



وكالة الإمارات للفضاء  
UAE SPACE AGENCY

## Technical Presentation

“National Space Regulation under-development”

Agenda Item 7; LSC 2017

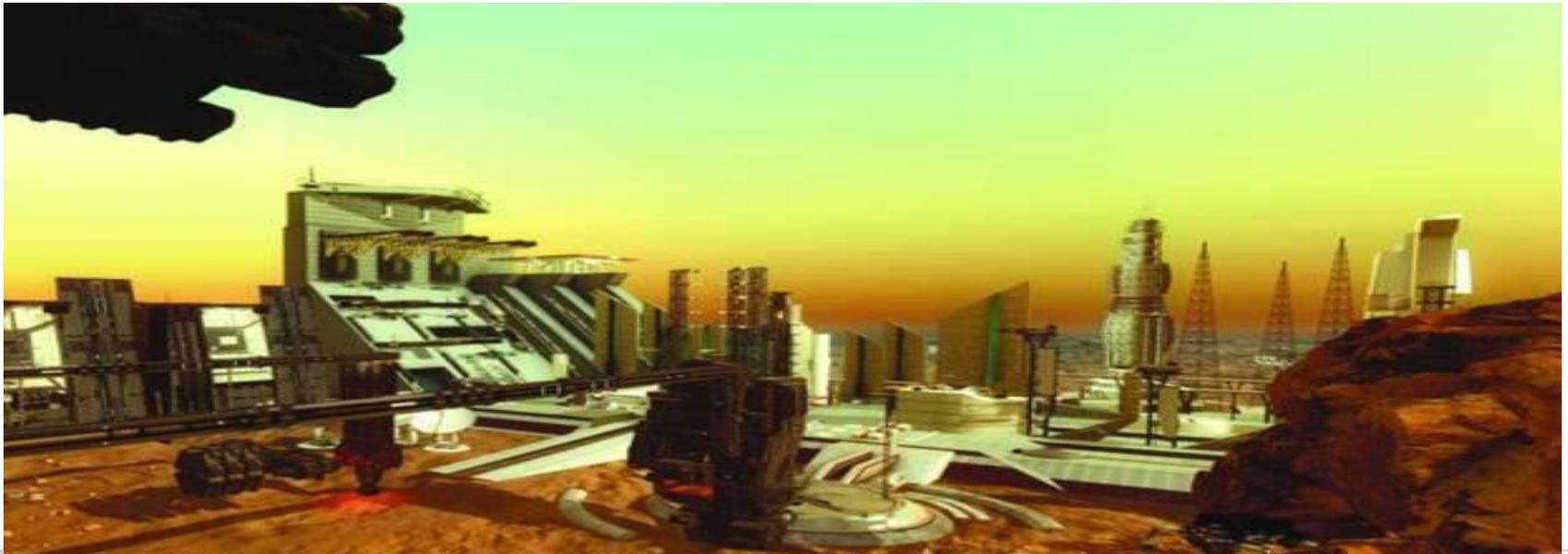
By: Space Policy and Regulations Directory

