disagree or say that the definition of deliberate release is fuzzy. Gartland of NIH says, "If the vaccine virus doesn't shed, does inoculation constitute an environmental release? It's an interesting question." But deliberate release "has never been carefully defined," he says, and the Administration policy statement on regulating biotechnology, which is expected to be released soon, "does not come to grips with the issue." ■

MARJORIE SUN

Congress Approves Garrison Compromise

Congress in April finally approved a scaled-down version of the Garrison Diversion Project in North Dakota, subject of one of America's longest-running pork barrel controversies.

The massive irrigation scheme has been kept alive by a handful of North Dakota politicians even though it has long been considered questionable by many farmers themselves, has drawn the ire of Canadians who feared pollution of their watershed, and has outraged conservationists who said valuable wetlands were being destroyed (*Science*, 31 August 1984, p. 904). A congressionally appointed commission last year recommended a modified version of the project that included putting some of the funds into development of municipal water supplies. Construction was halted pending congressional action.

The new measure, covering 6 years, authorizes $700 million including new money for irrigation of Indian lands. It reduces the acreage to be irrigated from 250,000 to 130,000, cancels the most environmentally damaging portions of the plan as well as those affecting the Canadian watershed, and calls for the establishment of a federal and state-funded "wetlands trust." Congress has added a new feature in the form of a penalty equal to 10% of irrigation costs for farmers who use the irrigated land to grow surplus crops. Total costs of the program will probably approach the $1.2 billion first projected for the entire scheme, which originally was supposed to cover 900,000 acres. A congressional aide says the authorization is not indexed for inflation, which could be a precedent for future water project funding.

Ruth Norris of the National Audubon Society, which has spearheaded efforts at a compromise, says conservationists are pleased with the solution "insofar as we could ever be pleased with the Garrison project." ■ CONSTANCE HOLDEN

New Annual Report on Global Deterioration

"World Resources 1986," a thick, statistics-ridden document on global environmental deterioration and population growth, has just been issued, the first of an annual series jointly produced by the World Resources Institute and the International Institute for Environment and Development.

Unlike the rather cautious report on population growth and economic development that was recently issued by the National Academy of Sciences (*Science*, 28 March, p. 1493), this one paints a picture of frighteningly rapid developments in such areas as soil erosion, deforestation, uncontrolled urban growth, and population growth.

WRI vice president Jessica T. Mathews said the report represents a first stab at establishing "key environmental indicators" that can be universally used in environmental assessments. Most readers, she added, "will emerge surprised and somewhat shaken by how much we do not know." Data are spotty, out of date, and not comparable between countries. There is, for example, little information on what substances, other than carbon dioxide, have a major role in the "greenhouse effect."

Each year's report is to contain a special section, including recommendations, on a particularly urgent problem. This year it is the destruction of temperate forests of Europe and North America, which speakers called one of the world's greatest ecological threats. In 1982, for example, "Waldsterben" (forest death) afflicted 8% of the trees in German forests. In 1984 it was 50%. The section also contains exhaustive data on the types of trees affected, their locations, symptomatology, the noxious agents, and "schools of thought" on forest decline.

According to IIED vice president David Runnalls, the document is intended primarily as a tool for economic decision-makers. It has been presented to the board of the Asian Development Bank and will be introduced at other international forums. ■

CONSTANCE HOLDEN

Third Disaster in a Row for NASA

The explosion of a Delta rocket at Cape Canaveral on the evening of 3 May, coupled with the loss of the space shuttle Challenger on 28 January and the explosion of an Air Force Titan rocket on 18 April, has left the United States with almost no means to launch commercial and military satellites into space.

