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Report to the Congress; by Elmer B. Staats, Comptroller General.

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Inflation is continually cited as a leading cause of tremendous cost growth in Government programs in recent years. The practices followed by selected Government agencies in providing for inflation in the cost estimates of long-term major programs were examined because the long-term programs proposed by the departments and agencies are not costed on a consistent and uniform basis, and it is impossible for the Congress to compare programs. Findings/Conclusions: Office of Management and Budget (OMB) and agency procedures do not result in uniform treatment of expected inflation or price changes in the budget and cost estimates provided to the Congress. The use of uniform inflation criteria would enable Congress to make comparisons of program budgets. OMB could achieve this by: limiting the number of inflation indexes used, issuing explicit guidelines for adjusting estimates to account for inflation during the budget processing cycle, requiring annually recosted long-term program estimates consistent with prevailing prices, and requiring agencies to identify separately the effect of inflation on future program costs. An alternative would be to permit all agencies to include inflation in their long-term program cost estimates as the Department of Defense does. Recommendations: The Congress should require that OMB develop inflation policy and procedures which agencies would uniformly apply to annual program and budget estimates. (RRS)

BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Consistent And Uniform Treatment Of Inflation Needed In Program Cost Estimates Provided To The Congress

When deciding on priorities for national spending, the Congress is at a marked disadvantage because major long-term programs proposed by executive agencies are not costed uniformly. For example, while inflation has traditonally been excluded from budgets, we found that a few agencies, such as DOD, have made allowances for it in their budget submissions. Because allowances are calculated differently from program to program and from agency to agency, it is virtually impossible to compare the costs of programs.

GAO believes that there should be uniform treatment of anticipated inflation in the program budget and cost estimates provided to the Congress. Major efforts must be made to assure that program submissions are consistently expressed in comparable prices. Recosting long-term program estimates to prevailing prices at least annually would better inform the Congress, the agencies, and the program managers of their progress. A number of additional advantages could accrue by using the GAO suggested costing policies.

PSAD-78-8
MARCH 20, 1978

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-176873

To the President of the Senate and the
Speaker of the House of Representatives

This report presents alternative strategies for agencies to use in calculating inflation in their budget requests and program reports.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Acting Director, Office of Management and Budget; the Secretaries of Defense, Energy, and Transportation; the Administrator, National Aeronautics and Space Administration; and the General Manager, Tennessee Valley Authority.

Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

CONSISTENT AND UNIFORM TREATMENT OF INFLATION URGENTLY NEEDED IN PROGRAM COST ESTIMATES PROVIDED TO THE CONGRESS

D I G E S T

The Congress is at a marked disadvantage when considering and establishing priorities for national spending needs because the long-term programs proposed by the departments and agencies are not costed on a consistent and uniform basis. Thus, it is virtually impossible for the Congress to compare programs.

The Congress should require the Office of Management and Budget to develop inflation policy and procedures that agencies would use to make annual budget estimates. The use of uniform inflation criteria would enable the Congress to make comparisons of program budgets.

The Office of Management and Budget could achieve the necessary changes by:

--Limiting the number of inflation indexes used.

--Issuing explicit guidelines for adjusting estimates to account for inflation during the budget processing cycle.

--Requiring annually recosted long-term program estimates consistent with prevailing prices.

--Requiring agencies to identify separately the effect of inflation on future program costs.

An alternative would be to permit all agencies to include inflation in their long-term program cost estimates, as the Department of Defense has been permitted to do.

But GAO does not endorse this approach because present confusion would be compounded by the plethora of indexes and inflation rates.

ISSUES

The Office of Management and Budget traditionally has excluded from budget presentations provisions for price-level increases on the basis that to budget for inflation would constitute a self-fulfulling prophecy. (See p. 1.) However, this policy has not been applied consistently.

Piecemeal approaches to analyzing and comparing costs of major programs have caused confusion and have fostered the use of many different inflation indexes. Projecting inflation up to 10 years into the future has added to the confusion. Program cost data must be adjusted to a common price level to make it useful in establishing national spending needs. (See ch. 4.)

On September 30, 1977, 30 Federal agencies reported to GAO on programs for major long-term acquisitions that span several years from inception to completion. There were 147 major Defense programs estimated to cost $250 billion and 661 major civil programs estimated to cost $232 billion at completion. Inflation was reported as a principal cost growth factor in program cost estimates. (See pp. 7 and 10.)

Uniform policy for treating inflation in program estimates either did not exist or was circumscribed. The Department of Defense obtained permission from the Office of Management and Budget to submit program estimates that provide for future inflation, but the inflation factors were not shown separately. (See p. 4.) Other agencies, such as the National Aeronautics and Space Administration and the Department of Energy, include in program estimates an allowance for contingencies which appears to be over the amount of inflation included by some project offices in these agencies. (See pp. 14 and 17.)

GAO found different methods of estimating and applying inflation indexes to program estimates. (See p. 12.) Other agencies, such as the Corps of Engineers, do not include future inflation in cost estimates. (See p. 20.)

CONCLUSIONS

Current policy, therefore, does not result in consistent, uniform treatment of anticipated inflation. Strong efforts must be made to assure that program submissions are consistently expressed in comparable prices. Recosting long-term program estimates to prevailing prices at least annually would better inform the Congress, the agencies, and the program managers of their progress or their lack of progress. Total future program costs, including inflation, should be shown as a range of costs dependent on spending levels and varying inflation rates.

Because the budget processing cycle takes about 18 months before money is actually spent, inflationary price changes which occur during the cycle are not recognized. This problem would be alleviated by giving agencies the opportunity to update prices when the processing cycle is completed. Guidance on how to update should be included in both program and budget estimates.

Additional advantages could accrue by using the prevailing price reporting method:

--The agencies could direct their estimators to insure that total program cost reports showed prevailing prices.

--Programs competing for scarce resources would be on an equal basis if cost were the final determinant.

--Eliminating future inflation from total program estimates would require more discipline by program managers; i.e., other program cost variances would be shown and would require an explanation.

--Zero-based budgeting would be made easier by adopting uniform procedures for Government agencies.

AGENCY VIEWS

The Office of Management and Budget said GAO criticisms and proposals were timely input and would be carefully considered during its current review of Circular A-11 pricing policy. The Office of Management Budget did not agree with every aspect of the report but felt specific comments would be premature until it has completed its review. (See p. 27.)

Other agencies generally agreed with the recommendation that the Office of Management and Budget develop inflation policy and procedures which would apply uniformly and consistently to annual program and budget estimates. From there, each agency expressed disclaimers for their parochial interests.

GAO's conclusions remain, but the recommendations have been revised to more carefully explain alternative treatment of inflation. The revision, GAO believes, allays most agencies' reservations. Specific agency comments are discussed in pertinent report sections.

Contents

ABBREVIATIONS

BLS	Bureau of Labor Statistics, Department of Labor
CPI	Consumer Price Index, BLS, Department of Labor
DDT&E	design, development, test, and evaluation
DOD	Department of Defense
DOE	Department of Energy
DOT	Department of Transportation
ERDA	Energy Research and Development Administration
FYDP	Five Year Defense Program
GAO	General Accounting Office
GNP	gross national product
MSFC	Marshall Space Flight Center
NASA	National Aeronautics and Space Administration
OMB	Office of Management and Budget
R&D	research and development
RDT&E	research, development, test, and evaluation
SAR	selected acquisition report
TVA	Tennessee Valley Authority
WPI	Wholesale Price Index, BLS, Department of Labor

GLOSSARY

Contingencies	Additional moneys requested or set aside for events which may happen or have happened, but whose full cost is not known.
Dollars:	
then-year	Inflated/escalated through use of indexes to show total money needed to buy goods at some future time.
base-year	Uninflated cost of a program, usually in terms of initial, development, or otherwise dated estimate.
budget-year	The quantity of money requested in the forthcoming budget; i.e., the next budget year is fiscal year 1979.
prevailing	The present prevailing price with no provision for future price changes or inflation.
Escalation	The increase in contract costs encompassing other factors and inflation. Most agencies use inflation and escalation interchangeably.
Index	A number used to indicate a change in magnitude as compared with some base and, when connected with prices, represents trends or percentage changes in prices, either actual or anticipated.
Inflation	Persistent rise in the general level of average prices.
Long-term program	Generally one which requires 2 or more years to complete and requires annual increments of funds for the duration.
Out years	The remaining program, in terms of duration, beyond the budget year under discussion.

CHAPTER 1

INTRODUCTION

We examined the practices followed by selected Government agencies in providing for inflation in the cost estimates of long-term major programs. The rate of inflation during the past few years has caused the Congress and the public to be very concerned--the President recently called it "public enemy number one." Inflation is continually cited as one of the leading causes of tremendous cost growth in Government programs in recent years.