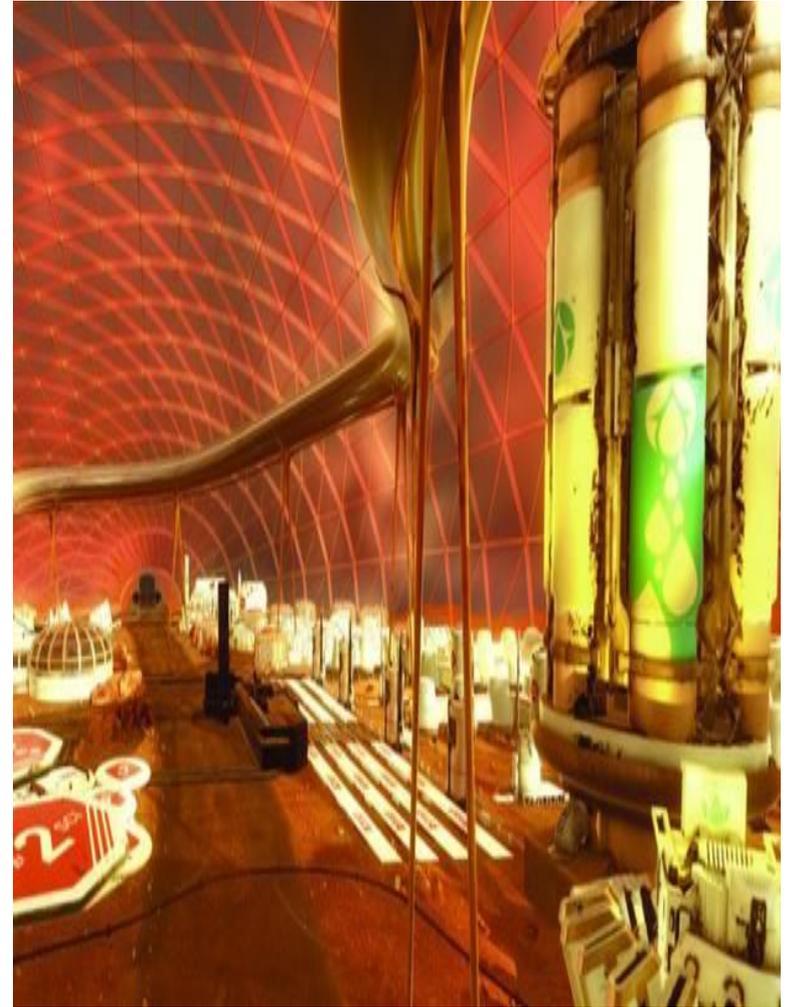
