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SECTION 5: COMPARATIVE ROK-NKA LAND FORCE EFFECTIVENESS

5.1 General

Historical and war game analyses above give a general view of comparative ROK-NKA capabilities, but are not very useful for specific force structure oriented decisions. To furnish a general rationale for a ROK Land Force improvement program, it was necessary to examine the opposing armies in more detail.

There are other insights to be gained from looking more closely at the NKA and ROKA force structures: (1) Our knowledge of the detailed NKA capabilities, equipment densities and unit readiness is very limited - almost all estimates of NKA equipment strengths are based on their desired organizational equipment objectives (TOE) rather than concrete evidence of actual equipment on hand; (2) From what limited information is available, it is clear that the strengths of the basic land force unit, the division, are quite different - the NKA division has a strength of 9,200, the ROK division a strength of 13,200, and the distribution of forces between combat and support is dissimilar - the average ROK combat troop is backed up by twice as many support forces as an NKA soldier.

On the basis of more detailed comparisons, it is possible to say that the ROK active combat forces could be reduced to about 10 divisions and still match the North Korean forces, if: (1) the present artillery and tank strength was retained, (2) additional mortars (4.2 inch) were obtained by the ROKA, and (3) adequate support and logistics were available. To defend adequately against the CCA/NKA all out invasion, about 23 divisions could be needed.

5.2 Enemy Strengths: NKA and CPE

Our knowledge of North Korean and Chinese ground combat capabilities is severely limited. This is partly because special restrictions in North Korea make collection of intelligence more difficult and dangerous than normal. In-country travel controls imposed on visitors are stringent. Internal security personnel posing as guides and interpreters restrict visitor movement and activity. Visitors generally are exposed only to show-places selected for guided tours. These measures effectively hinder personal contacts and observation/photographic missions. Censorship is widely practiced. To correct the general paucity of intelligence on North Korea, the USIB directed that additional attention be focused on this problem by the intelligence community on North Korea.

At present, estimates of the NKA ground forces are based to a considerable extent on documents describing how the NKA intends to organize and equip its forces (TOEs), rather than on evidence indicating current equipment and readiness levels. These current NKA capabilities, sub-divided into 11 general and 31 specific categories, are shown in Table 5-1 on the next page. Not all

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TOTAL 201

TOTALS	16-3		5	1	3	16 82/	3	5	3	4	1	88 82/
	TOTAL	Inf Divs										
Total Personnel Strength	419,000	126,081	41,575	1,931	24,048	9,823	10,521	6,414	4,727	4,556	1,074	63,686
Manpower	112,358	82,078	24,206	1,351	0	0	0	0	2,203	4,556	1,074	0
Artillery	66,591	21,680	9,631	227	0	9,823	7,800	6,414	1,112	0	0	0
Army Spc	28,041	0	0	0	24,048	0	0	0	0	0	0	0
Inf Spc	28,216	48,089 1/2	11,645 1/2	353 1/2	0	0	0	0	0	0	0	0
Gen Spc	63,666	0	0	0	0	0	2,721	0	4,412	0	0	63,666
Individual Weapons	268,307	169,490	59,687	1,789	20,381	9,823	10,521	6,414	4,619	4,556	1,074	0
Rifles	22,699	20,081	4,312	183	3,342	1,139	1,139	810	771	288	187	0
SMG (45-47)	22,182	0	0	770	9,732	1,534	2,727	1,752	1,692	1,568	127	0
	213,508	149,407	35,125	856	7,397	4,950	6,679	3,852	2,156	2,400	606	0
Mach Gun	2,171	7,095	1,815	126	0	0	0	0	117	0	0	0
Light 752	7,071	5,754	1,530	89	0	0	0	0	30	0	0	0
Heavy 752	1,998	1,559	495	27	0	0	0	0	27	0	0	0
Mortars	3,175	2,365	675	33	0	0	0	0	96	36	0	0
60-82	1,899	1,359	445	21	0	0	0	0	0	18	0	0
107-160	1,320	1,006	310	12	0	0	0	0	0	18	0	0
160	96	0	0	0	0	0	0	0	96	0	0	0
Recof/Recoilless Rifles	7,350	5,613	1,485	6	0	0	0	0	0	0	0	0
37-50mm	0	0	0	0	0	0	0	0	0	0	0	0
107-160mm	0	0	0	0	0	0	0	0	0	0	0	0
Greater than 160	480	312	90	0	0	0	0	0	0	0	0	0
75-82-97-107	6,870	5,301	1,395	99	0	0	0	0	0	0	0	0
Tanks/Assault Guns	1,120	627	60	0	0	0	0	0	99	272	68	0
Light Tank (41)	12	12	0	0	0	0	0	0	0	0	0	0
Medium 75-100mm	310	310	0	0	0	0	0	0	31	366	3	0
Heavy 122	86	86	0	0	0	0	0	0	21	0	65	0
Assault Gun SU 76/100/122	420 3/4	399	60	0	0	0	0	0	21	0	0	0
AT Gun 76.2mm	288	288	0	0	0	0	0	0	0	0	0	0
Armored Vehicles	24	0	0	0	0	0	0	0	9	12	3	0
Car	24	0	0	0	0	0	0	0	9	12	3	0
APC	0	0	0	0	0	0	0	0	0	0	0	0
Trucks	21,526	8,482	1,770	27	2,021	343	816	399	268	216	54	0
31/2	1,829	893	225	1	77	16	0	23	24	32	8	0
Trucks 2/	13,977	7,589	1,545	26	2,124	327	816	396	244	184	46	0
5/	0	0	0	0	0	0	0	0	0	0	0	0
Medium	16,027	11,338	2,380	56	513	624	360	70	300	75	12	0
Med Veh	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle	0	0	0	0	0	0	0	0	0	0	0	0
Field Artillery	1,818	1,006	30	6	0	376	0	96	24	0	0	0
76-105mm	1,243 10/	970	30	6	0	376	0	96	24	0	0	0
122mm	576	496	0	0	0	0	0	0	0	0	0	0
AAA	2,726	1,107	315	13	0	340	516	9	23	24	6	0
12.4-20mm	1,136	899	283	13	0	0	0	0	12	21	0	0
37-75mm	360	342	30	0	0	328	324	0	0	0	0	0
81-100mm	230	0	0	0	0	12	190	0	0	0	0	0

