DRSAR/PE/N-84

PROGRAM ANALYSIS AND EVALUATION DIRECTORATE

ACTIVITIES SUMMARY

VOLUME I

APRIL 1980

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US ARMY ARMAMENT MATERIEL READINESS COMMAND

PROGRAM ANALYSIS AND EVALUATION DIRECTORATE

ROCK ISLAND, ILLINOIS 61299

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19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Personnel requirements
Army readiness
Workload trends
Workload drivers
Customer demands
Procurement programs
Personnel allocation
Linear model

20. ABSTRACT *(Continue on reveree eide if neceeeary and identify by block number)*

This report contains two command-level briefings about the development of (a) a method for allocation of personnel cuts and (b) an intensity of operational employment (IOE) baseline study for ARRCOM.

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ARRCOM

BASELINE

STUDY

Briefing

Prepared at Request

of

CG, ARRCOM

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31 AUG 79

ARRCOM BASELINE STUDY

SLIDE 2

TOPICS TO BE COVERED

1. ARRCOM PERSONNEL STRENGTHS/CATEGORIES
2. MATERIEL
3. AMMUNITION
4. ARRCOM READINESS
5. ARMY READINESS

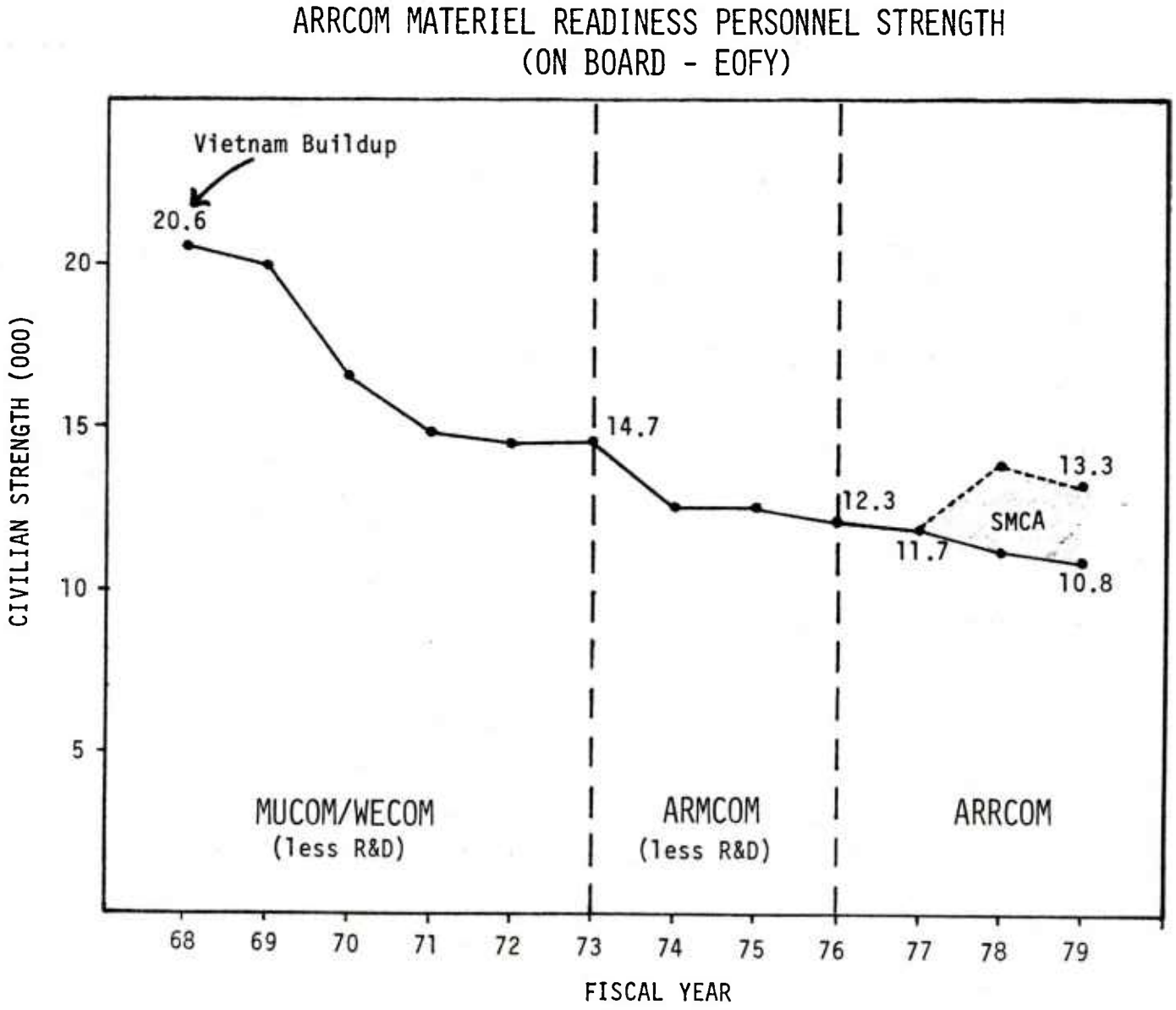
GENERAL EICHER:

SINCE PUBLICATION OF THE DARCOM BASELINE ANALYSIS IN AUGUST 78 AND THE MATERIEL MANAGEMENT MINI-BASELINE IN NOV 78, DRSAR-PE HAS SOUGHT TO DEVELOP A COMMAND BASELINE ANALYSIS. IN MAR 79 WE PROPOSED A STUDY PLAN WHICH ADDRESSED "ALLOCATION OF MANPOWER (CUTS) BY PROGRAMS, AND PRODUCTS FOR THE SERVICES" AND "DEVELOPMENT OF THE IOE BASELINE STUDY FOR ARRCOM".

THE PURPOSE OF THIS BRIEFING IS TO REPORT ON OUR PROGRESS TO DATE IN (1) APPLYING THE INTENSITY OF OPERATIONAL EMPLOYMENT (IOE) TO ESTABLISH A RELATIONSHIP BETWEEN ARMY REQUIREMENTS AND ARRCOM PERSONNEL AND (2) LINK ARRCOM ACTIONS (AND PERSONNEL) TO ARMY READINESS. THE IOE CONCEPT, INTRODUCED IN THE "DARCOM BASELINE STUDY" INVOLVES THE USE OF AN INDEX (IOE) TO MEASURE REQUIREMENTS PLACED ON THE COMMAND FROM EXTERNAL SOURCES (I.E. DRIVERS) TO WHICH ARRCOM MUST RESPOND BY EXPENDITURE OF RESOURCES AND BY ACHIEVING SPECIFIED (IN SOME CASES) LEVELS OF PERFORMANCE. THE DARCOM DRIVERS (ITEMS MANAGED AND REQUISITIONS PROCESSED) ARE USED TO REFLECT THE INTENSITY OF USE BY FIELDED UNITS - OF THE INVENTORY SUPPLIED BY DARCOM - AS REQUIRED TO ACHIEVE ARMY READINESS.

THE DARCOM ANALYSIS EMPLOYED A SINGLE IOE BASED ON MATERIEL MANAGEMENT ACTIVITIES TO MEASURE REQUIREMENTS FOR THE ENTIRE COMMAND, BUT BECAUSE OVER HALF OF THIS COMMAND'S PROCUREMENT ACTIVITY IS RELATED TO AMMUNITION SUPPLY, BOTH MATERIEL AND AMMUNITION (TREATED SEPARATELY) ARE IN THIS ANALYSIS.

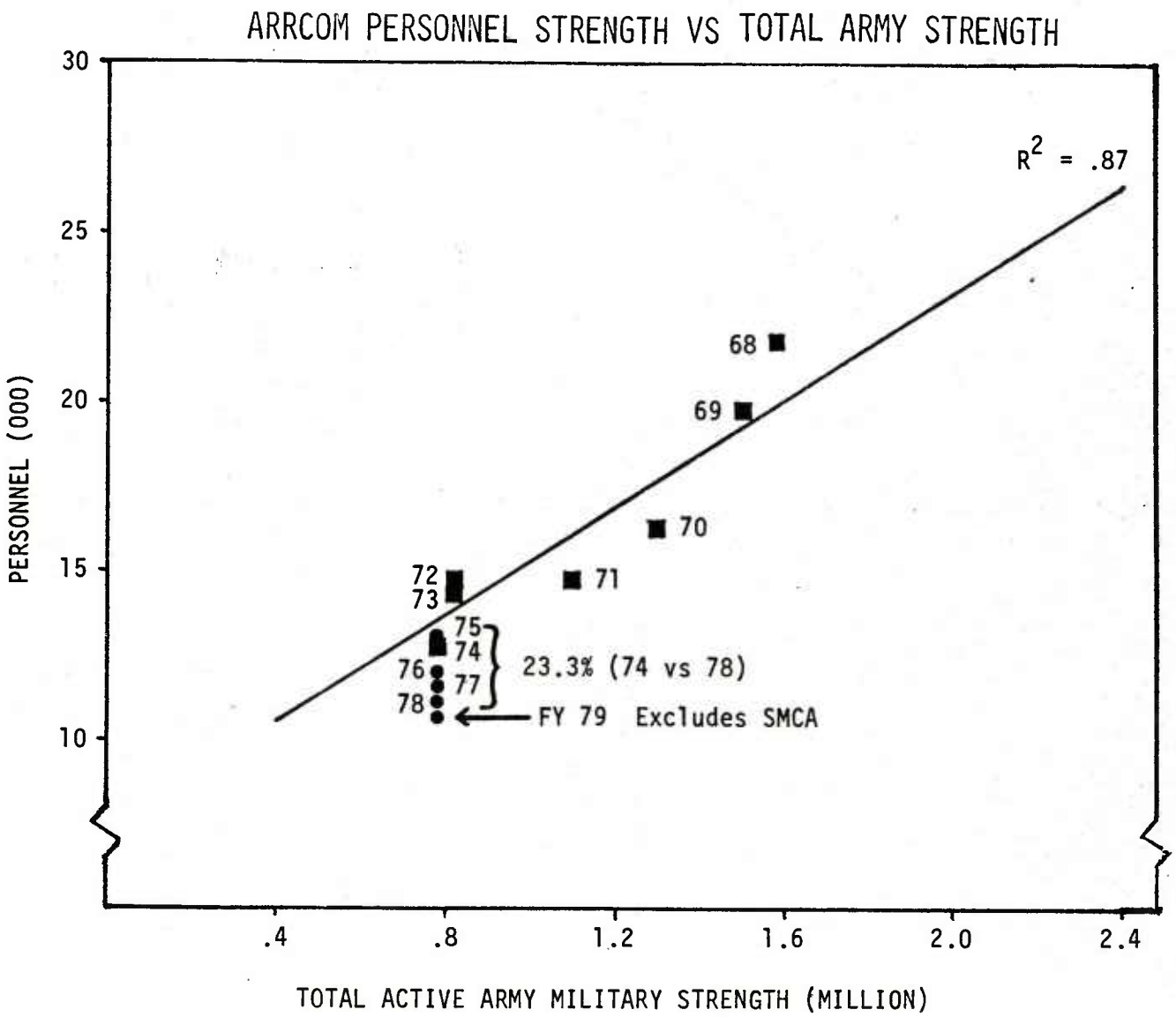
SLIDE 3


ARRCOM MATERIEL READINESS PERSONNEL STRENGTH
(ON BOARD - EOFY)
Vietnam Buildup
20.6
14.7
12.3
11.7
13.3
SMCA
10.8
CIVILIAN STRENGTH (000)
20
15
10
5
MUCOM/WECOM
(less R&D)
ARMCOM
(less R&D)
ARRCOM
68
69
70
71
72
73
74
75
76
77
78
79
FISCAL YEAR

THE FIRST STEP WAS TO DEVELOP A HISTORY OF PERSONNEL CONSISTENT WITH THE CURRENT ARRCOM ORGANIZATION BY REVIEWING THE COMMAND'S EVOLUTION FROM MUCOM/WECOM AND ARMCOM. DATA FOR THIS EFFORT (OBTAINED THROUGH DRSAR-PT AND DRSAR-HO) ARE SHOWN HERE FOR FY 68-79. INFORMATION GLEANED FROM ANNUAL HISTORICAL SUMMARIES PROVIDED THE BASIS FOR SEPARATION OF R&D PERSONNEL AND REDEFINITION OF PREDECESSOR ORGANIZATIONS IN TERMS OF ARRCOM (MATERIEL READINESS).

FOLLOWING THE VIETNAM PEAK IN 1968, MATERIEL READINESS PERSONNEL DECLINED FROM 20,600 TO APPROXIMATELY 11,000 IN FY 79, EXCEPT FOR 2,581 SPACES ADDED AS A RESULT OF ASSUMPTION OF RESPONSIBILITY AS SINGLE MANAGER FOR CONVENTIONAL AMMUNITION.

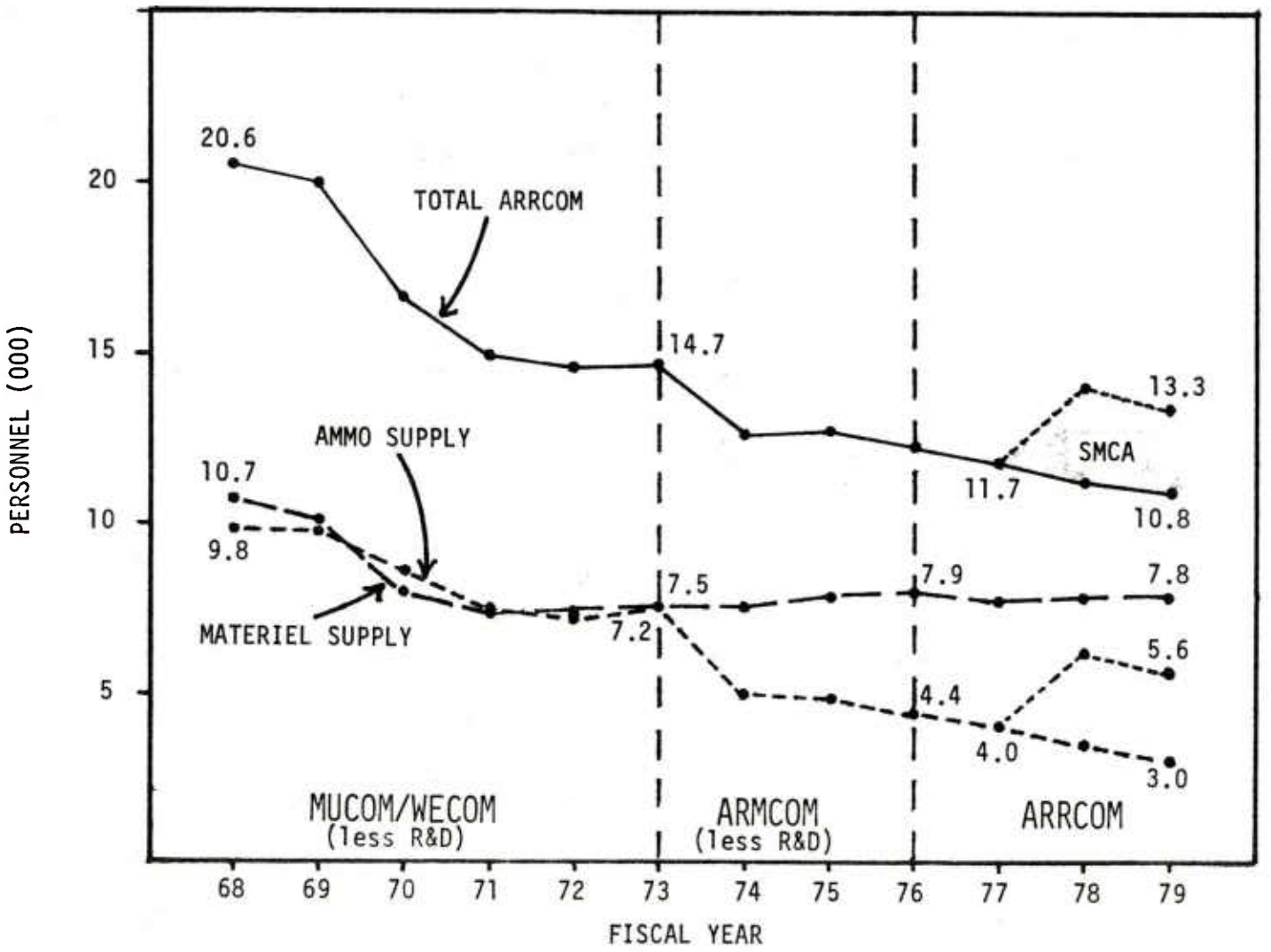
SLIDE 4


ARRCOM PERSONNEL STRENGTH VS TOTAL ARMY STRENGTH
PERSONNEL (000)
30
25
20
15
10
R^2 = .87
68
69
70
71
72
73
75
74
76
77
78
23.3% (74 vs 78)
FY 79 Excludes SMCA
.4
.8
1.2
1.6
2.0
2.4
TOTAL ACTIVE ARMY MILITARY STRENGTH (MILLION)

THE ARRCOM PERSONNEL STRENGTHS AS SHOWN IN THE GRAPH WERE COMPARED TO TOTAL ACTIVE ARMY STRENGTH. ANALYSIS, AS IN THE DARCOM STUDY, SHOWED STRONG CORRELATION FROM FY 68-74, BUT THE CLUSTER OF DATA POINTS BELOW THE REGRESSION LINE INDICATES TERMINATION OF THIS RELATIONSHIP AFTER FY 74 WHEN ARMY STRENGTH STABILIZED AT ABOUT 785,000. DARCOM FOUND THE SAME RELATIONSHIP IN THEIR ANALYSIS.

SLIDE 5

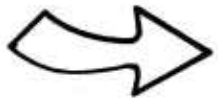
ARRCOM MATERIEL READINESS PERSONNEL BY CATEGORY



FINALLY, TO FACILITATE SEPARATE TREATMENT OF AMMUNITION AND MATERIEL, ARRCOM MR PERSONNEL WERE DIVIDED INTO TWO CATEGORIES SHOWN ON THIS SLIDE. ESSENTIALLY, WECOM WAS CLASSIFIED AS MATERIEL SUPPLY AND MUCOM AS AMMUNITION SUPPLY.

SLIDE 6

TOPICS TO BE COVERED



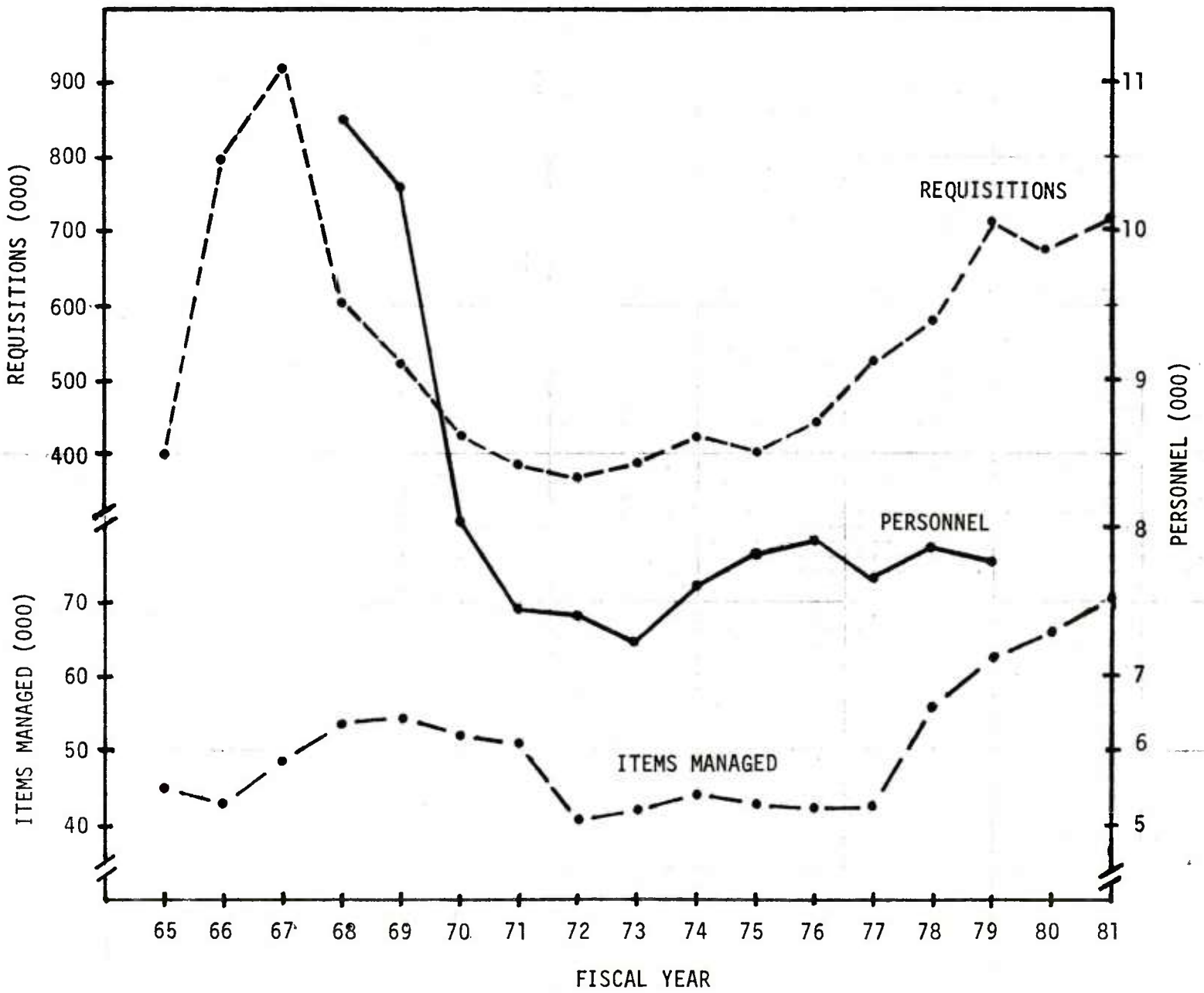
1. ARRCOM PERSONNEL STRENGTHS/CATEGORIES
2. MATERIEL
   - -DRIVERS
   - -WORKLOAD TRENDS
   - -PERFORMANCE (OUTPUT) TRENDS
3. AMMUNITION
4. ARRCOM READINESS
5. ARMY READINESS

HAVING ESTABLISHED A HISTORY OF ARRCOM MR PERSONNEL, IT IS NOW POSSIBLE TO RELATE PERSONNEL TO WORKLOAD ACCOMPLISHED IN RESPONSE TO REQUIREMENTS PLACED ON THE COMMAND AND ESTABLISH ARRCOM'S "BASELINE".

THE MATERIEL SECTOR WILL BE DISCUSSED FIRST FOLLOWING THE OUTLINE SHOWN HERE.

SLIDE 7

MATERIEL REQUISITIONS/ITEMS MANAGED AND PERSONNEL BY FISCAL YEAR



NUMBERS OF REQUISITIONS AND NUMBERS OF ITEMS MANAGED ARE TWO ARRCOM DRIVERS WHICH REPRESENT DEMANDS PLACED ON THE COMMAND FROM EXTERNAL SOURCES OVER WHICH WE HAVE NO CONTROL.

MATERIEL REQUISITIONS AND ITEMS MANAGED ARE SHOWN HERE OPPOSITE MATERIEL SUPPLY PERSONNEL. SINCE FY77, DEMANDS HAVE INCREASED SIGNIFICANTLY BUT THE NUMBER OF PERSONNEL HAS LEVELED OFF AT ABOUT 7,800.