Agencies request congressional authorization and funds for a program on the basis of need and anticipated cost. The Congress and agency managements need realistic program cost estimates to aid effective program selection, evaluation, and cost control during the acquisition process. Proponents of full cost disclosure suggest that since inflation is a significant factor of cost, it should be included in the original estimate of a program's total cost. However, inflation does not follow any given rules. The rates of inflation fluctuate between programs, labor rates, materials, and geographic locations and cannot be predicted with sufficient accuracy to markedly improve the reliability of cost estimates.

Generally, agencies estimate long-term program costs on the basis of prevailing prices. Provisions for inflation--indexes which represent anticipated price trends--are applied to the current cost base. Estimates are affected by changes to the basic cost estimate and by the indexes chosen to show price trends.

The Office of Management and Budget (OMB) has the authority to monitor and approve budget requests. OMB has a long-established policy, stated in Circular A-11, which excludes allowances for future price increases from budget requests. With few exceptions, OMB has applied this policy to both single-year and long-term programs and, in its budget reviews, has rejected inflationary price increases. OMB states that budgeting for inflation constitutes a self-fulfilling prophecy because the rates would rise to or beyond those accepted by the Government.

SCOPE OF REVIEW

We made this review to learn if there might be a better way of estimating the effects of inflation on costs of

long-term programs. We reviewed studies sponsored by the Department of Defense (DOD) and the Department of the Air Force. We read economists' papers on the subject. We interviewed officials and reviewed documents at the headquarters of DOD, its Services, the Coast Guard, Department of Transportation (DOT), the National Aeronautics and Space Administration (NASA), the Energy Research and Development Administration (ERDA) (now part of the Department of Energy), and the quasi-governmental Tennessee Valley Authority (TVA), and we reviewed correspondence from the Corps of Engineers. We selected and reviewed 12 major systems, 3 in the civil agencies and 9 military weapon systems. We discussed the subject of estimating and reporting inflation with OMB officials.

CHAPTER 2

DOD TREATMENT OF INFLATION

BACKGROUND

DOD began preparing quarterly Selected Acquisition Reports (SARs) in early 1968 for use by the Secretary of Defense. SARs were prepared for "major" acquisitions, later defined by DOD to be those involving $50 million of research, development, test, and evaluation (RDT&E) funds, $200 million of procurement funds, or otherwise of major significance to DOD. DOD, on January 18, 1977, increased the cost thresholds to $75 and $300 million, respectively. SARs summarize current estimates of technical, schedule, and cost performance and compare them with the original or the development plan, whichever is later.

In May/June 1969 DOD established the "best estimate" policy for costing/pricing major weapon systems, which showed ultimate amounts to be paid including economic factors. The best estimate was shown in the SARs which then were considered as a report to the Congress and as a way to provide inputs to the Defense Systems Acquisition Review Council. Congressional requests for more accurate cost data for major programs led DOD to submit the SARs to the Congress.

In February 1970 we reported on the "Status of the Acquisition of Selected Major Weapon Systems," (B-163058), and stated that the SARs were a good management tool for measuring and tracking weapon systems, but they had certain shortcomings. An April 24, 1970, report by the House Armed Services Committee agreed with us that the SARs were good but needed some improvements. One of several factors discussed was inflation, which the report concluded was undeniable and recommended that DOD provide consistent factors for inflation in all major programs.

Anticipated inflation in the June 1970 SARs was not consistent or uniform either within or between the Services. The DOD Comptroller, on June 30, 1970, issued a memorandum to the Services and agency directors which stated, in part:

> "For the systems [major weapons systems]***, cost estimates will reflect the best estimates of the amounts ultimately to be paid, specifically incorporating anticipated changes in future prices. Whenever

practicable, this will be accomplished on the basis of specific data applicable to a given system, considering such factors as contract provisions, labor agreements, productivity and quantity changes, and the extent to which material is on hand or under fixed-price contract. In other cases, it will be necessary to base the estimates on forecasts of changes in price levels." (Underscoring supplied.)

Indexes for procurement, RDT&E, and construction of family housing were included to be applied to the September 1970 SARs. To the extent we were able to determine, this was the first DOD-wide use of indexes to prepare program cost estimates.

The memorandum referred to OMB (then Bureau of the Budget) policy which prohibits including inflation in budget estimates and stated that those programs priced in accordance with the indexes would require special treatment. Generally, the original unescalated cost would be shown as the budget estimate, and the inflated cost would be used on the SARs. DOD agencies were required to maintain the capability to convert the inflated SAR costs back to original costs.

Up to this time, shipbuilding was the only area in which inflation was allowed for. By congressional direction, the Navy included in budget estimates factors to cover escalation over the 5 to 6 year ship construction period. Under the full-funding concept, Navy needed authority to make long-term commitments for total expected costs. Therefore, for several years the Navy included inflation in ship construction estimates.

The June 1970 DOD Comptroller memo created problems. The DOD budget estimates for major programs were no longer priced on the same basis as the SAR estimates. DOD in August 1970 wrote OMB, cited these problems, and requested an exception to Circular A-11 to permit some allowance for price increases in its budget estimates for major weapon systems and construction projects. DOD would use estimating practices similar to those used in developing shipbuilding programs.

OMB approved the DOD request, by letter dated December 7, 1970, and permitted price indexes to be used in developing the fiscal year 1972 budget estimates for the cited programs. OMB stated that it was important to choose indexes reflecting general forces at work in the economy and not those indexes primarily influenced by DOD decisions.

Our December 1972 report to the Congress 1/ concluded that agencies should prepare estimates of the effects of inflation on long-term program costs and should have them available to submit for use by the appropriate congressional committees when they are considering authorizing and funding those programs. Our conclusion has not changed.

OMB demurred and stated that to include inflation in cost estimates, even on the suggested supplemental basis, would tend to increase Government procurement costs. OMB has traditionally excluded from budget presentations allowances for future price increases. This was based on the theory that to budget for inflation would seem to provide governmental sanction for a stated rate of inflation. Given that rate, inflation would occur at, or in excess of, the stated rate and would create a self-fulfilling prophecy.

DOD, in August 1973, requested a further exception to the OMB pricing provisions for all of its purchases. OMB denied this request and stated:

> "We continue to believe, however, that the A-11 pricing policy is a sound budgeting principle. Inflating budget totals to account for anticipated price increases would relax the discipline of the budget. Agencies are expected to do all they can to offset price increases through increased productivity and management improvements. It is one of the few incentives to greater efficiency that exist in Government."

EXCESSIVE NUMBER OF INFLATION INDEXES

In the interim, DOD and its agencies worked on methods of reporting inflationary effects on their programs. From the June 1970 to July 1975 DOD issued eight sets of inflation indexes, which were known as standard appropriation level indexes. Departments and agencies were instructed to follow the "best estimate" policy and to price/cost programs in accordance with conditions prevailing in their industry. We discussed this policy with program officials, who stated that the policy may have been somewhat of a contradiction because, in those early years, departmental headquarters and

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1/"Estimates of the Impact of Inflation on the Costs of Proposed Programs Should Be Made Available to Committees of the Congress," B-176873, Dec. 14, 1972.

DOD required extensive documentation and justification for any cost projections which differed from the DOD indexes.

In attempting to satisfy DOD and to develop inflation indexes which represented its programs, the Army issued at least 18 sets of indexes or instructions for their use during the 5-year period; 14 of these were issued during the two years from June 1973 through June 1975.

Each time the indexes were revised, the estimated costs of weapon systems were changed in the program documents. These rapidly changing estimates made it difficult for personnel both inside and outside DOD to evaluate management of the programs.

DOD Procurement Inflation Rates

Fiscal year	Dates of applicability							
	Apr. 1973	June 1973	Sept. 1973	Dec. 1973	Feb. 1974	July 1974	Feb. 1975	July 1975
1973	Base							
1974	2.7	Base	Base	Base	Base	Base		
1975	3.0	3.1	6.7	6.7	6.7	11.0	20.1	11.0
1976	3.1	3.1	5.6	3.1	3.1	8.0	10.1	8.0
1977 (note a)	3.1	3.1	4.8	3.1	3.1	7.0	9.5	7.0
1978	3.1	3.1	4.0	3.1	3.1	5.0	5.8	5.8
1979	3.1	3.1	4.0	3.1	3.1	4.4	4.0	4.0
1980	3.1	3.1	4.0	3.1	3.1	4.3	3.8	3.8
Thereafter, compounding	3.1%	3.1%	4.0%	3.1%	3.1%	3.7%	3.8%	3.8%

a/Includes FY 197T quarter, where applicable.