All three programs have now been suspended pending a resolution of their respective problems. The only large member of the U.S. stable of launchers still in service is thus the Atlas-Centaur rocket, manufactured by the General Dynamics Corporation. However, only three Atlas-Centaurs still remain, and those three are already committed to launch Navy satellites. The National Aeronautics and Space Administration (NASA) had phased out production of the Atlases and Deltas prior to the Challenger accident in anticipation that the shuttle would carry the majority of payloads. NASA also has a dozen tiny Scout rockets left, but they, too, are committed, and in any case can only lift about 200 kilograms into orbit.

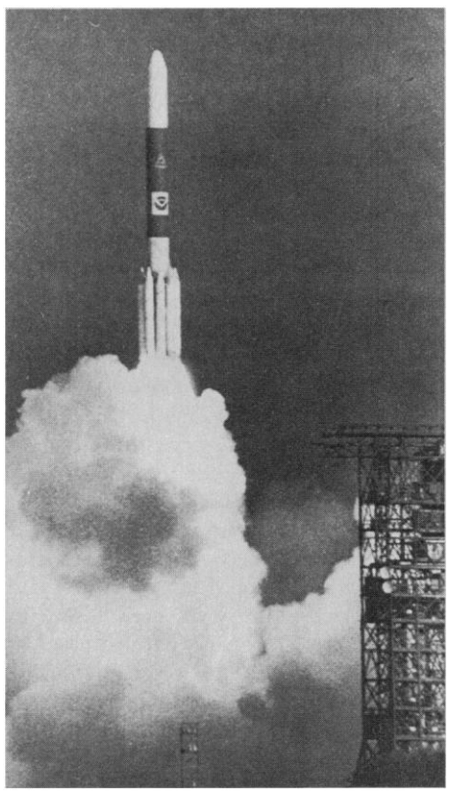
The Delta is a medium-lift launcher and is often used for lofting weather and communications satellites into the 35,900 geosynchronous orbit. On this flight it was carrying a $57.5-million weather satellite known as GOES-G.

The loss of the Delta came as a severe blow to NASA, which is still struggling to recover from the shuttle disaster. It was the agency's first launch after Challenger and had a great deal was riding on it, both politically and emotionally. "This was what was going to start the turnaround," says one observer who was at the Cape that evening. The shock was especially acute because the Delta had been considered the most reliable launch vehicle in NASA's inventory, with a run of 43 successful launches stretching over a decade, and a total of 178 launches since the program's inception in the 1960's. Senator Albert Gore (D–TN), who sits on the subcommittee that oversees NASA, has called for a complete reassessment of the agency's policy, priorities, and quality-control procedures.

At this point no one can say exactly what caused the failure. The lift-off appeared normal until just 71 seconds into the flight, when the rocket's main engine shut down abruptly and the vehicle began to tumble out of control; range safety officers then destroyed it with onboard explosives. William Russell, head of NASA's Delta program, later told reporters that an analysis of the telemetry data had revealed two large surges of electrical power in the rocket's main engines just prior to the shutdown. "It's the first thing that leaps from the data," he said. An obvious possibility is that the spikes were caused by a short circuit. However, Russell also cautioned against jumping to conclusions about where the electrical spikes had come from or whether they were the cause of the engine shutdown. Asked

about possible sabotage, such as a radioed command from an external source, Russell refused to rule it out. But other NASA officials emphasized that there was no evidence for it whatsoever.

Meanwhile, following what is now a familiar ritual, flight directors impounded all data on the launch. NASA's acting administrator William Graham flew to the Kennedy Space Center to confer with launch officials and program managers. And Rear Admiral Richard Truly, head of NASA's Office of Space Flight, appointed an eight-member board to investigate the accident; the chairman will be Lawrence J. Ross, director of space flight systems at NASA's Lewis Research Center in Cleveland. Truly emphasized that none of the panel members were involved with the preparation or launch of this particular mission. The board will be assisted by the organization already in place at NASA headquarters to investigate the Challenger accident.