SLIDE 8

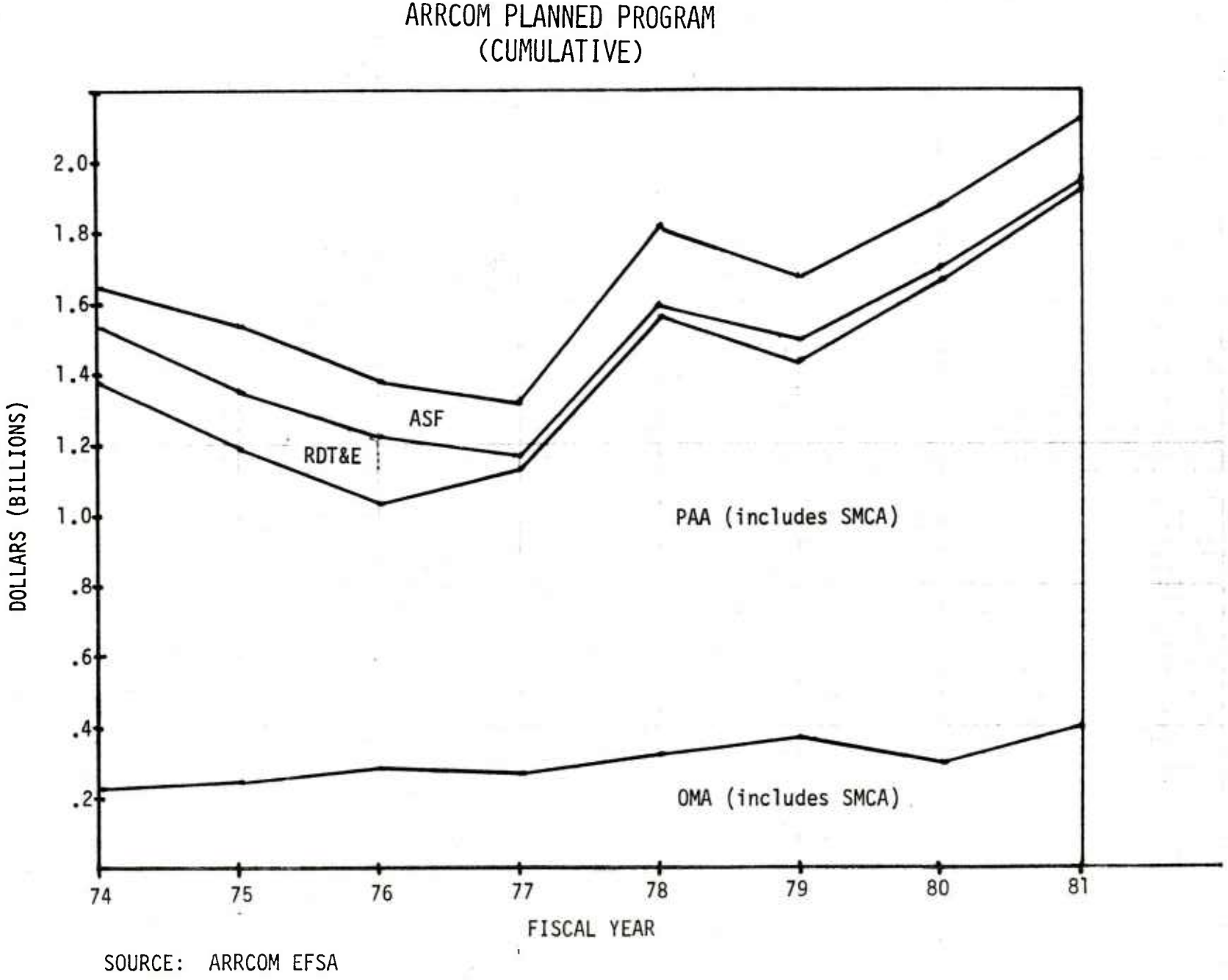
MAJOR ARMY EVENTS AFFECTING DEMANDS ON ARRCOM FY 74 - 78

1. 13-16 DIVISIONS
2. MOVE TOWARD HEAVIER DIVISIONS
3. INCREASE IN DENSITY OF EQUIPMENT
4. INCREASE IN WEAPON SYSTEM SOPHISTICATION
5. INCREASE IN SECURITY ASSISTANCE BUSINESS
6. DIRECT SUPPORT SYSTEM
7. OVERSEAS DEPOTS CLOSED
8. SINGLE MANAGER FOR CONVENTIONAL AMMUNITION
9. MANDATED PROGRAMS
10. SYSTEMS SCHEDULED FOR FIELDING DURING THE NEXT FIVE YEARS

MAJOR ARMY EVENTS OCCURRING FROM FY74-78, WERE IDENTIFIED AS THE CAUSE FOR INCREASED DEMANDS IMPOSED ON ARRCOM. THESE EVENTS, TAKEN FROM THE DARCOM STUDY ARE SHOWN ON THIS SLIDE.

REQUISITION TRAFFIC FOR SPARES AND REPAIR PARTS INCREASED BECAUSE OF THE MOVE TO HEAVIER DIVISIONS, INCREASE IN FIELDED EQUIPMENT DENSITY AND IMPLEMENTATION OF DSS IN FY74. THE SHIFT TOWARD A MECHANIZED FORCE AND INTRODUCTION OF NEW SOPHISTICATED SYSTEMS INTO THE FIELD NOT ONLY RESULTED IN FURTHER INCREASES IN REQUISITION TRAFFIC, BUT INCREASED THE NUMBER OF ITEMS ARRCOM MANAGES.

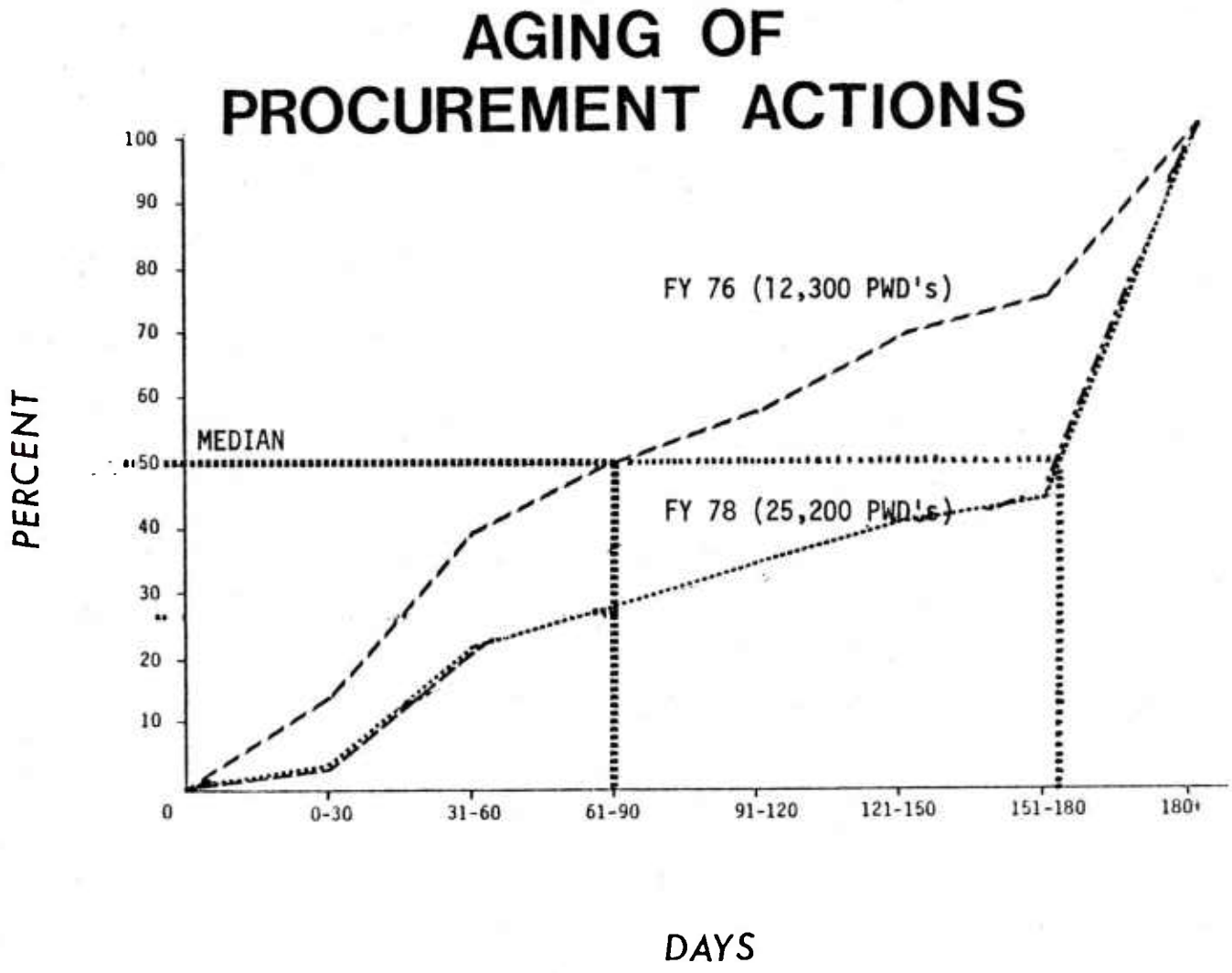
SLIDE 9



SOURCE: ARRCOM EFSA

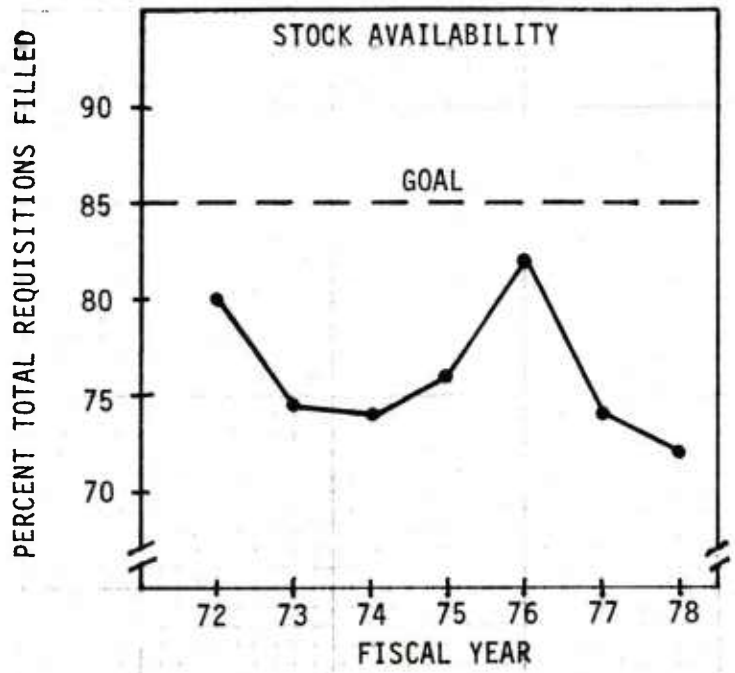
NEW SYSTEMS ENTERING THE INVENTORY AND INCREASED FIELD SUPPORT TO MORE EQUIPMENT INTENSIVE UNITS REQUIRE GREATER EXPENDITURE OF PROCUREMENT FUNDS. THIS SLIDE REFLECTS THE CONTINUED GROWTH OF ARRCOM'S PROCUREMENT PROGRAM. NOTE HOWEVER, THAT THE OMA FUNDING (USED TO PAY PROCUREMENT PERSONNEL) IS NOT KEEPING PACE. IN THIS INSTANCE THERE IS A FAILURE TO PROPERLY PLAN, EXECUTE, AND ADMINISTER THE INCREASED PROCUREMENT ACTIVITY, A FACT BORNE OUT BY DECLINING PERFORMANCE AS SHOWN IN SUBSEQUENT SLIDES.

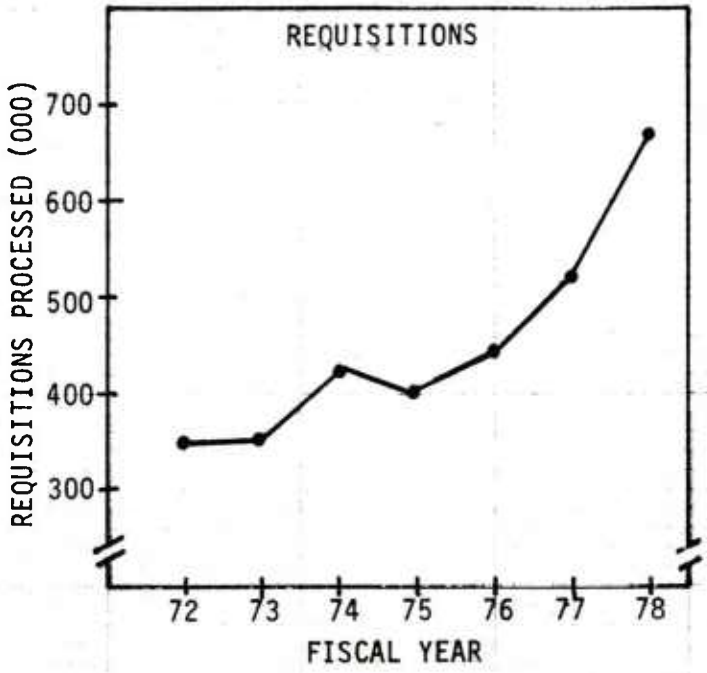
SLIDE 10

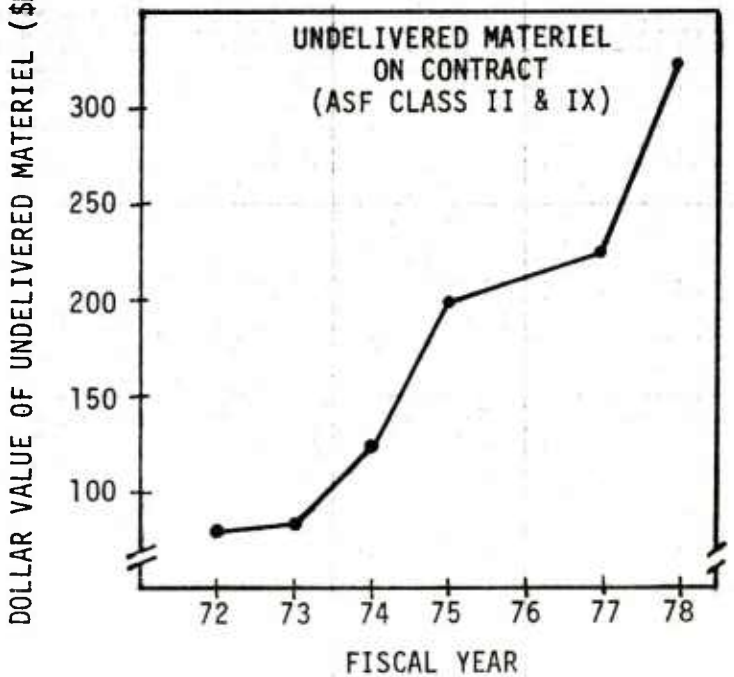

AGING OF
PROCUREMENT ACTIONS
PERCENT
100
90
80
70
60
50
40
30
20
10
0
MEDIAN
FY 76 (12,300 PWD's)
FY 78 (25,200 PWD's)
0-30
31-60
61-90
91-120
121-150
151-180
180+
DAYS

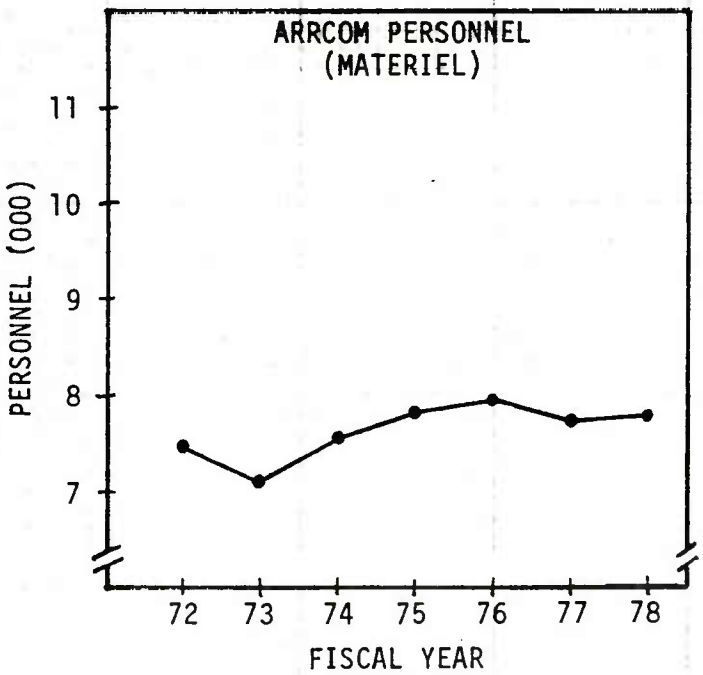
AGE OF PROCUREMENT ACTIONS, A KEY INDICATOR OF PROCUREMENT PERFORMANCE IS SHOWN ON THIS CHART. THE INCREASE IN MEDIAN AGE FROM 61-90 DAYS IN FY 76 TO 151-180 DAYS IN FY 78 IS THE RESULT OF INCREASED PWD WORKLOAD (12,300 VS 25,200) AND PROCUREMENT COMPLEXITY (LEGISLATIVE AND REGULATORY REQUIREMENTS SUCH AS SMALL BUSINESS SUBCONTRACTING CLAUSES, OFF-SHORE PROCUREMENTS, EPA, RSI, ETC). EXPRESSED ANOTHER WAY - IN FY 76, 48.5 PERCENT OF THE TOTAL IN-PROCESS PWD'S WERE MORE THAN 90 DAYS OLD. CURRENTLY 72.4 PERCENT OF THE TOTAL IN-PROCESS PWD'S ARE OVER 90 DAYS OLD. THE EFFECT IS DELAY IN AWARDING CONTRACTS, DECREASE IN RECEIPT OF NEW INVENTORY, AND INCREASED BACKORDERS. IN ADDITION - LARGER INVENTORY STOCKS MUST BE PROCURED AND STORED TO COVER THE GREATER LEADTIME. THE COST TO ARRCOM DUE TO LEADTIMES FROM FY 77-78 IS $11.5M/YEAR OR $32K/DAY. ARRCOM WILL INCUR THIS LOSS EACH YEAR IT CONTINUES TO OPERATE AT THE HIGHER LEVELS OF LEADTIME.

SLIDE 11


STOCK AVAILABILITY
PERCENT TOTAL REQUISITIONS FILLED
90
85
80
75
70
GOAL
72
73
74
75
76
77
78
FISCAL YEAR

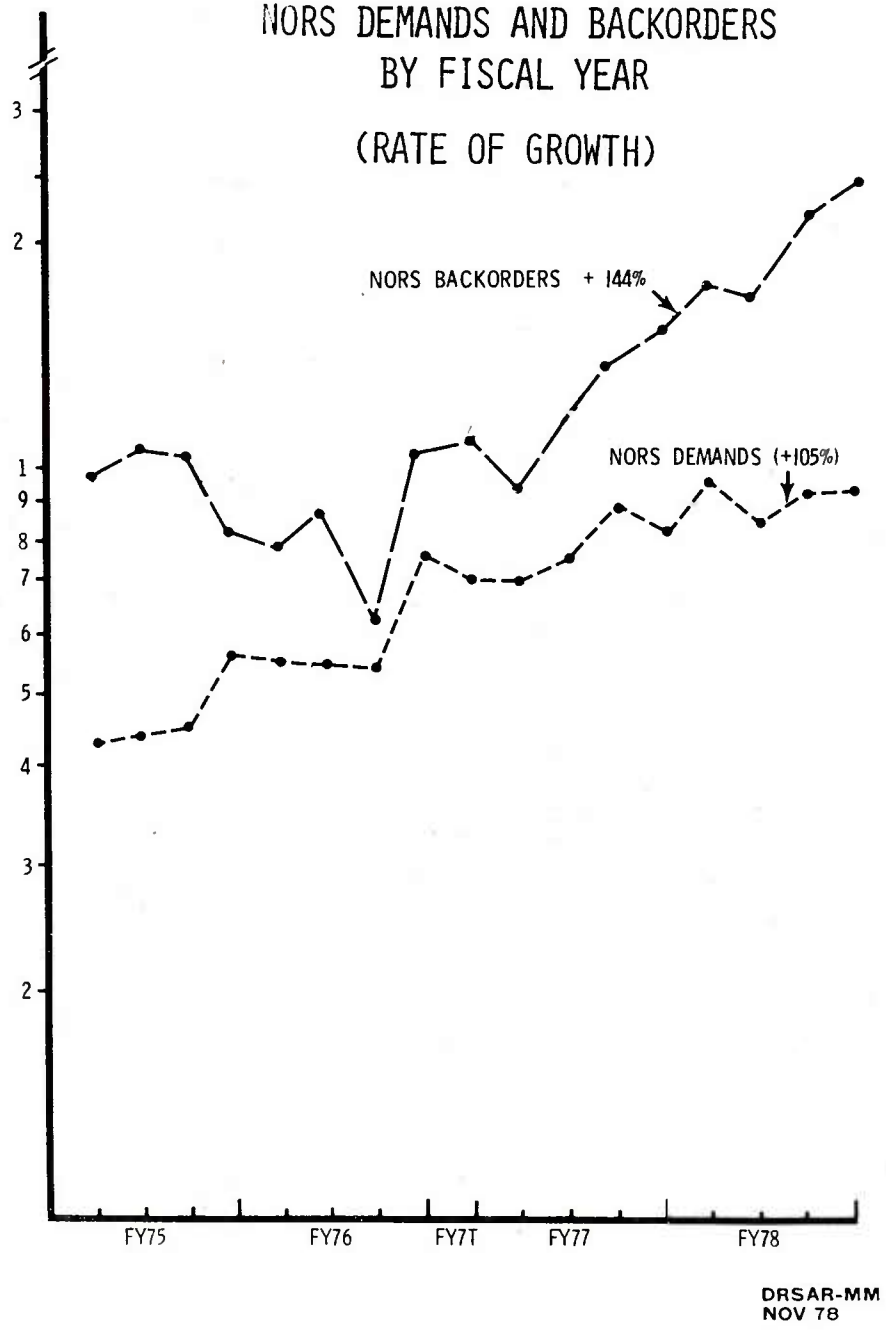

REQUISITIONS
REQUISITIONS PROCESSED (000)
700
600
500
400
300
72
73
74
75
76
77
78
FISCAL YEAR


UNDELIVERED MATERIEL
ON CONTRACT
(ASF CLASS II & IX)
DOLLAR VALUE OF UNDELIVERED MATERIEL ($M)
300
250
200
150
100
72
73
74
75
76
77
78
FISCAL YEAR


ARRCOM PERSONNEL
(MATERIEL)
PERSONNEL (000)
11
10
9
8
7
72
73
74
75
76
77
78
FISCAL YEAR

BECAUSE OF INCREASED DEMANDS FROM THE FIELD FOR MORE INVENTORY, DELAYED RECEIPT OF NEW INVENTORY FROM CONTRACTORS AND INCREASED WORKLOAD PER PERSON, ARRCOM HAS BEEN UNABLE TO ACHIEVE ITS 85 PERCENT STOCK AVAILABILITY GOAL. THE RESULT IS ARRCOM'S INABILITY TO MEET CUSTOMER DEMANDS IN A TIMELY MANNER.

SLIDE 12

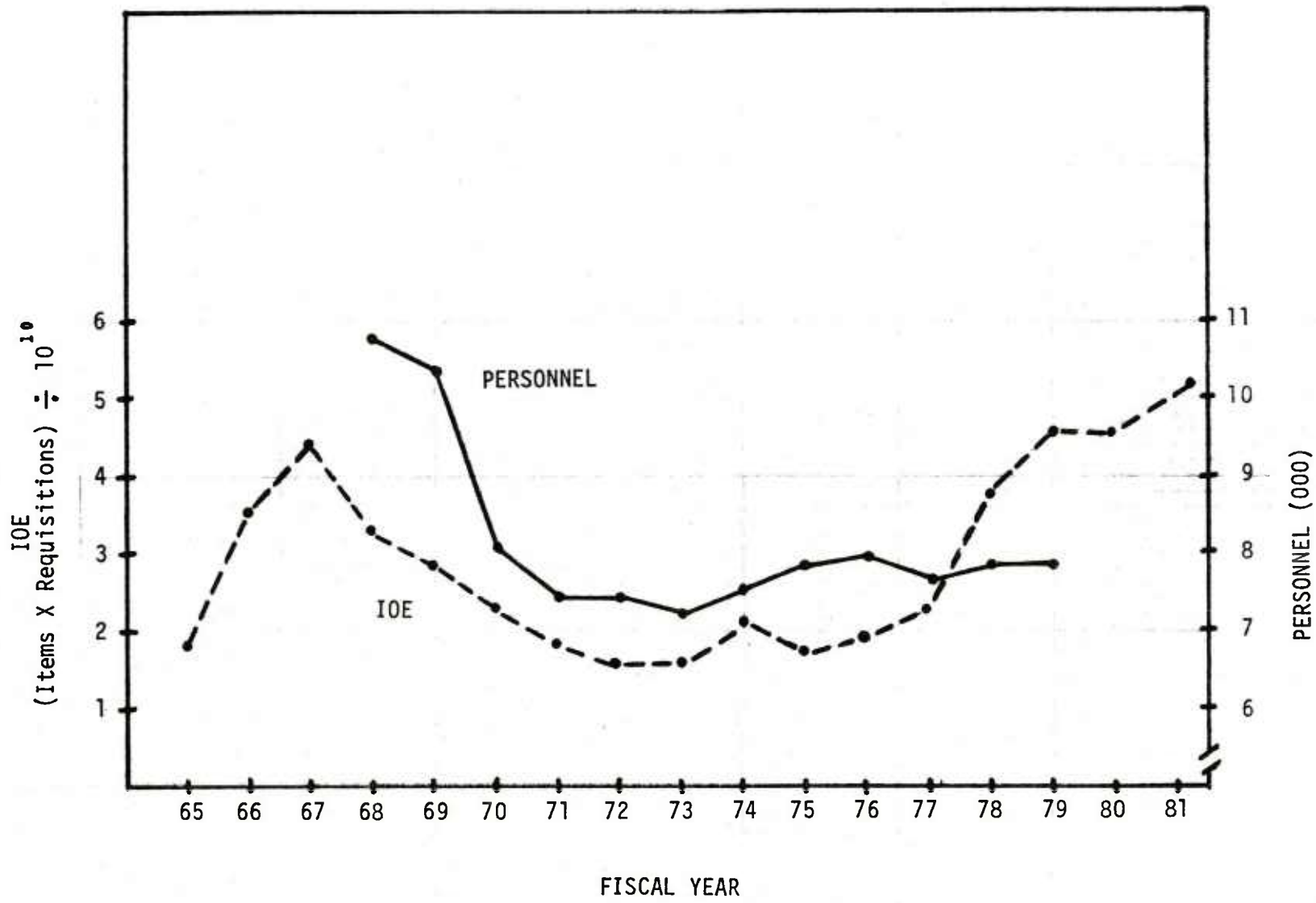

NORS DEMANDS AND BACKORDERS
BY FISCAL YEAR
(RATE OF GROWTH)
3
2
1
9
8
7
6
5
4
3
2
NORS BACKORDERS + 144%
NORS DEMANDS (+105%)
FY75
FY76
FY7T
FY77
FY78
DRSAR-MM
NOV 78

AGAIN DEMONSTRATING THE DECLINE IN SUPPLY PERFORMANCE SINCE FY 75, THIS SLIDE, TAKEN FROM THE MM BASELINE STUDY, DEPICTS THE COMPARATIVE RATES OF GROWTH OF DEMANDS AND BACKORDERS.