Beginning about February 1974, DOD encouraged the Services to develop indexes which represented the economic impact on their programs. In February 1975, however, DOD revised those instructions:

"***due to difficulties inherent in predicting inflation trends for many years into the future, standard appropriation level indices published by the [DOD Comptroller] will be used for FY 1978 and all subsequent years***."

This meant that program managers were to use their basic contract data for predicting inflation for the budget year plus one, after which they would use standard DOD indexes.

On August 3, 1977, DOD rescinded the above policy and stated that all estimates will show anticipated changes in future prices based on indexes published by DOD. DOD cited the following reasons for modifying inflation predicting.

--Varied approaches taken to implement Service-developed indexes have resulted in inconsistent application both within and among the Services.

--A great deal of effort is expended which is probably not justified in light of the inherent uncertainty in inflation predictions.

--Apparent discontinuity created when transitioning from the Service index to the DOD index.

--Differing interpretations of policy as to whether or not the requirement to use DOD indexes beyond the budget year plus one refers to program years or outlay years.

--Uncertainty inherent in predicting budget year inflation some 22 to 28 months in advance.

Generally, report methods or formats were changed about as frequently as the indexes. Incorporating these changes produced less than satisfactory reports to the Congress, especially with respect to program costs and budget requirements.

CHANGED REPORT FORMATS PRODUCED ADVERSE RESULTS

DOD Instruction 7000.3, on the preparation of SARs, at June 1970, provided for nine categories of cost variance: quantity, engineering, support, schedule, economic, estimating, unpredictable, contract performance incentives, and contract cost overrun (underrun). A logistic support/additional procurement costs section also was provided.

"This section contains all remaining procurement costs which are subject to authorization or the equivalent cost elements for those major defense systems not requiring authorization for appropriation. Enter the current estimate of all additional procurement costs listed in this section. [Ch. 1 of 4/12/72 added] Explain in brief summary form, the significant variances that have occurred during the quarter."

Our review of the instructions for preparing the SARs' logistic support cost section suggests the following costs should be included: common ground equipment, component improvement, industrial equipment and facilities, modifications, and other production/investment changes. In May 1972, DOD redefined this section of the SAR to show only modification and component improvement costs.

Furthermore, effective September 1975, DOD instructions for SARs removed the logistic support/additional procurement costs section entirely. Therefore, contrary to their comments to us (see app. II), DOD did lose track of the costs reported in this section. Although DOD states that these costs were never included on SAR, because they were "non-add items," we believe these program-related costs should be included on SAR as part of the total cost of the program.

DOD's comments to us also mentioned the "Support" variance category which we incorrectly stated was redefined. This category was one of the original nine cost growth categories. However, in March 1974 DOD deleted this category. A Service's instructions on SAR preparation noted:

"The Variance Analysis categories have been reduced from 9 to 8. ***The Support category has been eliminated; the amounts shown previously in Support should be allocated to [other categories] as appropriate."

In a July 1974 DOD Comptroller instruction for June 1974 SAR changes, under cost variance analysis, the following appeared: "(5) Support Change is added as follows: ****." Two Services' instructions are excerpted:

(1) "The changes directed by [July DOD instruction] *** in addition to restoring 'support' as one of the cost growth categories."

(2) "The Support Change variance is reinstated with its previous definition. ***No recategorization

of previous changes will be made as a result of these revised definitions."

This change resulted in a loss of tracking certain of these support costs.

In March 1974, the SARs' cost section was to be reported in program base-year dollars as well as in then-year dollars. To accomplish the cost analysis in base-year dollars, program managers were instructed to convert all costs, including engineering and quantity changes, back to the base-year of the program. Inflation was recomputed for the total program from the base year, which sometimes resulted in more inflation attributable to engineering changes than the total cost of engineering changes. Several programs actually reported negative costs in engineering and schedule changes as a result of the instruction. This action created such havoc within program offices that cost tracking was lost.

An interesting effect of the March 1974 DOD instruction was one Service's implementing instruction; it was 24 pages long with multiple steps on each page. You do not have to use much imagination to compute the time program offices took to adjust the cost reports.

Recognizing its error, DOD issued a revised instruction in July 1974 to amend the June reports. Inflation resulting from program changes--engineering, schedule, etc.--would be computed only from the date the change was approved, not the program base year. This required a recomputation of inflation for all substantive program changes. Program offices were not successful in their efforts to comply with frequently changing instructions. In November 1974, DOD instructed the Services and agencies, in essence, to recompute inflation and remove negative entries from base-year program cost data.

The instructions were revised again in February, March, and September 1975, and each revision required changes in basic assumptions and reporting formats. The resulting SAR cost reports depicted varying amounts for inflation depending on the format used to present the data. DOD Instruction 7000.3, dated September 23, 1975, for SAR preparation required a base-year constant dollar format only. The cost variance format included a separate column for identification of escalation (inflation) by each change category. An example of the cost variance analysis follows.

As of Date:
Base Year: 1970

COST VARIANCE ANALYSIS
(Dollars in Millions)

G.1.	Base-Year/FY 70 Constant $ DEV	PROC	CONST	SUBTOTAL	ESCALATION	TOTAL	REMARKS
Development Estimate	$282	$1490		$1772	$591 ($ 54 Dev) ($537 Proc)	$2363	
Previous Changes							
Economic					+21	+21	Esc: Dev +4M; Proc +17M
Quantity		+10		+10	+6	+16	Esc: Proc +6M (Incl +4M from yr of chge approval)
Engineering	-15			-15		--	
Schedule		+61		+61	+26	+87	Esc: Proc +26M (Incl +21M from yr of chge approval)
Etc.	--	--		--	--	---	
Subtotal	-15	+71		+56	+53	+109	
Current Changes							
Economic					+217	+217	Esc: Dev +16M; Proc +201M
Quantity		+235		+235	+111	+346	Esc: Proc +111M (Incl +97M from yr of chge approval)
Engineering	+37			+37	+10	+47	Esc: Dev +10M (Incl +6M from yr of chge approval)
Schedule		+13		+13	+7	+20	Esc: Proc +7M (Incl +5M from yr of chge approval)
Etc.	-	---		---	---	---	
Subtotal	+37	+248		+285	+345	+630	
Total Changes	+22	+319		+341	+398	+739	*
Current Estimate	+304	+1809		+2113	$989 ($84 Dev) ($905 Proc)	$3102	*

*The remarks section for Total Changes and Current Estimate should also identify the amount of escalation from year of change approval.

DOD supplied information for our annual financial status report. 1/ The data showed, at September 30, 1977, 147 major systems estimated to cost $250.3 billion at completion. Of those systems, DOD reported 53 of them on SARs to congressional committees. Our analysis of the data reported on SAR showed inflation to be the major factor in cost growth--about 33 percent of the increased cost.

The DOD annual report, fiscal year 1978, stated that the Commerce Department's Bureau of Economic Analysis and the DOD Comptroller are developing historical price deflators specifically for Defense purchases. The development phase of this project should be completed in time to use the deflators in projecting the fiscal year 1979 budget.

1/"Financial Status of Major Federal Acquisitions, September 30, 1977," PSAD-78-60, Jan. 20, 1978.

The DOD cost report on SAR is a very useful management tool. We intended to show primarily the futility of projecting inflation so far into the future as a finite number. DOD stated in their comments to us (see app. II) that retention of the base-year dollar as the original estimate and measuring changes against that base is a way to keep track of the program costs. We agree that there should be a benchmark from which to measure cost increases. We do not envisage a rolling baseline, nor do we recommend one. Our recommended display requires at least 3 figures: the static baseline (base-year dollar); the dynamic cost-to-complete (prevailing dollar) annually repricing the program; and a range of potential future costs (then-year dollars) depending on spending profiles and various inflation rates.

DOD believes its budgetary treatment of inflation is well understood by the Congress and that its rates are consistent with other economy-wide measures of inflation. But DOD said it is not precluded from using program report displays as envisaged in GAO's recommendations.

CHAPTER 3

CIVIL AGENCY PRACTICES FOR BUDGETING AND MANAGING INFLATION

Generally, civil agencies have prepared their budget requests and program reports in accordance with OMB policy. That is, inflation was not included even for programs whose procurement actions span several years. However, some agencies such as DOE and NASA included in their program reports an allowance for contingencies. Some of their project offices also included a factor for inflation. But the Corps of Engineers did not include inflation in its cost estimates for major flood control projects which usually take a number of years to complete.

At September 30, 1977, major civil systems (those estimated to cost $25 million or more) were being acquired by 27 agencies. These systems were estimated to cost $232 billion upon completion. 1/ We analyzed 147 acquisitions reported by the agencies as having 100 percent or more cost growth. Inflation, at 46 percent, was the principal cost growth factor.

