. 55.8% of the total, depend on the groundwaters. The most important springs are the following: Ain al-Zarqa (5110 l/s), Ain al-Fegy (4801 l/s), Baniyas (1027 l/s), Al Nasriyeh (700 l/s) and Barada (526 l/s) (BCS, 2011).

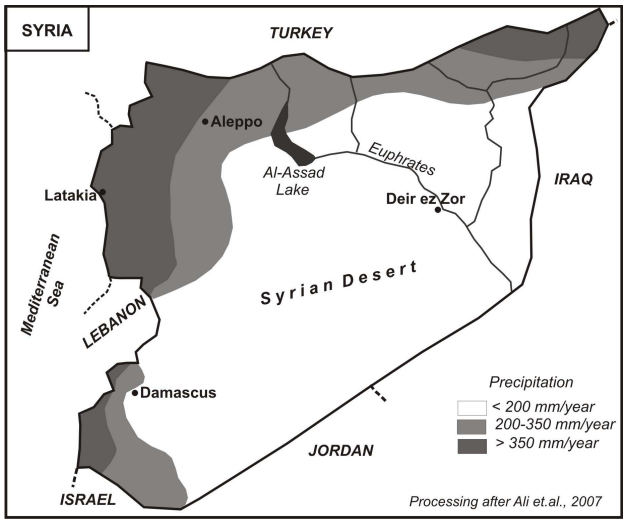

Fig. 2. Syria – precipitation distribution map

Most of the country displays a desert and a semi-desert vegetation, with sparse grass, shrubs and trees. The forests, which account for slightly more than 3% of the Syrian territory, are found in the wetter lands in the west. As far as the soil cover is concerned, where annual precipitation is less than 200 mm, aridisols prevail. They cover 47.5% of the area and are prone to erosion. The entisols (soils of recent origin) account for 16.9%, while the inceptisols (immature soils) hold 21.7%, being found especially in the north and northwest (IFAD, 2007). The increasing anthropogenic pressure, mainly through overgrazing and grain cultivation, have led to accelerated erosion. Thus, it is estimated that 17.3% of the Syrian territory is affected by soil degradation (FAO, 2003).

Population Dynamics and Structure

At present Syria has about 22 million inhabitants and a population growth rate of 2%. If in 1960 the population counted 4.5 million inhabitants, in the last fifty years it has grown by more than four times (*Table 1* and *Fig. 3*), which proved the inefficiency of the government in adopting family planning measures so as to maintain the growth in the limits imposed by the environment potential. The Alep Governorate, with its 5.9 million inhabitants is the most populated, being followed by the Governorates of Homs, Hama and Idlib, with about 2 million people each, and Damascus, with 1.78 million inhabitants (BCS, 2011). The highest population densities are found along the seacoast, in the area of Damascus and Aleppo, as well as in the Euphrates Valley. Thus, against an average density of 118 inhabitants/km^2, the highest value is specific for Damascus Governorate (13,000 inhabitants/km^2), while the lowest for Deir ez-Zor (30 inhabitants/km^2). As far as the age pyramid, 38% of the population is less than 15 years old, and only 3.3% is older than 65 years. At the same time, birth rate is 24‰, death rate is 3.5‰ and life expectancy at birth is 75 years.

Table 1

Syria – The Main Demographic Indicators

	1950	**1960**	**1970**	**1980**	**1990**	**2000**	**2010**	**2020**
Total population (million people)	3,4	4,5	6,3	8,9	12,3	15,9	20,4	24
Annual population growth rate (%)	2,6	3,4	3,3	3,3	3	2,4	1,9	1,6
Birth rate (‰)	51,2	50,1	46,8	45,4	38,4	29,7	23,9	20,7
Death rate (‰)	20,5	18,1	12,5	8,3	5,3	3,8	3,5	3,6
Life expectancy at birth (years)	47,6	51	58,1	64,8	70	73,5	75,3	76,8
Population younger than 25 years (%)	58,8	61,4	65,8	68,3	67,3	62,5	57,3	50,4

Source: The Population Division of the Department of Economic and Social Affairs of the United Nations

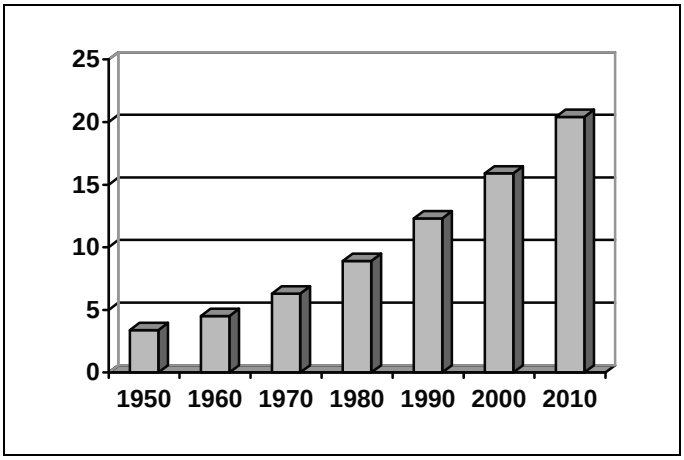

Fig. 3 Syria's population between 1950 and 2010 (million inhabitants)

The Arabs, who are spread throughout the country, account for more than 90% of the Syrian population. They are divided into several religious communities, of which the most numerous are the Sunnites (74%). The rest are Shiites/Alawites, Christians and Druzes. The members of the Alawite community, to which belongs the president's family, hold the entire political power, despite the fact that they are a minority (Rivlin, 2011). This is another reason why most of the population is dissatisfied.