FROM FY 75-78 NORS DEMANDS INCREASED BY 105 PERCENT: AN INDICATION THAT FIELD EQUIPMENT DEADLINES ARE INCREASING. THE 144 PERCENT GROWTH IN NORS BACKORDERS INDICATES THE INABILITY TO SATISFY CRITICAL DEMANDS.

SLIDE 13

MATERIEL IOE AND PERSONNEL BY FISCAL YEAR



IN SUMMARY, THE RELATIVE DECLINE IN ARRCOM PERSONNEL IS, BY ALL CURRENT MEASURES ACCOMPANIED BY SERIOUS DETERIORATION IN PERFORMANCE OF ARRCOM'S LOGISTICS READINESS MISSION. IN ORDER TO MAINTAIN THE ARMY AT AN ACCEPTABLE LEVEL OF READINESS, THE COMMAND MUST BE ABLE TO RESPOND TO ITS CRITICAL DRIVERS. ARRCOM'S DRIVERS (REQUISITIONS AND ITEMS MANAGED) WHEN COMBINED, REPRESENT A "METHOD TO QUANTIFY INVENTORY AND FIELD USE OF THAT INVENTORY". DARCOM REFERRED TO THIS PROCEDURE AS THE "IOE TECHNIQUE" WHICH IS USED HERE TO ESTABLISH A BASELINE FOR THE MATERIEL SECTOR OF ARRCOM

THIS SLIDE SHOWS HOW ARRCOM'S MATERIEL IOE RELATES TO MATERIEL SUPPLY PERSONNEL HISTORICALLY.

SLIDE 14

IOE CALCULATION

(FY79)

ITEMS MANAGED	REQUISITIONS
63,733	710,500

$$IOE = (\text{ITEMS MANAGED} \times \text{REQUISITIONS}) \div 10^{10}$$

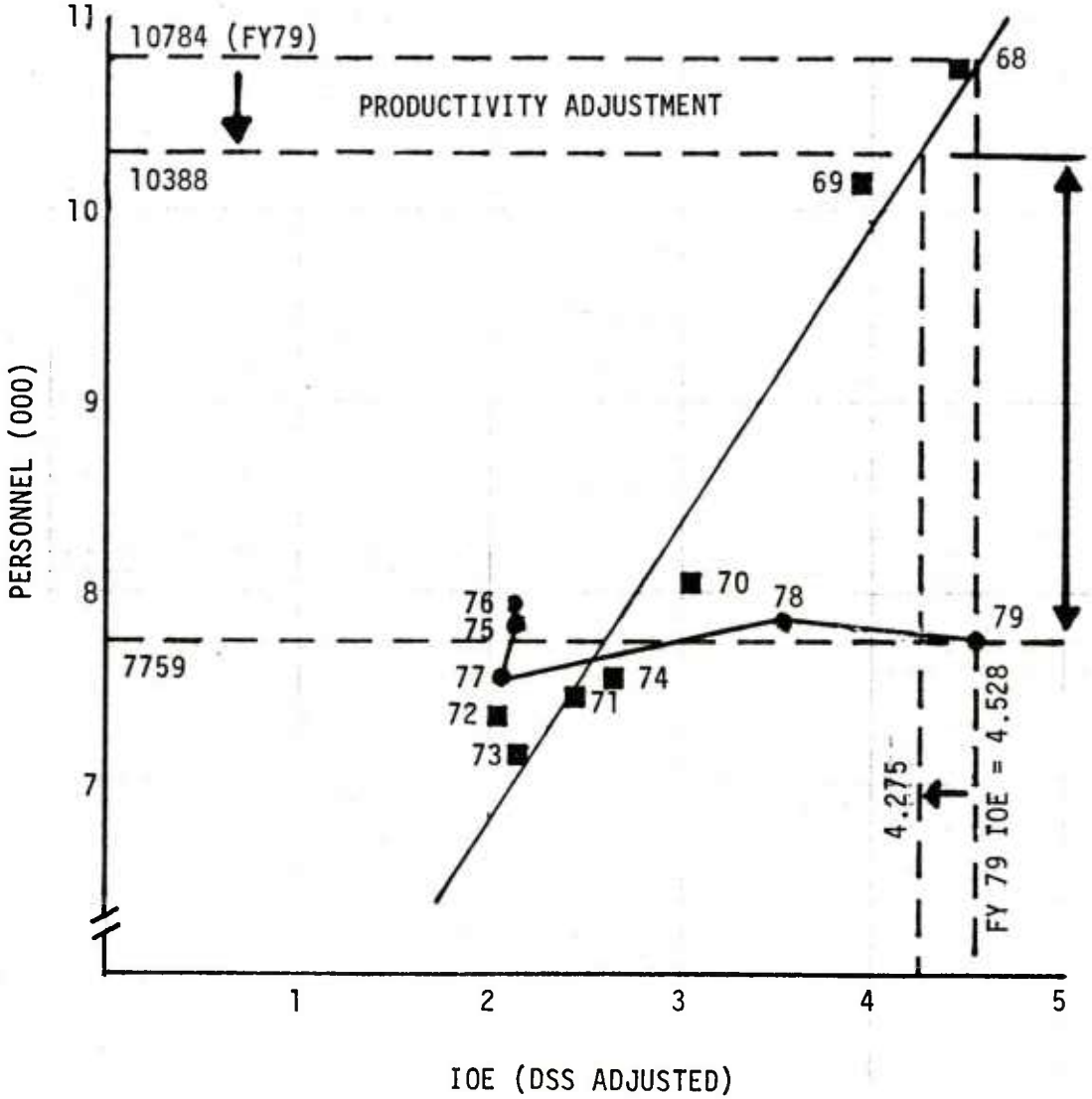
$$IOE = \frac{63{,}733 \times 710{,}500}{10^{10}} = \frac{45282296500}{10^{10}} = 4.528$$

AS AN EXAMPLE OF THE IOE CALCULATION PROCEDURE, IOE FOR FY 79 IS SHOWN ON THIS SLIDE WHERE ITEMS MANAGED ARE MULTIPLIED BY REQUISITIONS.

THE RESULT, DIVIDED BY $10\bar{B}$, MAKES THE MAGNITUDE MORE MANAGEABLE, AND ALLOWS READY COMPARISON TO IOE VALUES FOR DIFFERENT PERIODS OF TIME.

SLIDE 15

PERSONNEL VS IOE
(MATERIEL)



R^2 = .94

FY79
Shortfall = 2629
(34%)

THE REGRESSION LINE FITTED TO THE PERSONNEL DATA (FY68-74) IMPLIES A REQUIREMENT OF 10,784 FOR FY79, BUT AFTER APPLYING A 2% PRODUCTIVITY FACTOR (AS IN THE DARCOM STUDY) FOR THE YEARS SINCE FY74, AND A SECOND ADJUSTMENT TO ACCOUNT FOR THE IMPLEMENTATION OF DSS IN FY74, THE REQUIREMENT IS 10,388-AN INCREASE OF 34% ABOVE THE PRESENT LEVEL OF 7,759. THIS MODEL PROVIDES AN INITIAL ESTIMATE OF THE BASELINE REQUIREMENT FOR THE MATERIEL SECTOR OF THE COMMAND. THE BASELINE REPRESENTS THE AVERAGE LEVEL OF PERSONNEL REQUIRED TO RESPOND TO EXTERNAL DRIVERS IN THE PERIOD FROM FY68-74. THIS CONCLUDES THE MATERIEL SUPPLY SECTION OF THE BRIEFING. ARE THERE ANY QUESTIONS BEFORE MOVING ON TO AMMUNITION SUPPLY.

NOTE: IT WAS RECOGNIZED THAT HAD DSS BEEN IN EFFECT IN FY68 - THE NUMBERS OF REQUISITIONS WOULD HAVE BEEN GREATER BY A FACTOR ESTIMATED AT 37 PERCENT (BASED ON PERFORMANCE OBSERVED FROM FY74-77).

SLIDE 16

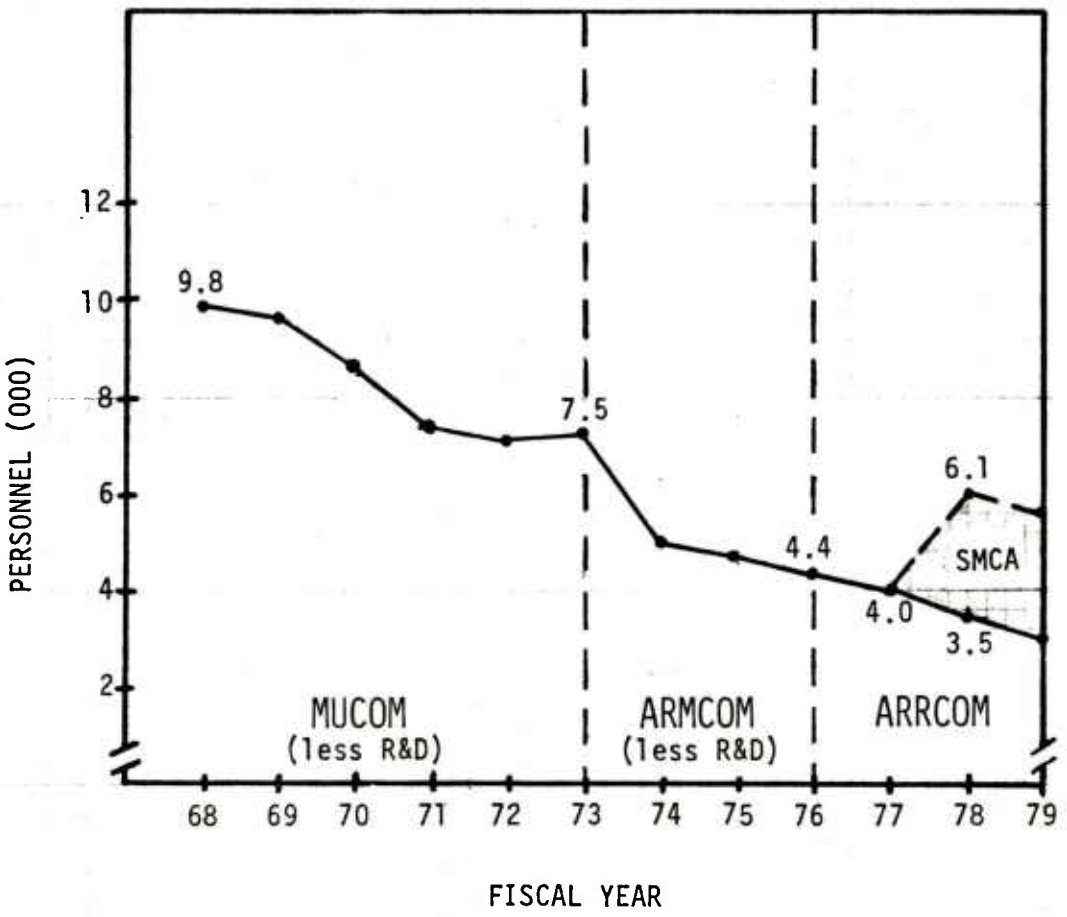
TOPICS TO BE COVERED

1. ARRCOM PERSONNEL STRENGTHS/CATEGORIES
2. MATERIEL
3. AMMUNITION
   - -PERSONNEL
   - -DRIVERS
   - -WORKLOAD TRENDS
   - -PERFORMANCE (OUTPUT) TRENDS
4. ARRCOM READINESS
5. ARMY READINESS

THE AMMUNITION SUPPLY MODEL DEVELOPED ON ESSENTIALLY THE SAME BASIS AS THE MATERIEL SUPPLY MODEL WILL BE PRESENTED NEXT FOLLOWING THE OUTLINE SHOWN HERE.

SLIDE 17

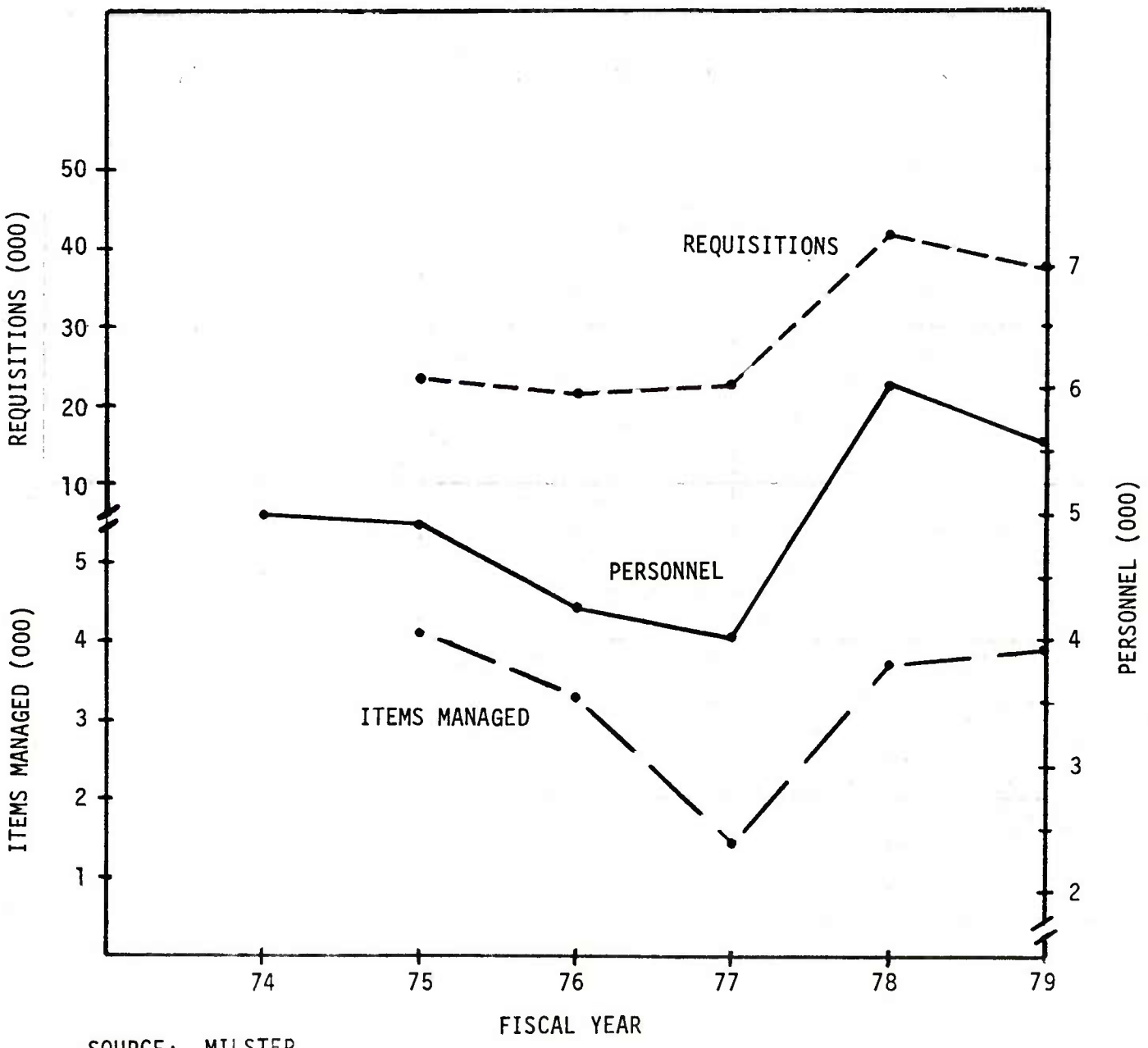
AMMUNITION PERSONNEL



THE AMMUNITION ANALYSIS IS BASED ON 4 YEARS(FY 75-78) AND REFLECTS DRIVER/ PERFORMANCE FOR PRE AND POST SMCA MISSION IMPLEMENTATION. THIS FIRST SLIDE IS A REVIEW OF THE AMMUNITION PERSONNEL HISTORY AND SHOWS THE COMMAND EXPERIENCED PERSONNEL REDUCTIONS OF ABOUT 6,300 BETWEEN FY 68-78. THE BROKEN LINE REFLECTS THE ADDITION OF 2,581 SPACES FOR SMCA.

SLIDE 18

AMMUNITION REQUISITIONS/ITEMS MANAGED AND PERSONNEL
BY FISCAL YEAR



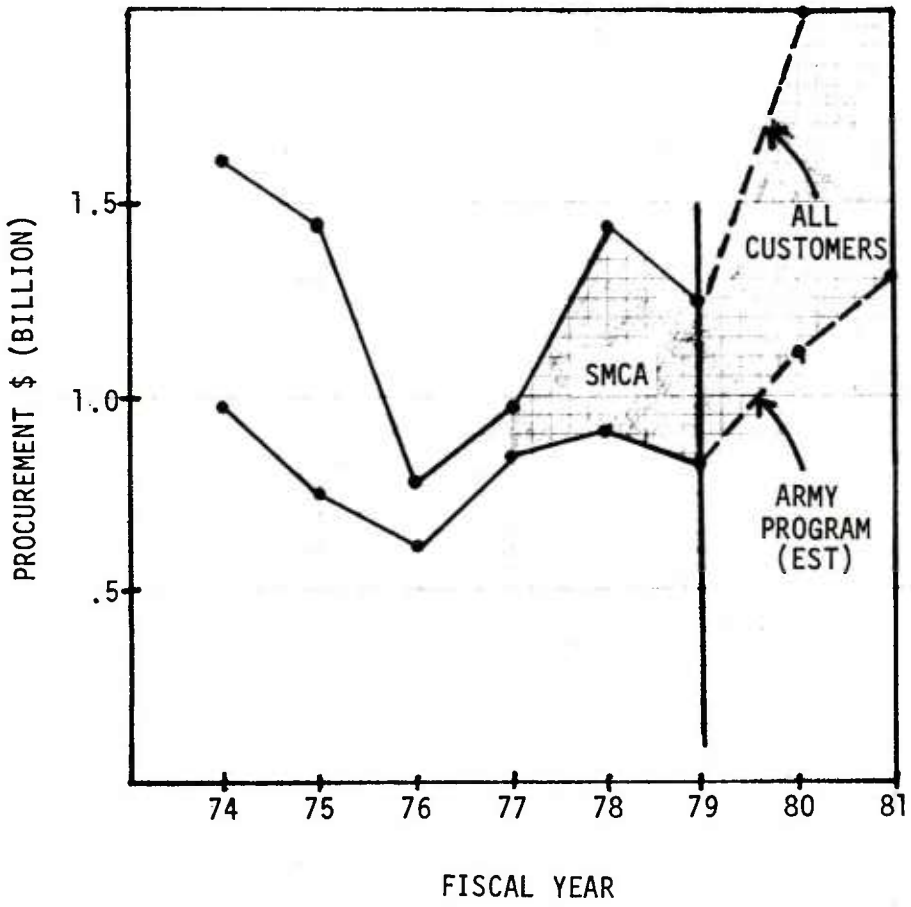
SOURCE: MILSTEP

REDUCTIONS IN AMMUNITION PERSONNEL WERE ACCOMPANIED BY CORRESPONDING REDUCTIONS IN WORKLOAD UNTIL FY 78 WHEN BOTH WORKLOAD AND PERSONNEL INCREASED.

REQUISITIONS AND ITEMS MANAGED, USED IN THE PREVIOUS MODEL, SHOW SIGNIFICANT INCREASES IN FY 78 AND CORRESPONDS WITH THE ASSUMPTION OF THE SMCA MISSION IN OCT 77.

SLIDE 19

AMMUNITION PROCUREMENT
(APPROVED PROGRAM)

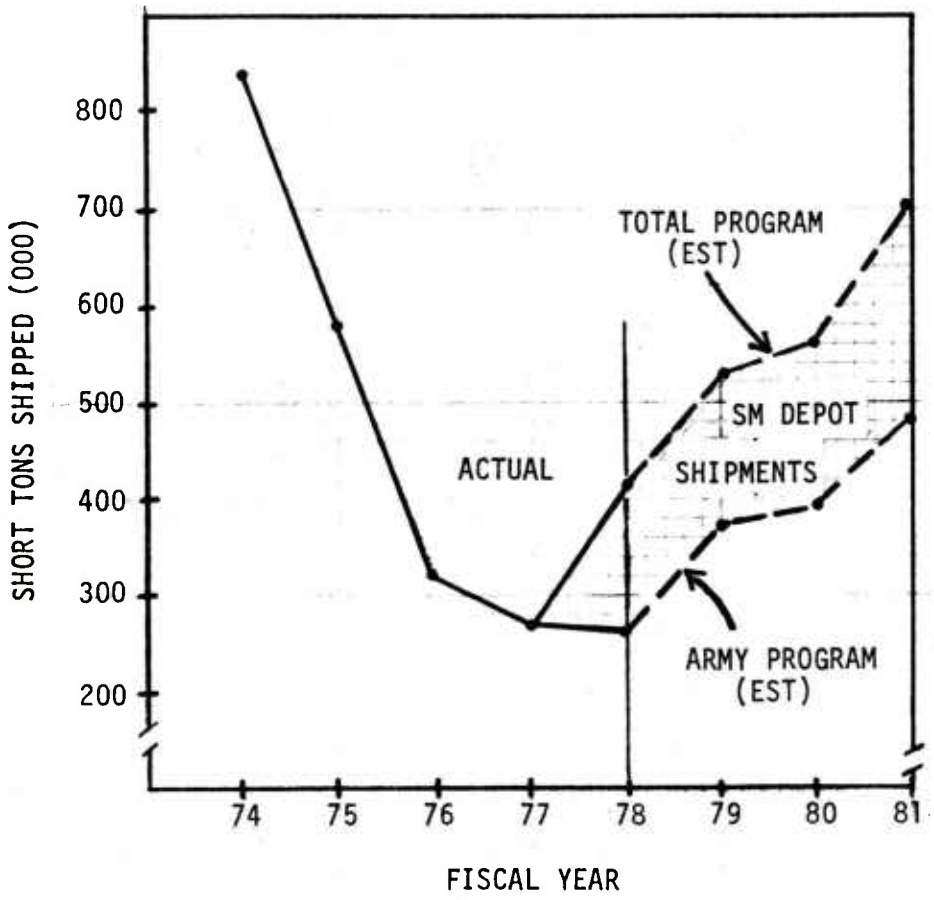


SOURCE: ARRCOM EFSA

THE AMMUNITION PROCUREMENT PROGRAM SHOWN HERE, IS NEEDED TO FIELD NEW ITEMS AND SUPPORT INCREASED REQUIREMENTS FOR ITEMS MANAGED.