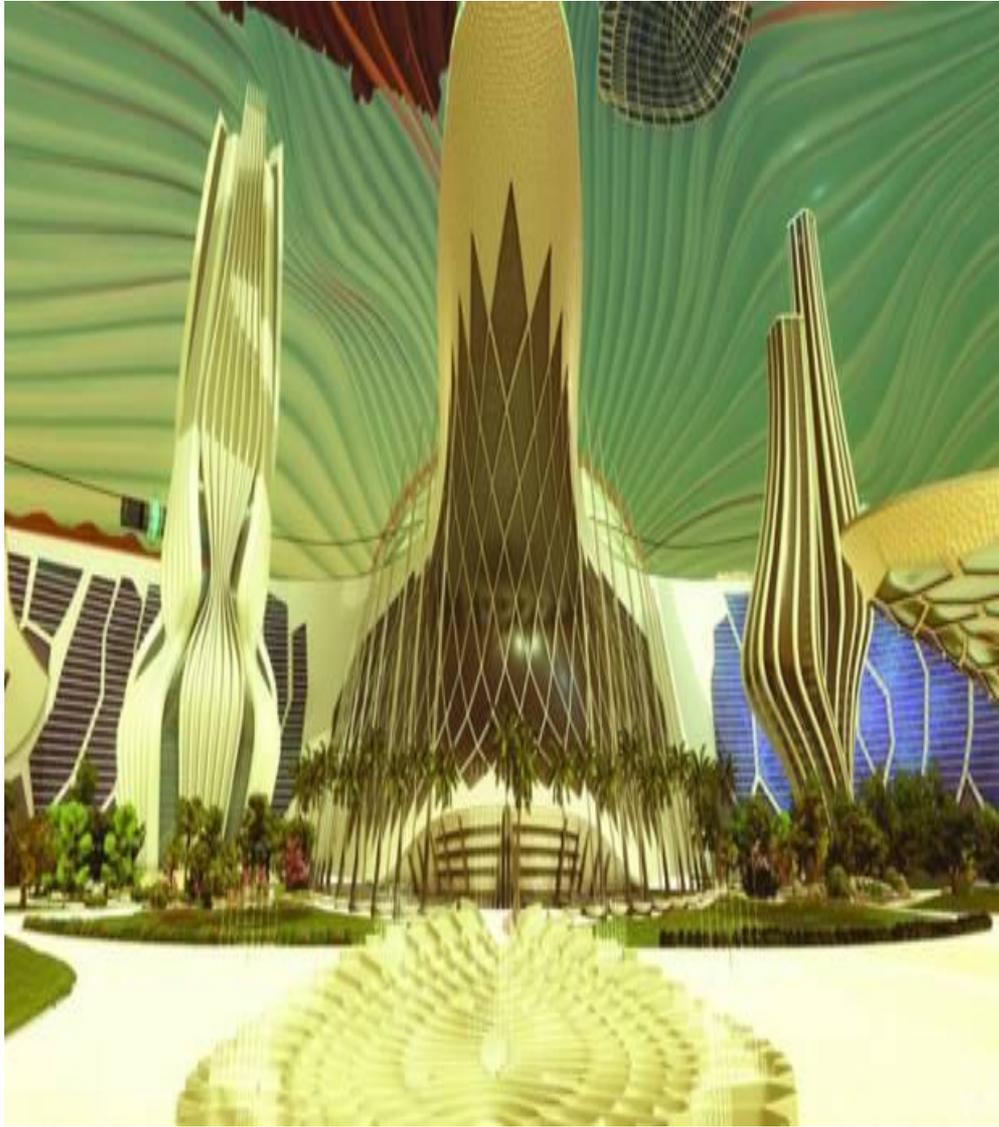




