ing a value of $650 to $700 million. (The charge for the first shuttle ride will be deferred until the project is making money.) About 30% of the space will be available for other users. The investors will put equity of $200 million to $250 million into the project, paying interest on a debt of around $400 million. Allen concedes that this is "a little different from how the federal government would normally procure things." But it is the way big real estate deals work.

Although it is not advertised as such, the project is novel in another way: it directly challenges NASA's authority to design and build space vehicles and to set the agenda for space research. In a sense, Faget is saying that his idea for building infrastructure is better than NASA's, and he is going to Congress and the White House—over NASA's head—to carry out the plan. The money will come directly from NASA's budget, meaning the agency will be forced to pay for a project it disapproves of, even if this means delaying NASA's own plans.

The risk, of course, is that Congress will favor this tool shed over the $14.6-billion U.S. space station. With the budget for discretionary projects in dire trouble, it will be tempting to back a project taking 3 years rather than 10 years to launch and requiring one shuttle flight rather than 19. There is silent support for the ISF among the "worker bees" in space science, according to a Senate aide, despite the opposition of top NASA managers. Because of its short lead time, the ISF could rescue some of them from a long wait for access to space. "Do you really think people want to invest 5 years of a career in one data point?" asks a scientist at AT&T's Bell Laboratories.

With the ISF, it might be possible to reduce the backlog of experiments waiting for a ride on the shuttle, including some academic projects, although using the ISF for this purpose would require some new flight hardware. Charles Lundquist of the University of Alabama at Huntsville recently ran a survey for NASA on potential users of the ISF. He found that there are enough in line already to fill at least one capsule. However, because the ISF lacks strong external attachment points, it would not be useful for astronomical or earth observing systems.

Even if Congress sets out to make the ISF and the space station complement one another, the two are likely to compete for funds, and this could delay the larger manned base. One sign that this may be happening already was the announcement on 8 February that NASA's associate administrator for the space station, Andrew Stofan, age 53, is retiring after 2 years at the helm. A spokesman in his office says that there is no connection between Stofan's departure and Congress's manhandling of his program.

Publicly, many space agency officials say they adore commercial ventures, even the ISF. Privately, a high level NASA aide grumbles that the ISF is a "moving target . . . an idea that exists only on paper." Congress, he says, has ordered NASA to create a "warm and fuzzy environment for this thing." The big problem is not making use of ISF, because "we can go create users." Rather, it is that the ISF is a "displacement activity," shifting resources from goals chosen by NASA officials to those chosen by Congress and some Texas executives.

Faget recently found himself so "distressed" by reports that the ISF was seen as a substitute for the space station that he wrote a letter declaring that "nothing could be further from the truth." He pointed out that astronauts cannot live in the ISF unless it is attached to the shuttle, and that unlike the station, the ISF does not use "cutting edge" technology. It "complements" the station, he insisted. But attempts to wish the competition away have not changed the reality.

One critic, John Pike, a policy analyst at the Federation of American Scientists in Washington, D.C., attacks the ISF from another direction. "There is a mania for anything with the label 'commercial' pasted on it," he says. He sees the ISF as a diversion from the main task of creating a workable transportation system. Attempts to win a subsidy for ISF represent "a raid on the public treasury." In Pike's view, the ISF is a glorified version of the "extended duration orbiter," an orbiter modified to stay in space for weeks. The advantages of the ISF are that it provides more power, more shelf space, a quieter environment, and a longer time in orbit for automated projects, particularly valuable for industrial processes or long-running materials experiments. But Pike argues that it is premature to invest in this capability. "This is a very weird way of doing space policy," he concludes.

These comments and some skeptical remarks made by congressional aides about the ISF's financing suggest that the debate is not over. It is clear however, that NASA's freedom to set its own agenda has been eroded by the scrap over ISF and the agency must now pay attention not just to its own parochial constituency but also to the Commerce and Transportation departments. And NASA will have to balance interests that often compete, it seems, without much guidance from the President. The prolonged administrative hassle over the ISF and the space station suggest that only sluggish direction is coming from the President. ■

ELIOT MARSHALL

Briefing:

Congress's Handiwork on the R&D Budget

An analysis of the budget that Congress finally passed in the waning days of 1987 indicates that overall federal support for research and development will rise by just $2 billion in fiscal year 1988, which began on 1 October. That is almost 8.9% less than the Administration had requested.

Defense spending is estimated to account for 67.3% of total federal R&D expenditures. The $61.1-billion defense R&D budget is up by 0.9%, but falls $6 billion short of the President's request. In contrast, the budget for nondefense R&D will climb by about $1.6 billion (9%) to $19.9 billion.

Funding for basic research rose to $9.8 billion, a 6% increase above last year's level. After inflation, however, real growth is expected to be about 3%. Most of the increases in basic research are occurring at the National Institutes of Health and the Department of Energy.

The details of the 1988 budget are contained in *Congressional Action on Research and Development in the FY 1988 Budget.* Copies are available from the AAAS Office of Public Sector Programs. ■ **M.C.**

Press Asks Reprieve for Condemned Somalis

National Academy of Sciences (NAS) president Frank Press has sent a telegram to Somali president Mohammed Siad Barre urging pardons for eight political prisoners who were convicted of treason and sentenced to death early this month.

Two of the condemned, mathematician Abdi Ismail Yonis and engineer Suleiman Nuh Ali, were among a group of 13 scientists and engineers whose cases were investigated last fall during a visit to Somalia by a fact-finding group from the Institute of Medicine and the NAS.

Press, in his telegram, said that the imposition of the death sentences "will surely serve to curtail the possibility of future cooperation in science, medicine, education, and other fields between our two countries for many years to come."

Although the NAS mission was unable to get any reliable information on the condition of the prisoners, its Committee on Human Rights recently received lengthy statements reportedly handwritten by Yonis and Ali, which describe how their captors tortured them to make them sign confessions. ■ **C.H.**