SLIDE 20

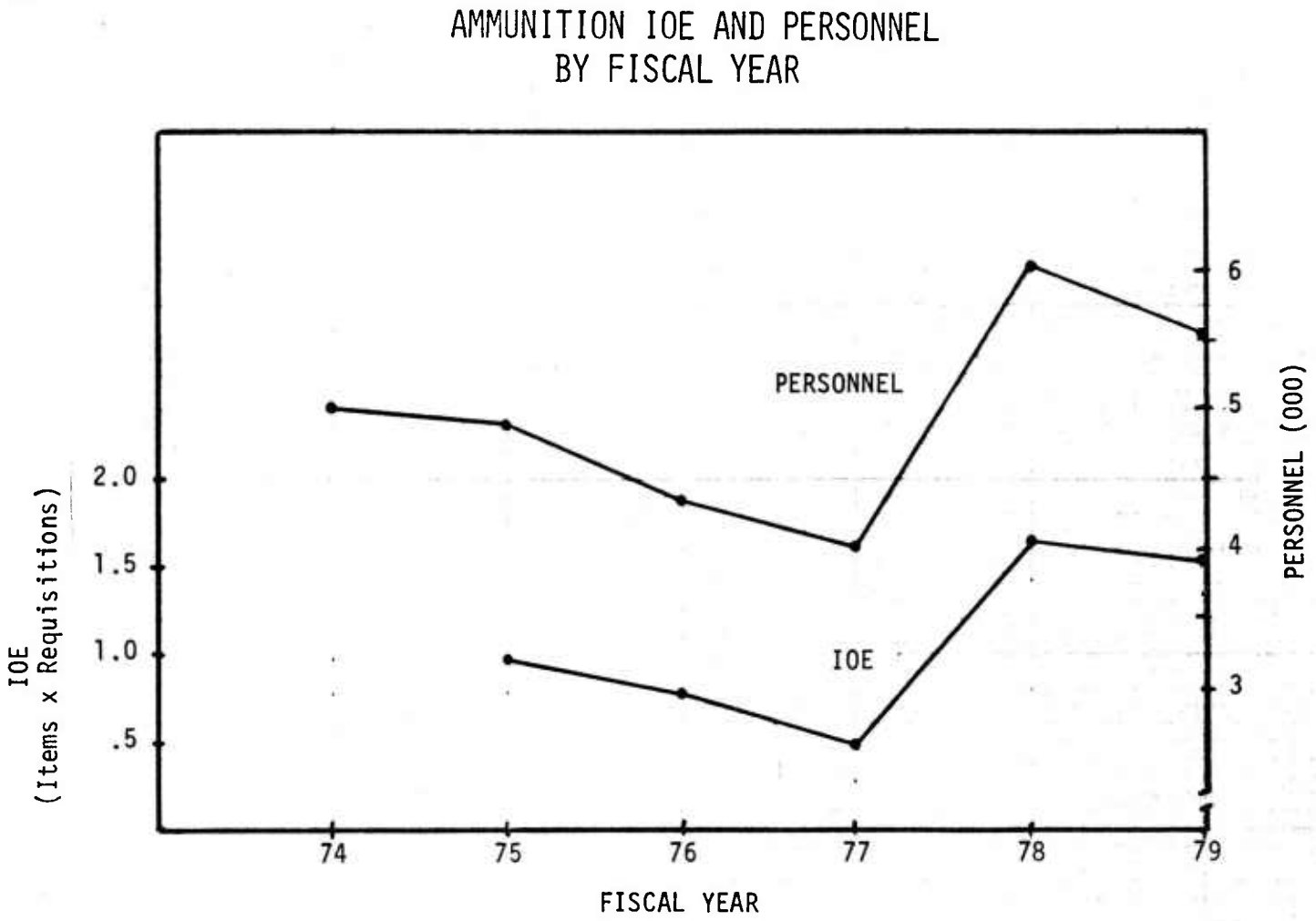
FIRST DESTINATION TRANSPORTATION (AMMUNITION)



SOURCE: AMC Traffic Management Report

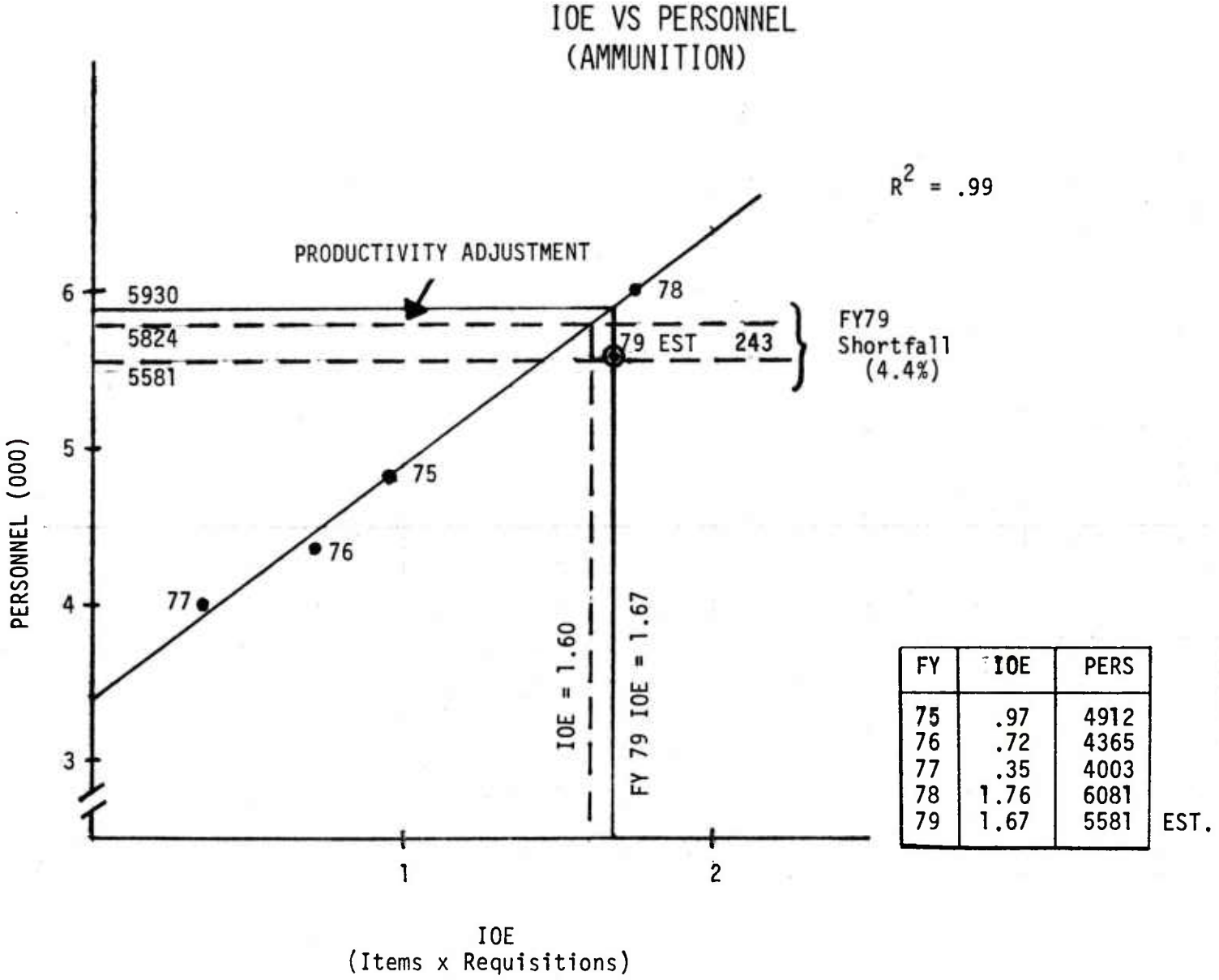
INCREASED OUTPUT IN RESPONSE TO INCREASING REQUIREMENTS IS SUBSTANTIATED BY INCREASED PERFORMANCE DURING THE SAME TIME PERIOD. THE JUMP IN SHORT TONS SHIPPED SHOWN ON THIS SLIDE CORRESPONDS WITH INCREASES IN THE PROCUREMENT PROGRAM SHOWN ON THE PREVIOUS SLIDE.

SLIDE 21


AMMUNITION IOE AND PERSONNEL
BY FISCAL YEAR
PERSONNEL
IOE
IOE
(Items x Requisitions)
2.0
1.5
1.0
.5
6
5
4
3
PERSONNEL (000)
74
75
76
77
78
79
FISCAL YEAR

THIS SLIDE SHOWS HOW IOE RELATES TO ARRCOM AMMUNITION SUPPLY PERSONNEL HISTORICALLY. ITEMS MANAGED AND REQUISITIONS - OUR DRIVERS FOR AMMUNITION SUPPLY ARE COMBINED IN AN (IOE) TO DEVELOP A BASELINE PERSONNEL REQUIREMENT FOR THE AMMUNITION SECTOR OF THE COMMAND.

SLIDE 22



FY	IOE	PERS
75	.97	4912
76	.72	4365
77	.35	4003
78	1.76	6081
79	1.67	5581 EST.

THE REGRESSION LINE FITTED TO THE FY75-78 DATA IS SHOWN HERE. A REQUIREMENT OF 5930 FOR FY79, REDUCED BY A 2% PRODUCTIVITY FACTOR TO 5824 IS OUR INITIAL ESTIMATE OF THE BASELINE REQUIREMENT FOR THE AMMUNITION SECTOR OF THE COMMAND. NO ADJUSTMENT WAS MADE FOR DSS SINCE DSS IS NOT APPLICABLE TO THE AMMUNITION SUPPLY SYSTEM.

SLIDE 23

COMMAND PERSONNEL REQUIREMENT
VS
ACTUAL (FY79)

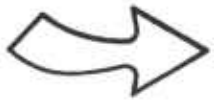
	IOE ESTIMATE	FY79 ACTUAL	SHORTFALL
MATERIEL SUPPLY	10,388	7,759	2,629 (34%)
AMMUNITION SUPPLY	5,824	5,581	243 (4.4%)
TOTAL	16,212	13,340	2,872 (21.5%)

COMBINATION OF ESTIMATES FROM AMMUNITION SUPPLY AND MATERIEL SUPPLY YIELDS THE TOTAL ARRCOM ESTIMATE SHOWN ON THIS SLIDE. COMPARISON WITH ACTUAL STRENGTH INDICATES A 21½ PERCENT SHORTFALL FOR FY 79, BASED ON IOE ESTIMATES.

SLIDE 24

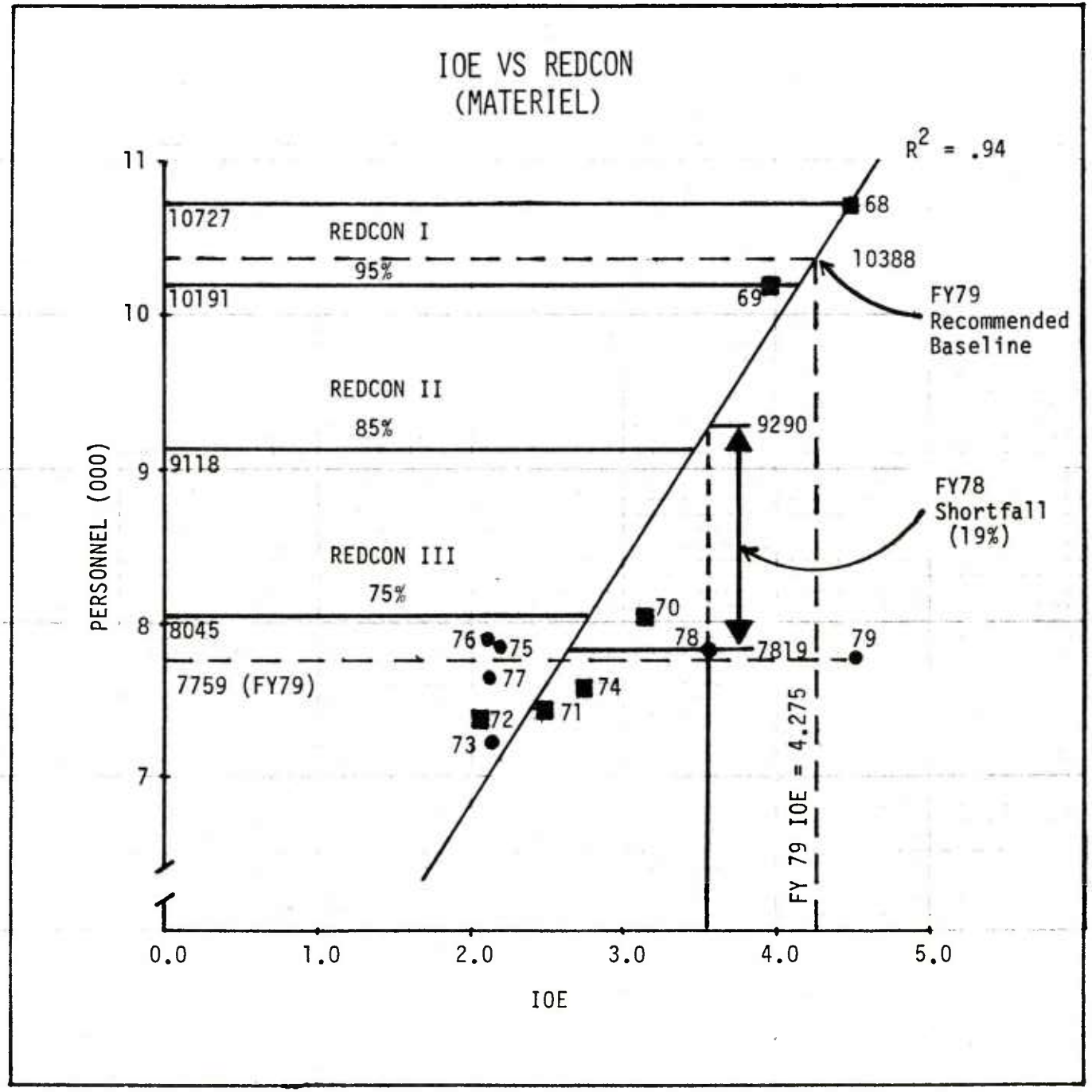
TOPICS TO BE COVERED

1. ARRCOM PERSONNEL STRENGTHS/CATEGORIES
2. MATERIEL
3. AMMUNITION
4. ARRCOM READINESS
5. ARMY READINESS



IN PREVIOUS SECTIONS IT WAS SHOWN THAT PERSONNEL WERE NOT INCREASING IN PROPORTION TO INCREASING DEMANDS AND PERFORMANCE IS DETERIORATING (I.E., AGING PROCUREMENT ACTIONS, INCREASING NORS BACKORDERS, DECLINING STOCK AVAILABILITY). THOUGH INTERESTING, THE INFORMATION IS NOT USEFUL UNLESS IT IS RELATED TO IMPACT ON READINESS - THE NEXT TOPIC OF DISCUSSION.

SLIDE 25


IOE VS REDCON
(MATERIEL)
R^2 = .94
PERSONNEL (000)
11
10
9
8
7
10727
REDCON I
95%
10191
REDCON II
85%
9118
REDCON III
75%
8045
7759 (FY79)
68
69
10388
FY79
Recommended
Baseline
9290
FY78
Shortfall
(19%)
70
78
7819
79
76
75
77
74
72
71
73
FY 79 IOE = 4.275
0.0
1.0
2.0
3.0
4.0
5.0
IOE

THE DARCOM ANALYSIS UTILIZED THE READINESS CRITERIA OF AR 220-1 AND APPLIED THESE CRITERIA TO THEIR IOE MODEL WHERE REDCON I (MOBILIZATION REQUIREMENT) WAS DEFINED AS THE FY 68 AUTHORIZATION. THIS PROCEDURE WAS ADAPTED TO THE MATERIEL SUPPLY MODEL AND SHOWS THAT AT THE END OF FY 78 THE MATERIEL SUPPLY SECTOR OF ARRCOM WAS IN REDCON IV. THE CURRENT FY 79 LEVEL IS 7,759 (REDCON IV) AND WILL REQUIRE 2,432 ADDITIONAL PERSONNEL TO REACH THE MINIMUM REDCON I LEVEL OF 10,191. THE PROJECTED FY 79 IOE INDICATES A REQUIREMENT OF 10,388 AND RESULTS IN A STATUS OF REDCON I FOR ARRCOM PERSONNEL. TO BE USEFUL, HOWEVER, THE DESCRIPTION OF ARRCOM'S ABILITY TO RESPOND TO ITS EXTERNAL DRIVERS MUST BE TIED TO ARMY READINESS.

SLIDE 26

TOPICS TO BE COVERED

1. ARRCOM PERSONNEL STRENGTHS/CATEGORIES
2. MATERIEL
3. AMMUNITION
4. ARRCOM READINESS
5. ARMY READINESS

THE FOLLOWING TABLES PRESENT AGGREGATE MEASURES OF ARRCOM'S CONTRIBUTION TO READINESS. FIRST, ARRCOM'S RELATIVE DELIVERY SCHEDULE TO FOREIGN MILITARY OR ARMY USERS FOR SELECTED MAJOR ITEMS, AND NEXT, THE ESTIMATED READINESS OF THE ITEMS PROJECTED TO 1985.

SLIDE 27

RELATIVE DELIVERIES OF MAJOR ITEMS TO FMS OR ARMY

MAJOR ITEM		FY76	FY77	FY78	FY79
155MM, M109	FMS	DNA	1.00	1.00	.95
	ARMY	NB	NB	NB	.12*
203MM, M110	FMS	1.00	1.00	.96	.11*
	ARMY	NB	NB	NB	NB
20MM, VADS, M163 & M167	FMS	.86	1.17	1.00	1.00
	ARMY	NB	NB	NB	NB
RECOVERY VEHICLE M578	FMS	1.00	1.00	1.00	.89*
	ARMY	NB	.99	.98	.40*
OVERALL FMS AVG.		.95	1.04	.99	.74

DNA - DATA NOT AVAILABLE

NB - NO BUY FOR YEAR

*LONG LABOR STRIKE LED TO DEFICIT.

AS THE EXAMPLES ON THIS CHART SHOW, ARRCOM HAD GOOD PERFORMANCE IN MEETING YEARLY SCHEDULES THROUGH 1978. THIS PERFORMANCE DROPPED IN 1979; PRIMARILY DUE TO MAJOR STRIKES AT SOME OF THE CONTRACTOR PLANTS. THE CONTRACTOR HAS BEEN UNABLE TO MAKE UP THE DEFICIT AND DELIVERY SCHEDULES HAVE SLIPPED.

SLIDE 28

ESTIMATED ARMY READINESS OF ARRCOM MANAGED ITEMS
(FRACTION OF 1985 MINIMUM LEVEL REQUIREMENT)

MAJOR ITEM	ASSETS END OF FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85
155MM, M109/A1	.70	.73/ .70	.80	.88	.94	.97	.98	.98
203MM, M110/A1/A2	.68	.68	.80	.92	.92	.92	.92	.92
GUN AD, M163/M167, VADS*	1.25	1.25	1.25	1.25	1.25	1.25	1.25	
RECOVERY VEHICLE FT, M578	.87	.87	.91	.90	.90	.90	.90	.90
DIVADS, GUN	.00	.00	.00	.02	.21	.40	.67	.95
XM241 BUSHMASTER VRFW-S	.00	.00	.00	.01	.05	.16	.23	.31

*NO 1985 REQUIREMENT FOR VADS, FIGURES BASED ON 1984 MINIMUM LEVEL.

IN THE RECENT PAST, THERE HAVE BEEN FEW ARMY PROCUREMENTS FOR THESE SYSTEMS. NEW ACQUISITIONS ARE SCHEDULED BEGINNING FY80. THE EXPECTED BUILDUP IN INVENTORY IS ILLUSTRATED ON THIS CHART, EXPRESSED AS READINESS GOALS. THESE READINESS GOALS ARE A FRACTION OF THE 1985 MINIMUM LEVEL REQUIREMENT.

AS ITEMS ARE DELIVERED TO THE ARMY, AN ASSESSMENT OF THE ACTUAL INVENTORY READINESS CAN BE MADE AGAINST THESE GOALS.

THESE MEASURES ARE AGGREGATE. THEY ARE A STRAIGHT FORWARD METHOD TO MAKE IMMEDIATE CHECKS ON OVERALL PERFORMANCE. WITH THEM, PROBLEM AREAS, AS WELL AS HIGH PERFORMANCE AREAS, CAN BE IDENTIFIED, AND IF NECESSARY INVESTIGATED IN MORE DETAIL.

SLIDE 29

PLANNED CONTRIBUTIONS TO READINESS IN EUROPE
(ASSUME M-DAY FOR EUROPE 1 OCT 79)

AMMO TYPE	SOURCE OF CONTRIBUTION	POST D-DAY CONSUMPTION PERIODS[A] FRACTION OF THE ADO, (D-77 REQUIREMENT)					
		1	2	3	4	5	6
5.56 BALL	INV[B]	1.0	1.0	1.0	1.0	1.0	1.0
	PROD OFF[C]	0	0	0	0	(4)[D]	0
105MM, HEAT-T	INV	1.0	1.0	1.0	0.15	0	0
	PROD OFF	0	0	0	0	.15(4)	0.29
155MM, M107	INV	1.0	1.0	1.0	.17	0	0
	PROD OFF	(1)	0	0	.13[E]	.09	.33[F]
155MM, ICM M483	INV	1.0	.85	0	0	0	0
	PROD OFF	(1)	.06[E]	.04	.03	.083	.24[F]

(A) DESCOM REPORT NO. K80BBY0254A, PERIOD 6 EXTENDS TO D + 24 MO.
(B) AS OF 30 SEP 79 (WARS REPORT, 31 MAR 79, PLUS PRODUCTION THRU SEP).
(C) ARRCOM AUTOMATED PBP DATA BASE FOR MUNITIONS (DRSAR-IRP) AS OF 31 AUG 79.
(D) (N) FIRST MONTH OF POST-M-DAY PRODUCTION.
(E) INCLUDES ALL POST-D-DAY PRODUCTION (FROM WARM BASE).
(F) INCLUDES REACTIVATED AND M-DAY FACILITIES.

SLIDE 29 SHOWS EXAMPLES OF ARRCOM CONTRIBUTIONS TO AMMUNITION READINESS IN EUROPE FROM (1) INVENTORIES AND (2) PRODUCTION OFFSET. THE 5.56MM ROUND READINESS IS MET FROM INVENTORY ALONE. THE SERIOUS DEFICIENCIES IN THE OTHER THREE ROUNDS ARE TYPICAL - READINESS IS NEAR ZERO IN PERIOD 4 AND RETURNS TO 1.0 LATE IN PERIOD 6 BY REACTIVATION OF LAIDAWAY BASE OR NEW POST-M-DAY CONSTRUCTION.

SLIDE 30

EXAMPLE OF RELATIVE READINESS STATUS OF ARRCOM MANAGED SYSTEMS

Weapon System	Component	FY 78 Deliveries Achieved	FY 78 Relative Readiness* Planned	FY 78 Relative Readiness* Actual	FY79 Deliveries Achieved	FY79 Relative Readiness Planned	FY79 Relative Readiness Actual
155mm, M109A1/ A2	Major Item	100%	.87	.87	(80)%	.92	.91
	Ammunition	(80)%	.85	(.68)	150%	.95	.83
	Other Supply	92%	.87	.85	98%	.92	.92

*Expressed as a fraction of the FY 85 minimum level requirement.

THIS TABLE REPRESENTS A MEANS OF ASSESSING THE STATUS OF A COMPLETE WEAPON SYSTEM. THE ACTUAL DATA SHOWN IS FICTITIONS.

ALL COMPONENTS OF A SYSTEM ARE SHOWN ALONG WITH THEIR RESPECTIVE RELATIVE DELIVERIES AND READINESS. TROUBLE AREAS, POOR PERFORMANCE, CAN BE HIGHLIGHTED, SO APPROPRIATE CORRECTIVE ACTION CAN BE TAKEN. ALSO, HIGH PERFORMANCE AREAS CAN BE SEEN MORE EASILY. ALTHOUGH, SHOWN AS A YEARLY SUMMARY, SHORTER PERIODS CAN BE USED.

THIS APPROACH COMBINES AND SIMPLIFIES INFORMATION THAT ALREADY EXISTS WITHIN THE COMMAND.

IN CONCLUSION, WE HAVE PRESENTED THE APPLICATION OF THE DARCOM IOE METHODOLOGY TO ARRCOM BUT DEPATED FROM THE DARCOM ANALYSIS BY USING DRIVERS FROM BOTH AMMUNITION AND MATERIEL SECTORS OF THE COMMAND. FINALLY, WE HAVE PROPOSED A METHOD OF SHOWING ARRCOM CONTRIBUTION TO ARMY READINESS.

ALLOCATION

OF

ARRCOM

PERSONNEL

Briefing

Prepared at Request

of

CG, ARRCOM

ALLOCATION OF ARRCOM PERSONNEL

5 NOV 79

SLIDE 1

ALLOCATION OF ARRCOM PERSONNEL

SLIDE 1

GENERAL EICHER:

IN MARCH 79, DRSAR-PE BEGAN A STUDY TO (1) DEVELOP A METHOD FOR ALLOCATION OF PERSONNEL (CUTS) AND (2) DEVELOP THE IOE BASELINE STUDY FOR ARRCOM.

OUR PROGRESS ON THE BASELINE WAS BRIEFED TO YOU ON 31 AUGUST 79 AND WORK TO REFINE AND STRENGTHEN RELATIONSHIPS AMONG PROGRAMS, READINESS AND PERSONNEL IS CONTINUING, PARTICULARLY FOR THE AMMUNITION SUPPLY SECTOR OF THE COMMAND.

COMMENTS DURING THE BASELINE BRIEFING EXPRESSED THE NEED FOR A METHOD TO ALLOCATE REDUCTIONS OF PERSONNEL NOT ONLY WITHIN ARRCOM HEADQUARTERS, BUT BETWEEN HQ AND NON-HQ ELEMENTS AS WELL (ONLY HQ ALLOCATION AVAILABLE FOR THIS PRESENTATION). IN ADDITION, RECENT DARCOM INTEREST IN USE OF THE CERCOM RESOURCE PLANNING MODEL AS A TOOL FOR ALLOCTION OF PERSONNEL AMONG THE MRC'S, HAS RESULTED IN ACCELERATED EFFORT TO PROVIDE AN ALTERNATE MEANS OF ALLOCATING ARRCOM PERSONNEL.

SLIDE 2

TOPICS TO BE COVERED

1. PREDICTION OF PERSONNEL REQUIREMENTS
2. ALLOCATION OF PERSONNEL
3. ESTIMATE OF EFFECT ON PROGRAMS

SLIDE 2

THE PURPOSE OF THIS BRIEFING IS TO REPORT PROGRESS ON THE ARRCOM MODEL AND PRESENT IT AS AN ALTERNATIVE TO THE CERCOM MODEL AND OTHER PERSONNEL ALLOCATION PROCEDURES CURRENTLY IN USE.

THE PROPOSED ALLOCATION PROCEDURE MAKES USE OF THE LINEAR MODEL DESCRIBED IN THE BUDGET AND READINESS OF FIELD ARMIES STUDY, MAY 78.

IN BROAD TERMS, PRODUCT DOLLAR PROGRAMS (PAA, 7S, 7M, ASF) ARE USED AS DRIVERS TO ESTIMATE PERSONNEL REQUIREMENTS FOR EACH DIRECTORATE; ESTIMATES WHICH PROVIDE THE BASIS FOR ALLOCATING PERSONNEL WITHIN THE HEADQUARTERS. CONVERSELY, EFFECT ON DRIVER PROGRAMS CAN BE ESTIMATED WHEN CHANGES IN PERSONNEL STRENGTH ARE MANDATED.

