البحرين

BAHRAIN IN SPACE

A REVIEW OF BAHRAIN'S
SPACE AFFAIRS & OPPORTUNITIES

LUCIAN SPACE · SEPTEMBER 2026





مملكة البحرين

A TIMELINE OF BAHRAIN'S SPACE ACTIVITIES.

2014
AGENCY FOUNDED BY DECREE. RENAMED IN 2025

3.2 KG
MASS OF AL MUNTHER, THE SATELLITE BAHRAIN BUILT

17TH
TO SIGN THE ARTEMIS ACCORDS. 76 NATIONS NOW

2
LUNAR PAYLOADS IN DEVELOPMENT, NOT FLOWN

68%
OF AGENCY STAFF ARE WOMEN. COUNTED DEC 2024

2014
The King creates a space agency by decree.
Decree 11 of 2014. The agency reports to the education minister.

2018
The agency hires ten Bahrainis. They will build Al Munther.
The cabinet approves a space policy and a strategy to 2023.

2019
Bahrain joins the Outer Space Treaty.
Law 13 of 2019. Agreements with ISRO in March and the UK in September.

2022
Light-1 deploys from the ISS. Bahrain signs the Accords.
A UAE-Bahrain satellite, 3 February. 17th Artemis signatory, 2 March.

2024
China gives a Bahraini camera a place on Chang'e-7.
Built with Egypt. Bahrain also hosts the International Space Forum.

2025
Al Munther reaches orbit. Bahrain built it.
15 March, SpaceX Transporter-13. Renamed Bahrain Space Agency five days later.

2025
Two Bahraini payloads run on partner satellites.
AI cloud-detection software, June. AMAN, a security payload, November.

2026
A Bahraini will chair the UN space science subcommittee.
Alqassab chairs in 2027. Al Munther's first full image of Bahrain, April.

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THE GULF SPACE ECOSYSTEM

UAE	Reached Mars orbit on its first attempt in 2021, has flown two astronauts, and launched the pan-Arab 813 satellite in December 2025. Rashid 2 and an asteroid mission are slated for 2027 and 2028.	**~AED 44B** INVESTED
SAUDI ARABIA	A full agency since 2023, weeks after two Saudis flew to the ISS. Its Shams cubesat rode Artemis II in April 2026, and PIF's Neo Space Group is buying up the value chain.	**$8.7B** SPACE ECONOMY, 2024
QATAR	Es'hailSat's two-satellite GEO fleet serves broadcasters across the region; a Qatari research survey has even discovered exoplanets.	**2** GEO SATELLITES
OMAN	The region's first commercial spaceport: Etlaq at Duqm flew its first rocket in December 2024 and targets commercial service by end-2027; signed the Artemis Accords in January 2026 as the 61st nation.	**1 LAUNCH** FLOWN SO FAR
KUWAIT	Opened a satellite ground station as early as 1969; flew its first satellite in 2021 and KuwaitSat-1 in 2023; a private team is test-flying its Ambition rockets.	**NO PAD** OF ITS OWN
EGYPT	A space agency created by law in 2018 and host of the African Space Agency in Cairo; its SPNEX satellite launched alongside the Arab 813 in December 2025.	**ILRS** MEMBER

COMPARISON

	NATION	AGENCY & LAW	SATELLITES	HUMANS FLOWN	BEYOND EARTH	LAUNCH FROM SOIL	VERDICT
1	UAE	●	●	●	●	○	The benchmark
2	SAUDI ARABIA	●	●	●	◑	○	The wallet
3	OMAN	◐	◑	○	◑	●	The launchpad
4	BAHRAIN	◐	◑	○	◑	○	The payload house
5	QATAR	◐	◐	○	○	○	The operator
6	KUWAIT	◑	◑	○	○	◑	The endowment