The UAE will build the first city on Mars as part of the 2117 Mars project in collaboration with specialised international organisations and scientific institutes.

The Mars 2117 Project was announced by His Highness Shaikh Mohammad Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, and His Highness Shaikh Mohammad Bin Zayed Al Nahyan, Abu Dhabi Crown Prince and Deputy Supreme Commander of the UAE Armed Forces.





# Federal Decree Law No.1 of 2014 establishes the UAE Space Agency

## UAE Space Agency Objectives as Defined by the Decree\*

### Federal Decree Law No.1 of 2014



### Agency Objectives\*

- 1 **Organize, support and guide the Space sector to serve the interests of the State**
- 2 **Encourage the development and use of Space science and technology within the State and provide advice in this area**
- 3 **Establish international partnerships in the Space sector so as to enhance the State's role and status in the Space sector**
- 4 **Contribute to the diversification of the national economy through a developed national Space sector**
- 5 **Raise awareness of the importance of the Space sector and the development of the qualified human resources in the Space field**

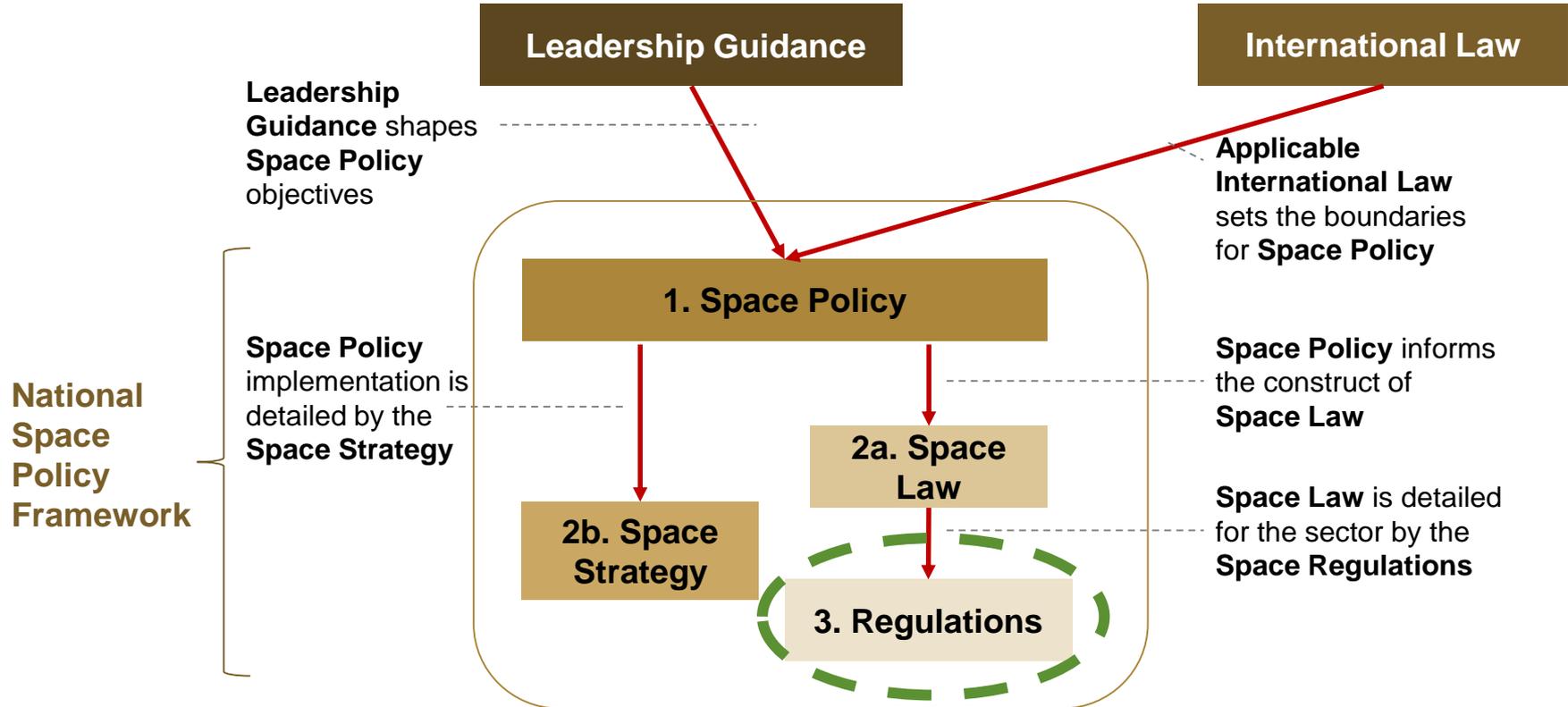
\*this is translation from Official Law In Arabic Language



# Why Space Policy and Regulatory Framework

- I. Transparency**
- II. Ensure Safety, security, and environment protection**
- III. Healthy competition**
- IV. Cooperation and harmony**
- V. Economy of scale**
- VI. Trust for investors**
- VII. Learning curve**

# Development of UAE Space Policy and Regulatory Framework



1. Other inputs used in developing the Regulations include international regulations, national space regulations of other countries and UAE national regulations from other sectors  
 Source: UAE Space Agency, & associated experts



## Policy Ultimate Goal *(Issued in September 2016)*

**... to build a strong and sustainable space sector that:**

- *supports and protects national interests and vital industries;*
- *contributes to the diversification and growth of the economy;*
- *boosts specialized competencies;*
- *develops scientific and technological capabilities;*
- *engrains the culture of innovation and national pride, and*
- *strengthens role regionally and globally.*



## Law Ultimate Goal (*...under development* )

***... to create attractive and responsive regulatory environment for space sector that:***

- In harmony with national legislation system and augment as necessary*
- Adequately balances between the safety & security & environment requirements and the economic & commercial & innovation requirements;*
- Respect international law;*

