

# **Kingdom of Bahrain Space Policy**

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## **Introduction**

Since the beginning of creation, space with its bright moon, twinkling stars and endless boundaries has preoccupied the human mind. At times it was a source of fear, inspiration, or a stimulant for contemplation and research. Throughout the history of mankind, the myths and stories people kept telling about space and its ambiguity reflect nothing but their growing interest, and the contents of autobiographies and science books provide us just little information about it.

Various human civilizations shared interest in space and so was the Delmon civilization on the land of Bahrain. There is a lot of evidence supporting this, most notably is the Temple of the Moon north of Manama, which dates back to more than 5,000 years.

Meanwhile, Human efforts to understand space and discover its mystery continues without interruption. The Arabic and Islamic civilization has had a prominent role in this field. The holy Qur'an urges us to study the universe, and most pillars of Islam are connected to the Moon phases.

Delmon was once a bright center for civilizations, and today the Kingdom of Bahrain continues the journey in the field of space and its sciences with an inspiring vision of a farsighted leader who would accept nothing but excellence. The vision of his Majesty King Hamad bin Isa Al Khalifa, King of Bahrain, May Allah protect him, to establish a sustainable space sector focuses on space and its sciences. It aims to build national scientific and research capacities, provide support for all sectors, contribute to the economic prosperity and diversification, enhance productivity and innovation, and highlight the position of the Kingdom of Bahrain both regionally and globally.

To translate this royal vision into action, the Kingdom of Bahrain has developed its space policy with specific objectives at national level. The National Space Science Agency (NSSA) and all stakeholders are committed to these objectives and all seek to apply them, and to continuously verify the commitment to them. This policy is based on five basic principles driven from Bahrain Economic Vision 2030, namely competitiveness, fairness, sustainability, partnership and interaction.

The space policy of the Kingdom of Bahrain is divided into three main sections:

- 1- **Objectives:** The Kingdom objectives and aspirations as regards space utilization and its sciences.
- 2- **Requirements:** The basic success factors required to accomplish the objectives of this policy.
- 3- **Governance:** Evaluation of the role of National Space Science Agency and other stakeholders in applying this policy and measuring the level of implementation

## **Objectives**

The Kingdom of Bahrain has ambitious objectives in the field of space; it aims to establish a space sector that helps it make the best use of space, its sciences and broad applications to support sustainable development in order to achieve prosperity for its people. The objectives of the Kingdom of Bahrain from its space program are as follows:

### **1- Benefit from space and its sciences to support development**

The Kingdom of Bahrain seeks to achieve the maximum benefit from the space sector and its applications to promote and enhance the standards of various government services and make them available at high quality for all sectors, through national ability-building in the space sciences, and promoting continuous awareness of the importance of the sector and its applications. They provide an expanded package of information that supports strategic planning, national security, scientific research, environmental protection, disaster and crisis management, strengthen communications, develop transportation, and support the efforts to protect the public health and many other important services affecting everyone's daily life.

### **2- Achieve presence in space**

The Kingdom of Bahrain seeks to strengthen its position in the space sector through national ability building and development, providing the necessary resources to make peaceful use of space, encouraging scientific research in collaboration with the public and private sectors to ensure actual presence in space through building and launching of satellites, training and sending of astronauts in scientific space missions, taking part in international projects and efforts that serve humanity, enriching knowledge and encouraging creativity.

### **3- Attain leadership for the Kingdom in the field of space**

The Kingdom of Bahrain seeks to achieve leadership in the space sector through excellence in a number of aspects related to space and its various applications, collaborating with the various partners in a manner that serves its initiatives for peaceful use of space, establishing developed infrastructure, building its national capacity in the area of processing and analyzing space data and images, boosting scientific research, and endeavoring to make the Kingdom of Bahrain a regional and international center for holding various scientific and commercial space events.

### **4- Create a space sector**

The Kingdom aims to create a space sector that contributes to national economic diversification through introducing incentives, legislations and regulations that attract investment in the space sector, while keenly supporting the activities that achieve added values, and highlight the available opportunities for investors to ensure sustainability.

### **5- Contribute to the stability and safety of the space environment and sustainability**

The Kingdom of Bahrain believes in the importance of transparency, exchange of knowledge related to space activities, proper planning and coordination to ensure rational use of radio frequencies spectrum, optimal use of orbit sites, support for the space activities safety and security and the infrastructure supporting it. The Kingdom also aims to take part in the international initiatives and efforts to minimize the space wreckage and take other measures related to safety and stability of the space environment. While doing this, it takes into consideration that the growing number of space users over the past decade led to an increase in the risks associated with potential collision between free bodies and space wreckage. In addition, it is possible that the satellite management process might become unstable, and accordingly pose risks to the safety and sustainability of space activities, which are costly in nature, a matter which has become a source of concern for researchers and investors.