● ESTABLISHED ◐ OPERATIONAL ◑ NASCENT ○ NONE

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THE GLOBAL SPACE ECOSYSTEM

US | SPACEX	SpaceX did roughly half of all global orbital launches in 2025, and booster reuse is now routine. SPCX IPO'd reaching $2.1T market cap on close. This was the largest IPO in history.	**$2.1T** DAY-ONE MARKET CAP
US | NASA	FY2026 discretionary funding of $24.4B; Artemis II flew 4 astronauts around the Moon in April 2026. NASA's current plan has Artemis III rehearse docking in 2027 and a landing attempt on Artemis IV in 2028.	**$24.4B** FY2026 BUDGET
US | OTHER	Blue Origin took its first outside capital in July 2026 at $130B; Rocket Lab, Vast, Firefly and Sierra sit inside a New Space ecosystem of 950+ US space companies - more than any other country.	**$37B+** RAISED BY US SPACE FIRMS
CHINA	92 orbital launch attempts in 2025; Tiangong is permanently crewed; Chang'e-6 returned far-side samples in 2024; a crewed landing is targeted before 2030.	**92** LAUNCHES IN 2025
RUSSIA	Soyuz still ferries crews and cargo as it has for nearly six decades, but 17 launches in 2025, the loss of Luna-25 and a thin commercial sector point to a programme in retreat.	**17** LAUNCHES IN 2025
INDIA	Chandrayaan-3 made India the fourth country to soft-land on the Moon and the southernmost lunar landing achieved at the time; Gaganyaan targets a first crewed flight no earlier than 2027.	**2027+** FIRST CREW TARGET
EUROPE	Ariane 6 has returned Europe to the launch market, and JUICE and BepiColombo continue deep-space science - but Europe still buys crew seats abroad.	**NO CREW SHIP** OF ITS OWN
JAPAN	SLIM achieved a precise lunar landing in 2024 and Hayabusa brought asteroid samples home; H3 is operational, but cadence stays deliberately low.	**1** LUNAR LANDING
UK	Home to SSTL, Eutelsat OneWeb's London operations and a deep space-finance ecosystem - but after Virgin Orbit's failure at Cornwall, Britain still awaits its first successful orbital launch from home soil.	**NO ORBITAL LAUNCH** FROM SOIL

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THE CASE FOR SPACE

1 MASSIVE INFRASTRUCTURE BUILD-OUT

Space creates vast amounts of job opportunities on Earth, because the infrastructure required to support space is massive.

2 UNIQUE R&D OF VALUE TO EARTH

Some types of R&D can only be done in the zero-gravity conditions of space, but they have immense value to applications and uses back on Earth.

3 BUILD A LOCAL STARTUP ECOSYSTEM

Space draws in vast amounts of private and public money, which can support an entirely new startup ecosystem from scratch.

4 THE FINANCIAL CENTRE

Space companies need banks, insurers and licences. Bahrain has licensed banks and insurers under one regulator since 2002. The same system can license space companies.

5 SMALL PAYLOADS, BIG PARTNERS

Bahraini payloads already ride on Emirati, Omani-Chinese and, next, Chinese lunar spacecraft. A small state can sell engineering skill instead of launch mass.

6 SOFT POWER

A functional and efficient space programme is a display of a nation's might.

7 RESOURCES AND GAME THEORY

Other countries are going to space whether you like it or not. You can either wait and watch and be left behind when they inevitably start extracting mineral resources from space. Or you can go now.

8 THE NEW FRONTIER

Space is an open canvas waiting to be developed, like America was in the golden age of discovery.

And then look what happened to America.

مملكة البحرين

HOW HAVE SPACE TECHNOLOGIES TRANSFORMED EARTH?

DELIVERED

MAPS	**Real-time maps in your pocket.** Live routes help you navigate faster, cut fuel use and delays.	**6.5B+** DEVICES IN USE
TRANSPORT	**Planes and boats permanently run on satellites.** Fuel-optimal ocean and aircraft routes, with always-on tracking where radar could not reach. Every large vessel is tracked from orbit.	**EVERY** LARGE SHIP TRACKED
APPS	**Uber, Careem, DoorDash and Talabat could not exist without satellites in Space.** The on-demand economy connects customers to moving drivers. Impossible without space.	**1978** FIRST GPS SATELLITE
WEATHER	**Accurate 5-day forecasts, where the 1970s only had 1-day forecasts.** Hurricane/cyclone deaths have fallen, despite coastal populations growing. Airlines, farmers and energy traders totally rely on this data.	**5 DAYS** VS 1 DAY IN 1975
DISASTERS	**Floods, wildfires and damage maps while they happen.** Drought early warning gives governments months, not weeks, to protect food supply. These save lives.	**HOURS** TO A DAMAGE MAP
CLIMATE	**Satellites tracked the ozone hole and made the Montreal Protocol enforceable.** Sea level, ice mass, forest loss and methane leaks can ONLY be measured from orbit.	**1987** MONTREAL PROTOCOL
OSINT	**Journalists, NGOs and analysts can verify events anywhere on Earth.** Arms-control treaties became verifiable.	**30CM** COMMERCIAL RESOLUTION
HEALTH	**The camera in every smartphone came from a NASA sensor.** Medical imaging, infrared thermometers, insulin pumps and water purification all came from space technologies.	**CMOS** SENSOR · NASA 1990S

NEXT

1 **LAUNCH EFFICIENCY**
Reusable rockets make orbit 10-100× cheaper. Cheaper access multiplies everything on the left dramatically.