Our first civil systems status report 2/ showed only $2 billion (4 percent) attributed to economic change, principally representing inflation increases which, unlike DOD, most agencies did not include in their cost estimates. We stated in that report that inflation probably was responsible fo a larger cost growth than the agencies showed.

Civil agencies responsible for major acquisitions generally do not furnish their committees periodic estimates of technical, schedule and cost performance similar to the DOD's SAR, but we have recommended that they do so. 3/ We believe such reports would be a useful management tool to measure and

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1/"Financial Status of Major Federal Acquisitions, September 30, 1977," PSAD-78-60, Jan. 20, 1978.

2/"Financial Status of Major Civil Acquisitions, December 31, 1973," PSAD-75-58, Feb. 24, 1975.

3/"Reporting of Selected Major Civil Projects Needs Improvement," PSAD-77-5, Dec. 29, 1976.

track major acquisitions. They also could be used to monitor inflationary costs.

During this review, we inquired into the practices for budgeting and managing inflation by NASA; DOE, formerly ERDA; the Coast Guard; DOT; the Tennessee Valley Authority (TVA); and the Corps of Engineers-Civil Functions, Department of the Army. We selected and reviewed a single project from each agency's major programs and found that practices differed.

DEPARTMENT OF ENERGY

DOE has interpreted OMB Circular A-11 to say that system estimates for the budget are stated at a current cost, which can include a factor reflecting "changes in the cost of living." This is contrary to OMB intent and other agencies' interpretations. Our limited review of the DOE Fast Flux Test Facility project, our staff study of the project, 1/ our review of its status, 2/ our issue paper on the role of fast breeder reactor, 3/ and discussions with DOE officials were used in determining DOE practices for estimating and including factors for inflation in DOE projects.

The Fast Flux Test Facility experienced large growth in both schedule and cost. The completion date was extended from 1973 to August 1978. The initial cost estimated at $87 million in fiscal year 1968, rose to $530 million in February 1974. At June 1975, DOE estimated that inflation of $105 million was included in the $530 million cost. In June 1976, DOE estimated the total plant cost at $647 million.

A DOE official told us that several factors contributed to the cost growth experienced on this project. The inflation rate of 5 1/2 - 6 percent provided in the original estimate was exceeded by rates of up to 14 percent at the facility site. Materials escalation was difficult to estimate, and labor costs increased 50 percent. Weak management in the earlier phases of the project compounded problems. A general

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1/"Fast Flux Test Facility Program," a staff study, January 1975.

2/"Evaluation of the Status of the Fast Flux Test Facility Program," EMD-76-13, Nov. 15, 1976.

3/"The Liquid Metal Fast Breeder Reactor: Promises and Uncertainties," OSP-76-1, July 31, 1975.

decline in labor productivity, by a factor as much as 2.7, was experienced on the project. Compliance with the Occupational Safety and Health Act requirements contributed to reduced productivity. Additionally, new environmental standards are alleged to have driven suppliers out of business, causing a shortage of materials, longer lead times for delivery of materials, and a larger quality assurance effort due to using new suppliers.

DOE developed composite cost growth factors which were used by estimators unless specific contract data was available.

The DOE budget is broken down into two areas, operating expenses and plant and capital equipment. The operating request includes funds for design, planning, and R&D. Inflation is covered in the operating fund by incorporating planning composite factors into the total cost. The plant and capital equipment request contains funds to be used for construction of plants and facilities and for acquiring capital equipment. Here inflation is identified as a separate component. In addition, DOE includes a reserve for contingency in its projects which is shown on the annual congressional data sheet.

DOE officials reviewed a draft of this report and sent us their comments. (See app. III.) DOE agreed with our recommendations that OMB develop inflation policy and procedures which would uniformly and consistently apply to annual program and budget estimates. They stated that such OMB criteria should be broad and flexible to permit agencies to develop internal procedures and inflation factors applicable to their operations.

DOE disagreed with the stated alternative. We believe their objections are adequately considered in our revised recommendations.

COAST GUARD

We reviewed cost estimating policies and practices used by the Coast Guard for constructing polar class icebreakers (1) to determine how inflation calculations were made and (2) to identify indexes used in cost estimating.

The Coast Guard, in August 1971, awarded a firm-fixed price contract for $52.7 million for design and construction of a 400-foot polar class icebreaker, designated WAGB-10.

In January 1973, the Coast Guard modified the contract to include construction of a second icebreaker, at a ceiling price of $53.75 million. At September 30, 1977, the Coast Guard estimated the two ships' cost at $125 million.

The Coast Guard had no standard method for estimating shipbuilding costs at the time of our review but stated that it was developing such a method. The Coast Guard used several methods and prepared several cost estimates, which included anticipated inflation, for the 2 icebreakers. The estimates were to be used primarily in contractor selection.

The Coast Guard in 1967 began efforts to estimate the cost of the first icebreaker. Additional objectives were to develop a basic philosophy and standard procedures for estimating ship construction costs. After reviewing several estimating procedures, the Navy's "End Cost" method was selected because it contained detailed cost procedures and included inflationary cost growth. We reviewed the January 1971 estimate, the last one made by the Coast Guard prior to requesting bids.

The selected estimating method required breaking the ship's weight into seven categories and labor, materials, and overhead were estimated for each. Inflation for labor and materials was calculated by plotting specific BLS indexes for 1959 through 1971 and then forecast through 1973. The forecast, however, was subjective. A Coast Guard estimator stated that the rate of inflation was rapidly increasing, and he forecast the highest rates he thought would be accepted by officials who reviewed the estimate.

Cost estimating techniques for the second icebreaker differed. Estimates were prepared in May and December 1972. The Coast Guard's method for calculating these estimates was to (1) add to the contract price for the first ship additional costs not included in the contract, such as higher inflationary impact and (2) deduct non-recurring costs of the first ship, such as design costs. Inflation was computed differently between the two estimates. The May inflation estimate was $10.7 million, based on 10.5 percent per year for 2 years, while the December estimate was $6.1 million, based on 8 percent for 1-1/2 years. A memo summarizing the estimates indicated that BLS statistics were used to develop the percentages.

DOT officials' reply to our draft report is appendix IV. DOT deferred to OMB and the Council of Economic Advisors to determine whether to adopt uniform inflation policy.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

We examined NASA methods for computing cost estimates and for including inflation in program requests and cost estimates provided to the Congress on the Main Engine Project of the Space Shuttle Program. Our work on this project was performed primarily at the Marshall Space Flight Center (MSFC), which is responsible for managing several space shuttle projects, including the Main Engine Project. Part of MFSC's management responsibility includes the periodic preparation of long-term cost estimates for its projects.

NASA headquarters and MSFC have not established a formal policy prescribing procedures and practices for estimating and including inflation in long-term program cost estimates. NASA headquarters does, however, instruct its field installations about whether an allowance for inflation should be included in program cost estimates. The instructions contain specific factors or indexes to be used by field installations in computing inflation, but project officers should use more specific data if available, because NASA Headquarters takes the position that, where applicable, inflation estimates for projects should reflect the economic environment of the plant where the project systems are being developed and/or produced. Each installation or project office develops its inflation factors. At MSFC, for example, each project officer determines factors appropriate for particular projects. The resulting inflation factors could differ between MSFC's space shuttle projects.

In establishing inflation factors, MSFC consults a number of sources, including universities, consumer and wholesale price indexes, other government agencies, and contractors.

In March 1972, NASA provided the Congress with a baseline cost commitment of $5.15 billion (1971 dollars) for the design, development, test, and evaluation (DDT&E) of the space shuttle program. The commitment included the Main Engine Project, estimated to cost $580 million (1971 dollars). The NASA Comptroller advised us that the agency's initial estimate did not include inflation because OMB prohibited its use. But, NASA's estimate for the engine included a contingency allowance, in 1971 dollars, of about 41 percent of the basic estimate.

NASA provides a range of project costs based on the degree of confidence which can be placed in the estimates and the need to provide for such factors as technical uncertainties. Generally, the greater the uncertainties involved in the project, the greater the range applied to the total cost

estimate. In other words, just as DOE does (see p. 14), NASA includes a reserve for contingencies in its projects.

In November 1974, project officials using fiscal 1976 budget submissions, estimated the total DDT&E cost at $879 million (escalated): the contractor effort cost $703 million, test propellants $131 million, test facility modification $25 million, and government support $20 million. Documentation supporting this estimate showed that an allowance for inflation was included in three of these four project elements.

Depending on the prevailing circumstances, various inflation rates were included in project elements. The major contract effort contained inflation factors estimated by the contractor and the project office. Some of the test propellants were bought from the Air Force; therefore, Air Force inflation rates were used by the project office. No inflation was included in the test facility modification estimate because it was based primarily on a contracted cost ceiling.