1/ Reflects Corps Spc units in Army no longer has corps echelon.  
 2/ Shows 15 Arty Bns as opposed to 20 in study which shows 11.  
 3/ A specific category added because this is a significant number of weapons worth showing in separate column.  
 4/ A specific category added since it shows a specific type weapon in its organization.  
 5/ Three specific GND categories combined into one.  
 6/ Unable to find categorical information on numbers of suspect US Panicles weapons.  
 7/ Includes HQ and Command and Control Personnel.  
 8/ Consists of Army Schools, Training Centers, Gen Staff Agencies and Units and Supply depots.  
 9/ Heavy Gun (21) found in each division. Assault Gun Bn.  
 10/ Includes LNV 75.2mm gun in Arty role.  
 11/ There is some question that the 120mm AT is actually in the Inf Div.  
 12/ Appreciable change here is due to reclassifying all 76.2mm 120's to the Field Artillery category.  
 13/ References: DIA OS Manual dated 1 May 68  
 14 UNCLASSIFIED Open Report 1471 Dated Feb 1961 and 11 March 68  
 150 24 89-90 2-2 USA STRIKE Seoul, Korea.

17th Recon	Personnel	Inf Divs	Inf Bns	Mortars	Trks/Trls	Med/Art	Arms of Div	Trks	Inf Div	Field Arty	AAA
Brigade 1/	TOTAL	8,283 1/2	0,383	701	75	225	0	0	20	0	0
						All 820-2's					

1/ Included in GND/Units in overall strength.  
 2/ All other totals are in addition to those shown in first chart.  
 3/ 17th Recon Bde has parachute capability.

DECLASSIFIED AT 12 YEAR  
INTERVAL, NOT AUTOMATICALLY  
DECLASSIFIED. See OIA 5525.10

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of this equipment, if it exists, would be combat ready. If ROK standards are representative of NKA abilities, we could expect at least 15% of the NKA vehicles and weapons to be non-available for operations due to maintenance.

During a period of crisis, the NKA forces could be augmented by CCA units -- combat or combat support. The intelligence community has generally put the number of CCA units that might be available at 34 divisions, this being approximately equal to the maximum CCA force commitment during the Korean War. Estimates of route capacity using even the smaller parameters indicate adequate supplies could be moved to the DMZ area for up to 50 NKA/CCA divisions fighting at the Korean War rates. The terrain will also accommodate this size force, provided less than two-thirds of the divisions are on line at any one time.

### 5.3 ROK Strengths

Information on the readiness and equipment strengths of ROK units is also limited. TOE data are available for the combat units and 140,000 of the support troops, but evidence on how the remaining 123,600 general support forces are organized and on the status and readiness of non-combat reserve forces is very limited. Working from KMAAG reports of equipment densities and recent TOEs, the ROK equipment strengths have been estimated by category: See Table 5-2 on page 69.

Alternative force levels were also estimated: the basic data are indicated in Table 5-3, page 70. In developing these projections, it was assumed that the ROK marine forces would be maintained at a strength of one division, that existing corps artillery and general support forces would not be reduced appreciably, and that no allowance would be made for additional support forces. Changes in the support structure will be discussed more fully in paragraph 5.5 and in Section 8.