2 **ONLY-IN-SPACE MANUFACTURING**
Optical fibre, semiconductor crystals, purer drug crystals and 3D-printed vascularised tissue: these are materials that CANNOT form under gravity.

3 **BIOMEDICAL R&D**
Microgravity accelerates critical research on ageing, bone loss and muscle atrophy, as this decay happens in months in space - saving more lives on Earth.

4 **SOLAR SYSTEM RESOURCES**
Resources including propellant from lunar ice, metals and water from asteroids. Exploring and extracting advances health, science and quality of life on Earth.

5 **EARTH AS AN OASIS**
Heavy industry, mining and power generation can happen off-planet, alleviating climate change.

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مملكة البحرين

DILMUN, PEARLS AND THE STAR CALENDAR

حيث تشرق الشمس

1. **Dilmun:** the ancient name for Bahrain. Its capital lies under today's Bahrain Fort, where people lived from about 2300 BC. Its sea tower was probably a lighthouse: a navigation aid, as GPS satellites are now.
2. **The burial mounds:** Dilmun left about 11,774 burial mounds, built 2200 to 1750 BC and listed by UNESCO in 2019. In 2026 the space agency counted about 14,000 over a wider area, from satellite images.
3. **Where the sun rises:** The Sumerian flood story places Dilmun "where the sun rises". Al Munther, Bahrain's satellite, crosses Bahrain at the same hour of daylight every day, so the shadows match and each image can be compared with the last.
4. **The star calendar:** Gulf pearl divers kept a star calendar, Al Drour. The rising and setting of named stars fixed its seasons, and the divers used it to forecast sea weather. Weather satellites do that job now.
5. **Suhail rising:** Suhail is the Arabic name for Canopus, the second-brightest star. Its rising in mid-August marked the end of the hot season. Mariner and Voyager steered by Canopus too: their star trackers locked onto it.
6. **The great dive:** The divers sailed in June and came home around November. Muharraq, the island north-east of Manama, had the Gulf's largest pearling fleet. Al Munther now images those waters from orbit at 20 metres per pixel.
7. **The pearl market:** Pearls were three quarters of Bahrain's exports in 1877. By 1904-1905 about 97 percent of the Gulf's pearl trade passed through Bahrain. Today Bahrain sends payloads into space, on Emirati and Omani-Chinese satellites.
8. **A trade ends:** Japan learned to grow cultured pearls, and Bahrain's pearl trade had collapsed by 1950. One new technology ended the country's main export. Bahrain now builds satellites and payloads to own a share of the next one.



UNESCO · PEARLING PATH (BACA) · ETCSL OXFORD · THE NATIONAL · BAHRAIN SPACE AGENCY

BAHRAIN'S MAJOR ADVANTAGES

THE REGULATOR

One body, the Central Bank of Bahrain, has regulated all finance since 2002. It licenses 367 banks, insurers and other institutions. In July 2025 it issued what Chambers calls the GCC's first comprehensive stablecoin framework. A space company needs a bank, an insurer and a licence. Bahrain already issues all three.

THE CHAIR

In 2025 Bahrain held a vice-chair of COPUOS, the UN committee on space. In 2027 Bahraini engineer Yaqoob Alqassab will chair its science subcommittee. Bahrain also chaired the first meeting of the Gulf states' space committee and leads the group that writes the Arab Space Strategy. Small states get a seat at the table by doing this work.

BOTH CAMPS

Bahrain signed the Artemis Accords, the US-led lunar rules, on 2 March 2022. It was the 17th signatory, four months before Saudi Arabia. Bahrain is also building a camera, with Egypt, for China's Chang'e-7 Moon mission. Few states work with both Washington and Beijing. Bahrain does.