SLIDE 3

CLASSIFICATION OF ARRCOM ACTIVITIES

FUNCTIONAL DIRECTORATES (SUPPORT PRODUCT)

IR	INDUSTRIAL READINESS DIRECTORATE
DA	DEFENSE AMMO DIRECTORATE
MM	MATERIEL MANAGEMENT DIRECTORATE
PD	PRODUCTION DIRECTORATE
QA	PRODUCT ASSURANCE DIRECTORATE
PC	PROCUREMENT DIRECTORATE
MA	MAINTENANCE DIRECTORATE

SUPPORT DIRECTORATES (SUPPORTS FUNCTIONAL DIRECTORATES IN OUTPUTTING PRODUCTS)

IL	TM	CP	LE
OP	AS	MS	GC

PERSONNEL DIRECTORATES

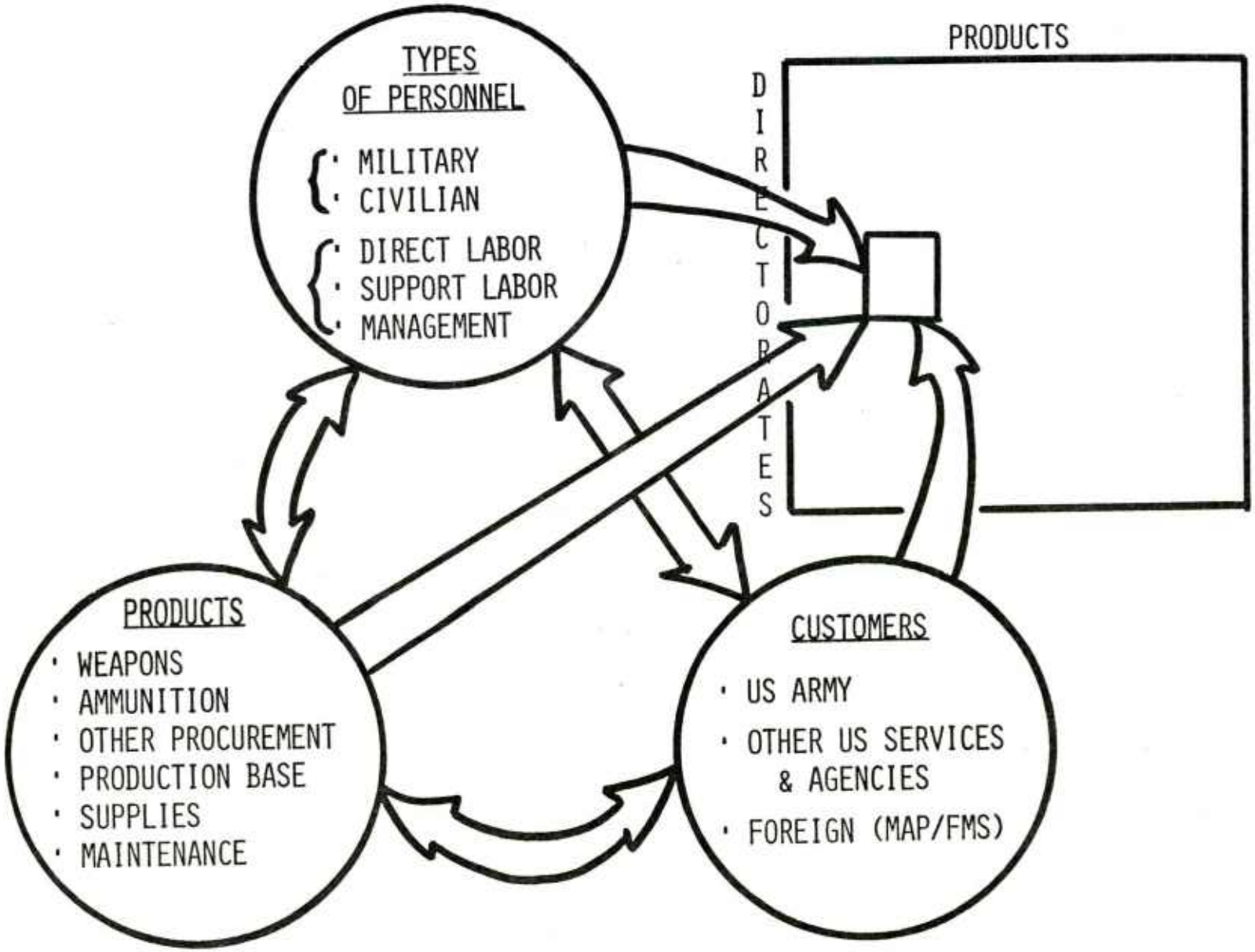
EEO	IG	PI	PT
AV	PP	SS	IS
IN	PA	SB	HO
SF	SA		

SLIDE 3

IN THE BUDGET AND READINESS STUDY, ARRCOM DIRECTORATES WERE CLASSIFIED IN THREE GROUPS: FUNCTIONAL, SUPPORT, AND PERSONNEL AS SHOWN ON THIS SLIDE. THE FUNCTIONAL DIRECTORATES ARE DIRECTLY RELATED TO PROCUREMENT OF PRODUCTS, THE SUPPORT DIRECTORATES ARE INDIRECTLY RELATED TO PROCUREMENT OF PRODUCTS, AND PERSONNEL DIRECTORATES IMPROVE PERSONNEL PRODUCTIVITY, WHERE ARRCOM'S PRODUCTS ARE CATEGORIZED AS WEAPONS, AMMUNITION, MAINTENANCE, SUPPLIES, INDUSTRIAL READINESS, AND OTHERS. AS DEMONSTRATED IN AN EARLIER BRIEFING, THESE BROAD CATEGORIES CAN BE SUBDIVIDED TO MUCH MORE DETAILED LEVELS, AS REQUIRED.

SLIDE 4

PERSONNEL INTERACTION CONSIDERATIONS REQUIRED FOR PROJECTION



SLIDE 4

WITH ASSISTANCE FROM THE FUNCTIONAL AND SUPPORT DIRECTORATES, ASSIGNMENT OF PERSONNEL BY PRODUCT WAS MADE, USING END FY77 AS THE BASE YEAR. DURING THE CONSTRUCTION OF THE BASE CASE, RELATIONSHIPS WERE DEVELOPED BETWEEN DRIVER PROGRAMS - WORKLOAD - AND PERSONNEL REQUIRED TO PROVIDE PRODUCTS AND SERVICES TO THE FIELD.

NOW RECOGNIZED AS EXTERNAL DEMAND - INTERNAL ACTIVITY - AND OUTPUT, THESE RELATIONSHIPS ARE USED AS THE BASIS FOR PREDICTING PERSONNEL REQUIREMENTS FOR DRIVER PROGRAMS.

SLIDE 5 AS OF 23 MAY 78

MANPOWER RELATED TO WORKLOAD

$$\text{MANPOWER}_{IJK} = \sum_{L} \left[\text{MANPOWER COEFFICIENTS}_{IJKL} \times \text{DRIVER}_{KL} \right] +$$

$$\text{SHARE OF FIXED MANPOWER}_{I}$$

FIXED MANPOWER = (1) A GIVEN NUMBER OF PEOPLE;
(2) A SHARE OF PERSONNEL IN A POOL

MANPOWER COEFFICIENT = MANPOWER/MILLION DOLLARS OF PRODUCT
DRIVER = PROCUREMENT DOLLARS

I = ORGANIZATION INDEX
J = PRODUCT INDEX
K = CUSTOMER INDEX
L = DRIVER INDEX

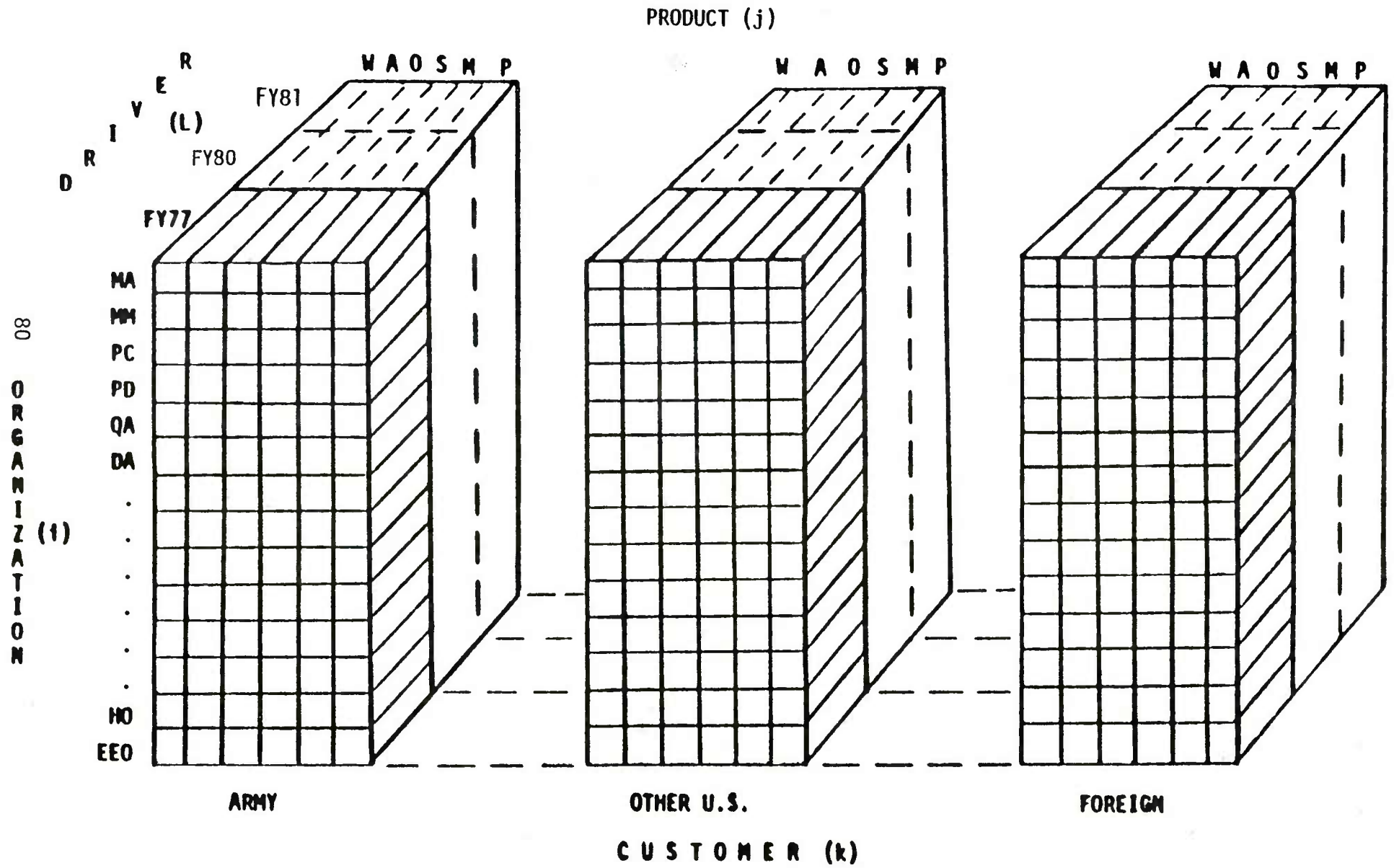
SLIDE 5

THESE RELATIONSHIPS ARE EXPRESSED MORE PRECISELY IN TERMS OF THE EQUATION SHOWN HERE. AS SHOWN, THE EQUATION ESTIMATES INDIVIDUAL DIRECTORATE PERSONNEL REQUIREMENTS FOR ONE PRODUCT AND ONE CUSTOMER USING A DRIVER PROGRAM SPECIFIED BY THE USER. CONVERSELY, THE EQUATION MAY BE USED TO ESTIMATE EFFECTS ON THE DRIVER PROGRAM FOR ONE PRODUCT AND CUSTOMER, WHEN CHANGES ARE MADE IN PERSONNEL LEVELS OF ONE DIRECTORATE.

SUMMATION OF ALL ORGANIZATION ESTIMATES, BY PRODUCT AND CUSTOMER EXPANDS THE MODEL TO (1) ESTIMATE PERSONNEL REQUIREMENTS FOR ARRCOM HEADQUARTERS FOR PROGRAM DRIVERS SPECIFIED BY THE USER AND (2) ESTIMATE THE EFFECT ON ALL DRIVER PROGRAMS WHEN CHANGES ARE MADE IN TOTAL ARRCOM HEADQUARTERS PERSONNEL LEVELS.

SLIDE 6

CONCEPTUAL MODEL

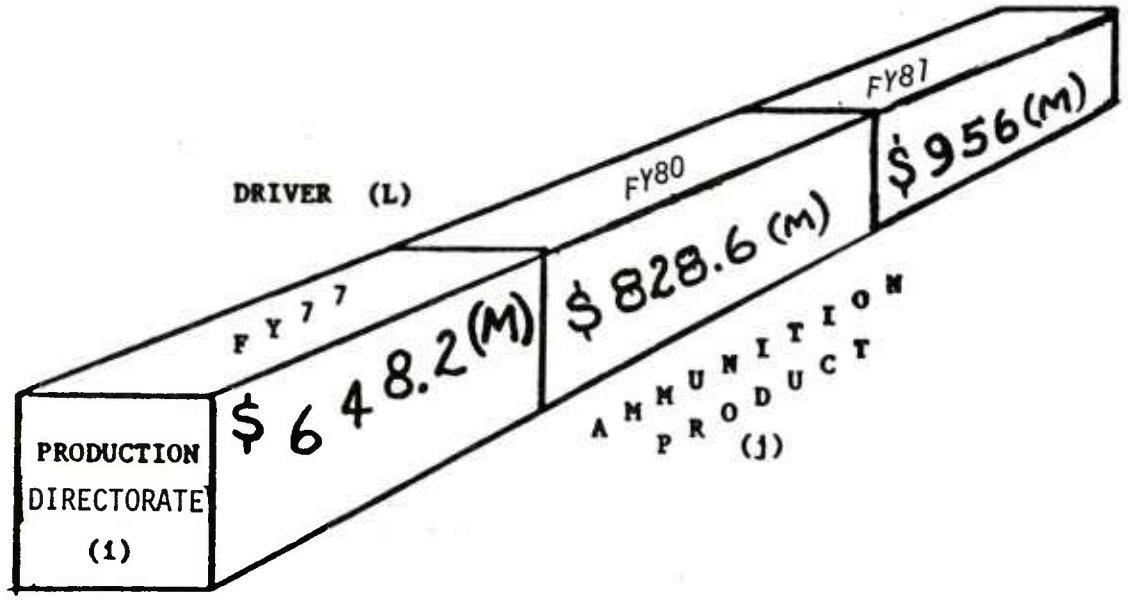


SLIDE 6

SINCE THE ALLOCATION PROCEDURE AND ESTIMATE OF EFFECT ON PROGRAMS ARE DEPENDENT ON ESTABLISHED RELATIONSHIPS - IT IS NECESSARY TO REVIEW BRIEFLY HOW ESTIMATES OF PERSONNEL REQUIREMENTS ARE OBTAINED. CONCEPTUALLY, PERSONNEL ESTIMATES FOR EACH ORGANIZATION ARE DEPENDENT ON DRIVER PROGRAMS FOR PRODUCTS REQUIRED BY THE VARIOUS CUSTOMERS IN ADDITION TO A RELATIVELY FIXED BASE OF PERSONNEL.

SLIDE 7

SELECTED ORGANIZATION FROM ARRCOM CONCEPTUAL MODEL



SLIDE 7

AS AN EXAMPLE, ONE DIRECTORATE HAS BEEN SELECTED TO SHOW HOW ESTIMATES OF PERSONNEL REQUIREMENTS ARE MADE IN RESPONSE TO EXTERNAL DEMANDS FOR PRODUCTS.

SHOWN HERE ARE THE FY 77, 80, 81 DRIVER PROGRAMS USED TO DETERMINE PERSONNEL REQUIREMENTS FOR THE PRODUCTION DIRECTORATE IN PROVIDING AMMUNITION TO ONE CUSTOMER, THE ARMY.

SLIDE 8

PRODUCTION DIRECTORATE

DRIVER PROGRAMS AND PERSONNEL ESTIMATES

(FISCAL YEAR 77)

PROGRAM/PRODUCT PAA	DRIVER PROGRAMS $(M) CUSTOMER				CIV PERSONNEL EST CUSTOMER			
	ARMY	OTHER	FOREIGN	TOTAL	ARMY	OTHER	FOREIGN	TOTAL
WEAPONS	162	20	128	310	32	22	55	109
AMMUNITION	648	210	151	1009	29	88	86	203
TOTAL	810	230	279	1319	61	110	141	312

(FY 77-81 DIFFERENCES)

WEAPONS	116	2	(-71)	47	23	2	(-31)	(-6)
AMMUNITION	308	(-12)	(-89)	207	13	(-5)	(-50)	(-42)
TOTAL	424	(-10)	(-160)	254	36	(-2)	(-81)	(-48)

NOTE: COLUMNS MAY NOT TOTAL DUE TO ROUNDING.

SLIDE 8

DRIVER PROGRAMS AND ESTIMATES OF PERSONNEL REQUIREMENTS FOR FY77 ARE SHOWN BY CUSTOMER ON THE NEXT SLIDE FOR WEAPONS AND AMMUNITION.

DIFFERENCES BETWEEN FY77 AND FY81 PROGRAMS AND CIVILIAN PERSONNEL REQUIREMENTS ARE SHOWN ALSO (OVERLAY).

NOTE THAT THE TOTAL PROGRAMS INCREASE BY $254 MILLION (FROM $1319 IN FY77 TO $1573 IN FY81) BUT ESTIMATES OF TOTAL PERSONNEL REQUIRED DECREASE BY 48 (FROM 312 IN FY77 TO 264 IN FY81). THIS EXAMPLE BEARS OUT THE IMPORTANCE OF DESCRIBING RELATIONSHIPS BETWEEN PERSONNEL REQUIREMENTS AND DRIVER PROGRAMS IN TERMS OF CUSTOMER AND PRODUCT.

SPECIFICALLY, PERSONNEL REQUIREMENTS FOR THIS DIRECTORATE HAVE DECREASED (IN SPITE OF INCREASES IN TOTAL WEAPONS AND AMMUNITION PROGRAMS) BECAUSE OF THE DRAW DOWN IN DRIVER PROGRAMS FOR OTHER U.S. AND FOREIGN CUSTOMERS. THIS IS AN INDICATION THAT REQUIREMENTS FOR PERSONNEL IN THE PRODUCTION DIRECTORATE ARE DRIVEN HARD BY DEMANDS FROM FOREIGN AND OTHER U.S. CUSTOMERS.

THE NEXT TWO SLIDES PROVIDE LIKE DATA FOR TOTAL HEADQUARTERS FOR ALL DRIVER PROGRAMS, PRODUCTS, AND CUSTOMERS.

SLIDE 9

DRIVER PROGRAMS AND PERSONNEL ESTIMATES BY PRODUCT AND CUSTOMER, FY77

PROGRAM/PRODUCT		DRIVER PROGRAMS $(M) CUSTOMER				CIV PERSONNEL EST CUSTOMER			
PAA		ARMY	OTHER	FOREIGN	TOTAL	ARMY	OTHER	FOREIGN	TOTAL
	WEAPONS	162	20	128	310	368	68	323	759
	AMMUNITION	648	210	151	1009	712	306	421	1439
	OTHER	72	8	11	91	162	14	33	210
	INDUSTRIAL READINESS	271	--	--	271	335	--	--	335
ASF	SUPPLIES	100	10	57	167	672	107	207	986
7M	MAINTENANCE	42	.2	.6	43	819	3	12	833
TOTAL		1295	248.2	347.6	1891	3068	498	996	4562

NOTE: COLUMNS MAY NOT TOTAL DUE TO ROUNDING.

SLIDE 9

SHOWN HERE FOR FY 77 ARE TOTAL HEADQUARTERS DRIVER PROGRAMS AND PERSONNEL ESTIMATES FOR ALL PRODUCTS AND CUSTOMERS.

SLIDE 10

DRIVER PROGRAMS AND PERSONNEL ESTIMATES BY PRODUCT AND CUSTOMER

(FY 77-81 DIFFERENCES)

PROGRAM/PRODUCT		DRIVER PROGRAMS $(M) CUSTOMER				CIV PERSONNEL EST CUSTOMER			
PAA		ARMY	OTHER	FOREIGN	TOTAL	ARMY	OTHER	FOREIGN	TOTAL
	WEAPONS	116	2	(-71)	47	181	1	(-163)	19
	AMMUNITION	308	(-12)	(-89)	207	154	(-55)	(-217)	(-118)
	OTHER	1	7	(-8)	--	(-16)	9	(-20)	(-28)
	INDUSTRIAL READINESS	82	--	--	82	39	--	--	39
ASF	SUPPLIES	7	5	(-12)	--	77	22	(-7)	92
7M	MAINTENANCE	(-1)	1.8	.4	1	(-23)	17	2	(-3)
TOTAL		513	3.8	(-179.6)	337	411	(-6)	(-405)	1

NOTE: COLUMNS MAY NOT TOTAL DUE TO ROUNDING.

SLIDE 10

DIFFERENCES BETWEEN FY 77 AND FY 81 PROGRAMS AND CIVILIAN PERSONNEL REQUIREMENTS ARE SHOWN HERE.

THE TOTAL ARMY PROGRAM INCREASED BY $513 MILLION (40 PERCENT) WHILE THE FOREIGN CUSTOMER PROGRAM DECREASED BY $179.6 MILLION (48 PERCENT).

ESTIMATES OF PERSONNEL REQUIREMENTS TO SUPPORT THE ARMY PROGRAM INCREASED BY 411 (13 PERCENT) WHILE PERSONNEL REQUIREMENTS TO SUPPORT THE FOREIGN CUSTOMER PROGRAM DECREASED BY 405 (59 PERCENT).

OVERALL, 80 PERSONNEL ARE REQUIRED TO SUPPORT AN ARMY PROGRAM OF $100M WHEREAS 225 PERSONNEL ARE REQUIRED TO SUPPORT A FOREIGN CUSTOMER PROGRAM OF $100M - ROUGHLY 2.8 TO 1 FOR THE FOREIGN CUSTOMER PROGRAM COMPARED TO ARMY.

SLIDE 11

TOPICS TO BE COVERED

1. PREDICTION OF PERSONNEL REQUIREMENTS
2. ALLOCATION OF PERSONNEL
3. ESTIMATE OF EFFECT ON PROGRAMS

SLIDE 11

IN SUMMARY - THE ESTIMATES JUST SHOWN ARE BASED ON MEANINGFUL RELATIONSHIPS BETWEEN DRIVER PROGRAMS AND PERSONNEL REQUIRED FOR EACH PRODUCT AND CUSTOMER. THESE ESTIMATES OF PERSONNEL REQUIREMENTS PROVIDE A GUIDELINE FOR ALLOCATION OF PERSONNEL, OUR NEXT TOPIC.

NOTE: THE PROCEDURE JUST SHOWN, IS DESCRIBED IN GREATER DETAIL IN SLIDES 7 THRU 18 OF ANNEX A TO THIS BRIEFING.

SLIDE 12

ALTERNATIVE ALLOCATIONS OF PERSONNEL (FY81)

ORGANIZATION	CEP	MODEL ESTIMATE	UNIFORM % ADJUSTMENT	CHANGE FROM CEP	ADJUSTED PROGRAM	CHANGE FROM CEP
FUNCTIONAL						
1 MA	698	895	822	124	760	62
2 MM	487	517	475	(12)	516	29
3 PC	507	493	453	(54)	421	(86)
4 PD	307	264	242	(65)	228	(79)
5 QA	290	344	316	26	297	7
6 DA	194	226	208	14	222	28
7 IR	161	210	193	32	202	41
SUPPORT						
8 CP	357	383	352	(5)	352	(5)
9 MS	336	323	297	(39)	323	(13)
10 LE	232	246	226	(6)	241	9
11 IL	96	132	121	25	132	36
12 AS	90	83	76	(14)	83	(7)
13 OP	22	17	16	(6)	17	(5)
14 TM	47	47	43	(4)	44	(3)
15 GC	35	42	39	4	40	5
*PERSONNEL						
16-30	359	341	341	(18)	341	(18)
TOTAL	4218	4563	4218		4218	

*HELD CONSTANT AT FY79 CEP.

NOTE: COLUMNS MAY NOT TOTAL DUE TO ROUNDING.

SLIDE 12

TWO BASIC SCHEMES WERE UTILIZED IN THE ALLOCATIONS FOR FY81 SHOWN ON THIS SLIDE: (1) UNIFORM PERCENTAGE ADJUSTMENT AND (2) ADJUSTED PROGRAM; BOTH USE ESTABLISHED RELATIONSHIPS AS A BASE.

THE UNIFORM PERCENTAGE ADJUSTMENT IS THE RATIO OF THE PLANNED CEP OVER THE ESTIMATED PERSONNEL REQUIREMENTS. FOR EXAMPLE FOR ORGANIZATION #1 (MA), THE ALLOCATION OF 822 WAS OBTAINED BY APPLYING THE RATIO (4218-341 ÷ 4563-341) = .9183 TIMES THE MODEL ESTIMATED VALUE OF 895. SUBTRACTION OF 341 WAS MADE TO ACCOUNT FOR THE PERSONNEL DIRECTORATES WHICH WERE HELD CONSTANT AT THE FY79 CEP LEVEL. THUS THE DISTRIBUTION OF PERSONNEL AMONG THE DIRECTORATES IS RELATED TO DRIVER PROGRAMS AND THE LEVELS ARE DETERMINED BY THE IMPOSED CEP.