## **Requirements**

To successfully and optimally achieve the objectives of the space policy of the Kingdom of Bahrain, a group of requirements, which are considered the solid base for implementing initiatives adopted to reach the policy objectives, have to be satisfied in active collaboration with all stakeholders. These requirements are as follows:

### **1- Spread awareness about space sciences and their applications**

There will be continuous collaboration and coordination between NSSA and all stakeholders and partners to prepare and implement programs for continuous awareness about the importance of space sciences and their various applications, the most prominent activities and latest space developments and discoveries, and shedding light on the national and international efforts in all relevant aspects in a manner that suits all categories of society, their educational backgrounds and their cultural and scientific levels.

### **2- Identify the national needs**

Special care will be given to the stakeholders benefiting from space applications via regular listing of their needs and providing what is needed in an expeditious manner and at a high quality.

### **3- Build national capacity in the space sector**

NSSA works with the concerned stakeholders to create a national trajectory to promote interest in technology, engineering and science by increasing the percentage of citizens enrolled in academic and applied programs in the various disciplines emerging from these sciences. The Agency also seeks to provide distinguished training that helps citizens acquire the required advanced skills to attain the global competitiveness, and to encourage implementation of scientific studies and applied researches in the fields related to space. It also works keenly to attract the distinguished and talented male and female national cadres to work in the space sector. This will be done via offering attractive job opportunities, creating a creative and innovation conducive environments. This will strengthen the Agency's contributions to achieve the highest levels of benefiting from space science and its various applications. This will pave the way for building a

knowledge-based society and converting to entrepreneurship in this vital sector.

#### **4- Create the appropriate regulatory environment**

The Kingdom of Bahrain is keen to continuously diversify its national economy. To this end, it endeavors to create a proper environment for investment, notably a regulatory environment governed by laws and rules that attract investors. In order to benefit from the space sector as a new emerging opportunity, the Kingdom seeks to ensure sustainability of the sector. NSSA works with the concerned organizations in the Kingdom to develop an advanced legislative and regulatory environment that attracts investors to engage in space projects. In the meantime, it encourages entrepreneurship in the associated fields, and avails opportunities particularly for small and medium enterprises to assume their role in the space sector. This is being achieved through encouraging investment in space-related industries, and supporting export of national products by providing facilities, incentives and protecting creativity.

#### **5- Rational use of frequency spectrum and orbit site for satellites**

NSSA strongly believes in the importance of collaboration and coordination on the national and international levels, and the need to keep abreast of the latest technologies, results and studies to ensure optimal use of the frequency spectrum and orbit sites for satellites. It, therefore, works with the concerned authorities in the Kingdom as well as other stakeholders to assign frequency spectrums to space services and orbit sites for satellites in a way that satisfies the space activities needs for all authorities, and fits the policies on attracting investments and encouraging entrepreneurship.

#### **6- Building strategic partnerships**

NSSA seeks to build close cooperation relationships with all stakeholders at national, regional and international levels to create stable and sustainable partnerships that support its efforts in the space sector and contribute to achieving the optimal benefit from space science and its expanded applications.

On a national level, the Agency coordinates the national efforts among the relevant stakeholders to implement national initiatives and projects, exchange information and expertise, and make the optimal use of available resources. It seeks to best represent the Kingdom in the relevant international events, and to establish collaboration in developing laws and regulations related to the space sector.

NSSA also collaborates with academic institutions, research centers and higher education bodies to incorporate space science and its applications in their curricula and research projects. This will eventually contribute to providing the labour market with national competencies that are knowledgeable of space science and its applications and will also facilitate launching of initiatives that encourage creativity in the space sector at a national level.

On an external level, the Agency seeks to strengthen its relations through building effective partnerships with space agencies, academic institutions, research centers and companies specialized in technology development. It will also provide relevant products and services and implements space projects in a manner that contributes to building national capabilities in the space sector, supports exchange information and expertise, and makes the optimal use of the various space applications, including processing and analysis of data and satellite images. It also seeks to carry out joint scientific projects that satisfy the national needs, serve humanity, and contribute to the international efforts in the space sector.

#### **7- Providing finance**

NSSA seeks to collaborate with the government and private agencies to finance the national initiatives and carry out the scientific space projects in a way that contributes to transfer knowledge and encourage creativity.

### **Governance**

Success in establishing the national space sector depends mainly on determining the agencies that should work collaboratively in an integrated manner to implement the space policy of the Kingdom of Bahrain in coordination and cooperation with all stakeholders. It also requires regular review and evaluation

to benefit from improvement and development opportunities. This in turn requires regular follow-up, evaluation and governance in a manner that ensures efficiency and quality of performance by measuring the progress made in planning and implementation of all initiatives and projects emerging from this policy.