### 5.4 Force Comparisons

Straightforward NKA-ROK strength comparisons indicate that the ROKs are stronger in most areas (see Table 5-4, page 71). However, these numerical comparisons can be misleading due to significant differences in weapon characteristics and total systems effectiveness. Differences in small arms, mortars, and artillery weapon characteristics are discussed below in Section 6. With respect to total systems effectiveness, two points are pertinent: (1) The NKA on average has deployed 50% or less of its force at any one time (see Section 3 above), whereas the ROKs could sustain a deployment of 65% of its force; (2) The NKA supplies its forces only about 50-70% the ammunition the ROKs could expect to have (See Sections 3 and 4 above, and 7 below). Combining weapon and systems factors, the following indices were developed:

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TABLE 5-2  
SOUTH KOREAN LAND FORCES (ARMY AND MARINE CORPS) 1.2.1/

	Totals	19 Infantry Divisions	1 Marine Division	1 Marine Brigade	16 Field Artillery <sup>10/</sup> Battalions	10 Tank Battalions	AA Artillery <sup>11/</sup> Units	Independent <sup>12/</sup> Combat Units	Support <sup>13/</sup> Units	Other Units <sup>14/</sup> and Support
<b>Total strength</b>	566,900	250,324	15,839 <sup>5/</sup>	4,355 <sup>6/</sup>	10,736	6,770	5,305	695	174,313	138,563
Maneuver Units	162,913	138,429	8,714	2,305	0	6,770	0	695	0	6,608
Artillery Units	63,369	43,898	2,199	800	9,578	0	4,938	0	0	1,274
Division Support	76,173	67,997	4,286	1,450	0	0	0	0	0	2,600
Corps Support	140,862	0	0	0	1,178	0	367	0	134,313	5,344
General Support <sup>7/</sup>	123,563	0	0	0	0	0	0	0	0	123,563
<b>Individual Weapons Total</b>	192,614	230,563	15,839 <sup>7/</sup>	4,502	10,515	6,650	4,904	1,037	110,174	ok
Pistols	18,316	9,810	735	496	57	3,370	58	402	1,138	ok
Carabines/Rifles	351,822	234,024	15,033	3,791	9,649	1,150	4,558	635	86,732	ok
50 cal.	30,496	5,130	103	15	323	2,090	288	0	22,264	ok
<b>Machine Guns Total</b>	10,301	7,239	285	139	463	120	162	18	1,634	ok
Med. 7.62mm	6,356	4,769	425	118	182	120	18	18	724	ok
Inv. .50 cal.	3,945	2,470	101	21	281	0	162	0	910	ok
<b>Mortars Total</b>	3,446	3,192	177	59	0	0	0	18	0	ok
Light 60-81mm	2,928	2,736	153	51	0	0	0	18	0	ok
Med. 107-120mm	488	456	24	8	0	0	0	0	0	ok
<b>Rockets/Recoilless</b>										
Rifles Total	8,203	6,137	323	53	348	0	104	19	1,219	ok
37-90mm	7,506	5,949	269	38	348	0	104	19	1,219	ok
105-110mm	297	285	34	15	0	0	0	0	0	ok
Greater than 110mm	0	0	0	0	0	0	0	0	0	ok
<b>Tanks Total</b>	713	0	53	0	0	660	0	0	0	ok
Light 76mm	0	0	0	0	0	660 <sup>15/</sup>	0	0	0	ok
Med. 90-156mm	713	0	53	0	0	0	0	0	0	ok
<b>Armored Vehicles Total</b>	6	0	0	0	0	6	0	0	0	ok
Personnel	6	0	0	0	0	6	0	0	0	ok
<b>Trucks Total</b>	35,059	16,587	1,344	209	1,215	392	483	66	14,763	ok
1/4 ton	7,773	4,655	42	91	132	156	111	27	2,068	ok
3/4-1 ton	7,926	4,978	336	49	322	18	128	20	2,077	ok
1 1/2-2 1/2 ton	17,931	6,498	453	59	342	242	221	9	10,097	ok
Greater than 2 1/2 ton	1,399	456	44	0	352 <sup>11/</sup>	0	23	0	921	ok
<b>Roddes Total</b>	12,437	14,402	1,704	342	536	309	185	81	878	ok
Muspack	12,092	10,355	1,034	275	96	0	2	14	284	ok
Veh. Mtd.	6,345	4,047	670	67	440	309	183	35	594	ok
<b>Field Artillery Total</b>	1,704	1,268	72	18	246	0	0	0	0	ok
Light 76-105mm	1,098	1,026	54	18	0	0	0	0	0	ok
Med. 122-152mm	584	342	188 <sup>8/</sup>	0	174	0	0	0	0	ok
Wvy. 175/8"	72	0	0	0	72	0	0	0	0	ok
<b>AA Artillery Total</b>	80	0	0	0	0	0	80	0	0	ok
Light 12.4-20mm	0	0	0	0	0	0	0	0	0	ok
Med. 37-57mm	80	0	0	0	0	0	80	0	0	ok
Wvy. 85mm	0	0	0	0	0	0	0	0	0	ok
<b>AA Launchers Total</b>	84	0	0	0	0	0	84	0	0	ok
HIVE Launchers	35	0	0	0	0	0	35	0	0	ok
HAWK Launchers	48	0	0	0	0	0	48	0	0	ok

1/ Data for Infantry Divisions come from South Korean TUEs. All other data from OCMRAC MAP Program for South Korea, dated August 1967.