## Space Law Structure (under development...)

- **The Preamble**
- **Article 1 – Definitions**
- **Article 2 – Scope of Application**
- **Article 3 – Competences of the Agency**
- **Article 4 – Authorization of Space Activities**
- **Article 5 – Liability**
- **Article 6 – Space debris mitigation**
- **Article 7 – National registry of Space objects and international registration**
- **Article 8 – Manned Spaceflight**
- **Article 9 – Remote sensing data management**
- **Article 10 – Investigation of space-related accidents and incidents**
- **Article 11 – Exploration and Utilization of Space Resources**
- **Article 12 – Collaboration with Governmental entities**
- **Article 13 – Fees**
- **Article 14 – Fines and Sanctions**
- **Article 15 – Transitional provisions**
- **Article 16 – Final provisions**

# Draft

- ❖ The Regulations complements the Space Activities Law and detailing different space regulatory aspects
- ❖ Five basic Regulations were identified to start regulating Space Activities:

## i. Space Object Registration

- Set out the legislations and procedures to register a UAE Space Object in the National Registry and the UN International Registry

## ii. Accident and Incident Investigation

- Set out the legislations and procedures in case of occurrence of Space related Accidents and Incidents in which the UAE is an incitant or affected 3rd party

## iii. Authorization of Space Activities

- Set out the different types of Authorizations, terms and conditions and procedure to obtain a Space Activity Authorization

## iv. Manned Space Flights

- Set out terms, conditions and procedures required to commence orbital and sub-orbital Space Flights with human on board

## v. Auditing Framework

- Set out the legislations and procedures of Auditing operators on compliance to terms, conditions and regulations issued by the UAE-SA

# The Agency can grant a license, approval, permit or waiver to authorize Operators

## iii. Regulation on Authorization

### 4 Authorization types



# The Space Agency grants and manages licenses, approvals and permits for three types of spaceflight activities

## iv. Regulation on Human Spaceflights

### 1 Spaceflight activities and authorizations

		Authorization types		
		License	Approval	Permit
Activities subject to the Regulation on Spaceflight	1. Conducted on or from the territory or facilities of the UAE	 Granted pursuant to the rights and obligations defined in the Regulation on Authorizations	 Granted pursuant to the rights and obligations defined in the Regulation on Authorizations	 Granted for: <ul style="list-style-type: none"> <li>• R&amp;D flights to test new design concepts, equipment or operating techniques</li> <li>• Flights conducted to show compliance with conditions or requirements as part of obtaining a License / Approval</li> <li>• Flights conducted to train crew for the spaceflight activities</li> </ul>
	2. Conducted by natural persons or juridical entities with the nationality of the UAE	 Granted pursuant to the rights and obligations defined in the Regulation on Authorizations	 Granted pursuant to the rights and obligations defined in the Regulation on Authorizations	 Granted for: <ul style="list-style-type: none"> <li>• R&amp;D flights to test new design concepts, equipment or operating techniques</li> <li>• Flights conducted to show compliance with conditions or requirements as part of obtaining a License / Approval</li> <li>• Flights conducted to train crew for the spaceflight activities</li> </ul>
	3. Conducted on or from registered aircraft, space object, or ship under the UAE			

Crew and non-crew members need to undergo training, meet medical standards, and accept and bear the risks of spaceflight participation

#### iv. Regulation on Human Spaceflights

##### 2 Requirements for flying crew and non-crew members

###### Requirements for crew members

- Crew members have undergone appropriate training
- Crew members satisfy medical standards
- The Operator has informed crew members that the Space Agency has not certified such a Spacecraft as safe
- The information on non-certification of the Spacecraft to be sufficiently detailed for the crew members to make an informed judgment on the personal risks

###### Requirements for non-crew members

- Non-crew members have undergone appropriate training
- Non-crew members satisfy medical standards
- The Operator has informed non-crew members of the probability of accidents or incidents occurring, including the safety record of Spacecraft to be used
- The Operator has informed crew members in writing that the Space Agency has not certified such a Spacecraft as safe for carrying non-crew members
- The Operator has obtained written informed consent from the non-crew members to participate in the spaceflight activities
- The information on the risks and safety record to be sufficiently detailed for the non-crew members to make an informed judgment on the personal risks involved in the spaceflight activities

