

32. Korea

Institutional framework

Korea's space activities started in the early 1990s with the construction and overseas launching of satellites and sounding rockets. In 2007, in accordance with the Space Development Promotion Act, Korea established its first Space Development Basic Plan, which covered space development matters, including policy, organisational structure, financial and human resources, infrastructure expansion and international co-operation. The Basic Plan was consolidated by Ministry of Education, Science and Technology, Ministry of Strategy and Finance, Ministry of Foreign Affairs, Ministry of National Defence, Ministry of Security and Public Administration, Ministry of Knowledge Economy, Ministry of Land, Transport and Maritime Affairs and the National Intelligence Service.

The Korean Aerospace Research Institute (KARI) manages the Korean space programme, under the responsibility of the Ministry of Science, ICT and Future Planning. It is primarily a research agency. The construction of the Naro space centre was started in 2005, from which the NARO-1 (with an indigenously-built second stage engine) was successfully launched in 2013 with the experimental satellite STSAT-2C on board. The Korean government plans to develop a rocket built entirely with Korean technology by 2018-20 (KARI, 2013). The First Space Development Basic Plan allocated some KRW 1 546.9 billion (Korean Won) for the period 2007 to 2011. In 2012, the Second Basic Plan for 2012-16 was launched, with an estimated total allocation of KRW 2 133.1 billion for the five-year period. It was revised in November 2013 with a budget increase towards an earlier development of Korea's Space Launch Vehicle 2. From 2007 to 2012, the Korean space budget actually fell, but saw a substantial increase from 2012 to 2013. When

adjusted for inflation, the budget decreased by 20% between 2007 and 2013 in local currency. In 2013, Korea's space budget amounted to KRW 348.2 billion (around USD 318 million), with the allocation to launcher development and the Naro space centre accounting for 40% of the total budget. Satellite operation and development was the second-biggest budget item, with KRW 105 billion (USD 96 million), more than 30% of the total budget.

Korean space industry

Space industrial activities and research in Korea are mainly government-funded, with KARI acting as the contracting agency. The number of space-related companies is estimated at about 100, with the aerospace conglomerate Korean Aerospace Industries (KAI) playing an important part. Space activities are concentrated in two main locations – research institutions in Daejeon in conjunction with KARI, and companies in the Seoul metropolitan area. In the annual industry survey conducted by the Korean Ministry of Science, Information and Communications Technology and Future Planning, there were 146 active organisations in the Korean space industry in 2013, including 91 companies, 22 research agencies and 33 universities (Ministry of Science, ICT and Future Planning, 2014). The space sector generated KRW 1 441 billion (USD 1.3 billion) in sales in 2012, and employed 3 600 people, including both the industry and research personnel in research institutions and universities, and both upstream and downstream sectors. Space manufacturing employed some 1 838 people in 2012, with research institutions and universities accounting for about half of the manufacturing employment (Korean Ministry of Science, ICT and Future Planning, 2013).

Key facts for Korea

Space budget as a share of GDP (2013): 0.023%.

Space budget per capita (2013): USD 8.2 (PPP).

Number of regional clusters including space industry: 2 (Daejeon, Goheung).

Share in scientific production in satellite technologies (2013): 2.51%.

Share of space-related patent applications filed under PCT (2009-11): 4.11%.

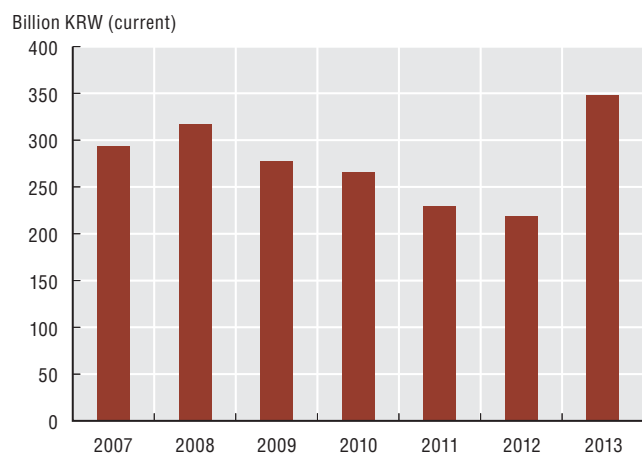
Subscribers of Direct-to-home (DTH) satellite services (2011): 3.3 million (17.57% of television households).

Number of operational satellites: 7.

Student performance in science (PISA 2012 mean score): 538 (above the OECD average).