The main ethnic minority in Syria are the Kurds, who account for about 6% of the population. Most of them (80%) live in the northern and northeastern parts of the country. Generally, non-Arab people (Kurds, Armenians, Turkmens, Circassians and Assyrians) are grouped in their own villages or neighborhoods and are found especially on the territories north of Aleppo and in Al Jazirah region. They have preserved their cultural elements expressed by religion, language, costumes, architecture and agricultural practices. Approximately 56% of the population live in the cities. The highest urban sprawl can be seen in the case of Aleppo and Damascus.

The Economic Situation

In 1946, when Syria achieved its independence, its economy was less developed. Later on, as soon as the Baath Party came into power a series of economic reforms were initiated, among which the nationalization of the banking system. With the increase of crude oil prices in the 1970s, Syria experienced a change of direction, from a traditional agricultural economy to one dominated by services and industry. Up to the 1990s the manufacturing

industry was largely controlled by the state and during that period some economic liberalization reforms were implemented (McGowan *et al.*, 1987).

In comparison with the other Arab states in the region, Syria has a more diverse, yet scarcely developed economy. Its underground reserves consist of phosphates, hydrocarbons (oil and natural gas), chromium, iron ores, manganese, gypsum, salt, marble and other natural building stones. Discovered in 1956 in the northwestern part of the country, and exploited more intensively beginning with the 1970s, the oil reached a peak production of 610 thousand barrels per day in the mid-1990s. Subsequently, production began to decline, reaching at present 385 thousand barrels per day.

The certain oil reserves are estimated at 2.5 billion barrels and those of natural gas at 300 billion cubic meters m^3 (BPSR, 2011). Even though in the last years Syria has become a net importer of crude oil and oil products, the internal production still ensures 40% of the state budget, while oil exports account for another 25% (IFPRI, 2011).

However, the diminishing of oil revenues has determined the Al Assad regime to initiate an economic and financial liberalization, and to cut down subventions. These unpopular measures strongly affected the average people, who were forced to sustain price increases for oil and food. Thus, without adequate subventions the oil price grew by 42% between December 2008 and September 2010 (Hurault, 2011).

In Syria's development economic plans agriculture has always been a main priority, in as much as the state has strived to ensure food for its population. The rapid expansion of the cultivated land, which started in the 1970s, together with the increased productions, has stimulated the rest of the economy. Because most of the area is arid and semiarid, only 6 million hectares, i.e. 32% of the territory can be cultivated. Wheat, which is grown on 1.6 million hectares, is the main crop of the country, followed by barley, cotton, sugar cane, tobacco, sunflower and peanuts (BCS, 2011). Stockbreeding is practiced under nomadic and semi-nomadic conditions, taking advantage of the 8.2 million hectares of pastures, i.e. 44% of the country's area, but it is also practiced in specialized farms. The largest livestock populations are the sheep (15.5 million heads) and the goats (2 million heads) (BCS, 2011).

In the last decades the increase of agricultural yield has been partly capable of coping with the population growth. As far as the agricultural products are concerned, their yields, prices and trade were long controlled by the government and the climatic conditions. The droughts that continue many years in a row are quite common in Syria, where they impact the entire economy. Here, the Euphrates and its tributaries, Balik and Kabur, have the highest irrigation potential. Water is a scarce resource, as it happens everywhere in the Middle East. Precipitation is not only low, but it varies considerably from

year to year, making the agriculture a risky venture, because the crops may be compromised during the hot and dry summers.

Before the Tabqa dam was built, Syria had only 550 thousand hectares of irrigated lands (McGowan *et al.*, 1987). At present, this area has increased to 1.34 million hectares, i.e. 22% of the cultivated land (BCS, 2011). Another initiative in the agricultural field has been the increase of cultivated areas by 594,500 ha starting with 1986, by clearing the land of rocks (IFAD, 2007). The frequent droughts of the last decades (IFPRI, 2011) have had serious economic implications: the increase of prices and agricultural product imports on the one hand and the reduction of the GDP and population incomes on the other hand. The severe droughts have pushed 2-3 million people in an extreme poverty, most affected being those in the northeastern part of the country. Consequently, tens of thousands of people were forced to leave their households for Damascus or other big cities (Rivlin, 2011).

Agriculture is the economic sector most affected by drought. Cereal growing and sheep breeding suffer the most, which explains the waning productions. Wheat, which is the main staple, recorded a production decline by 25% in 2009 and 33% in 2010, in comparison to 2006 (when the yield was 4.9 million tons). This made necessary that significant amounts of wheat (1.56 million tons in 2009) were imported from other countries. Moreover, on the international market the price of agricultural products, as well as the one of the energy, is expected to increase. Under these circumstances, the food security, i.e. the ability of the state to meet the food demand of the population, is seriously threatened.

Conclusions

The present political crisis, caused by the dissatisfaction of the population, was generated not only by the serious deficiencies of democracy, but also by the inefficient coordination in managing the birth rate and the socio-economic development within a context of a restrictive geographical environment, extremely vulnerable to degradation and displaying limited natural resources.

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