# The Agency will conduct Admin, Launch & Re-entry and In-Space Activity Reviews to determine Operator's eligibility for an authorization

## iv. Regulation on Human Spaceflights

### 3 Reviews for ensuring Operator's eligibility

#### Administrative Review

- Assesses the Operator's **general qualifications** to conduct the space activities in scope of the Authorization:
  - Proof of **required licenses to use frequencies**<sup>1</sup>
  - Proof of **liability insurance** or alternative financial collaterals for liability
  - Proof of required **business licenses, financial and admin capabilities**
  - Proof of the necessary **technical and operational qualifications of key personnel** involved in the activities
  - Proper **procedures and channels of communication with the Agency**
  - Information necessary to **comply with the obligations pertaining to space object registration**
- Determines the Operator's **compliance with the requirements for crew and non-crew members**

#### Launch & Re-entry Review

- Assesses the **safety and reliability of the launch and re-entry**, covering:
  - **Launch facilities** and their ability to safely undertake all terrestrial activities
  - **Capability of the space object to safely conduct** the Launch or Re-entry
  - **Capabilities of the ground stations** involved in tracing, tracking & control
  - **Qualifications of the key personnel** involved in the launch or re-entry
  - **Plan for space debris mitigation**
  - **Plan for handling any anomalies** during the launch and re-entry
  - **Safety and emergency abort procedures** and technologies
  - **Emergency information and training programs** for (non-)crew members
  - **Flight and re-entry plans, trajectories and planned manoeuvres**

#### In-Space Activity Review

- Assesses the **Operator's qualifications to conduct activities while in outer space** such as:
  - Telecommunication activities;
  - Remote sensing and other observation;
  - In-space manoeuvres, incl. docking and undocking with other Space objects;
  - Scientific / commercial exploration or exploitation of natural resources
- The assessment covers:
  - All **assessments** required as per the Regulation on Authorizations **with respect to payloads**
  - **Safety and emergency abort procedures** and technologies
  - **Emergency information and training programs** for (non-)crew members
  - **Flight and re-entry plans, trajectories and planned manoeuvres**

1. Or proof of applications for such frequencies  
 Source: UAE Space Agency; and associated experts

Operator must have insurance coverage for liability towards 3<sup>rd</sup> parties and State, but can have own liability arrangements with certain parties

#### iv. Regulation on Human Spaceflights

##### 4 Liability and insurance

- **The Operator is required to provide proof of:**
  - Possession of an **insurance policy covering third-party liability** up to the limit specified in the Law
  - Possession of an **insurance policy covering liability towards the State** for damage caused as a consequence of the use of governmental facilities for the spaceflight activities to be authorized
  - **Liability insurance for crew members covering personal injuries and damage** occurring during spaceflight (as part of their employment contract)
- **The Operator remains at liberty to negotiate its own liability arrangements**, and to take out appropriate insurance for such liabilities, with:
  - **Non-crew members with respect to personal injuries and damage** during participation in the spaceflight to be authorized
  - **Foreign nationals** participating in the spaceflight to be authorized
  - **Other partners** to the Space activities to be authorized

## Conclusions

- **The UAESA, in collaboration with GCAA and other relevant competent authorities, is in the process of developing attractive regulatory framework that is suitable for the commercial space transportation, including suborbital flights.**
- **Key principles followed in our approach to facilitate suborbital flights are:**
  - **Effective coordination with GCAA, and other relevant authorities**
  - **Build on existing capabilities and allow for dual-ports (air/Space-Ports)**
  - **Attractive and responsive legislation**
  - **Simple and flexible licensing regime (experimental permits)**
  - **Special Registration**
  - **Cooperation with other countries to ensure harmony regulations, and avoid to extend possible dual certification**
  - **Crew and participants are treated as 2<sup>nd</sup> party**
  - **Safety, security, and emergency measure yet to be in place**
  - **Put in place effective Incident and Accident Investigation Process**