THE BRIDGE

The King Fahd Causeway is a 25 km road to Saudi Arabia. More than 33 million people crossed it in 2024. Saudi Arabia has a space agency and an 8.7 billion dollar space economy. A company in Bahrain keeps Bahrain's costs, ownership rules and regulator, and can drive to Saudi Arabia's Eastern Province in an hour.

THE TEAM

Women are 68 percent of the space agency's staff, by the agency's count in December 2024. This team designed, built, tested and now operates Al Munther, Bahrain's 3.2 kg satellite. In April 2026 it returned the first complete satellite image of Bahrain. The budget is small. The hardware is real.



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BAHRAIN IS THE PAYLOAD HOUSE FOR SPACE

3.2 kg

MASS OF AL MUNTHER. BAHRAIN DESIGNED, BUILT AND OPERATES IT

19 months

TO BUILD AL MUNTHER, BY THE AGENCY'S ACCOUNT

2

PAYLOADS GIVEN FREE PLACES ON OTHER NATIONS' SPACECRAFT

THE PROOF

Al Munther is a **3.2 kg satellite. Bahrain built it.** It carries a camera that sees 20 metres per pixel, software that sorts the images on board, and an encryption unit. It reached orbit in March 2025. In April 2026 it returned **the first complete satellite image of Bahrain**. The agency flies it from its own ground station.

THE PEOPLE

Women are 68 percent of the agency's staff. The agency hired about ten engineers in 2018 and trained them. The same engineers designed Al Munther and now operate it. In 2025 the King gave the agency a department for payload research. Its chief executive counts 120 published papers since 2020.

THE RIDES

A payload is an instrument that flies on someone else's spacecraft. Bahrain has won two free places in open competitions. AMAN, a cybersecurity test unit, flew on **the Emirati satellite PHI-1** in November 2025. LunaHcam, a camera built with Egypt, has a place on China's Chang'e-7 Moon mission. The agency values that place at **USD 4 million**.

THE NEXT STEP

Every place Bahrain has won so far was free, or paid for by a partner. The national space law is still a draft. Foreign investors may own **100 percent of a Bahraini company**, with no local sponsor. The next step is a paying customer for a Bahraini payload. That customer must first know the name.

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NASA IS ONE OF THE WORLD'S MOST POWERFUL BRANDS. NOBODY KNOWS ABOUT BAHRAIN'S SPACE PROGRAM.

NASA

NASA WAS FOUNDED IN 1958. IT HAS 92 MILLION FOLLOWERS ON X AND 15 MILLION SUBSCRIBERS ON YOUTUBE.

BSA ?

THE BAHRAIN SPACE AGENCY WAS FOUNDED IN 2014 AND RENAMED IN 2025. IT HAS 827 FOLLOWERS ON X AND 399 SUBSCRIBERS ON YOUTUBE. IT STILL POSTS UNDER ITS OLD NAME, @NSSA_BH.

1. **One Name, One Handle, One Domain** - The agency changed its name in 2025. Its X handle, Facebook page and web links still use the old one. Retire @nssa_bh, fix the dead .gov.bh links, and put bsa.bh on every asset. The cost is near zero.

2. **Publish the Picture** - In April 2026 Al Munther, Bahrain's satellite, took the first complete satellite image of Bahrain. It is not on the agency's home page. Put it on the website, in every ministry, and on the causeway. Name the engineers who made it.

3. **Make the Anthem a National Event** - Al Munther broadcasts the national anthem and a message from the King. Any amateur radio can receive it. Give schools the pass times. Give a certificate to every pupil who receives the signal.

4. **Make the 68 Percent the Story** - Women are 68 percent of the agency's staff. No large space agency can say that. Tell the story of Aysha Al Haram and the engineers who built Al Munther, by name.

PROFILE PAGES READ 10 OCTOBER 2026

STORY = TALENT + CAPITAL + CLIENTS

TALENT

Media creates excitement about the potential for Bahrain's space activities. **More STEM graduates at home, more talented space engineers looking to Bahrain** to build their career and the future of space.

INVESTMENT

Media attracts private investment from **VCs and angels**. It also lays the groundwork among retail investors for **public stocks, or tokenized funding projects**.

CLIENTS

Media reaches far more clients than door-to-door sales ever will - **not merely governments, but commercial enterprises, startups and research teams**. Reaching the world's space operators efficiently, at scale, takes a powerful, reputable brand - **built from day one**.

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