

of money as well as manpower can be achieved if responsible government organizations are alert to the desirability of terminating or drastically modifying projects, or even entire programs, whenever there is convincing evidence of probable failure. Carefully considered action to terminate or redirect a program under such conditions is more often a sign of strength than a sign of weakness in the government's research and development management, and should be so interpreted by Congress and the public. Such action can be an important means of conserving scarce scientific and engineering manpower.

8. Federal departments and agencies should work with industry to develop plans and programs for minimizing the dislocation and consequent malutilization of scientists and engineers as a result of program cancellation or redirection.

Early cancellation or curtailment of major programs will not, by itself, improve utilization of scientific and engineering personnel unless the personnel inactivated by these decisions can go to work on other productive activities immediately. If they are thrown out of employment by the cancellation, or assigned to busy-work projects, their usefulness is actually reduced, of course, although money may be saved by reduced need for materials and facilities.

As noted at the beginning of this report, scientists and engineers can play a key role in creating new opportunities for the nation. If the burden of defense lightens, they should be involved in the conversion of defense industry to other national objectives or to civilian purposes. If their potential is to be utilized productively, cooperative action will be needed to facilitate the transition. Provisions are required to enable existing defense industrial contractors more readily to utilize their scientists and engineers in diversifying and transforming the enterprise. Incentives to facilitate the formation of new enterprises, based on the capabilities of creative groups wishing to apply technology with which they are familiar to the civilian economy, will also be of value.

It would be in the national interest if, during the periods of transition, attractive opportunities could be provided for individual scientists and engineers to replenish and augment their professional value through education and training, possibly at university centers as well as within the organizations in which they work.

The Committee recognizes that these objectives are difficult to achieve, and hastens to express its view that programs designed to minimize dislocation should not involve coercive methods that would curtail the freedom of individuals or encroach upon the proper prerogatives of responsible free enterprise.

9. Federal support of contractor-initiated technical effort by government industrial contractors should be maintained at a substantial level. Incentives should be developed for encouraging corporate managements to emphasize quality and continuity, and to orient work toward long-run objectives.

Companies engaged in research and development or production under government contract are usually permitted to devote some portion of their total effort to what has been called independent research and development, or, as it has more recently been designated, contractor-initiated technical effort. Its objectives are, as a rule, defined only in general terms, and it is treated as a recognized business cost. Independent research and development has provided scientists and engineers employed by industrial contractors the opportunity to develop advanced concepts that, in many cases, have been of great value to the government. In the current efforts to strengthen government contracting procedures, it would be unfortunate if government funding in this area were to be eliminated or even substantially reduced. While the Committee recognizes the need for limits on government funding for this purpose, it believes that the public interest would be better served by an increase than by a decrease in current allowances.

The government should seek to develop incentives to encourage the most effective use of the manpower supported by the funds it supplies. While detailed government controls over the specific activities of individual contractors are not desirable, a periodic review by responsible and competent technical people would be useful to determine whether the results of independent research and development effort are commensurate with its cost.

#### THE GOVERNMENT AS EMPLOYER

10. Greater emphasis should be placed on assuring a high level of professional competence in the federal scientific establishment. In support of this objective, the administration proposals for higher salaries at the upper levels of government service should be promptly enacted by the Congress.