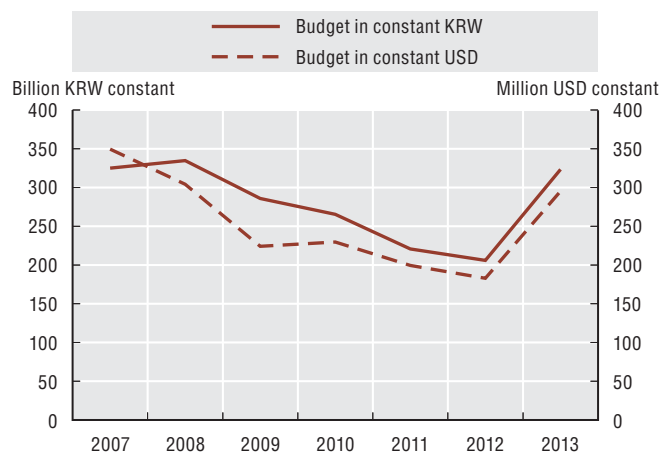
32.1. Korea's space budget

In billion KRW, 2007-13



32.2. Korea's inflation-adjusted space budget

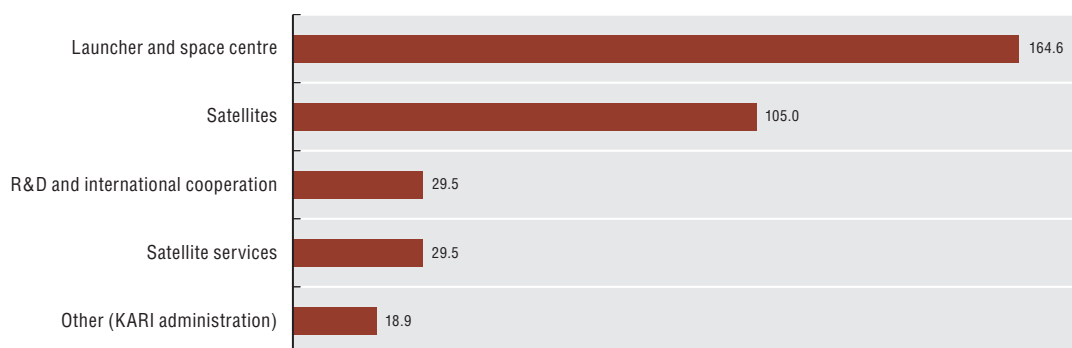
In constant billion KRW and million USD, 2007-13



Source: Korean Ministry of Education, Science and Technology, 2014.

32.3. KARI's space budget by main programmes

In billion KRW (current), 2013



Source: Korean Ministry of Science, ICT and Future Planning, 2014.

Korean aerospace industry

In 2010, the Ministry of Trade, Industry and Energy published an ambitious 10-year Basic Plan for the Development of the Aerospace Industries to significantly increase aerospace production by 2020. The Korean aerospace sector currently focuses mainly on military aircraft and parts, employing some 10 000 people (Invest Korea, 2014). The sector is dominated by the conglomerate Korean Aerospace Industries (KAI). Production is mainly carried out in the southern Gyeongnam region (Sacheon, Changwon and Busan). According to OECD data, South Korea exported aerospace products for a total value of USD 1.5 billion and imported aerospace products for USD 3.7 billion in 2012 (OECD, 2013). Main trade partners were the United States, accounting for 80% of imports and 53% of exports, followed by France, Japan and the United Kingdom.

Sources

Korean Ministry of Science, ICT and Future Planning (former Korean Ministry of Education, Science and Technology) (2013), *Status of the Korean Space Sector 2012*, Seoul.

Korean Ministry of Science, ICT and Future Planning (2014), *Status of the Korean Space Sector 2013*, Seoul.

OECD STAN Bilateral Trade Database by Industry and End-use (BTDIxE), data extracted April 2014, www.oecd.org/sti/btd.

