COMMERCIAL ROCKET LAUNCHES

Japan chases space market

Tokyo

JAPAN is hoping to grab a slice of the multi-million dollar market for the commercial launch of large international telecommunications satellites, a market currently dominated by Europe's Arianespace company.

At the end of last month, the Science and Technology Agency (STA) established a government panel to examine transfer of state-owned space technology to the private sector. The panel was set up at the urging of the National Space Development Agency (NASDA), a semi-governmental organization affiliated to STA, and Rocket System Corporation (RSC), a consortium of 75 private companies established last year to handle procurement and manufacture of Japan's next-generation H-II rocket, which is being developed by NASDA (see *Nature* **345**, 191; 1990).

RSC is hoping to make a bid for the launch of huge next-generation telecommunications satellites that will be operated by the International Telecommunications Satellite Organization (INTELSAT) from the mid-1990s onwards. Last October, INTELSAT approached NASDA about the possibility of using the H-II to launch two INTELSAT VII-A satellites in 1994 and 1995. The matter was referred to RSC because NASDA cannot legally engage in commercial activities. But RSC cannot make a bid for the launches until the Japanese government determines its position on technology transfer — hence the need for the STA committee.

The committee, headed by Shigeo Kobayashi of Tokyo Metropolitan Institute of Technology, will look into the transfer of NASDA-developed rocket technology to RSC and will also examine issues associated with the use of NASDA's launch facilities for the H-II at NASDA's space centre on Tanegashima island in southern Japan.

Ultimately, RSC wants to take over management of the facilities on Tanegashima. But there are a number of legal hurdles. If, for example, an accident occurs during a launch carried out by NASDA, the Japanese government is legally obliged to pay compensation. But no such laws exist to cover launches by RSC.

For the time being, RSC and STA officials expect that RSC will entrust any commercial launches to NASDA in return for a non-profit fee. And one of the jobs of the STA committee will be to examine the costs involved in using NASDA launch facilities.

Hiroyuki Osawa, chairman of the board of RSC and former president of NASDA, says that INTELSAT is 'very interested' in using the H-II for its next-generation satellites. Only Ariane rockets and the H-II will have the necessary power to place the heavy INTELSAT VII-A satellites in orbit, Osawa says.

Arianespace dominates INTELSAT launches with five out of eight orders for the next few years (the other three going to US Atlas rockets), according to figures provide by Arianespace's Tokyo office. But INTELSAT is keen to find alternatives and is actively encouraging RSC to submit a proposal, Osawa says. Furthermore, Japan is one of the biggest contributors to INTELSAT through the international telecommunications company Kokusai Denshin Denwa, and thus Japan has strong political leverage in the assignment of INTELSAT launches.

RSC's 31 staff members are busily preparing for a request for a proposal from INTELSAT that they expect to receive in August — by which time they hope the STA committee will have reached some decisions on the issue of technology transfer and the use of the Tanegashima launch facilities.

One of RSC's biggest headaches will be setting an appropriate price for H-II launches, says Hiroshi Imamura, vice-president of RSC. Launches of present-generation INTELSAT VI satellites typically cost about $100 million each, according to Jean-Louis Claudon head of Arianespace's Tokyo office. When development of the H-II began in the mid-1980s, NASDA aimed for a target launch price of ¥8 million per kilogram of satellite — a very competitive price at that time — but the yen has since doubled in value against the dollar and H-II launch costs are now expected to be about 20 per cent higher than Ariane's, Osawa says.

RSC officials thus hope to make reliability rather than price their strongest selling point. Imamura proudly displays NASDA's 100 per cent success rate in the launch of 22 satellites. In contrast, Naotaka Oki, director of STA's space development division, points to the 'incredible' accident last year when a carelessly left rag apparently caused destruction of an Ariane rocket carrying a payload of Japanese commercial satellites (see *Nature* **344**, 695; 1990).

But RSC faces serious problems with the H-II rocket itself. NASDA is experiencing difficulties in developing the main engine for the liquid fuel rocket and its first launch has already been delayed a year until 1993. Any further delays would virtually rule out any chance of the H-II being used to launch an INTELSAT satellite in 1994 and RSC officials are not prepared to predict whether the H-II will be launched on schedule.

In the long run, another barrier stands in the way of RSC. Launches of NASDA rockets from Tanegashima and from the nearby space centre of the Institute of Space and Astronautical Science are limited to two 45-day windows each year in summer and winter by an agreement with a small band of local fishermen. This effectively limits NASDA and RSC to at most four H-II launches a year — hardly enough to run a commercial operation.

The fishermen claim the rockets might damage their tuna fisheries, and in return for permission to use the 90-day window, the institute pays them ¥400 million (about $3 million) a year for 'positive' improvement of their fisheries operations, Oki says. (It should be borne in mind that a very powerful member of the ruling Liberal Democratic Party held the Tanegashima constituency at the time the agreement was made.) Before RSC can become a strong competitor in the commercial space business, a new agreement will have to be reached with the tuna fishermen of Tanegashima. **David Swinbanks**

Blurred lines

Tokyo

HIROYUKI Osawa, chairman of the board of RSC, provides a classic example of how in Japan the division between government and industry can become quite blurred.

RSC officials insist that RSC is a private organization that cannot directly influence government decisions. Similarly, Naotaka Oki, director of STA's space development division, is at pains to emphasize that the new STA committee established to look at space technology transfer is not directly concerned with the commercialization of Japan's space industry or RSC.

But their protestations seem rather unconvincing when one looks at interrelations between the different entities. Osawa is a former vice-minister of STA and former head of NASDA. Furthermore, while serving as head of RSC, he is also a member of the government-run Council of Science and Technology with an office four floors below Oki in STA. It seems certain that Osawa will be able to help smooth out any legal and government barriers that lie in the way of commercialization of Japan's space industry. **D.S.**

SPACE SCIENCE

ESA and Hungary cooperate

Munich

THE European Space Agency (ESA) this week signed a cooperation agreement with Hungary, its first such with an Eastern European country. The agreement provides for cooperation between ESA and Hungary in space science, Earth observation and environmental protection, microgravity and telecommunications.

The agreement was made on the basis of 'non-exchange of funds', according to Simonetta Cheli of ESA in Paris, but ESA will nevertheless provide free consulting in areas such as telecommunications and improve access to databases.

The Soviet Union signed a similar agreement last year, and Poland, Czechoslovakia and Romania have all expressed interest in cooperating with ESA. But full or associate membership in the 13- member organization, which would involve payment, is a long way off. Steven Dickman