THE ADJUSTED PROGRAM ALLOCATION WAS OBTAINED BY CHANGING THE DRIVER PROGRAMS UNTIL THE RESULTING ESTIMATE OF PERSONNEL REQUIREMENTS EQUALLED THE CEP (PERSONNEL DIRECTORATES HELD CONSTANT AT THE FY79 CEP LEVEL). IN THIS CASE IT WAS NECESSARY TO REDUCE ALL DRIVER PROGRAMS BY 14 PERCENT IN ORDER TO ACHIEVE A MODEL ESTIMATE EQUAL TO THE IMPOSED CEP LEVEL OF 4218. AGAIN, THE DISTRIBUTION IS DERIVED FROM DRIVER PROGRAMS.

NOTE: VARIATION OF THE ABOVE PRESENTED AT ANNEX B.

SLIDE 13

TOPICS TO BE COVERED

1. PREDICTION OF PERSONNEL REQUIREMENTS
2. ALLOCATION OF PERSONNEL
3. ESTIMATE OF EFFECT ON PROGRAMS

SLIDE 13

ADJUSTMENT OF DRIVER PROGRAMS - THE PROCEDURE USED FOR THE ADJUSTED PROGRAM ALLOCATION - ACTUALLY EMPLOYS THE MODEL IN REVERSE: CHANGES IN PERSONNEL LEVELS LEAD TO ESTIMATES OF ANTICIPATED EFFECT ON ARRCOM'S PROGRAMS - THE LAST TOPIC.

SLIDE 14

COMPARISON OF EXECUTABLE PROGRAMS BY PRODUCT, FY81

PROGRAMS $(M)	PRODUCTS							PERSONNEL
	WEAPONS	AMMUNITION	OTHER	INDUSTRIAL READINESS	SUPPLIES	MAINTENANCE	TOTAL	
REQUIRED	356	1217	91	353	168	44	2229	4563
REDUCED	305	1042	79	302	143	38	1909	4218

SLIDE 14

THE REDUCED PROGRAMS SHOWN ON THIS SLIDE ESTIMATE THE LEVEL OF SPENDING WHICH THE COMMAND SHOULD BE EXPECTED TO PERFORM WHEN PERSONNEL RESOURCES ARE REDUCED BY 7.6 PERCENT FROM THE REQUIRED LEVEL. ESTIMATE OF EFFECT ON PROGRAMS FOR THE UNIFORM PERCENTAGE DISTRIBUTION CANNOT BE DETERMINED USING THIS METHODOLOGY.

SLIDE 15

SUMMARY AND CONCLUSIONS

1. ALLOCATIONS OF PERSONNEL TO ARRCOM'S DIRECTORATES ARE BASED ON ESTIMATES OF PERSONNEL REQUIREMENTS NECESSARY TO PROVIDE PRODUCTS AND SERVICES TO ARMY, OTHER U.S. AND FOREIGN CUSTOMERS. DRIVER PROGRAMS ARE USED TO REPRESENT CUSTOMER DEMANDS AND ARE LINKED TO PERSONNEL BY THE WORK-UNITS PROVIDED BY THE DIRECTORATES.

2. THE MODEL HAS THE FOLLOWING CHARACTERISTICS:

   A. IT IS A DYNAMIC MODEL

   B. IT DEPENDS ON PROGRAMS WHICH ARE PREDICTABLE

   C. IT EMPLOYS WORK UNITS WHICH ARE MEASUREABLE AND VERIFIABLE

   D. IT IS REVERSIBLE (PROVIDES ESTIMATES OF EFFECTS ON PROGRAMS FOR IMPOSED PERSONNEL CEILING).

   E. MULTIPLE VARIATIONS MAY BE GENERATED AND ANALYZED QUICKLY.

3. THE MODEL IS ADAPTABLE TO CHANGES IN RELATIONSHIPS BETWEEN PROGRAMS AND PERSONNEL REQUIREMENTS AND ADDITIONAL DATA WILL SERVE ONLY TO IMPROVE THE OVERALL ALLOCATION PROCEDURE.

ANNEX A

SLIDE 1

AS OF 23 MAY 78

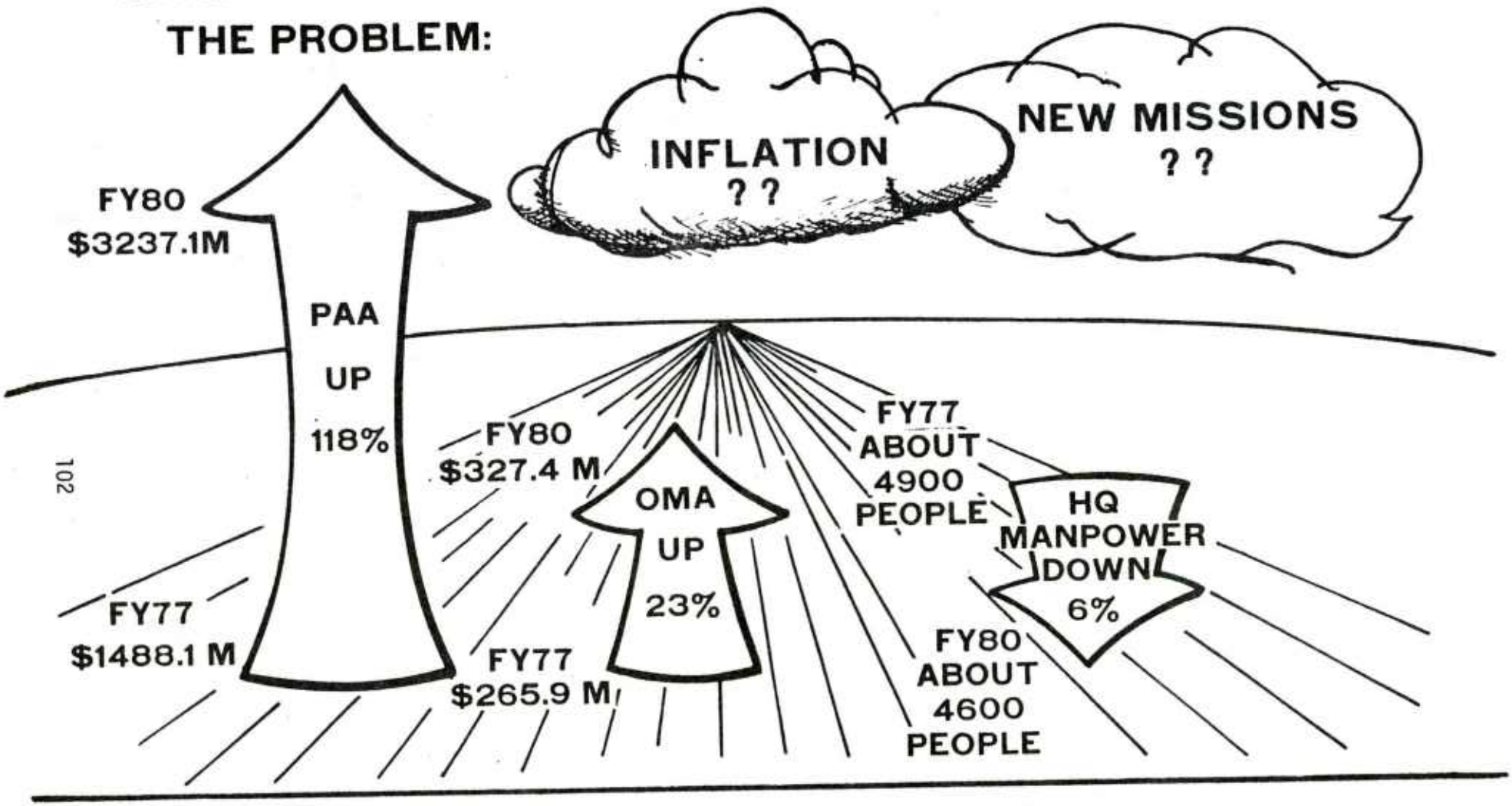
ARRCOM BUDGET AND READINESS OF FIELD ARMIES

SLIDE 1

FOR THE PAST 18 MONTHS, THE US ARMY ARMAMENT MATERIEL READINESS COMMAND (ARRCOM) PROGRAM ANALYSIS AND EVALUATION DIRECTORATE HAS BEEN INVOLVED IN A STUDY TO RELATE THE ARRCOM BUDGET WITH THE READINESS OF THE FIELD ARMIES. THE STUDY WAS INITIATED AT THE REQUEST OF THE ARRCOM COMMANDER, MG EICHER, WHO NOTED FROM THE COMMAND BUDGET PROJECTIONS THAT WHILE ARRCOM'S PROCUREMENT AND ARMY STOCK FUND APPROPRIATIONS WERE STEADILY INCREASING OVER THE NEXT FEW YEARS, THE 7S PORTION OF OMA WHICH FUNDS THE PERSONNEL REQUIRED TO SUPPORT THE OTHER APPROPRIATIONS, REMAINED ESSENTIALLY AT THE FY77 LEVEL. REQUESTS FOR INCREASED OMA FUNDING WOULD, IF EFFECTIVE, NEED TO BE SUPPORTED BY SOME ANALYTICAL EFFORT TO SHOW HOW MANPOWER REDUCTIONS IMPACT ON THE MILITARY PREPAREDNESS OF FIELD FORCES.

PROBLEMS SIMILAR TO THE ARRCOM OMA FUNDING SITUATION ARE WIDESPREAD WITHIN DARCOM AND THE DCG FOR RESOURCE MANAGEMENT (MG BERQUIST) HAS RECENTLY INITIATED SEVERAL STUDY EFFORTS IN THE AREA (BASELINE AND DELTA 7S). IN ADDITION, COMPARISON OF PROCUREMENT, OMA, AND RDT&E APPROPRIATIONS FROM FY74-80 WERE PRESENTED DURING THE DARCOM BUDGET REVIEW COMMITTEE BRIEFINGS IN JULY 78. THE COMPARISON SHOWED THAT PROCUREMENT AND R&D APPROPRIATIONS HAVE INCREASED WITHOUT CORRESPONDING INCREASES IN OMA. THIS OMA UNDERFUNDING HAS CREATED SIGNIFICANT WORKLOAD BACKLOGS WITHIN DARCOM WHICH CANNOT BE REDUCED AT THE FY79 BASIC FUNDING LEVEL.

SLIDE 1A



THE OBJECTIVE:

INCREASE READINESS

SLIDE 1A

THIS SLIDE ILLUSTRATES THE PROBLEM WHICH ARRCOM FACES TODAY IN REACHING ITS OBJECTIVE, AND WHICH WE HAVE ADDRESSED IN THIS STUDY. THE PAA DOLLAR FOR FY80 IS UP 118%, THE OMA DOLLAR IS UP 23%, BUT THE PERSONNEL TOTAL IS DOWN 6%.

SLIDE 2

AS OF 23 MAY 78

THE OBJECTIVE OF THIS STUDY IS TO RELATE THE ARRCOM PROGRAMS TO THE READINESS OF THE FIELD ARMY AND THUS SPECIFICALLY TO RELATE THE OMA ACTIVITIES TO READINESS OF THE ARMY.

SLIDE 2

THIS SLIDE SHOWS THE STUDY OBJECTIVE.

ACHIEVING THIS GOAL WILL PROVIDE US WITH A TOOL FOR USE IN THE FORMULATION AND DEFENSE OF THE COMMAND'S BUDGET REQUESTS.

SLIDE 3

TOPICS TO BE COVERED

1. ASSIGNMENT OF DIRECTORATE PERSONNEL BY PRODUCT
2. MODEL FOR PROJECTION OF SPACES TO SUPPORT PACKAGE 1* AND 4 PROCUREMENT DOLLARS
3. PERSONNEL SUPPORT REQUIRED FOR ARMY, OTHER SERVICES, AND FOREIGN MILITARY SALES
4. ARMY READINESS

*PACKAGE 1 WEAPONS 0-3 DAYS, AMMO 0-60 DAYS IN EUROPE

PACKAGE 4 WEAPONS 0-180 DAYS IN EUROPE

SLIDE 3

AS USED IN THIS ANALYSIS,

1. ARRCOM'S PRODUCTS ARE: WEAPONS, AMMO, MAINTENANCE, SUPPLIES, INDUSTRIAL PREPAREDNESS, AND OTHER;

2. "PROCUREMENT" DOLLARS, IN THIS PRESENTATION, MEANS DOLLARS FOR BUYING PRODUCTS: PROCUREMENT APPROPRIATIONS FOR ARMY, OTHER SERVICE ORDERS, FMS, 7M, AND PART OF OMA; I WILL ALSO USE THE TERM "PRODUCT DOLLARS" TO MEAN THE SAME THING;

3. THE REFERENCE POINT IS PROGRAM DOLLARS. PROGRAM DOLLARS WERE USED AFTER A REVIEW OF DATA SHOWED THAT THE RATIOS OF PROGRAM DOLLARS TO OBLIGATION AND DISBURSEMENTS CLUSTER AROUND THE VALUE OF ONE. BASED ON THIS RESULT AND THE FACT THAT THE SAMPAM IS PROJECTED IN PROGRAM DOLLARS, PROGRAM DOLLARS WERE USED AS THE BASE FOR THIS STUDY.

4. PACKAGE 1 IS FOR A 60-DAY SUPPLY OF AMMO AND 30 DAYS FOR WEAPONS IN EUROPE. PACKAGE 4 IS FOR 180-DAY AMMO AND WEAPONS SUPPLY IN EUROPE.

SLIDE 4

TOPICS TO BE COVERED

1. ASSIGNMENT OF PERSONNEL BY PRODUCT
2. MODEL FOR PROJECTING MANPOWER REQUIREMENTS
3. SUPPORT ALLOCATION AMONG CUSTOMERS
4. ARMY READINESS

SLIDE 4

THE PURPOSE OF THE FIRST STEP IS TO ESTABLISH A "POINT OF REFERENCE" OR "BASE CASE" FROM WHICH PROJECTIONS CAN BE MADE.

SLIDE 5

CLASSIFICATION OF ARRCOM ACTIVITIES

FUNCTIONAL DIRECTORATES (SUPPORT PRODUCT)

IR	INDUSTRIAL READINESS DIRECTORATE
DA	DEFENSE AMMO DIRECTORATE
MM	MATERIEL MANAGEMENT DIRECTORATE
PD	PRODUCTION DIRECTORATE
QA	PRODUCT ASSURANCE DIRECTORATE
PC	PROCUREMENT DIRECTORATE
MA	MAINTENANCE DIRECTORATE

SUPPORT DIRECTORATES (SUPPORTS FUNCTIONAL DIRECTORATES IN OUTPUTING PROCUCTS)

IL	TM	CP	LE
OP	AS	MS	GS

PERSONNEL DIRECTORATES

EEO	IG	PI	PT
AV	PP	SS	IS
IN	PA	SB	HO
SF	SA		

SLIDE 5

TO ESTABLISH THIS BASE CASE, IT WAS NECESSARY TO DIVIDE LABOR INTO LOGICAL GROUPINGS OF ORGANIZATIONAL ELEMENTS. ARRCOM'S ACTIVITIES WERE DIVIDED INTO THREE GROUPS. THE FIRST GROUP WAS THE FUNCTIONAL DIRECTORATES. THESE PERSONNEL ARE DIRECTLY ACTIVE IN THE PROCUREMENT OF PRODUCTS. THE SECOND GROUP SUPPORTS THE FUNCTIONAL DIRECTORATES IN PROCURING PRODUCTS. THE THIRD GROUP IS ACTIVE IN MATTERS RELATED TO ARRCOM PERSONNEL, AND MAY BE LOOKED UPON AS OVERHEAD ACTIVITIES.

IN ADDITION TO DIVIDING ARRCOM INTO GROUPS OF FUNCTIONAL DIRECTORATES, PERSONNEL WITHIN THE DIRECTORATES WERE ASSIGNED BY PRODUCT. THE NEXT SLIDE SHOWS ARRCOM'S PERSONNEL ASSIGNED BY DIRECTORATE AND PRODUCT.

SLIDE 6

ARRCOM END FY77 TDA

ASSIGNMENT OF PERSONNEL BY PRODUCT

TDA SPACES (CIV & MIL)+	PRODUCT AREAS						
	WEAPONS	AMMO	MAINT	SUPPLIES	OTHER	MOBILIZATION PREPAREDNESS	TOTAL
IR	0	0	0	0	0	206	206
DA	0	319	0	0	0	0	319
MM	30	0	0	510	25	0	565
PD	113	213	0	0	0	0	326
QA	124	89	149	2	28	0	392
PC	124	169	0	143	0	44	480
MA	117	70	621	0	62	0	870
SUPPORT DIRECTORATES	249	512	71	311	105	64	1312
PERSONNEL DIR*	73	133	81	94	22	30	433
TOTALS	830	1505	922	1060	242	344	4903
CIVILIAN	(780)	(1409)	(836)	(987)	(229)	(324)	(4565)
MILITARY	(50)	(96)	(86)	(73)	(13)	(20)	(338)

*PRORATED ACCORDING TO ALLOCATION OF OTHER MANPOWER AMONG PRODUCTS

SLIDE 6

THIS SLIDE IS THE BASE CASE AGREED TO BY THE FUNCTIONAL AND SUPPORT DIRECTORATES.

THESE PERSONNEL ARE PAID BY VARIABLE OMA DOLLARS WHERE VARIABLE OMA IS DEFINED AS TOTAL DOLLARS FOR SALARIES, BENEFITS, TRAVEL, OVERTIME, REPRO, AND RELATED ITEMS.

SLIDE 7

TOPICS TO BE COVERED

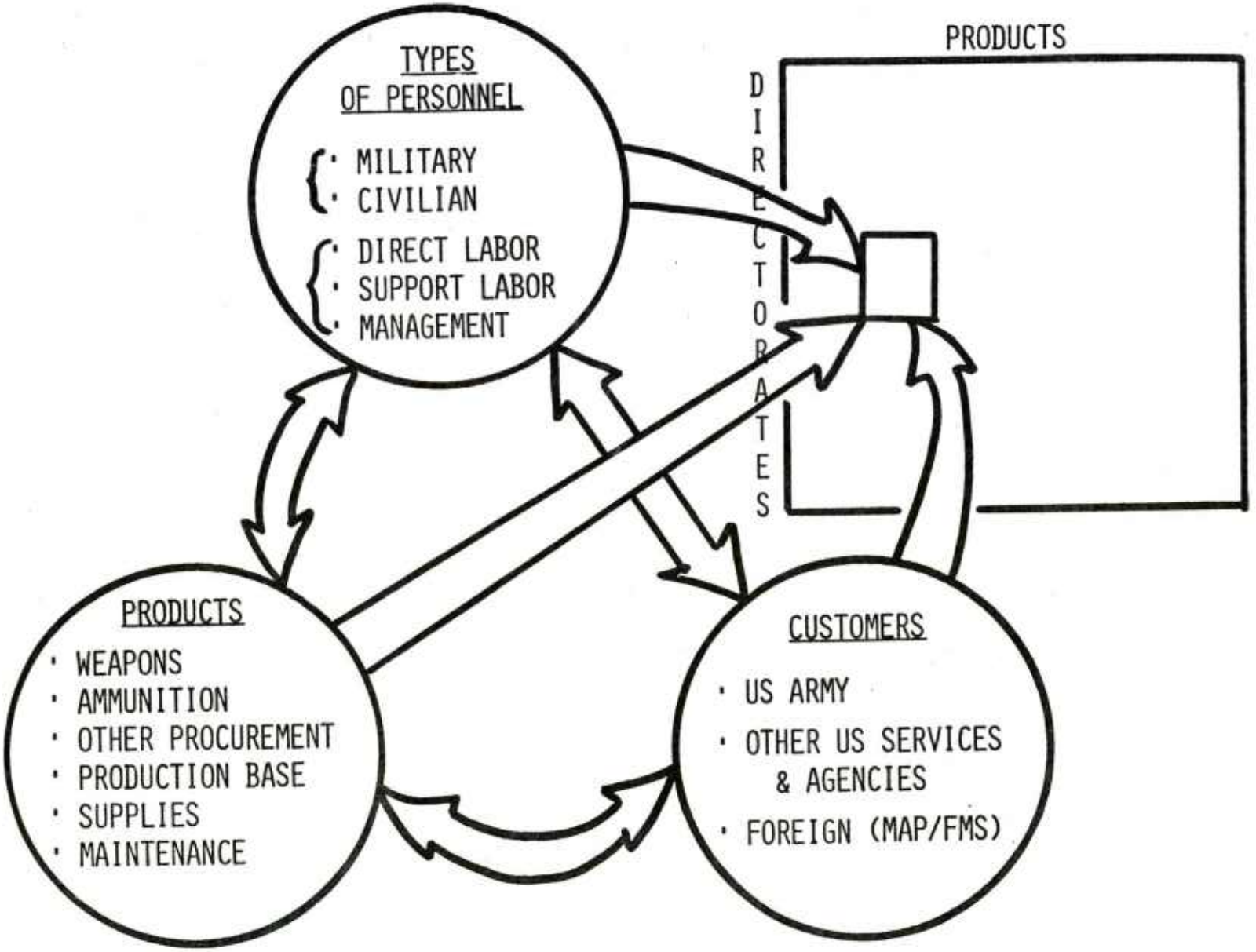
1. ASSIGNMENT OF PERSONNEL BY PRODUCT
2. → MODEL FOR PROJECTING MANPOWER REQUIREMENTS
3. SUPPORT ALLOCATION AMONG CUSTOMERS
4. ARMY READINESS

SLIDE 7

STEP TWO IS TO DEVELOP THE MODEL FOR PREDICTING PERSONNEL SPACE REQUIREMENTS FOR VARYING LEVELS OF PROCUREMENT.

SLIDE 8

PERSONNEL INTERACTION CONSIDERATIONS REQUIRED FOR PROJECTION



SLIDE 8

THIS SLIDE SHOWS THE ELEMENTS THAT WE BELIEVED SHOULD BE CONSIDERED IN ORDER TO OBTAIN A BASIS FOR PREDICTING PERSONNEL REQUIREMENTS FOR PROCUREMENT BUYS.

EACH MANPOWER REQUIREMENT DEPENDS ON THE PRODUCT, THE DIRECTORATE, THE CUSTOMER, THE PROCUREMENT DOLLARS, AND THE TYPE OF LABOR THAT IS BEING CONSIDERED. WE OBTAINED ESTIMATES OF MANPOWER REQUIRED TO ACCOMPLISH THE PROJECTED "PROCUREMENT" PROGRAMS, DIRECTLY FROM THE FUNCTIONAL DIRECTORATES.

SLIDE 9

MANPOWER RELATED TO WORKLOAD

$$\text{MANPOWER}_{IJK} = \sum_{L} \left[\text{MANPOWER COEFFICIENTS}_{IJKL} \times \text{DRIVER}_{KL} \right] +$$

$$\text{SHARE OF FIXED MANPOWER}_{I}$$

FIXED MANPOWER = (1) A GIVEN NUMBER OF PEOPLE;
(2) A SHARE OF PERSONNEL IN A POOL

MANPOWER COEFFICIENT = MANPOWER/MILLION DOLLARS OF PRODUCT
DRIVER = PROCUREMENT DOLLARS

I = ORGANIZATION INDEX
J = PRODUCT INDEX
K = CUSTOMER INDEX
L = DRIVER INDEX

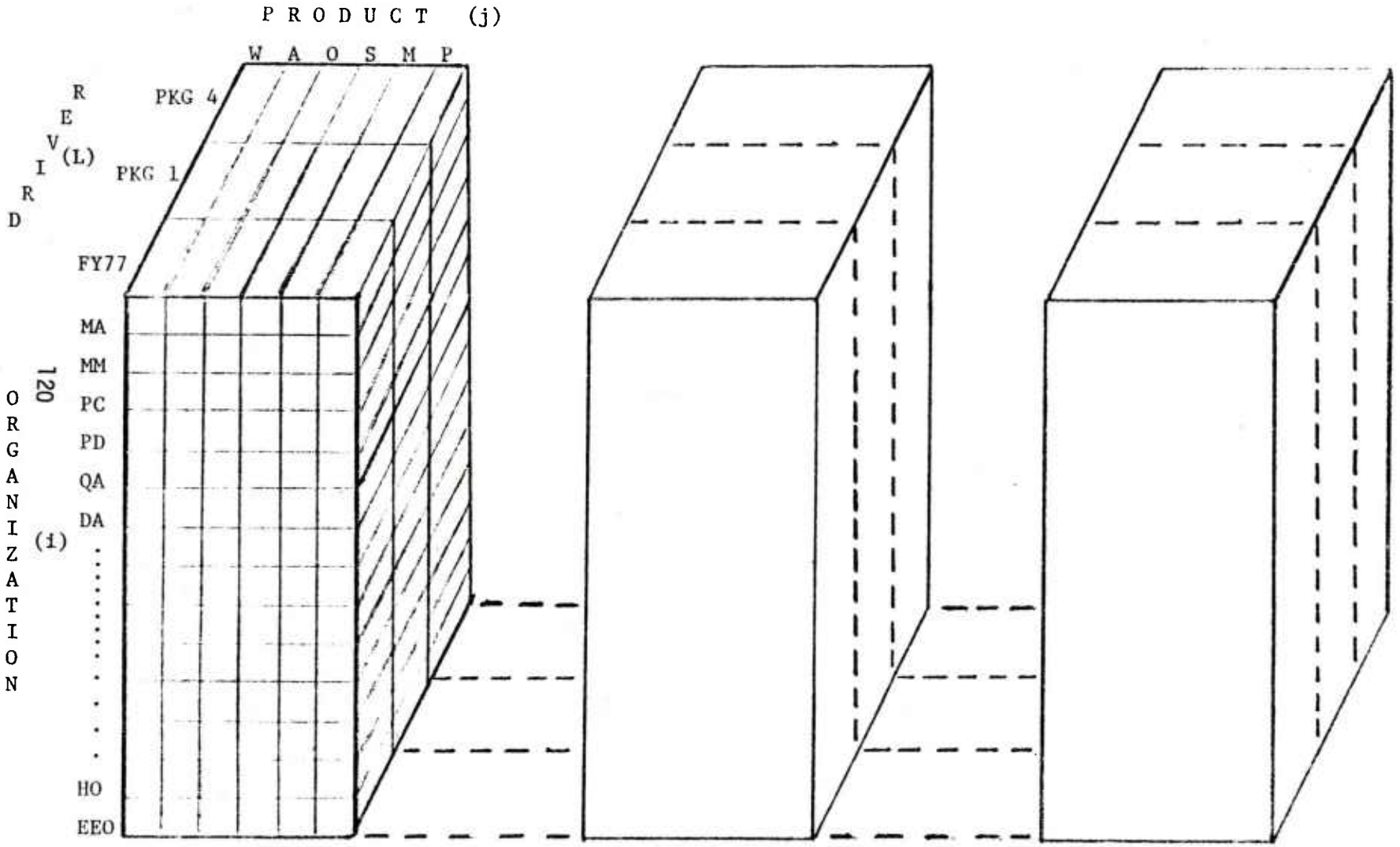
SLIDE 9

THE ESTIMATES, RELATIONSHIPS, AND WORK DRIVERS WERE ALL USED TO DEVELOP THE MODEL SHOWN HERE. THE $MANPOWER_{IJK}$ IS THE ESTIMATED MANPOWER REQUIREMENT FOR A GIVEN ORGANIZATION, PRODUCT AND CUSTOMER. THESE MANPOWER ESTIMATES ARE THEN SUMMED OVER K TO GET ORGANIZATION/PRODUCT PERSONNEL REQUIREMENTS.