2/ All strength figures are for TUE reduced or MAP authorized levels, with the exception of two Army infantry divisions, the Marine division, and the Marine brigade which are at full strength.

3/ All equipment data is at TUE reduced or MAP authorized levels. (Unprogressed undelivered balances have been noted where significant.)

4/ Of the total strength, 536,000 is Army, of which 47,267 are in Vietnam, and 30,900 is the Marine Corps, of which 6,236 are presently in Vietnam.

5/ Consists of 28 District Command and Security Units (11,021), Army School and 98 M.S.C. Units (14,050), cadre manning of 3 Ready Reserve (7,500) and 7 Rear Area Security Divisions (11,420), 5 Marine Corps Bataillons (497), 2 Marine Corps Bases (2,302) and the Marine Corps Reserve Training Command (609). The balance for the Army (69,335) and for the Marine Corps (6,499) is what the US Command Military Strength Report describes as non-organizational, and it includes trainees, pipeline, patients, prisoners, students and unallocated spaces.

6/ The total strength figure is accurate. The breakout of maneuver, artillery and division support strength has been estimated by analogy to the Army division.

7/ Authorized number of pistols is 3,120 and the authorized number of rifles is 24,871. Assuming there is an error in the MAP data, these figures have been arbitrarily reduced so that the total for individual weapons equals total strength.

8/ All 48 152mm Howitzers are undelivered and unprogressed as of August, 1967.

9/ Figures for maneuver, artillery and division support strength estimated by rough analogy to infantry division.

10/ Consists of 30 152mm Battalions and six 8" Battalions plus support units.

11/ Of the 335 trucks, 38 will be on hand at End FY 1969 and 30 at End FY 1973. The balance is unprogressed.

12/ Of the 660 tanks, 90 are an unprogressed undelivered balance.

13/ Consists of 1 MORG Battalion, 2 HAWK Battalions, and an AA Artillery Brigade.

14/ Consists of a Special Forces Group and 3 Anti-tank (M) Platoons and their support. Large percentage of Special Forces Group equipped with both pistols and rifles.

15/ Consists of 11 Army Headquarters Units, 38 MP Units, the Marine Corps Headquarters, 10 Engineer Group Headquarters, 31 Engineer Combat Units, 22 Chemical Units, 103 Engineer Units, 96 Medical Units, 119 Ordnance Units, 56 Quarter Master Units, 29 Signal Units, 83 Transport Units, a Loudspeaker and Leaflet Company, and a Boat Transport Company.

16/ Consists of 15,000 MATRILAs, the strength distribution of which has been estimated, in addition to units described in footnote 5.

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TABLE 5-3  
ALTERNATE FORCE STRUCTURES OF SOUTH KOREAN LAND FORCES (ARMY AND MARINE CORPS) <sup>1/</sup>

	14 Divisions Force			16 Divisions Force			18 Divisions Force			20 Divisions	
	2/ Combat Units	3/ Non-Divisional Support Units	4/ Totals	5/ Combat Units	3/ Non-Divisional Support Units	4/ Totals	5/ Combat Units	3/ Non-Divisional Support Units	4/ Totals	5/ Combat Units	Non-Division Support Units
Total Strength	214,975	134 (204)	418,975	241,325	134 (211)	452,325	267,675	134 (230)	497,675	294,025	134 (239)
Maneuver Units	113,202	0	113,202	127,774	0	127,774	142,346	0	142,346	156,918	0
Artillery Units	48,145	0	48,145	52,765	0	52,765	57,385	0	57,385	62,305	0
Division Support	52,103	0	52,103	59,261	0	59,261	66,419	0	66,419	73,377	0
Corps Support	1,525	134 (204)	205,525	1,525	134 (211)	212,525	1,525	134 (230)	231,525	1,525	134 (239)
General Support	0	0	0	0	0	0	0	0	0	0	0
Individual Weapons Total	205,978	110,174	317,152	232,132	110,174	342,306	257,286	110,174	367,460	282,440	110,174
Pistols	7,972	1,138	9,110	8,374	1,138	9,512	8,776	1,138	9,914	9,178	1,138
Carbines/Rifles	192,412	86,752	279,164	216,624	86,752	303,376	240,836	86,752	327,588	265,048	86,752
SMG .50 Cal.	6,594	22,284	28,878	7,134	22,284	29,418	7,674	22,284	29,958	8,214	22,284
Machine Guns Total	6,381	1,634	8,015	7,143	1,634	8,777	7,905	1,634	9,539	8,667	1,634
Med. 7.62mm	4,126	724	4,850	4,628	724	5,352	5,130	724	5,854	5,632	724
Rvy. .50 Cal.	2,255	910	3,165	2,515	910	3,425	2,775	910	3,685	3,035	910
Mortars Total	2,438	0	2,438	2,774	0	2,774	3,110	0	3,110	3,446	0
Light 60-81mm	2,094	0	2,094	2,382	0	2,382	2,670	0	2,670	2,958	0
Med. 107-120mm	344	0	344	392	0	392	440	0	440	488	0
Rockets/Recoilless Rifles	5,046	1,219	6,265	5,692	1,219	6,911	6,338	1,219	7,557	6,984	1,219
37-90mm	4,821	1,219	6,040	5,443	1,219	6,662	6,065	1,219	7,284	6,687	1,219
105-110mm	225	0	225	249	0	249	273	0	273	297	0
Tanks Total	713	0	713	713	0	713	713	0	713	713	0
Light 76mm	0	0	0	0	0	0	0	0	0	0	0
Med. 90-106mm	713	0	713	713	0	713	713	0	713	713	0
Armored Veh. Total (Personel)	6	0	6	6	0	6	6	0	6	6	0
Field Artillery Total	1,272	0	1,272	1,416	0	1,416	1,560	0	1,560	1,704	0
Light 76-105mm	774	0	774	882	0	882	990	0	990	1,098	0
Med. 122-155mm	426	0	426	462	0	462	498	0	498	534	0
Rvy. 175mm/8"	72	0	72	72	0	72	72	0	72	72	0
AA Artillery Total	80	0	80	80	0	80	80	0	80	80	0
Light 12.4-20mm	0	0	0	0	0	0	0	0	0	0	0
Med. 37-57mm	80	0	80	80	0	80	80	0	80	80	0
Rvy. 85mm	0	0	0	0	0	0	0	0	0	0	0
AA Launchers Total	84	0	84	84	0	84	84	0	84	84	0
NIKE Launchers	36	0	36	36	0	36	36	0	36	36	0
HAWK Launchers	48	0	48	48	0	48	48	0	48	48	0

