

and development agency applying its scientific, engineering, and management capabilities primarily to the accomplishment of aeronautical and space programs for which it is responsible.

NASA's laboratories are its in-house technical strength and are an essential element of its management system. That strength has been carefully and deliberately built up to provide a national resource that is now applying its talents to advancing the technology of aeronautical and space systems so as to provide scientific understanding of the earth and its atmosphere, of the solar system, and of man and other forms of life and also to apply that technology in other ways that will also benefit mankind. These other ways include the direct applications of space technology to communications, weather prediction, and navigational aids.

I want to emphasize, however, that the funds for this program, about 90 percent of our budget, are spent in industry with the in-house laboratory competence providing a technical interface with the contractors to anticipate problems, help guide the contractors to the proper solutions of problems that come up during the development programs. The laboratories are then a very key part of our system for getting the work done, but we do rely very heavily on the available capabilities of industry. Also trying, during the course of the program, to strengthen the capabilities of industry to carry out advanced technological programs and to apply that advanced technology in other areas.

Although NASA could not predict or guarantee the magnitude or exact direction of future mission activities, it did establish its laboratories so that expansion or retrenchment could be achieved while maintaining this basic capability.

Thus, when the most active periods of mission-oriented work begin to decline, the laboratory does not have to deteriorate and decline as well. It has the flexibility to take on new roles and missions, to shift its primary emphasis (from development to research, for example) or to retrench its total capability to a lower level where effectiveness can still be maintained. In the broad range of science and technology, there should be no end to a laboratory's mission or purpose. The best laboratories of all kinds repeatedly demonstrate the ability to go through a continuous renewal of challenging objectives in order to stay alive and vital. And this process of renewal is only successful where the new objectives are those which are best oriented toward new needs.

NASA now has 11 research and space flight centers; counting the various unique installations that are associated with these centers, we have 19 installations, plus 27 tracking stations. We own a total of 143,000 acres of land and utilize through leasing and other arrangements an additional 194,000 acres. We now have 32,442 civil service employees and, in addition, contractor and university employees operating or supporting these installations. These employees cover the span of disciplines from mechanics and technicians to Ph. D.'s in all of the science and engineering disciplines. Our total capital investment at these in-house installations is over \$3.5 billion.

In addition, there is another half a billion dollars that is located with various other institutions, industrial contractor and university institutions, where we have ownership of the capitalized equipment and facilities.