MSFC officials said they had no formal system for accumulating or tracking inflation data and trends. They were unable to estimate the amount of time spent analyzing the problems caused by inflation and other tasks performed. Computer time also was devoted to inflation analysis. Although unable to make realistic estimates of the time and effort devoted to inflation analysis and related tasks, these officials believed that it may be very expensive.

MSFC emphasized obtaining current trend data and analyzed each project cost element in forecasting the potential inflation impact on its projects. MSFC's approach for considering and isolating these trends appears appropriate for contracting purposes because inflation rates vary between cost elements. However, in view of the expense involved, this process could be simplified by developing composite inflation rates and consistently and uniformly applying them to all projects.

In a letter to GAO on cost estimating 1/, NASA stated:

"In a few specific cases of major long-term projects, we have deviated from our general policy. In the case of the Space Shuttle, for example, our baseline estimate is stated in 1971 dollars. Each year we update the

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1/"Need for Improved Reporting and Cost Estimating on Major Unmanned Satellite Projects," PSAD-75-90, July 25, 1975.

estimate to reflect the inflation experienced. The estimates for Shuttle in any given year project inflation in terms of budget-year dollar but include no further future inflation. The Congress has been fully informed of this procedure." (Underscoring supplied.)

It, therefore, appears that NASA headquarters included a factor for inflation--if even for the budget-year--in addition to the project costs which already included factors for inflation. However, NASA stated in its reply, noted above:

"The report is critical of the treatment of inflation. Inflation is an extremely complex matter and is not satisfactorily handled in cost estimates in Federal Agencies, or the Congress. It is beyond the control of agencies and should be treated separately and apart from data which inherently appraises management effectiveness. Out year estimates which include estimates for inflation distort value judgment because readers relate to current experience. For this reason, constant dollar projection updated annually would give readers a basis for valid value judgments." (Underscoring supplied.)

NASA commented on a draft of this report. (See app. V.) It generally agreed with GAO that a composite inflation rate applied uniformly to all projects would simplify matters. But NASA said for funding purposes, the estimates should be as accurate as possible and show clearly the unique inflation impact of the industry which is handling the project.

Yet a few sentences later, NASA suggests that, at the project level, estimators apply composite inflation rates, which are then reviewed by NASA and modified as appropriate. We therefore conclude that composite rates are used by NASA in preparing program estimates.

TENNESSEE VALLEY AUTHORITY

We reviewed the Sequoyah nuclear plant's construction costs primarily to determine TVA's methodology for calculating and applying inflation estimates and the extent inflation affected project costs.

TVA's policy is to include an appropriate allowance in cost estimates for anticipated increases in interest, labor, material, and equipment costs during a project's construction period. TVA established an escalation committee, comprised

of representatives from several TVA divisions, which meets at 8-month intervals and reviews wage and price trends to estimate future inflation rates. The committee also estimates the interest rates TVA would have to pay on moneys borrowed to finance its activities. These rates are incorporated into TVA's annual recomputation of each project's cost estimate.

TVA officials stated that extensive analysis time was not spent to determine inflation rates. Committee members said the market situation tends to nullify historical data, although this data was the only statistical base TVA had for its estimating process. Primary reliance was placed on BLS monthly data, commercial information, labor trends, and committee members' judgment to derive inflation rates.

TVA's original cost estimate for the Sequoyah project--$336 million--was submitted to the Congress in January 1969. At September 30, 1977, TVA estimated the project would cost $1.1 billion at completion. TVA's analysis showed the following reasons for the related cost increases: project scope additions, $60 million; engineering changes, $59 million; schedule delays, $68 million; estimating errors, $45 million; and inflation, $187 million.

Inflation had more impact on Sequoyah's cost than TVA originally expected. A comparison of TVA's projections for the following cost categories shows significant increases.

Cost category	Estimates	
	January 1969	October 1974
Labor rates	4%	10%
Materials and equipment	3%	10%

Although TVA's estimates for inflation were low, they appeared reasonable and consistent with available trend data. Also, the practice of repricing its programs annually appears to give TVA insights into those factors which tend to become cost-drivers.

TVA's comments on our draft report are in appendix VI. While TVA agreed that the consistency obtained through GAO's suggested inflation criteria was appealing, they believe program managers are in a better position to evaluate the effects of inflation on their spending plans. TVA suggested that disclosing the rates used by program managers would quickly disclose those attempting to use inflation as a cover for unapproved expenditure or mismanagement.

Although questioning our initial recommendation, TVA outlined an approach which parallels the objectives of our report.

CORPS OF ENGINEERS

In a letter to GAO dated September 10, 1975, on projects tabulated for GAO's financial status report, 1/ the Assistant Secretary of the Army (Civil Works) commented on cost growth.

> "Most of the cost growths experienced on Corps projects were the result of factors over which the Corps has no control or were for changes in scope that enhanced the projects and were in the National interest as justified by increased benefits. Much of the experienced cost growth would have been averted if allowances for future price level increases could have been included in the baseline estimates; however, no cost escalation factor is used in Corps cost estimates at any stage of project development since OMB rules for preparation of budget estimates for water resource development agencies do not permit inclusion of allowances for anticipated future increases in cost levels. This contributes to an unequal basis for comparison of cost growths between water resources projects and projects where cost escalation factors are used in cost estimates." (Underscoring supplied.)

Other major factors which increased costs were quantity, engineering changes, and estimating errors. As stated, OMB rules preclude the Corps from estimating inflation in major flood control projects. The Corps has relied on the annual appropriation process to fund increased costs in later years.

The Corps did not furnish written comments on this report; however, we have considered their oral comments.

1/"Financial Status of Major Acquisitions, June 30, 1975," PSAD-76-72, February 1976.

CHAPTER 4

ALTERNATIVE METHODS OF REPORTING INFLATION

The Rand Corporation researched the methods of handling inflation in DOD cost estimates and budget projections. The resultant study 1/, prepared for the Air Force, explained the evolution of DOD's inflation policy and suggested a number of changes in the policy. We discussed the DOD policy on page 3. Major segments of this chapter are attributable to this study, which we believe is applicable to other Federal agencies as well as DOD.

TOO MANY PRICE LEVELS USED

Using so many price levels has complicated explaining the Defense budget to the Congress. This is further aggravated by the terminology used to describe inflation. "Then-year" and "current" dollars, as used by DOD, NASA and others, are essentially the same and indicate that inflation is included to revalue the dollar to the future when it will be spent. "Baseyear" dollars describe the price level in effect at the time of the initial estimate or some stated base year. "Budget-year" dollars are adjusted to the expected price level of the budget being discussed.

The confusion is further compounded by inconsistent use of the terms. Economists usually differentiate only between "base period" prices and "current" prices. For example, the gross national product (GNP) is described as real or deflated when it is expressed in terms of prices adjusted to some base period, or else it is described as the current or nominal GNP when presented in unadjusted or current dollars. But it seems there is no single expression used to describe inflated or future-term money.

We use a term, defined by our glossary as "prevailing" dollars--present prevailing prices with no provision for future price changes or inflation.

PROLIFERATION OF INDEXES CAUSES PROBLEMS

The proliferation of indexes is a problem which resulted from DOD encouraging each major program manager to develop an

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1/Boissevain, Harry J., "Inflation and Defense Budget Projections," WN-8637-PR, Rand Corporation, Santa Monica, Ca., June 1974.

index. Each Service developed indexes, some commands developed indexes, and project offices developed indexes. DOD instructions modified this. Subordinates use their index for the budget year plus one year. Then, the DOD index is applied to the out-years. DOD withdrew this authority in August 1977. But the large number of indexes complicated the calculation of inflation and is one reason why, under the current procedures, the exact amount of inflation in the Defense budget is not known. This caused the Congress to suspect that real increases in the Defense budget or agency mismanagement may be slipped in under the guise of inflation.

What is the purpose for developing indexes? The purpose of historical indexes is to adjust cost data on aircraft, missiles, or major units produced in different time periods in the past to a common base and usually it is done to fulfill contract requirements. The purpose of an inflation index, however, is to make a reasonably accurate prediction of the inflation rate to insure that the budget will include sufficient funds to purchase the desired goods and services at some future time.

Experience with the Defense budget between fiscal year 1972 and fiscal year 1975 indicates that predicted inflation rates easily could be off by a factor of 2 or more; differentiating between various weapon systems because of differences of 0.1 or even 1 percent in the predicted rate clearly contributed nothing to the validity of the projection. For example see page 6, where we show several DOD rates.