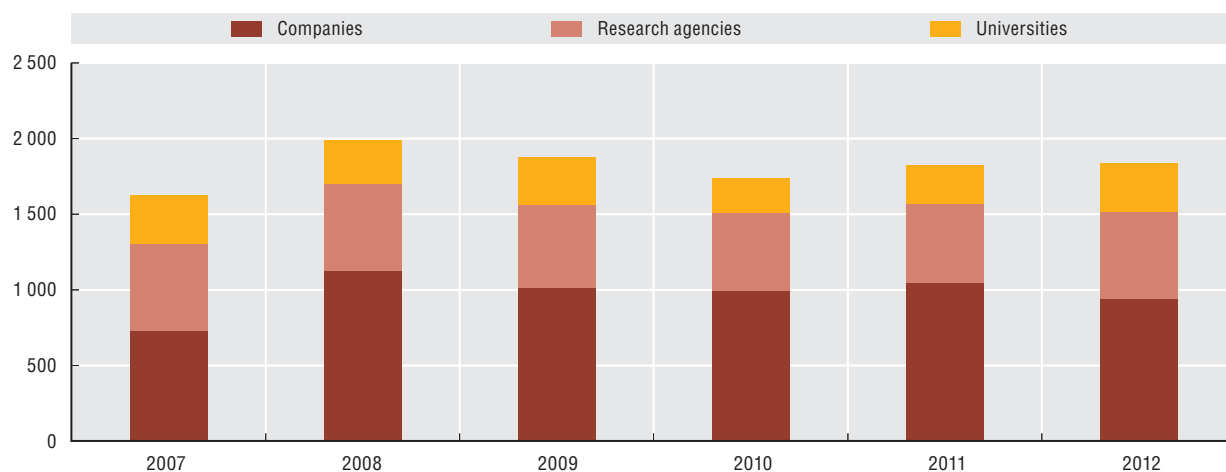
OECD, *Main Science and Technology Indicators database*, www.oecd.org/sti/msti.

Note

32.4: Space manufacturing is defined in the Korean survey as the “production of space equipment”.

32.4. Space manufacturing employment in Korea

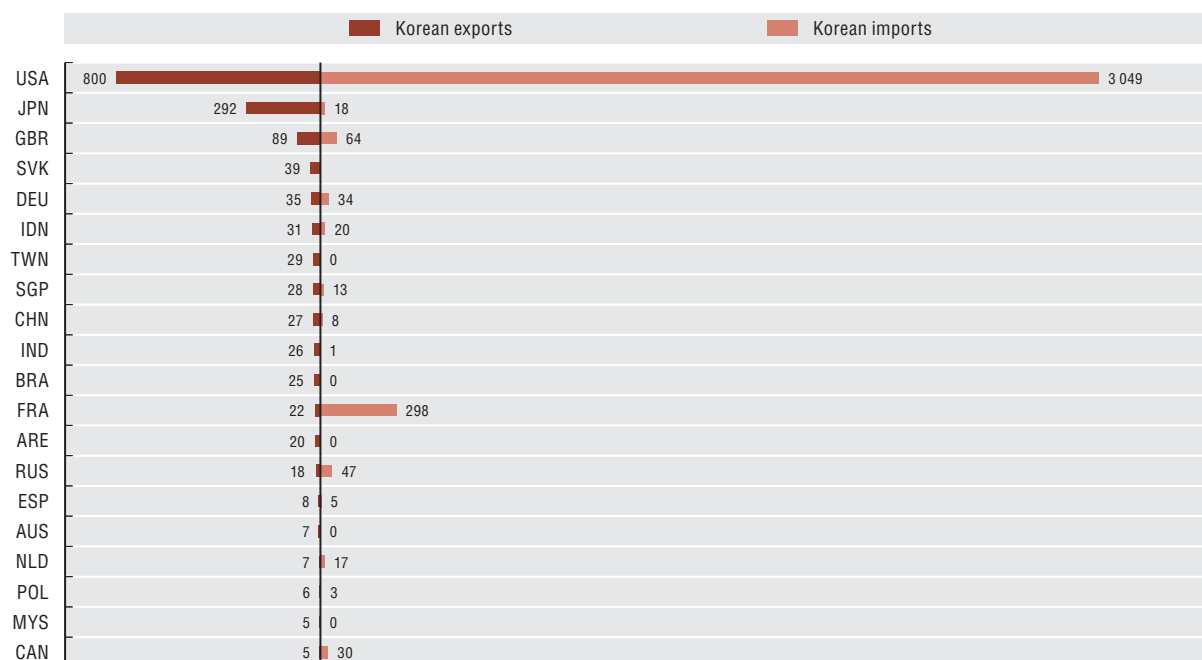
Number of employees, 2007-12




Source: Adapted from Korean Ministry of Science, ICT and Future Planning, 2013 and 2014.

32.5. Korea's main aerospace trade partners

In million USD (current), 2012



Source: OECD STAN Database, 2014, www.oecd.org/sti/btd.

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