THESE FACTORS ARE UTILIZED IN A RESOURCE ALLOCATION MODEL WHICH IS OPERABLE ON OUR COMPUTER. THUS, WE HAVE THE MEANS TO ESTIMATE THE EFFECTS OF CHANGES IN PROGRAMS.

SLIDE 10

CONCEPTUAL MODEL OF ARRCOM MANPOWER RELATED TO WORKLOAD



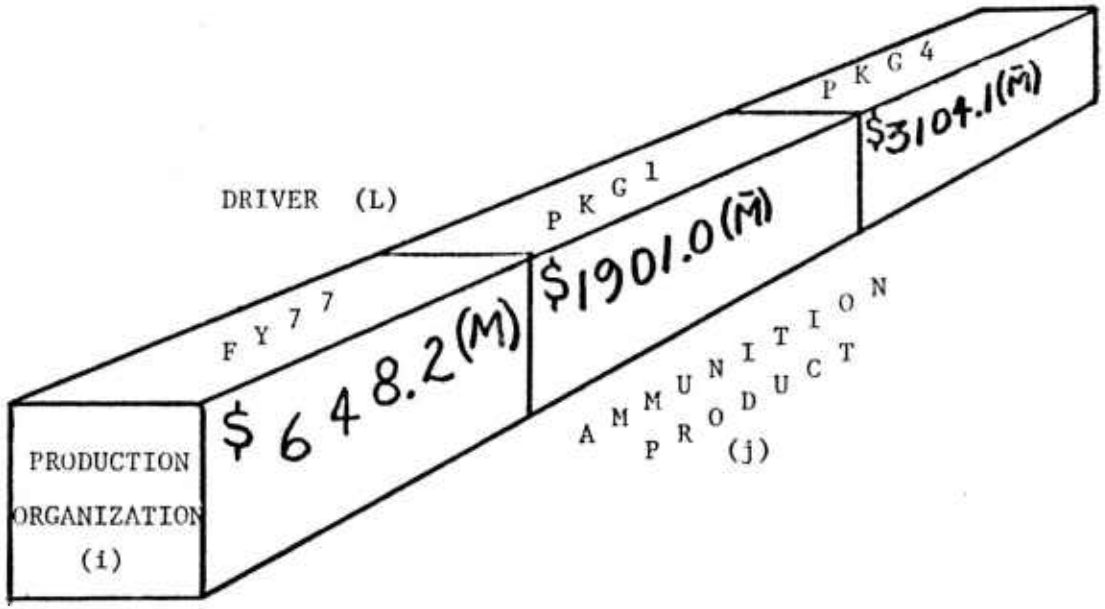
SLIDE 10

THIS SLIDE IS A CONCEPTUAL REPRESENTATION OF THE COMPUTER MODEL. THE MODEL ACCOUNTS FOR THE WORKLOAD DRIVER OF EACH ORGANIZATION, THEIR PRODUCTS, THEIR CUSTOMERS, AND THE TYPE OF LABOR USED (DIRECT, INDIRECT, OVERHEAD - MILITARY, CIVILIAN). RELATIONSHIPS WERE ESTABLISHED BETWEEN THE WORKLOAD DRIVERS AND FUTURE BUDGET LEVELS THAT WOULD ALLOW PERSONNEL REQUIREMENTS TO BE ESTIMATED.

AN EXAMPLE OF THE RATIONALE USED IS PRESENTED IN THE FOLLOWING 5 SLIDES. THE EXAMPLE PRESENTED IS THE RATIONALE FOR ESTIMATING SPACES FOR THE ARRCOM PRODUCTION DIRECTORATE.

SLIDE 11

SELECTED ORGANIZATION FROM ARRCOM CONCEPTUAL MODEL



SLIDE 11

THE EXAMPLE PRESENTED CONSIDERS ONLY ONE PRODUCT (AMMUNITION), ONE CUSTOMER (ARMY), AND ONE ORGANIZATION (PRODUCTION). RATIONALE DEVELOPED ON THE BASIS OF "BASE CASE" DATA IS THEN USED TO PROJECT REQUIREMENTS FOR THE PKG 1 AND PKG 4 PROCUREMENT LEVELS.

SLIDE 12

MANPOWER COEFFICIENT
FOR ARRCOM PRODUCTION DIRECTORATE

FY77 WORKLOAD		CALCULATIONS			
14058	PWD'S	14058 ÷ 76	=	185	PWDS PER MANAGER
76	PWD MANAGERS				
1.59	SUPPORT PERSONNEL PER MANAGER	$648.2($\bar{M}$) ÷ $.329($\bar{M}$)	=	1971	EXPECTED NUMBER OF ARMY AMMUNITION PWDS
$ 648.2($\bar{M}$)	AMMUNITION PROCUREMENT PROGRAM (ARMY)	1971 ÷ 185	=	10.65	ARMY AMMUNITION PWD MANAGERS
$328,878	AVERAGE VALUE OF ARMY AMMUNITION PWDS	10.65 X 1.59	=	16.9	PWD SUPPORT PERSONNEL
		10.65 + 16.9	=	28	ESTIMATE OF PERSONNEL REQUIRED

MANPOWER COEFFICIENT

(1 + 1.59) ÷ ($.329($\bar{M}$) X 185) = .0426

SLIDE 12

IN THE PRODUCTION DIRECTORATE, PRODUCTION WORK DIRECTIVES (PWDS) WERE STATED TO BE THE WORK DRIVER.

IN FY77, THERE WERE 14,058 PWDS ASSOCIATED WITH AMMUNITION AND A TOTAL OF 76 PERSONNEL (CALLED MANAGERS) WHO WERE RESPONSIBLE FOR SEEING THAT THE PWDS WERE EXECUTED. IN ADDITION, IT WAS DETERMINED THAT 1.59 SUPPORT PERSONNEL WERE REQUIRED FOR EACH PWD MANAGER. ALSO, EACH MANAGER COULD BE RESPONSIBLE FOR AN AVERAGE OF ABOUT 185 PWDS PER YEAR.

TO FIND THE NUMBER OF PWD MANAGERS REQUIRED FOR FUTURE "PROCUREMENT", THE AVERAGE DOLLAR VALUE OF THE FY77 ARMY AMMUNITION PWDS WAS CALCULATED AND DIVIDED INTO THE ARMY AMMUNITION PROGRAM DOLLARS. THE RESULT IS AN EXPECTED NUMBER OF PWDS WHICH, WHEN DIVIDED BY 185, GIVES THE EXPECTED NUMBER OF PWD MANAGERS REQUIRED.

THE PERSONNEL SPACES NEEDED TO SUPPORT THE PWD MANAGERS IS DETERMINED BY MULTIPLYING BY 1.59 AND THE SUM OF THE MANAGER AND SUPPORT SPACES YIELDS THE ESTIMATE OF PERSONNEL SPACES REQUIRED.

FINALLY, THESE RELATIONSHIPS ARE REDUCED TO A SINGLE MANPOWER COEFFICIENT FOR USE IN THE GENERALIZED MODEL.

SLIDE 13

INDEX TABLE

ORGANIZATION (I)	PRODUCT (J)	CUSTOMER (K)	DRIVER (L)
1. MA - MAINTENANCE	1. W - WEAPONS	1. ARMY	1. FY77
2. MM - MATERIEL MANAGEMENT	2. A - AMMUNITION	2. OTHER US	2. PKG 1
3. PC - PROCUREMENT	3. O - OTHER	3. FOREIGN	3. PKG 4
4. PD - PRODUCTION	4. S - SUPPLIES		
5. QA - PRODUCT ASSURANCE	5. M - MAINTENANCE		
6. DA - DEFENSE AMMUNITION	6. P - INDUSTRIAL PREPAREDNESS		
7. IR - INDUSTRIAL READINESS			
..			
..			
..			
..			
29. HO - HISTORICAL OFFICE			
30. EEO - EQUAL EMPLOYMENT OPPORTUNITY			

SLIDE 13

NOTE THAT THE RATIONALE ESTABLISHES A RELATIONSHIP BETWEEN FY77 WORKLOAD AND THE FY77 ARMY AMMUNITION PROCUREMENT PROGRAM.

THE NEXT SLIDE USES THIS RELATIONSHIP TO PREDICT THE MANPOWER REQUIREMENTS FOR PRODUCTION ORGANIZATION (4), AMMUNITION PRODUCT (2), ARMY CUSTOMER (1), AND PKG 1 PROCUREMENT (2).

SLIDE 14

M = MANPOWER (?)

MC = MANPOWER COEFFICIENT (.0426)

D = DRIVER ($1901.0(M̄))

FM = FIXED MANPOWER (3.18)

I = ORGANIZATION

J = PRODUCT

K = CUSTOMER

L = DRIVER

$$M_{IJK} = \sum_{\substack{I=4 \\ J=2 \\ K=1 \\ L=2}} \left[MC_{IJKL} \times D_{JKL} \right] + FM_I$$

MANPOWER PREDICTOR FOR PRODUCTION DIRECTORATE,
AMMUNITION PRODUCT, ARMY CUSTOMER, AND PACKAGE 1 DRIVER

SLIDE 14

THE VALUES NEEDED TO DETERMINE MANPOWER REQUIREMENTS ARE THE MANPOWER COEFFICIENT (.0426) THE PKG 1 DRIVER (ARMY AMMUNITION PROCUREMENT PROGRAM OF 1901.0\bar{M}$) AND A SHARE OF THE ORGANIZATION'S FIXED MANPOWER (3.18).

SLIDE 15

$$M = .0426 \times \$1901.0(\bar{M}) + 3.18$$

$$M \doteq 84$$

ESTIMATED MANPOWER FOR PRODUCTION DIRECTORATE,
AMMUNITION PRODUCT, ARMY CUSTOMER, AND PACKAGE 1 DRIVER

SLIDE 15

RESOLVING THE EQUATION PROVIDES AN ESTIMATE OF 84 AT THE PACKAGE 1 PROCUREMENT LEVEL FOR ARMY AMMUNITION.

SLIDE 16

$$M = .0426 \times 3104.1(\bar{M}) + 4.5$$

$$M \doteq 137$$

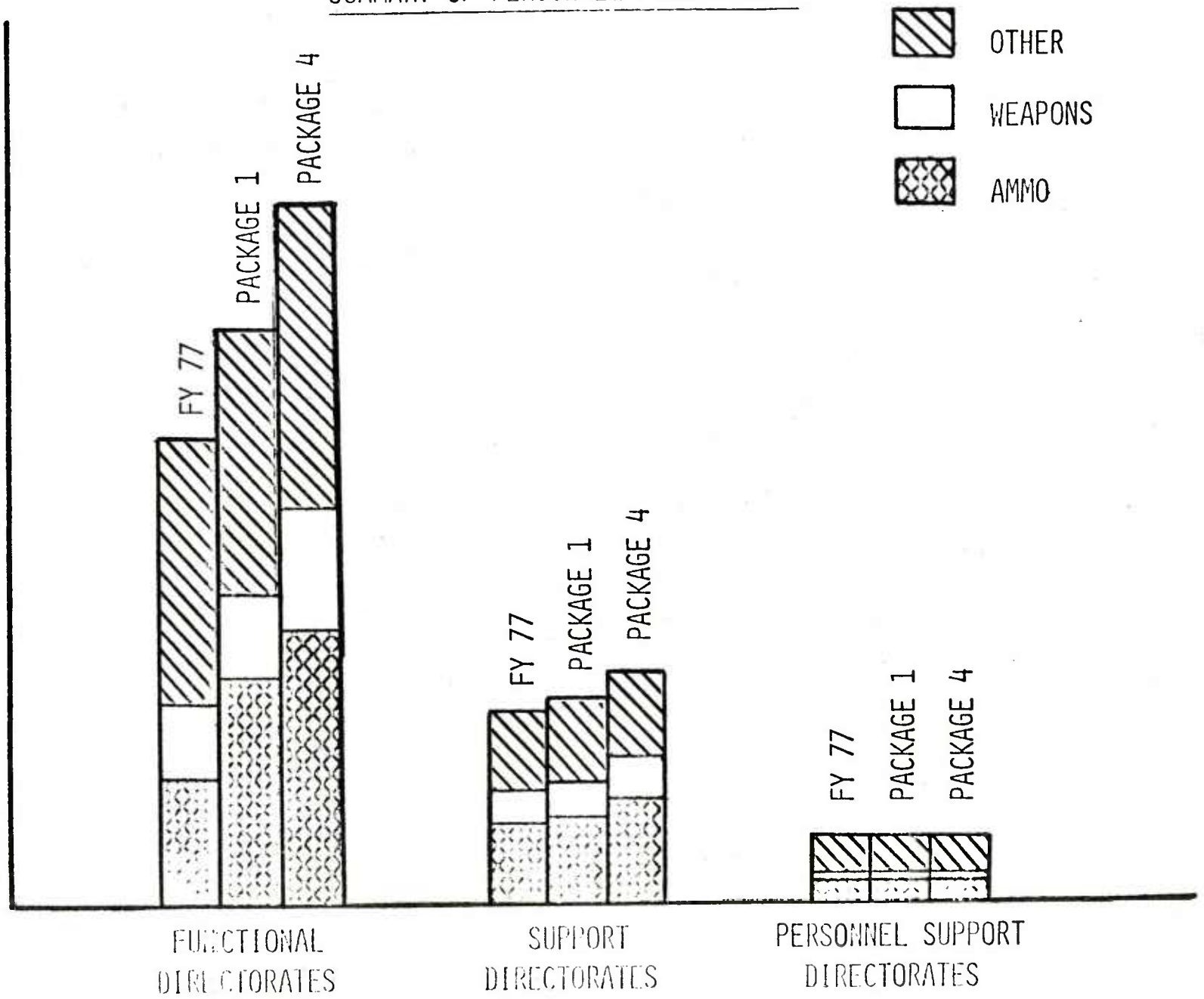
ESTIMATED MANPOWER FOR PRODUCTION ORGANIZATION,
AMMUNITION PRODUCT, ARMY CUSTOMER, PKG 4 DRIVER

SLIDE 16

SIMILARLY, AN ESTIMATE OF 137 SPACES ARE REQUIRED AT THE PACKAGE 4 PROCUREMENT LEVEL.

SLIDE 17

SUMMARY OF PERSONNEL PROJECTIONS



SLIDE 17

THIS SLIDE SUMMARIZES THE PERSONNEL DISTRIBUTIONS FOR FY77, AND THE PROJECTIONS FOR PACKAGES 1 AND 4 FOR EACH GROUP OF DIRECTORATES. AMMO AND WEAPONS ARE HIGHLIGHTED AND EVERYTHING ELSE (MAINTENANCE, SUPPLIES, INDUSTRIAL PREPAREDNESS, AND OTHER) IS OTHER FOR EACH BUY LEVEL. NOTE THAT ALTHOUGH WEAPONS AND AMMO PROCUREMENT IS UP 100% AND 380%, RESPECTIVELY, THE PERSONNEL REQUIREMENT FOR WEAPONS IS UP ONLY 59% (508 TO 810) AND THE AMMO ABOUT 117% (860 TO 1870) FOR THE FUNCTIONAL DIRECTORATES. THE TOTAL INCREASE FOR ARRCOM FOR WEAPONS IS 42% AND 77% FOR AMMO.

SLIDE 18

SUMMARY OF VARIABLE OMA AND MPA DOLLARS TO SUPPORT THREE LEVELS OF PROJECTED PROCUREMENT

	TOTAL PROCUREMENT $M	VARIABLE OMA AND MILITARY PAY $M	% OF PROCUREMENT VALUE
ARMY FY77 PROCUREMENT OTHER SERVICES AND FMS	2041	113.3	5.55
PACKAGE 1, OTHER SERVICES AND FMS	3903	132.5	3.40
PACKAGE 4, OTHER SERVICES AND FMS	5445	156.6	2.87

SLIDE 13

THE OMA AND MILITARY PAY DOLLAR REQUIREMENT TO SUPPORT THE THREE INDICATED LEVELS OF PROCUREMENT USING THE AVERAGE FOR YEARS 82-84 ARE SHOWN HERE IN DOLLARS AND AS A PERCENTAGE OF THE PROCUREMENT PROGRAM. AS MIGHT BE EXPECTED FOR THE INCREASED PROCUREMENT PROGRAM DOLLAR, THE RATE IS LESS, BUT THERE IS A REQUIREMENT FOR $20 TO 43\bar{M}$ INCREASE IN OMA.

SLIDE 19

TOPICS TO BE COVERED

1. ASSIGNMENT OF PERSONNEL BY PRODUCT
2. MODEL FOR PROJECTING MANPOWER REQUIREMENTS
3. SUPPORT ALLOCATION AMONG CUSTOMERS
4. ARMY READINESS

SLIDES 19 & 20

BECAUSE THE ARRCOM "VARIABLE OMA" AND MPA DOLLARS SUPPORT MORE THAN JUST THE ARMY, THERE IS INTEREST IN THE SUPPORT BEING PROVIDED TO OTHER CUSTOMERS.

IN MARCH 1978 THE GAO INVESTIGATED ARRCOM'S METHODS OF ASSIGNING PERSONNEL TO FMS. THE DISTRIBUTION/ASSIGNMENT FOR FY77 WITH FMS SPACES AS APPROVED BY GAO IS SHOWN HERE.

THIS OVERLAY SHOWS SYSTEMS ANALYSIS ESTIMATES OF FMS "CHARGES" FOR FY77 BASE YEAR. ESSENTIALLY, 400 SPACES ARE MOVED FROM ARMY, AND ANOTHER 100 FROM OTHER US, TO FMS. THE SAME DATA, EXPRESSED AS % OF PROCUREMENT VALUE, IS SHOWN ON THE NEXT SLIDE AND OVERLAY.

BLANK

SLIDE 20

GAO APPROVED AND SA ESTIMATED FMS PERSONNEL

BASE CASE FY77

	WEAPONS	AMMO	MAINT	SUPPLIES	OTHER	MOBILIZATION PLANNING	TOTAL
	NUMBER OF DIRECT AND ASSIGNED PEOPLE						
ARMY							
GAO	575	866	905	806	210	344	3706
SA	400	760	896	714	174	344	3308
US OTHER							
GAO	118	428	12	149	22	0	729
SA	81	398	12	122	17	0	630
FMS							
GAO	137	211	5	105	10	0	468
SA	349	347	14	224	31	0	965
TOTAL	830	1505	922	1060	242	344	4903

SLIDE 21

GAO APPROVED AND SA ESTIMATED FMS SURCHARGE RATE

BASE CASE FY77

	WEAPONS	AMMO	MAINT	SUPPLIES	OTHER	MOBILIZATION PLANNING	TOTAL
	% OF PROCUREMENT VALUE						
ARMY							
GAO	8.27	3.09	49.3	18.6	6.7	2.9	6.6
SA	5.76	2.71	48.8	16.4	5.6	2.9	5.9
US OTHER							
GAO	13.9	4.71	138.0	34.0	6.7	0	6.8
SA	9.5	4.30	138.0	27.9	5.2	0	5.9
FMS							
GAO	2.49	3.23	19.0	4.3	2.1	0	4.2
SA	6.33	5.35	53.7	9.1	6.6	0	6.4

SLIDE 21

THE RATE FOR THE GAO APPROVED BASE CASE IS GENERALLY LOWER THAN THOSE PAID BY THE ARMY AND OTHER SERVICES. THE SA ESTIMATES ASSIGN FMS A FAIR SHARE OF ALL ARRCOM ACTIVITIES AND THE VALUES ARE CLOSER TO THOSE RATES BEING PAID BY THE ARMY AND OTHER SERVICES.

FOR FY77 THE DIFFERENCE BETWEEN 4.2% CHARGED TO FMS AND 6.4% IS $11.5M.

THE REAL INTEREST IN, OR SUPPORT FOR, THESE PERSONNEL/PROGRAM DISTRIBUTIONS IS THEIR EFFECT ON THE ARMY, AND OTHER CUSTOMERS. THIS IS OUR NEXT SUBJECT.

SLIDE 22

TOPICS TO BE COVERED

1. ASSIGNMENT OF PERSONNEL BY PRODUCT
2. MODEL FOR PROJECTING MANPOWER REQUIREMENTS
3. SUPPORT ALLOCATION AMONG CUSTOMERS
4. ARMY READINESS

SLIDE 22

LEAVE BLANK.