Econometric models used to estimate the inflation rate for the economy as a whole by means of the GNP implicit price deflators also develop those projections at highly aggregated levels. For example, the model developed by the Department of Commerce's Bureau of Economic Analysis does so for such broad groups as consumer nondurables, automobiles, all other consumer durables, housing, and all other construction. This is in contrast to the historical price indexes developed by the Bureau of Labor Statistics, such as the Wholesale Price Index, in which manufacturing is divided into 450 different industries.

Additional analysis would determine the number of inflation indexes or broad categories needed for major long-term programs to estimate the budget-year funding requirements. It appears possible to restrict DOD to a limited number of indexes. It also appears possible to simplify the calculation of inflation in the next annual budget request. Each Service could calculate the total funds required in the broad

categories and then apply the aggregated indexes to these totals. The inflation amount would not have to be calculated separately for each weapon system, and the Services would be saved a great deal of time and effort. Furthermore, the Congress would have a much better idea of exactly how much inflation was in the Defense budget request.

We believe that similar simplified procedures could be applied to civil agencies' major programs. Aggregate indexes could be developed by broad category, by type of program, or by budget object class. Such indexes would make it possible to produce reliable and useful data on total future costs over a broader time horizon.

PROJECTING INFLATION INTO THE FUTURE IS HAZARDOUS

DOD's program estimating method created difficulties because using then-year dollars in program reports has required projecting inflation up to 10 years into the future. DOD believes the projections are necessary to obtain sufficient appropriations to buy the same amount of goods in the future.

Some serious problems result from projecting inflation so far ahead. In the first place, the estimates must be changed each time the indexes are changed. Another serious drawback is that using then-year dollars greatly reduces the value of the data in the Five Year Defense Plan (FYDP). One of the main reasons for developing 5-year projections was to provide data for tradeoff studies. Now, however, the data represents a wide variety of price levels and has to be adjusted to the same one before it can be used for comparative studies.

CONSISTENT INFLATION POLICY NEEDED

We address inflation at the appropriation level only to a limited extent, but we believe the subject merits more study and discussion as it applies to major long-term acquisitions both in DOD and the civil agencies. We stated that DOD obtained permission from OMB to include inflation in certain budget categories, whereas the civil agencies did not.

A general inflation policy is needed which can be applied consistently to all major civil and Defense acquisitions. GAO suggests that inflation should be included only by reference in the budget request. We recognize that adjusting the budget estimates to account for price increases

that occur during the budget preparation cycle would be a problem. For example, preparation for the fiscal year 1975 budget began in the fall of 1972. In the fall of 1973, adjustments were made to show price changes between 1972 and 1973. Thus, the price level in the fiscal year 1975 budget was actually the level prevailing in late 1973, about 18 months prior to the mid-budget year when the money was spent.

DOD applies inflation rates to anticipated outlays for the year the money is expected to be spent, rather than to the authorized budget. Most procurement and construction funds are spent later than the budget year in which they are requested. The Services develop funding profiles which show the rate at which the budget money is expected to be spent.

ALTERNATIVE WAYS TO REPORT INFLATION

One alternative would be to permit all agencies to include inflation in their long-term program cost estimates, just as DOD was given permission to do.

Because of all the drawbacks of using then-year dollars in the longer-term projections, a great deal of time has been spent recently in trying to find alternatives to the current method. One proposal was to use budget-year dollars; i.e., to present the 1975-79 FYDP in terms of the fiscal year 1975 price level. This proposal was rejected by DOD because the amount of inflation would be underestimated for appropriations which would largely be spent after fiscal year 1975. Other alternatives were considered, including variations of budget year dollars, but all of these were rejected for one reason or another.

Rand proposed still another alternative--one that has a number of major advantages--and one, with modifications, which we endorse. This method would use unescalated, but repriced prevailing dollar estimates in the program reports and, with OMB concurrence, an allowance in the budget to provide sufficient funds to carry out the next year's program increment. The total program cost would be shown as a range of values depending on spending levels and various inflation rates, which also would be shown.

The primary advantage of our proposed reporting method, when used with SAR-type reports, is that total program estimates stated in prevailing prices could be more readily used by the Congress when it establishes national spending priorities. For example, total program costs are a major

consideration when the Congress deliberates the relative merits of major conservation programs versus expenditures for national defense. Therefore, this method would apply to civil agencies as well as DOD.

Other advantages accrue by using this alternative.

--The executive agencies could direct cost estimating activities to insure that the total program cost in their reports is based on prevailing prices. This should allay congressional suspicions that real cost increases are slipped in under the guise of inflation.

--Within agencies, programs competing for scarce resources would be on an equal basis if cost were the final determinant.

--Eliminating inflation from total program estimates would require more discipline by program managers. Accumulated inflation could be computed using historical indexes. Other program cost variances (real growth) would be disclosed and would require an explanation.

--OMB could retain budget discipline by prescribing a limited number of indexes which DOD agencies would uniformly apply to the next annual incremental program requests. OMB also should consider similar guidelines for the civil agencies.

--Because prices on the SARs, the FYDP, and other program cost reports would no longer be inflated, only minor adjustments would be necessary to show the range of future funding requirements.

--Uninflated cost estimates would be more appropriate for tradeoff studies because data would be comparable. It also would overcome one of the major shortcomings of the present SAR format, which is, that there is no cost estimate of the weapon system in terms of the most recent price level available; i.e., what would it cost to buy out the entire program today?

--Based on the limited information available, we believe that zero based budgeting would be made easier by adopting uniform procedures.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATION

OMB and agency procedures do not result in uniform treatment of expected inflation or price changes in the budget and cost estimates provided to the Congress. OMB and the agencies must make major efforts to assure that budget and cost estimates submitted are consistently expressed in comparable prices.

Recognition of the impacts of inflationary price changes within report and budget processing cycles should be made explicit. To achieve this, OMB should establish guidelines for agencies to update prices to the prevailing situation as the processing is completed. Additionally, OMB should supply consistent and explicit guidance for including price changes anticipated to occur during the processing cycle.

Recosting long-term program estimates to prevailing prices at least annually would better inform the Congress, the agencies, and the program managers of their progress or their lack of progress. Appropriate program documents should show the prevailing dollar cost of the next budget year's planned expenditure and the total program. Total future program costs should be shown as a range of outlays dependent on spending levels and varying inflation rates.

Budget discipline would be retained by limiting the number of indexes used by the agencies. OMB should develop price deflator indexes, perhaps on an object class basis, to be applied consistently to all programs.

Total program estimates, stated in prevailing prices, could be more readily used by the Congress when it establishes spending priorities. Comparable program and budget data also would reassure congressional and agency decisionmakers that inflation was not being used as a cover for unauthorized program changes or agency mismanagement. Additional advantages could accrue by using the prevailing price reporting alternative.

--The executive agencies could direct cost estimating activities to insure that the total program cost in their reports was based on prevailing prices.

--Programs competing for scarce resources would be on an equal basis if cost were the final determinant.

--Eliminating future inflation from total program estimates would require more discipline by program managers.

RECOMMENDATION

The Congress should require that OMB develop inflation policy and procedures which agencies would uniformly and apply to annual program and budget estimates. Uniform criteria would provide comparable program data. Several approaches could be taken by OMB to achieve the necessary changes: a) limit the number of inflation indexes used; b) issue guidelines to agencies for adjusting budget estimates to account for inflation during the budget processing cycle; c) require annually recosted long-term program estimates consistent with prevailing prices; and d) require agencies to identify separately the effects of inflation on future program costs.

Individual major programs would, in effect, show at least three prices--a baseline/benchmark/base-year price; a prevailing price which excluded all inflation beyond the budget year being discussed; and a total program price shown as a range of values depending on spending profiles and varying inflation rates.

The historical pattern of indexes developed under such criteria would provide the Congress with the ability to judge the rationality of both OMB's budget-year inflation factors and the appropriate range of price change forecasts for long-term programs.

An alternative would be to permit all agencies to include inflation in their long-term program cost estimates presented to the Congress just as DOD has been permitted to do. However, we do not endorse this approach, because present confusion would be compounded by the plethora of indexes and inflation rates.

AGENCY COMMENTS AND OUR EVALUATION

OMB said our criticisms and proposals would be carefully considered during its current review of A-11 pricing policy. (See app. I.) They shared our concern about the current pricing policy even though they may not agree with every aspect of our report. They said specific comments on our report would be premature, but it was timely input for their review.

Comments also were received from DOD, DOT, ERDA, NASA, and TVA and are discussed in the pertinent report sections.

APPENDIX I

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

AUG 18 1977

Victor L. Lowe
Director
General Government Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Lowe:

We have reviewed your draft report entitled: "Consistent and Uniform Treatment of Inflation Needed in Program Cost Estimates Provided to the Congress."