Wide World

Moments before disaster. *The lift-off appeared normal for 71 seconds*

Ironically, the agency had already implemented new procedures for the Delta launch based on the lessons learned from the Challenger experience. Engineers made thousands of hours of additional checks on the Delta. The launch was delayed for 2 days so that technicians could check out a minor fuel leak. And project managers were required to sign documents certifying that the vehicle was ready for launch, instead of giving the go-ahead orally.

Outside NASA, the most immediate impact of the Delta failure will be felt at the National Oceanic and Atmospheric Administration (NOAA). The primary mission of the GOES series of satellites is to provide continuous monitoring of storm systems over the entire Western Hemisphere. The GOES-G satellite that was lost was intended to replace a previous GOES that had prematurely failed in June of 1984. A companion, GOES-H, has been scheduled for launch in October and could conceivably be launched earlier—if there is a way to do so. Beyond that comes a new series of five satellites known collectively as GOES-NEXT. The first of these will not be ready until 1989 at the earliest.

In the meantime, however, the weather service is relying on its one remaining geosynchronous satellite, GOES-6, which was launched in April 1983. Its design lifetime is five years, which means that it can be expected to fall silent sometime in 1988. Thus, if GOES-H cannot be safely launched, the weather service could have a yearlong gap in its coverage in the late 1980's.

Much the same story also holds for NOAA's polar-orbiting weather satellites. The next one in that series had been planned for launch this summer. At this point, however, it is not clear exactly what will be available to launch it. ■

M. MITCHELL WALDROP

Rockefeller Doubles Third World Effort

The Rockefeller Foundation has announced a "major revision" of its programs for the developing world. The new initiative will involve a doubling of its contributions to between $250 million and $300 million over the next 5 years.

Rockefeller president Richard W. Lyman said at press conferences in New York and Washington that the strategy is designed to narrow the growing technology gap between poor and industrialized nations. Particular emphasis will be on smoothing the technical and administrative obstacles that threaten to put poor countries at increasing disadvantage as the latest revolution in fields such as biotechnology and microelectronics sweeps the developed world.

Agriculture, health, and contraception are the substantive focuses of the new initiative. In every case, the attempt will be to foster research on technologies that are culturally and environmentally appropriate, adaptable, inexpensive, and easy to use. In agriculture, this means more research on basic food crops such as millet, rice, and sorghum; in health, the focus is on "neglected" diseases such as schistosomiasis and childhood diarrhea; in contraception, there will be more research on technologies (including male contraceptives) not requiring physician involvement.

Integral to the program will be social marketing campaigns and the development of "delivery technologies." Few details have yet been worked out, but action programs will include systematic attempts to introduce the long-acting implantable contraceptive Norplant in an Indian province and an African country. The foundation decided not to rebuild a major field staff but to work instead on helping countries develop indigenous competence, both scientific and administrative.

Foundation officials are particularly interested in studying the effect of "gender bias" in technology—for example, farm machinery that is designed for the use of men who have access to credit when in fact the bulk of food crops are raised by women. Another major area of concern is the impact of international economic policies on technology transfer—including the problems posed by licensing, patent, and trade practices.

According to the foundation, organized science is widening the technology gap by focusing on "industrial-country competition" and not upon "developing-country conditions." Lyman pointed in particular to a recent article by National Science Foundation director Erich Bloch (*Science*, 2 May, p. 595) which discusses research exclusively in terms of commercial and military competitiveness. Said the Rockefeller program director, Kenneth Prewitt: "the fact that this [the developing world] is not a priority in the current administration cannot but help emphasize that it ought to be a major emphasis for foundations." ■

CONSTANCE HOLDEN

Comings and Goings

Frederic E. Wakeman, Jr., professor of history and former chairman of the Center for Chinese Studies at the University of California at Berkeley, has been named president of the Social Science Research Council. He succeeds **Kenneth Prewitt**, who is now at the Rockefeller Foundation. The American Council of Learned Societies will also have a new president, **Stanley Katz**, a legal historian currently at Princeton's Woodrow Wilson School.