<sup>1/</sup> Data based on table South Korean Land Forces (Army and Marine Corps for 20 divisions; 19 Infantry Divisions and 1 Marine Division).

<sup>2/</sup> Consists of 13 Infantry Divisions, 1 Marine Division, 1 Marine Brigade, 16 Field Artillery Battalions, 10 Tank Battalions, 1 NIKE Battalion, 2 HAWK Battalions, 1 AA Artillery Battalion, and Independent units.

<sup>3/</sup> All strengths are in thousands. Bracketed figures represent required support. (Compared to TOE reduced levels for 20 divisions.)

<sup>4/</sup> Totals do not include 15,000 KATSBAs for which TOEs are unknown.

<sup>5/</sup> All units in addition to units described in footnote 2 are infantry divisions.

23 Divisions Force				30 Divisions Force		
<sup>4/</sup> Totals	<sup>5/</sup> Combat Units	<sup>3/</sup> Non-Divisional Support Units	<sup>4/</sup> Totals	<sup>5/</sup> Combat Units	<sup>3/</sup> Non-Divisional Support Units	<sup>4/</sup> Totals
533,025	333,550	134 (258)	591,550	425,775	134 (282)	707,775
156,918	178,776	0	178,776	229,778	0	229,778
62,005	68,935	0	68,935	85,105	0	85,105
73,577	84,314	0	84,314	109,367	0	109,367
240,525	1,525		259,525	1,525	134 (282)	283,525
392,614	320,171	110,174	430,345	408,210	110,174	518,384
10,316	9,781	1,138	10,919	11,188	1,138	12,326
351,800	301,366	86,752	388,118	386,108	86,752	472,860
30,498	9,024	22,284	31,308	10,914	22,284	33,198
10,301	9,810	1,634	11,444	12,477	1,634	14,111
6,356	6,385	724	7,109	8,142	724	8,866
3,915	3,425	910	4,335	4,335	910	5,245
3,446	3,950	0	3,950	5,126	0	5,126
2,958	3,390	0	3,390	4,398	0	4,398
488	560	0	560	728	0	728
8,203	7,953	1,219	9,172	10,214	1,219	11,433
7,906	7,620	1,219	8,839	9,797	1,219	11,016
297	333	0	333	417	0	417
713	713	0	713	713	0	713
0	0	0	0	0	0	0
713	713	0	713	713	0	713
6	6	0	6	6	0	6
1,704	1,920	0	1,920	2,424	0	2,424
1,098	1,260	0	1,260	1,638	0	1,638
534	588	0	588	714	0	714
72	72	0	72	72	0	72
80	80	0	80	80	0	80
0	0	0	0	0	0	0
80	80	0	80	80	0	80
0	0	0	0	0	0	0
84	84	0	84	84	0	84
36	36	0	36	36	0	36
48	48	0	48	48	0	48

Combat Units.