Although we would not agree with every aspect of the report, we do share your concern about the current pricing policy contained in OMB Circular A-11. Indeed, this policy is currently undergoing a complete review by this Administration. This review will not be completed in time to be incorporated in the 1979 Budget, however. Any changes in the current pricing policy will, therefore, have to wait until the 1980 Budget.

Since the A-11 pricing policy is under review, we feel that specific comments on your draft report would be premature. However, your draft report is a timely input for our current review and its criticisms and proposals will be carefully considered.

Sincerely,

James T. McIntyre, Jr.
Deputy Director

GAO note: Page references in these appendixes refer to the draft report and may not agree with the page numbers in the final report.

APPENDIX II

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

COMPTROLLER

15 AUG 1977

Mr. R. W. Gutmann
Director, Procurement and
Systems Acquisition Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Gutmann:

This is in reply to your letter to the Secretary of Defense regarding your report dated May 7, 1977, on "Consistent and Uniform Treatment of Inflation Needed in Program Cost Estimates Provided to the Congress," OSD Case #4624.

The DoD agrees, in general, with the report's recommendation that OMB or the executive departments develop uniform and consistent policy and procedures for treatment of inflation estimates. Omitted from Chapter Two "DoD Treatment of Inflation," is the fact that since February 1975, we have permitted program peculiar indices for the budget and authorization years. DoD directed appropriation level indices have been used for outyear planning purposes.

The statement on page 2 which states "We interviewed officials and reviewed documents at the headquarters of the DoD. . ." is misleading. Much of Chapter Two deals with the Selected Acquisition Reports and related format and definitional changes and, yet, no one from the organization responsible for overseeing the SARs was contacted regarding the matters discussed in your report. Specific comments on this chapter are attached.

The DoD takes exception to the GAO statement on page 28 that the large number of inflation indices is one of the reasons the exact amount of inflation in the DoD budget is not known. The fact is that each yearly budget submission to the Congress has been prepared in both current and constant prices to isolate and identify inflation by appropriation. This information is regularly supplied to Congressional Committees.

APPENDIX II

The DoD budgetary treatment of inflation is well understood and accepted by the Congress. During 1976, the Congressional Budget Office independently reviewed in detail the Defense inflation treatment methodology and agreed with the budgetary procedures and techniques used. The DoD budget composite inflation rates are consistent to other economy-wide measures of inflation such as the CPI, the WPI and GNP deflator series. These facts, in our view, lend little credence to the GAO argument that the number of indices used may somehow be related directly to Congressional views of Defense management and inflation in the Defense budget. This problem arises from the fact that the study uses inflation policies and practices which are pertinent only to major programs (RDT&E and Procurement) to draw conclusions concerning the entire DoD budget.

I appreciate the opportunity to comment on your draft report.

Sincerely,

Fred P. Wacker

Fred P. Wacker
Assistant Secretary of Defense

Enclosure

SPECIFIC COMMENTS

1. Glossary: "Current dollars" should not be redefined as shown. Confusion in terminology is a major problem and is not improved by redefining the economist's language to layman's terms.

2. Glossary: The definitions of escalation and inflation as given are not interchangeable and, in fact, are defined as opposites. We do agree, however, that for this report they should be interchangeable.

3. Page 9, first paragraph: The paragraph implies that 14 different sets of indices were issued by the Army in a two-year period and, in context, it would appear that these indices applied to budget estimates for major weapons systems. In fact, only 7 sets of indices were distributed. The remainder of the documents either corrected previous errors (e.g., typographical) or concerned escalation guidance for very specific purposes (e.g., special studies). This period represented a time of abnormal inflation causing great difficulty for all those involved in the inflation forecasting business, and should be considered atypical.

4. Page 10, third paragraph: In May 1972, the definition of Logistics Support/Additional Procurement Costs was changed. "Support" variance was not redefined because such a variance category did not exist.

5. Page 10, third paragraph: The "Support" variance category was first established in July 1974, not "reinstated" as the report claims. What was "redefined" in May 1972 was "Logistics Support/Additional Procurement Costs," which was not a variance category but rather a separate section of the SAR. Included in this section are program related costs which are not included in the definition of Program Acquisition Costs (i.e., costs which are not included in the budget as a procurement line item, P-1). Hence, we did not lose track of support costs but rather we started tracking them for the first time.

6. Pages 10-13, SAR format changes: In the period between July 1974 and March 1975, we attempted to develop a SAR display which would track inflation and real growth in a consistent, reasonably accurate, and useful manner. We believe this goal has been accomplished. Pre-1975 SARs display reconstructions of program base year dollars. 1975 and later programs will be originally prepared in base year dollars. We believe the present SAR concept of tracking program cost changes against a fixed constant dollar program is the only way to keep track of cost growth. This concept does not, however, preclude a display of cost-to-complete in constant dollars with a rolling baseline as envisaged in your recommendation.

7. Page 13, last paragraph: The Bureau of Economic Analysis project will develop historical price deflators not projections as implied in the report.

APPENDIX III

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION
WASHINGTON, D.C. 20545

JUL 14 1977

Mr. Monte Canfield, Jr., Director
Energy and Minerals Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Canfield:

We have reviewed the draft report entitled "Consistent and Uniform Treatment of Inflation Needed in Program Cost Estimates Provided to the Congress" transmitted to the Acting Administrator by your June 2, 1977 letter, and offer the following comments for your consideration.

We agree with the recommendation that OMB develop inflation policy and procedures which would uniformly and consistently apply to annual program and budget estimates. Uniform criteria or guidelines that may be developed by OMB should, in our opinion, be sufficiently broad or flexible to permit agencies to establish internal procedures and escalation factors applicable and appropriate to their operations.

We do not agree with the alternative that a uniform escalation rate be used by all agencies. We feel that because of the wide variance in inflation rates between geographic locations and types of work and materials, the application of a Government-wide rate would cause difficulty in specific planning and in correctly estimating the actual costs to be incurred. We also suggest that the statement "it would be appropriate to exclude all inflation from estimates that extent beyond a current budget year" be modified to permit the inclusion of escalation in estimates for construction projects which extend over a period of years. Both the Congress, GAO, and the OMB have insisted for some time that construction project estimates submitted for Congressional authorization reflect an estimate of the total cost of the project. Further, to do otherwise would result in the submission to the Congress of an inaccurate and nonrepresentative estimate of the cost of the project, would not provide the decision-makers a proper perspective of total project costs, and would result in costs exceeding the amount authorized at the outset by Congress requiring reauthorization requests that would not have been necessary.

Sincerely,

M. C. Greer
Controller

OFFICE OF THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

ASSISTANT SECRETARY
FOR ADMINISTRATION

August 30, 1977

Mr. Henry Eschwege
Director
Community and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

We have enclosed two copies of our reply to the General Accounting Office draft report "Consistent and Uniform Treatment of Inflation Needed in Program Cost Estimates Provided to the Congress." Please let us know if we can assist you further.

Sincerely,

William P. Davis
for Edward W. Scott, Jr.

Enclosures

DEPARTMENT OF TRANSPORTATION REPLY

TO

GAO DRAFT REPORT OF MAY 1977

ON

CONSISTENT AND UNIFORM TREATMENT OF INFLATION

NEEDED IN PROGRAM COST ESTIMATES

PROVIDED TO THE CONGRESS

Summary of GAO Findings and Recommendations

GAO examined the treatment of inflation in the budget and long term program cost estimates of various military and civilian agencies, including the Coast Guard. Although OMB normally disallows provision for inflation in budget estimates, there are certain exceptions and inconsistent applications among the various Federal agencies. These practices allow a proliferation of inflation indices to be applied differently by various agencies, thus making it difficult to compare the costs of major programs. Several possible changes are discussed (but not specifically recommended) in the report. These include: (a) limiting the number of inflation indices used, (b) issuing OMB guidelines to agencies for the adjustment of budget estimates to account for inflation during the budget processing cycle, (c) annually recosting long term program estimates to be consistent with prevailing prices, and (d) identifying separately the effects of inflation on future program costs. GAO recommends that Congress require OMB to develop inflation policies and procedures to be applied uniformly by agencies to annual program and budget estimates. Alternatively, GAO suggests, but does not recommend, that all agencies' estimates presented to Congress include inflation on a uniform basis, but that estimates that extend beyond the budget year exclude all inflation.

Position Statement

The report provides an interesting summary of the treatment of inflation in budget and long-term program estimates of several Executive Branch agencies, both civilian and military. Most of the important findings of the report, however, concern problems involving the Department of Defense (DOD) and are not nearly as serious a concern to most civilian agencies. The problems and possible solutions discussed in Chapter 4 relate almost exclusively to Defense programs, where inflation has been a serious problem due to the lengthy development periods and long procurement cycles for major weapon systems. We believe that the conclusions that are drawn from GAO's extensive examination of these problems in DOD do not necessarily apply to civilian agencies such as the Department

of Transportation. Thus, we would urge a good deal of caution in applying across the board to all civilian agencies the suggestions made by GAO on how to deal with problems with DOD.