SLIDE 23

ARRCOM INPUT-OUTPUT TABLE

ARRCOM PRODUCT BY CUSTOMER

(MILLIONS OF DOLLARS)

BASE CASE (GAO APPROVED FMS) FY77 IN FY78 DOLLARS

AS OF 23 MAY 78

ARRCOM RESOURCE ALLOCATIONS

(MILLIONS OF DOLLARS)

	INPUTS \ OUTPUTS	WEAPONS	AMMUNITION	OTHER	INDUSTRIAL READINESS	SUPPLIES	MAINTENANCE	TOTAL BUDGET
PROCESSING SECTOR	INDUST RDNG	0	0	0	4.764	0	0	4.764
	DEFENSE AMMO	0	7.378	0	0	0	0	7.378
	MATRL MGMT	.690	0	.579	0	11.720	0	12.991
	PRODUCTION	2.620	4.930	0	0	0	0	7.550
	PROD. ASSUR.	2.902	2.081	.655	0	.947	3.087	9.171
	PROCUREMENT	2.963	3.902	0	[illegible]	3.301	0	21.992
	MAINTENANCE	2.676	1.601	1.418	0	0	14.201	19.897
	SUPPORT DIR.	5.174	11.876	7.436	1.495	7.214	1.647	30.413
	PERS SUPPORT	1.672	3.040	.504	.807	2.193	1.995	9.916
	PRODUCT	309.110	1009.200	90.830	317.370	167.290	43.010	1936.820
RESOURCE SECTOR	OMA (VARIABLE)	18.083	38.700	4.272	7.496	22.094	20.007	108.821
	MPA	1.070	1.940	.312	.443	3.366	1.709	6.321
	PAA	309.310	1009.100	90.830	271.370	0	0	1680.61
	ASF	0	0	0	0	167.290	0	167.290
	TIM	0	0	0	0	0	43.010	43.010
	2S	0	0	0	46.000	0	0	46.000
	TOTALS	329.463	2043.829	90.414	325.398	197.75	64.286	2050.05

TOTAL	2050.05
FIXED OMA	120.700
GRAND TOTAL	2170.75

ARRCOM PRODUCT BY CUSTOMER (USAREUR I, USAREUR II, SETAF)

INPUTS	USAREUR I WEAPONS	USAREUR I AMMUNITION	USAREUR I OTHER	USAREUR I INDUST RDNG.	USAREUR I SUPPLIES	USAREUR I MAINTENANCE	USAREUR II WEAPONS	USAREUR II AMMUNITION	USAREUR II OTHER	USAREUR II INDUST RDNG	USAREUR II SUPPLIES	USAREUR II MAINTENANCE	SETAF WEAPONS	SETAF AMMUNITION	SETAF OTHER	SETAF INDUST RDNG	SETAF SUPPLIES	SETAF MAINTENANCE
INDUST RDNG	0	0	0	.405	0	0	0	0	0	110	0	0	0	0	0	024	0	0
DEFENSE AMMO	0	.116	0	0	0	0	0	.742	0	0	0	0	0	.019	0	0	0	0
MATRL MGMT	.953	0	.045	0	.750	0	.040	0	.034	0	.574	0	.003	0	.003	0	.044	0
PRODUCTION	.091	.067	0	0	0	0	.069	.051	0	0	0	0	.005	.004	0	0	0	0
PROD. ASSUR.	.205	.155	.052	0	.004	.296	.157	.119	.040	0	.093	.227	.012	.009	.003	0	*	.017
PROCUREMENT	.165	.224	0	.096	.188	0	.126	.171	0	.066	.134	0	.010	.013	0	.005	.011	0
MAINTENANCE	.191	.201	.107	0	0	1.20	.146	.077	.082	0	0	.927	.011	.006	.004	0	0	.071
SUPPORT DIR.	.308	.640	.170	.126	.407	.114	.235	.511	.130	.096	.368	.087	.020	.039	.010	.007	.028	.007
PERS SUPPORT	.119	.164	.039	.058	.156	.158	.097	.130	.030	.045	.179	.121	.007	.010	.002	.003	.009	.009
PRODUCT	[illegible]	55.1	6.15	26.9	3.53	3.59	10.5	42.1	4.70	20.6	6.52	2.74	.808	3.24	.362	1.36	1.89	.211
OMA (VARIABLE)	1.07	1.60	3.99	.637	1.49	1.60	.814	1.23	.295	.497	1.14	1.20	.061	.094	.023	.017	.088	.099
MPA	.063	.095	.023	.938	.088	.099	.048	.073	.075	.029	.068	.076	.004	.008	.001	.008	.005	.004
PAA	[illegible]	[illegible]	6.19	73.0	0	0	10.5	42.1	4.70	17.6	0	0	.808	1.24	.362	1.38	0	0
ASF	0	0	0	0	3.63	0	0	0	0	0	6.52	0	0	0	0	0	.902	0
TIM	0	0	0	0	0	3.59	0	0	0	0	0	2.74	0	0	0	0	0	.211
2S	0	0	0	1.91	0	0	0	0	0	2.99	0	0	0	0	0	.230	0	0
TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	11.4	41.4	5.02	21.1	7.71	4.20	.875	3.34	.396	1.63	.930	.314

ARRCOM PRODUCT BY CUSTOMER (PACOM, FORSCOM, TRADOC)

INPUTS	PACOM WEAPONS	PACOM AMMUNITION	PACOM OTHER	PACOM INDUST RDNG	PACOM SUPPLIES	PACOM MAINTENANCE	FORSCOM WEAPONS	FORSCOM AMMUNITION	FORSCOM OTHER	FORSCOM INDUST RDNG	FORSCOM SUPPLIES	FORSCOM MAINTENANCE	TRADOC WEAPONS	TRADOC AMMUNITION	TRADOC OTHER	TRADOC INDUST RDNG	TRADOC SUPPLIES	TRADOC MAINTENANCE
INDUST RDNG	0	0	0	.071	0	0	0	0	0	4.93	0	0	0	0	0	.024	0	0
DEFENSE AMMO	0	.056	0	0	0	0	0	1.07	0	0	0	0	0	.019	0	0	0	0
MATRL MGMT	.009	0	.008	0	.232	0	.512	0	.436	0	7.78	0	.003	0	.003	0	.044	0
PRODUCTION	.016	.017	0	0	0	0	.829	.650	0	0	0	0	.005	.004	0	0	0	0
PROD. ASSUR.	.036	.027	.009	0	.001	.057	1.99	1.50	.507	0	.039	2.87	.027	.009	.003	0	*	.017
PROCUREMENT	.029	.039	0	.015	.033	0	1.60	2.77	0	.837	1.83	0	.010	.013	0	.005	.011	0
MAINTENANCE	.034	.018	.019	0	0	.222	1.85	[illegible]	1.04	0	0	11.6	.012	.006	.004	0	0	.071
SUPPORT DIR.	.054	.120	.030	.022	.005	.020	[illegible]	6.48	1.64	1.27	4.66	1.11	.018	.039	.010	.007	.028	.007
PERS SUPPORT	.021	.010	.007	.010	.027	.020	1.15	7.64	.377	.566	1.53	1.53	.007	.010	.002	.003	.009	.009
PRODUCT	1.47	4.72	[illegible]	4.76	1.51	.633	[illegible]	534	59.6	261.9	62.7	34.8	[illegible]	3.21	.367	1.59	.502	[illegible]
OMA (VARIABLE)	.198	.203	.064	.112	.261	.296	10.3	15.5	1.77	16.18	14.5	16.7	.001	.094	.021	.037	.088	.099
MPA	.017	.017	.004	.007	.016	.077	.611	.920	.221	.365	.056	.761	.004	.004	.001	.002	.005	.006
PAA	1.42	9.72	1.09	4.61	0	0	133.	534	59.6	274	0	0	[illegible]	1.74	.362	1.36	0	0
ASF	0	0	0	0	1.61	0	0	0	0	0	62.7	0	0	0	0	0	.502	0
TIM	0	0	0	0	0	.613	0	0	0	0	0	34.9	0	0	0	0	0	.211
2S	0	0	0	.690	0	0	0	0	0	37.9	0	0	0	0	0	.230	0	0
TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	.875	3.34	.396	1.63	.595	.374

ARRCOM PRODUCT BY CUSTOMER (THEATER DEF. BRIG., OTHER U.S., FOREIGN)

INPUTS	THEATER DEF. BRIG. WEAPONS	THEATER DEF. BRIG. AMMUNITION	THEATER DEF. BRIG. OTHER	THEATER DEF. BRIG. INDUST RDNG	THEATER DEF. BRIG. SUPPLIES	THEATER DEF. BRIG. MAINTENANCE	OTHER U.S. WEAPONS	OTHER U.S. AMMUNITION	OTHER U.S. OTHER	OTHER U.S. INDUST RDNG	OTHER U.S. SUPPLIES	OTHER U.S. MAINTENANCE	FOREIGN WEAPONS	FOREIGN AMMUNITION	FOREIGN OTHER	FOREIGN INDUST RDNG	FOREIGN SUPPLIES	FOREIGN MAINTENANCE
INDUST RDNG	0	0	0	.005	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEFENSE AMMO	0	.004	0	0	0	0	0	1.14	0	0	0	0	0	[illegible]	0	0	0	0
MATRL MGMT	.001	0	.001	0	.005	0	0	0	0	0	.64	0	[illegible]	0	.044	0	1.36	0
PRODUCTION	.001	.002	0	0	0	0	.672	.774	0	0	0	0	[illegible]	[illegible]	0	0	0	0
PROD. ASSUR.	.002	.002	.001	0	*	.001	.468	.154	.047	0	0	0	.023	[illegible]	0	0	0	0
PROCUREMENT	.002	.003	0	.001	.002	0	.277	.192	0	0	.344	0	.446	.877	0	0	.19	0
MAINTENANCE	.002	.001	.001	0	0	.014	[illegible]	[illegible]	.131	0	0	.069	[illegible]	[illegible]	[illegible]	0	0	[illegible]
SUPPORT DIR.	.004	.004	.002	.001	.008	.001	.696	1.76	[illegible]	0	.020	[illegible]	[illegible]	[illegible]	.162	0	.626	[illegible]
PERS SUPPORT	.001	.002	*	.001	.002	.002	.779	1.06	[illegible]	0	.127	0	0	0	0	0	0	0
PRODUCT	.162	.644	.077	.317	[illegible]	.042	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]
OMA (VARIABLE)	.011	.014	.005	.007	.018	.020	2.95	[illegible]	[illegible]	0	3.25	.261	[illegible]	4.60	.210	0	[illegible]	[illegible]
MPA	.001	.001	*	*	[illegible]	[illegible]	[illegible]	[illegible]	.020	0	.792	.015	.177	.272	.013	0	.135	[illegible]
PAA	.162	.448	.072	.271	0	0	[illegible]	210.	7.55	0	0	0	[illegible]	151	[illegible]	0	0	[illegible]
ASF	0	0	0	0	.109	0	0	0	0	0	10.1	0	0	0	0	0	[illegible]	0
TIM	0	0	0	0	0	.042	0	0	0	0	0	[illegible]	0	0	0	0	0	[illegible]
2S	0	0	0	.048	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8.06	0	[illegible]	.471	[illegible]	[illegible]	11.1	0	59.1	.706

* POMCUS stock not included

† Theater Defense Brigades are: Berlin Brigade; 172d Infantry Brigade (Alaska); 193d Infantry Brigade (Canal Zone)

* Value less than five hundred dollars

SLIDE 23

THIS SLIDE IS AN ESTIMATE OF HOW THE ARRCOM DOLLARS ARE DISTRIBUTED TO THE FIELD ARMY.

THE UPPER LEFT SIDE OF THE TABLE SHOWS THE OMA, PAA, AND ASF FUNDS DISTRIBUTED BY FUNCTIONAL DIRECTORATE, SUPPORT DIRECTORATE, PERSONNEL DIRECTORATES AND PRODUCT. THE LOWER PART OF THE LEFT-HAND TABLE SHOWS THE PROGRAM DOLLARS.

THE MIDDLE TABLE IS THE TOTAL OF ALL ARRCOM DOLLARS RECEIVED.

THE RIGHT SIDE OF THE TABLE SHOWS DISTRIBUTION OF THE PROGRAM $ TO ARMY, OTHER, AND FOREIGN CUSTOMERS.

WHAT DO THESE DOLLARS MEAN IN TERMS OF READINESS?

WE USED AR 220-1 AS A REFERENCE TO ANSWER THIS QUESTION.

SLIDE 24

EQUIPMENT READINESS CRITERIA

READINESS LEVEL	EQUIPMENT/SUPPLIES		REPORTABLE EQUIPMENT IN READY CONDITION
	KIND OF ITEM	NUMBER OF EACH ITEM	
	%	%	%
C-1 FULLY READY	≥90	≥90	90
C-2 SUBSTANTIALLY READY	≥90	≥80	80
C-3 MARGINALLY READY	≥90	≥70	70
C-4 NOT READY	<89	≤70	70

SLIDE 24

AR 220-1 ESTABLISHED 4 LEVELS OF READINESS. THIS SLIDE SHOWS THOSE LEVELS TOGETHER WITH THE CRITERIA FOR THE TWO AREAS OF ARRCOM RESPONSIBILITY. THE EQUIPMENT/SUPPLIES ON-HAND WAS APPLIED TO THE WEAPONS AND AMMUNITION.

SLIDE 25

WEAPONS (ON HAND) READINESS FOR ARMY UNITS BY PROCUREMENT BUY LEVELS

TYPE UNIT	PROCUREMENT LEVEL											
	FY77 LEVEL				PACKAGE 1				PACKAGE 4			
	REDCON				REDCON				REDCON			
	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4
	NUMBER OF UNITS											
DIVISION IN EUROPE	5				5				5			
DIVISIONS GOING TO EUROPE	8				8				8			
OTHER DIVISIONS	3				3				3			
BRIG/REGI/GROUP IN EUROPE	11				11				11			
BRIG/REGI/GROUP TO EUROPE	2				2				2			
OTHER BRIG/REGI/GROUP	3				3				3			
POMCUS	1				1				1			
DEPOT STOCKS				1				1	1			
NG DIVISIONS TO EUROPE	5				5				5			
OTHER NG DIVISIONS	4				4				4			
NG BRIG/REGI TO EUROPE	9				9				9			
OTHER NG BRIGADE/UNITS	11				11				11			
ARMY RESERVES	1				1				1			

SLIDE 25

WEAPONS ON HAND READINESS IS FAIRLY STRAIGHT-FORWARD.

THE SAMPAM DESCRIBES, FOR WEAPONS ABOVE 30MM, THE NUMBER, BY TYPE THAT WILL BE REQUIRED FOR POMCUS, COMBAT UNITS AND DEPOTS. CONTINUATION OF EITHER THE FY77 OR THE PACKAGE 1 LEVEL OF PROCUREMENT, RESULTS IN A C-1 READINESS STATUS FOR UNITS AND POMCUS WITH ONLY DEPOT STOCK REQUIREMENTS GOING UNFILLED.

THE PACKAGE 4 LEVEL OF PROCUREMENT, WHICH IS APPROXIMATELY FOUR TIMES LARGER THAN THE FY77 LEVEL, IS SUFFICIENT TO SATISFY THE DEPOT STOCK REQUIREMENTS AND THEREFORE RAISES ALL UNITS TO THE C-1 LEVEL.

THIS ASSESSMENT DOES NOT CONSIDER THE REPLACEMENT OF OLD WEAPONS WITH NEW, NOR DOES IT CONSIDER REPLACEMENT TUBES AND CANNONS FOR THESE WEAPONS. IT ONLY SAYS THAT THE WEAPON IS ON HAND.

THE NUMBERS OF UNITS SHOWN HERE AND IN NEXT FOUR SLIDES ARE NOT ACTUAL. ASSIGNMENT OF UNITS TO READINESS CATEGORIES IS FOR DEMONSTRATION PURPOSES ONLY AND WAS BASED ON HYPOTHETICAL LEVELS OF PROCUREMENT AND MATERIEL ALLOCATION.

SLIDE 26

AMMO (ON HAND) READINESS FOR ARMY UNITS BY PROCUREMENT BUY LEVEL

TYPE UNIT	PROCUREMENT LEVEL		
	FY 77 LEVEL	PACKAGE 1	PACKAGE 4
	REDCON C-1 C-2 C-3 C-4	REDCON C-1 C-2 C-3 C-4	REDCON C-1 C-2 C-3 C-4
	NUMBER OF UNITS		
DIVISION IN EUROPE	5	5	5
DIVISIONS GOING TO EUROPE	8	8	8
OTHER DIVISIONS	3	3	3
BRIG/REGI/GROUP IN EUROPE	11	11	11
BRIG/REGI/GROUP TO EUROPE	2	2	2
OTHER BRIG/REGI/GROUP	3	3	3
NG DIVISIONS TO EUROPE	5	5	5
OTHER NG DIVISIONS	4	4	4
NG BRIG/REGI TO EUROPE	9	6 3	9
OTHER NG BRIGADE/UNITS	11	11	11
ARMY RESERVES		1	1

SLIDE 26

THE AMMO READINESS WAS CALCULATED, TREATING AMMO AS A SUPPLY. USING AVAILABLE PROCUREMENT FUNDS, AMMUNITION WAS "BOUGHT" AND DISTRIBUTED TO UNITS ON A DUAL PRIORITY CRITERIA. THE FIRST CRITERIA IS AS FOLLOWS: (1) THOSE UNITS IN/GOING TO EUROPE FOR THE FIRST 30 DAYS, (2) UNITS GOING TO EUROPE AS SECOND PRIORITY, (3) ALL OTHER UNITS.

WITHIN EACH PRIORITY LEVEL, AMMUNITION WAS ALLOCATED SEQUENTIALLY, TO ONE UNIT AT A TIME. AT ANY STAGE, THAT UNIT WHICH REQUIRED THE LEAST AMOUNT OF AMMUNITION NECESSARY TO RAISE IT TO A C-1 STATUS, WAS ALLOCATED JUST ENOUGH AMMUNITION TO ACHIEVE THE 90% REQUIRED (MINIMUM) FOR A C-1 STATUS. THIS SECOND CRITERIA MAXIMIZES THE NUMBER OF UNITS THAT CAN ELEVATED TO REDCON C-1.

THIS IS IN CONTRAST TO MAXIMIZING THE MINIMUM READINESS USED IN THE ARMY AMMO BUDGET.

SLIDE 27

AS OF 23 MAY 78

WEAPON READINESS FOR ARMY UNITS DUE TO SUPPLIES

TYPE UNIT	PROCUREMENT LEVEL											
	FY77 LEVEL				PACKAGE 1				PACKAGE 4			
	REDCON				REDCON				REDCON			
	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4
	NUMBER OF UNITS											
DIVISION IN EUROPE			3	2	5				5			
DIVISIONS GOING TO EUROPE		2	6	2	4	3		1	4	3		1
OTHER DIVISIONS			3		3				3			
BRIG/REGI/GROUP IN EUROPE		1	8	2	9			2	9			2
BRIG/REGI/GROUP TO EUROPE			2		2				2			
OTHER BRIG/REGI/GROUP			3		3				3			
POMCUS	*	*	*	*	*	*	*	*	*	*	*	*
DEPOT STOCKS	*	*	*	*	*	*	*	*	*	*	*	*
NG DIVISIONS TO EUROPE			5		5				5			
OTHER NG DIVISIONS			4		4				4			
NG BRIG/REGI TO EUROPE			9		9				9			
OTHER NG BRIGADE/UNITS			11		11				11			
ARMY RESERVES	*	*	*	*	*	*	*	*	*	*	*	*

*DATA NOT AVAILABLE

SLIDE 27

23 MAY 78

TO DETERMINE WEAPON READINESS, WE TOOK THE REPORTED OPERATIONAL READINESS, THE NORS AND NORM FROM THE 1237 UNIT EQUIPMENT STATUS AND SERVICEABILITY REPORT FOR EACH DIVISION, BRIGADE, REGIMENT, AND THE NATIONAL GUARD AND DETERMINE THE REDCON CONDITION DUE TO SUPPLIES AND TO MAINTENANCE. THE 1237 REPORT DOES NOT ISOLATE RESPONSIBILITY OF NORS, THE LOGISTIC INFORMATION FILE DOES. A MONTHLY ABSTRACT FROM THE LIF REPORT WAS USED TO DETERMINE THE ARRCOM RESPONSIBILITY FOR NORS BY USING THE RATIO: NUMBER OF ARRCOM NORS OVER TOTAL NUMBER OF NORS FOR EACH ITEM. NOTICE, THE OPERATIONAL READINESS DOES NOT CHANGE WITH THE PROCUREMENT BUY. THIS IS BECAUSE MM INDICATED THAT THEIR ABILITY TO SPEND THE ASF STOCK FUND WAS NOT RELATED TO THE DOLLAR VALUE OF THE STOCK FUND AND THAT THEY COULD SUPPORT THE STOCK FUND IN THE SAME FASHION AS IN FY77.

SLIDE 28

AS OF 23 MAY 78

WEAPON READINESS FOR ARMY UNITS DUE TO MAINTENANCE

TYPE UNIT	PROCUREMENT LEVEL											
	FY 77 LEVEL				PACKAGE 1				PACKAGE 4			
	REDCON				REDCON				REDCON			
	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4
	NUMBER OF UNITS											
DIVISION IN EUROPE	5				5				5			
DIVISIONS GOING TO EUROPE	8				8				8			
OTHER DIVISIONS	3				3				3			
BRIG/REGI/GROUP IN EUROPE	11				11				11			
BRIG/REGI/GROUP TO EUROPE	2				2				2			
OTHER BRIG/REGI/GROUP	3				3				3			
POMCUS	1				1				1			
DEPOT STOCKS	1				1				1			
NG DIVISIONS TO EUROPE	5				5				5			
OTHER NG DIVISIONS	4				4				4			
NG BRIG/REGI TO EUROPE	9				9				9			
OTHER NG BRIGADE/UNITS	11				11				11			
ARMY RESERVES	1				1				1			

SLIDE 28 23 MAY 78

DRSAR-MA ESTIMATED THAT ABOUT 10% OF THE NORM ON ARRCOM EQUIPMENT CAN BE ATTRIBUTED TO PROBLEMS AMENABLE TO SOLUTION BY THIS COMMAND. WITH NORM RUNNING ABOUT 5%, THE PORTION OF NORM THAT MAY BE CAUSED BY ARRCOM IS 1/2%. THE ESTIMATED READINESS DUE TO THIS NORM IS SHOWN HERE. IN MY DISCUSSIONS WITH MA, THEY SUGGEST OTHER WAYS OF MEASURING THE EFFECTIVENESS OF MA. SUCH AS THE EIR REPORTS AND THE DIRECT COMMUNICATION BETWEEN MA AND THE FIELD. HOWEVER, AS OF THIS TIME, NO RELATIONSHIP HAS BEEN ESTABLISHED BETWEEN THESE INDICATORS AND THE READINESS OF THE FIELD ARMY.

SLIDE 25

TOTAL READINESS FOR ARMY UNITS BY PROCUREMENT BUY LEVEL

TYPE UNIT	PROCUREMENT LEVEL											
	FY77 LEVEL				PACKAGE 1				PACKAGE 4			
	REDCON				REDCON				REDCON			
	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4	C-1	C-2	C-3	C-4
	NUMBER OF UNITS											
DIVISION IN EUROPE				5	5				5			
DIVISIONS GOING TO EUROPE				8	4	3		1	4	3		1
OTHER DIVISIONS				3				3	3			
BRIG/REGI/GROUP IN EUROPE				11	9			2	9			2
BRIG/REGI/GROUP TO EUROPE				2	2				2			
OTHER BRIG/REGI/GROUP				3				3	3			
POMCUS				1	1*				1*			
DEPOT STOCKS				1	1*				1*			
NG DIVISIONS TO EUROPE				5	5				5			
OTHER NG DIVISIONS				4				4	4			
NG BRIG/REGI TO EUROPE				9	6			3	9			
OTHER NG BRIGADE/UNITS				11				11	11			
ARMY RESERVES				1				1	1			

*EXCLUDES OPERATIONAL READINESS FOR WEAPONS

SLIDE 29 23 MAY 78

THIS LAST SLIDE SHOWS THE READINESS OF THE FIELD ARMY WHEN THE LOWEST REDCON IS THE OVERALL REDCON.

ARE THERE ANY QUESTIONS?

BLANK

ANNEX B

ALTERNATIVE ALLOCATIONS OF PERSONNEL (FY81)

ORGANIZATION		CEP	MODEL ESTIMATE	UNIFORM % ADJUSTMENT	CHANGE FROM CEP	ADJUSTED PROGRAM	CHANGE FROM CEP
FUNCTIONAL							
1	MA	698	895	827	129	786	88
2	MM	487	517	478	(9)	516	29
3	PC	507	493	456	(51)	435	(72)
4	PD	307	264	244	(63)	235	(72)
5	QA	290	344	318	28	306	16
6	DA	194	226	209	15	222	28
7	IR	161	210	194	33	204	43
SUPPORT							
8	CP	357	383	354	(3)	358	1
* 9	MS	336	323	299	(37)	299	(37)
10	LE	232	246	227	(5)	242	10
*11	IL	96	132	122	26	122	26
*12	AS	90	83	77	(13)	77	(13)
*13	OP	22	17	16	(6)	16	(6)
14	TM	47	47	43	(4)	45	(2)
15	GC	35	42	39	4	40	5
*PERSONNEL							
16-30		359	341	315	(44)	315	(44)
TOTAL		4218	4563	4218		4218	

*PREVIOUSLY CONSTANT - NOW ALL DIRECTORATES ARE VARIABLE.

NOTE: COLUMNS MAY NOT TOTAL DUE TO ROUNDING.

THIS ALLOCATION IS PRESENTED AS A VARIATION OF SLIDE 12.

THE UNIFORM PERCENTAGE ADJUSTMENT PRESENTED IN THIS SLIDE DIFFERS FROM SLIDE 12 IN THAT ORGANIZATIONS16 THRU 30 ARE TREATED AS VARIABLE. THE RATIO (4218 ÷ 4563) = .9244 IS MULTIPLIED BY THE MODEL ESTIMATE FOR EACH ORGANIZATION AND SERVES TO DISTRIBUTE REDUCTIONS/INCREASES THROUGHOUT HQ ELEMENTS BASED ON REQUIREMENTS - NOT AN EXISTING DISTRIBUTION.

THE ADJUSTED PROGRAM SHOWN HERE DIFFERS FROM SLIDE 12 IN THAT ORGANIZATIONS 9, 11, 12, AND 13 WHICH ARE PRIMARILY FIXED LABOR TYPE ORGANIZATIONS - (I.E., DO NOT VARY SIGNIFICANTLY WITH CHANGES IN PROGRAMS) AS WELL AS ORGANIZATIONS 16-30, ARE TREATED AS VARIABLE. THESE ORGANIZATIONS ARE ALLOCATED A PROPORTIONAL SHARE OF THE INCREASE/ DECREASE JUST BEFORE APPLYING THE PROCEDURE OF CHANGING DRIVER PROGRAMS UNTIL THE RESULTING ESTIMATE OF PERSONNEL REQUIREMENTS EQUALS THE CEP. IN THIS CASE, IT WAS NECESSARY TO REDUCE ALL DRIVER PROGRAMS BY APPROXIMATELY 12 PERCENT IN ORDER TO ACHIEVE A MODEL ESTIMATE EQUAL TO THE IMPOSED CEP OF 4218. AGAIN, THE DISTRIBUTION RELIES ON DRIVER PROGRAMS.

COMPARISON OF EXECUTABLE PROGRAMS
BY PRODUCT, FY81

PROGRAMS $(M)	PRODUCTS							PERSONNEL
	WEAPONS	AMMUNITION	OTHER	INDUSTRIAL READINESS	SUPPLIES	MAINTENANCE	TOTAL	
REQUIRED	356	1217	91	353	168	44	2229	4563
REDUCED	316	1076	80	312	148	39	1971	4218

THE REDUCED PROGRAMS SHOWN ON THIS SLIDE ESTIMATE THE LEVEL OF SPENDING WHICH THE COMMAND SHOULD BE EXPECTED TO PERFORM WHEN PERSONNEL RESOURCES ARE REDUCED BY 7.6 PERCENT FROM THE REQUIRED LEVEL (ASSUMING ADOPTION OF THE ANNEX B VARIATION). AS BEFORE THE EFFECT ON PROGRAMS FOR THE UNIFORM PERCENTAGE DISTRIBUTION CANNOT BE DETERMINED BY THIS METHODOLOGY.

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