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 TABLE 3-  
 FORCE COMPARISONS: KOREAN THEATRE

	US 8 Division Forces	US 2 Division Forces	ROK: 3 Ready Reserve Divisions Plus Augment to Full Strength Inf. Div.	ROK 20 Division Forces	DRK 25 Division Forces	CPR 34 Division Forces	ROK/DRK	ROK + 3 DRK + CPR	ROK + 3 + 2 US DRK + CPR	ROK + 3 + 1/2 8 US DRK + CPR	ROK + 3 + 3/4 8 US DRK + CPR
<b>Total Strength</b>	398,012	52,381	53,540	566,900	345,000	650,216	1.64	.62	.68	.82	.98
Maneuver	77,989	12,004	33,059	162,913	117,248	246,160	1.39	.54	.57	.65	.70
Artillery	58,355	8,508	7,010	63,869	75,031	148,342	.83	.31	.47	.44	.51
Division Support	176,293	7,228	13,471	76,173	46,498	148,308	1.64	.46	.46	.31	1.14
Corps Support	85,334	18,245	0	140,982	40,800	107,406	3.45	.95	1.07	1.24	1.38
General Support	0	6,000	0	123,563	64,415	0	1.92	1.92	2.01	1.92	1.92
<b>Individual Weapons Total</b>	407,222	60,434	17,731	392,614	265,367	579,496	1.47	.51	.58	.75	.87
Pistols	57,039	9,146	603	10,316	34,112	123,386	.30	.07	.13	.25	.34
Rifles	346,555	50,715	36,318	351,800	102,919	321,878	3.42	.91	1.03	1.32	1.52
SMG	3,628	573	810	30,498	129,336	134,232	0.24	.12	.12	.13	.13
<b>Machine Guns Total</b>	15,774	3,408	1,143	10,301	9,381	17,068	1.10	.43	.56	.73	.88
Light	12,040	2,133	753	6,355	7,383	16,932	.86	.29	.38	.54	.66
Heavy	5,534	1,275	390	3,945	1,998	136	1.97	2.03	2.91	3.33	3.98
<b>Mortars Total</b>	1,085	212	504	3,446	3,405	4,182	1.01	.52	.55	.59	.63
60-80mm	567	126	432	2,953	1,989	2,856	1.49	.70	.73	.76	.79
107-120mm	318	86	72	488	1,320	918	.37	.25	.29	.36	.42
160mm	0	0	0	0	96	408	0/96	0/504	0/504	0/504	0/504
<b>Rockets/Recoilless Rifles Total</b>	5,522	900	969	8,203	1,371	5,508	1.98	1.33	1.46	1.73	1.94
37-90mm	4,778	746	933	7,906	1,323	4,350	1.98	1.39	1.62	1.90	2.16
105-110mm	490	104	36	297	0	918	297/0	.36	.48	.63	.76
Greater than 110mm	254	50	0	0	48	0	0/48	0/48	1.04	2.65	3.96
<b>Tanks/Assault Guns Total</b>	1,398	216	0	713	847	1,496	.84	.30	.40	.60	.75
75-76mm	216	54	0	0	411	204	0/411	0/612	.09	.18	.26
85-106mm	1,020	162	0	713	350	1,292	2.04	.43	.53	.74	.90
120mm	162	0	0	0	86	0	0/86	0/86	0/86	0/86	1.41
<b>Armored Vehicles Total</b>	2,195	529	0	6	9	306	.67	.02	1.70	3.50	5.24
<b>Trucks Total</b>	78,898	11,119	2,619	35,059	10,059	35,122	1.49	.83	1.08	1.71	2.14
1/4 Ton (Jeeps)	22,090	3,308	735	7,773	501	1,802	15.31	3.69	5.14	8.49	10.89
3/4 - 1 Ton	17,188	2,483	786	7,956	0	680	uk	uk	uk	uk	uk
1-1/2 - 2-1/2 Ton	28,880	3,944	1,026	17,931	0	0	uk	uk	uk	uk	uk
Greater than 2-1/2 Ton	10,800	1,364	72	1,399	0	32,640	uk	uk	uk	uk	uk
<b>Radios Total</b>	46,178	7,537	2,274	18,437	9,822	15,572	1.87	.82	1.11	1.72	2.18
Manpack	36,555	1,791	1,635	12,092	uk	13,600	uk	uk	uk	uk	uk
Veh. Mtd.	9,223	5,746	639	6,345	uk	1,972	uk	uk	uk	uk	uk
<b>Field Artillery Total</b>	1,304	188	216	1,704	1,914	2,040	.89	.49	.53	.65	.73
75-109mm	370	108	162	1,098	1,038	408	1.06	.87	.95	1.00	1.07
122-155mm	630	36	54	534	876	1,632	.61	.23	.25	.36	.42
175mm/8"	296	44	0	72	0	0	72/0	72/0	116/0	220/0	294/0
<b>AA Artillery Total</b>	256	48	0	80	1,667	1,768	.05	.02	.04	.06	.08
12-7-20mm	256	48	0	0	465	952	0/465	0/1418	.03	.09	.14
37-57mm	0	0	0	80	961	714	.08	.05	.05	.07	.05
60mm	0	0	0	0	240	102	0/240	0/342	0/342	0/342	0/342

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TABLE 5-5

INDICES OF EFFECTIVENESS  
(Ratio of ROK to NKA Weapons)

Rifles	1.82
Machine Guns	1.50
Recoilless Rifles	1.36
Mortars	1.36
Artillery	1.36
Tanks	1.36
Trucks	1.39
Radioes	1.00

The above factors were designed for use in comparing total strengths, and include allowances for maintenance, supply, and doctrinal constraints. To illustrate the technique used at arriving at the factors, consider small arms. Here we compared AK47s with M16s to make the argument for replacing the older ROK rifles. On the basis of controlled tests, it was found that squads armed with the US weapons do about 35% better than those armed with the Communist weapons. The actual weapons comparisons are shown below; more detailed data are shown in Table 5-7.