We share the concern of OMB that extensive budgeting for inflation tends to make the inflation a self-fulfilling prophecy. Thus, while we can see merit in the adoption of a policy that would permit agencies to reflect the impact of inflationary price changes in budget and program cost estimates, we think this should be done only after more extensive study by both OMB and the Council of Economic Advisers (CEA). If any such policy is adopted, it should not mandate the application of a cost escalation system throughout the Federal Government. Moreover, it should give specific consideration to grant programs where failure to allow for inflation has had the effect of reducing actual program levels below those intended by the Congress and planned for by state and local governments.

The report is confusing in its organization. Although the report addresses the experiences of both military and civilian agencies, Chapter 4 is devoted almost exclusively to the policies of DOD. Several possible changes are suggested in this chapter, but none are recommended here or in the concluding "Recommendation" section, nor does the report demonstrate that the changes would be beneficial to civilian agencies. The report is also unclear in its final chapter because several changes are apparently supported in the report's "Conclusions" section, but are not included in the final recommendations.

Although there appears to be some merit in the adoption of a uniform policy for dealing with inflation in budget estimates, the report does not make a persuasive case that something must be done. Since any action to establish new policies and procedures for handling inflation must necessarily originate with OMB and presumably the CEA, we believe those agencies should determine whether any such action should be taken.

Mortimer L. Downey
Deputy Under Secretary

AUG 28 1977

National Aeronautics and
Space Administration

Washington, D C
20546

21 JUL 1977

Reply to Attn of W

Mr. R. W. Gutmann
Director
Procurement and Systems
Acquisition Division
U.S. General Accounting Office
Washington, DC 20548

Dear Mr. Gutmann:

Enclosed are the NASA comments on GAO's draft report to the Congress entitled, "Consistent And Uniform Treatment Of Inflation Needed In Program Cost Estimates Provided To The Congress", which was transmitted with your letter dated May 17, 1977.

As noted on page 15 of the report, NASA was not among the civil agencies in which GAO selected a single project for review of the practices relating to inflation. Rather, the NASA information compiled on pages 20 through 23 of the draft pertains to various reviews for which we provided separate responses to GAO previously and the enclosed comments contain our clarifications and recommendations for revising this segment of the report.

Thank you for the opportunity to review this proposed report.

Sincerely,

Kenneth R. Chapman
Assistant Administrator for
DOD and Interagency Affairs

Enclosure

APPENDIX V

NASA COMMENTS ON THE GAO DRAFT REPORT ENTITLED "CONSISTENT AND UNIFORM TREATMENT OF INFLATION NEEDED IN PROGRAM COST ESTIMATES PROVIDED TO CONGRESS", DATED MAY 18, 1977 (Code 951129)

With respect to NASA's practices concerning treatment of inflation, the GAO examined one NASA project, the Shuttle Main Engine (p. 20-22 of the draft report), and commented on a general statement furnished by NASA (p. 23).

The GAO's conclusion with respect to the Main Engine project was that the Marshall Space Flight Center approach to consider and isolate inflation trends appears appropriate because inflation rates vary between cost elements (p. 22). However, the GAO noted that in view of the expense involved, this process would be simplified through the development and application of a composite inflation rate to be consistently and uniformly applied to all projects.

We agree with the GAO that consistency and uniformity of assumptions on inflation rates may be desirable from a simplifying standpoint. However, it is important when developing budgets for major program elements to reflect the funding requirements as accurately as possible. Thus we would not want anything to obscure the unique inflation impact of the industrial environment within which the project is being conducted.

On page 23 of the draft report, the GAO included a quotation from NASA and a general statement as follows:

> "In a reply to GAO on cost estimating[1/], NASA stated:
>
> 'In a few specific cases of major long-term projects, we have deviated from our general policy. In the case of the Space Shuttle, for example, our baseline estimate is stated in 1971 dollars. Each year we update the estimate to reflect the inflation experienced. The estimates for Shuttle in any given year project inflation in terms of budget-year dollars but include no further future inflation. The Congress has been fully informed of this procedure. (Underscoring supplied)'
>
> 'It, therefore, appears that NASA Headquarters included a factor for inflation--if even for the budget-year--in addition to the project costs which already included factors for inflation..."

1/"Need for Improved Reporting and Cost Estimating on Major Unmanned Satellite Projects," U.S. General Accounting Office, PSAD-75-90, July 25, 1975.

We do not understand the basis for this statement. Headquarters may, in some instances, modify provision for inflation included in the basic estimates, but there is no duplication of provision for inflation.

For the foregoing reasons, we recommend that paragraph from page 23 quoted above ("It, therefore, appears that NASA, etc.") be deleted from the report and the following substituted:

> "We are informed that in preparing project estimates, NASA, at the project level, applies composite inflation rates based on analysis of the impact of inflation experienced to date and projected inflation trends. NASA Headquarters reviews these projections and may modify them, as appropriate."

Page 20, fifth line from bottom of page, after "in computing inflation" add: "because NASA Headquarters takes the position that, where applicable, inflation estimates for projects should reflect the economic environment of the plant where the project systems are being developed and/or produced."

Page 20, same line, after "Each installation", insert "or project office".

Page 21, last line of second paragraph, after "basic estimate", add "in 1971 dollars."

Page 21, delete first sentence of third paragraph and insert "In developing initial project estimates, NASA's practice is to provide a range of estimates to reflect the confidence which can be placed in the estimates and the need to provide for such factors as technical uncertainties."

Page 21, change last paragraph to read, "For the Shuttle main engine, project officials in November 1974, based on fiscal 1976 budget submissions, estimated the total DDT&E cost at $879 million (escalated): contractor effort $703 million, test propellants $131 million, test facility modifications $25 million, and government support $20 million. Documentation supporting this estimate showed that an allowance for inflation was included in three of these four project elements."

Page 22, second full paragraph, change first sentence to read, "MSFC officials said they had no formal centralized system for accumulating or tracking inflation data and trends."

Page 22, in the last sentence of the first full paragraph delete "included in" and insert "added to".

Page 22, add to first full paragraph, "It should be noted that for the external tank and the SRB projects, MSFC has included contractual clauses for unanticipated inflation. This contract clause requires periodic review and adjustment of the contract value (both increases and decreases) as a result of inflationary impacts at the contractor plant."

Wm. E. Lilly
Associate Administrator
NASA Comptroller

7/13/77
Date

APPENDIX VI

TENNESSEE VALLEY AUTHORITY
KNOXVILLE, TENNESSEE 37902

August 17, 197

Mr. Monte Canfield, Jr., Director
Energy and Minerals Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Canfield:

Thank you for the opportunity to review the draft report "Consistent and Uniform Treatment of Inflation Needed in Program Cost Estimates Provided to Congress."

TVA's present method of dealing with inflation in cost estimating is satisfactory for our internal decision processes. We recognize the need to carefully plan the long-term financing of the agency's power program. One aspect of the planning is the consideration of probable rates of inflation in estimating the cost of major additions and improvements to the power system.

As noted in the GAO report, updates of the effects of inflation and other significant impacts on original cost estimates are made annually by TVA. TVA has shared the results of these analyses with OMB, Congress, and the public. This accomplishes our goal and the one mentioned in the report: that of maintaining budget discipline while identifying sources of change beyond the control of management.

The apparent consistency obtained through the suggested application of escalation criteria developed by OMB has appeal. However, an analysis of the impact of inflation on labor and various items of materials and equipment shows a wide variation among items and regions of the Nation. Responsible program managers are in the best position to evaluate inflation expectations appropriate to their spending plans.

A major concern of the GAO report relates to the use of inflation factors for purposes other than providing for probable total cost estimates. This could be more easily resolved if the inflation factors applied by program managers were included with budget submissions and subject to OMB and congressional review and criticism. Organizations that were attempting to use inflation escalation as a cover for unapproved expenditure or mismanagement would be quickly found out.

APPENDIX VI

Mr. Monte Canfield, Jr.

August 17, 197

In sum, we question the value of the recommendations contained in the report. The goal of obtaining budget and cost estimates in comparable prices can be obtained by continuing to express all expense programs in current year dollars with appropriate inflation factors added by OMB or Congress as required by economic conditions. Long-term capital funding requests should include inflation escalators reflecting the best judgment of the responsible program managers.

Sincerely,

Lynn Seeber

Lynn Seeber
General Manager