TABLE 5-6

SMALL ARMS WEAPONS COMPARISONS

	<u>Attack</u>	<u>Defense</u>	<u>Overall</u>
Rifles: M-16/AK-47	1.35	1.32	1.33 <sup>a/</sup>
Machine Gun: M-60/RFD	1.10	1.10	1.10
M-60/DFM	2.00	1.50	1.67

a/ This factor will show variability between 1.20 to 1.46 depending on the ratios of attack to defense and night to day activities. Of course, these calculations assume equal training, motivation, and leadership and tactics which don't exploit or overcome the weaknesses of the AK-47.

In addition to differences in weapons characteristics, two other factors are relevant: doctrine and supply. If on average only 50% of the NKA maneuver units are engaged at one time, as compared with 65% for the ROKA, and if both forces furnish equal supplies to their forces, the index for ROK to NKA small arms is 1.82 (1.33 x 1.36).



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TABLE 5-7

COMPARISON OF US AND CHINESE SMALL ARMS

	Attack Situations								
	Rifle Squad Assault <sup>1/</sup>			Rifle Squad Base of Fire			MG Squad Fire Support		
	US	CPR	US/CPR	US	CPR	US/CPR	US	CPR	US/CPR
<u>Target Effects</u>									
Targets									
Target hits	2.9	3.2	.9	10.1	7.3	1.4	6.8	5.8	1.2
Total hits	-	-	-	-	-	-	7.8	6.0	1.2
Near misses	385.0	331.0	1.2	323.0	173.0	1.9	274.0	247.0	1.0
Exposure time	25.7	25.8	1.0	78.2	85.1	.9	87.8	93.0	.9
<u>Sustainability</u>									
Rounds used	240.0	560.0	.4	174.0	702.0	.2	444.0	400.0	1.0
Ammunition remaining (%)	73.0	38.0	1.9	81.0	22.0	3.7	42.0	57.0	.7
<u>Effectiveness Index</u>									
Combined score	57.3	35.3	1.6	73.6	29.8	2.5			

	Defense Situations								
	Rifle Squad in Defense (Day)			Rifle Squad in Defense (Night)			MG Squad in Defense		
	US	CPR	US/CPR	US	CPR	US/CPR	US	CPR	US/CPR
<u>Target Effects</u>									
Targets									
Target hits	50.2	52.8	.95	20.7	16.4	1.3	43.1	35.4	1.2
Total hits	84.5	76.7	1.1	31.3	19.6	1.6	67.0	60.2	1.1
Near misses	-	-	-	-	-	-	-	-	-
Exposure time	5.2	6.1	.85	6.7	7.4	.9	8.0	9.4	.9
<u>Sustainability</u>									
Rounds used	364.0	559.0	.65	198.0	738.0	.3	200.0	120.0	1.6
Ammunition remaining (%)	59.6	37.9	1.6	78.0	18.0	4.3	80.0	88.0	.9
Time	35.9	20.1	1.8	15.2	7.0	2.2			
<u>Effectiveness Index</u>									
Combined score	58.4	21.5	2.7	58.4	21.5	2.7			

<sup>1/</sup> Based on USA GDCEC, Small Arms Weapon Systems, May 1966. One round can activate two near misses. Total hits used for defense.

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The next factor to consider was the allocation of the weapons; clearly, with respect to small arms, we are interested primarily in weapons located with combat units below division level. When these equipment strengths and the small arms indices above are combined, it can be seen that small arms parity of ROK and current NKA combat forces is achieved at about 14 ROK divisions:

TABLE 5-8

COMPARATIVE RIFLE AND MACHINE-GUN EFFECTIVENESS:  
ROKA-NKA

<u>Strengths</u>	<u>NKA</u> <sup>1/</sup>	<u>ROK</u> <sup>1/</sup> <u>10 Div</u>	<u>12 Div.</u>	<u>14 Div.</u>	<u>16 Div.</u>	<u>18 Div.</u>
<u>Rifles</u>						
M16/AK47	205,600	136,600	163,950	199,000	223,750	248,500
<u>Machine Guns</u>						
M60/RPD-DPM	9,381	2,815	3,380	4,125	4,625	5,130
50 cal/12.4 mm	511	1,520	1,830	2,255	2,515	2,775
<u>Ratio of Strengths (Rifles)</u>						
ROK/NKA		.66	.80	.97	1.10	1.20
<u>Ratio of Effectiveness</u>						
ROK/NKA						
<u>Rifles</u>		1.18	1.42	1.66	1.90	2.15
<u>Machine Guns</u>		.65	.79	.96	1.08	1.18

1/ Combat units only: Does not include non-divisional support units such as Army Headquarters units, MP units, Engineer Group Hq, Chemical units, non-divisional engineer units, medical units, etc.

The same general approach was followed for developing the remainder of the indices and the ratios of weapon effectiveness (See Table 5-9 on page for mortar data). On the basis of these calculations, it is possible to say that a ROK force of ten divisions would more than match the current NKA strengths, provided that: (1) the current ROKA artillery strength were

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TABLE 5-9

COMPARATIVE EFFECTIVENESS ADVANTAGE OF ROK VERSUS NKA MORTARS

	<u>1/</u> <u>Ammunition</u>	<u>2/</u> <u>Fuze</u>	<u>3/</u> <u>Tgt Acquisition</u>	<u>4/</u> <u>Adjustment</u>	<u>5/</u> <u>Casualty Criteria</u>	<u>6/</u> <u>ASR</u>	<u>7/</u> <u>Overall</u>
107/120	.6	4.2	1.2	4.3	.3	4.0	1.3-18
81/82	1.8	4.0	1.2	4.0	.7	4.3	4.1-77

- 1/ General superiority of ammunition based on caliber size and fragmentation characteristics.  
2/ Comparison of US VT to USSR DD fuze.  
3/ Loss in effectiveness due to 30 meter target centroid error for target with 50 meter radius.  
4/ Difference between predicted and adjusted time.  
5/ Effect of diminishing returns per round if defenders (ROK) seek a 40% casualty criteria while attackers (NKA) seek only 10%.  
6/ Ammunition supply rate: SB 38-26 and DIA estimated rates. Historical rates are lower and favor the US 7.0 to 1.  
7/ Posture differences have not been included. Target ability (the difference between a casualty who is a commander and one who is a foot soldier) are also not considered.

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maintained; (2) that additional 4.2 inch mortars were made available to the ROKA through MAP or sales, (3) that the current tank strength was not reduced, and (4) that this force were adequately supported. The force comparisons are summarized in Table 5-10 below. The appropriate personnel strength comparisons are indicated in Table 5-11 on the next page.

TABLE 5-10

FORCE EFFECTIVENESS COMPARISONS<sup>1/</sup>

<u>Nbr ROK Divisions</u>	<u>Threat: NKA Only</u>						<u>Threat: NKA (+CPR)</u>	
	<u>10</u>	<u>12</u>	<u>14</u>	<u>16</u>	<u>18</u>	<u>20</u>	<u>23</u>	<u>23</u>
						<u>NKA</u>	<u>(NKA+20)</u>	<u>(NKA+34)</u>
<u>Infantry Small Arms</u>								
Rifles	1.2	1.4	1.7	1.9	2.2	2.4	1.2	.9
Machine Guns	.7	.8	1.0	1.1	1.2	1.4	1.7	.6
<u>Fire Support</u>								
<u>Rockets/Recoilless</u>								
Rifles	4.0	4.9	5.7	6.5	7.3	8.1	2.4	1.8
Mortars	.7	.8	1.0	1.1	1.3	1.4	1.0	.7
Artillery	.6	.7	.8	1.0	1.1	1.2	1.0	.7
<u>Tanks/Assault Guns</u>								
	.6	.7	.8	.9	1.0	1.0	.6	.4
<u>Trucks</u>								
	1.7	2.1	2.4	2.8	3.1	3.5	1.0	.8
<u>Radios</u>								
Man Carried	.7	.8	1.0	1.1	1.3	1.4	.9	.6
Vehicle Mounted	2.6	3.1	3.6	4.2	4.7	5.2	2.8	2.2

<sup>1/</sup> Actual ROK strengths are compared with theoretical (TOE) NKA strengths: the net effect is to increase NKA capabilities 15%.

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TABLE 5-11

COMPARATIVE ROK-NKA STRENGTHS

	<u>COMBAT</u>			<u>SUPPORT</u>			<u>TOTAL</u>	<u>TOTAL</u>
	<u>Maneuver</u>	<u>Artillery</u>	<u>Total</u>	<u>Division</u>	<u>Corps-Army</u>	<u>Total</u>	<u>DIVISION FORCES</u>	<u>LAND FORCES</u>
<u>North Korean Army</u> <sup>1/</sup>	117,248	76,031	193,279	46,498	40,808	87,306	280,585	345,000
<u>ROK Land Forces</u> <sup>2/</sup>								
Present strength (20 divs.)	162,913	63,269	226,182	76,173	140,982	217,155	443,337	566,900
<u>Alternative ROK Structures</u> <sup>3/</sup>								
14 Division Force	113,202	48,415	161,617	52,103	189,506	241,609	403,326	4/
16 Division Force	127,774	52,765	180,539	59,261	189,506	248,767	429,306	4/
18 Division Force	142,346	57,385	199,731	66,419	189,506	255,925	455,656	4/

1/ A detailed display of North Korean Army forces is shown in Table 5-1.

2/ A detailed breakout of ROK land forces is set forth in Table 5-2.

3/ The support package indicated here is discussed in more detail in Section 8.

4/ Additional general support forces would be needed. Requirements are discussed in detail in Section 8.

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SECTION 6: ROK LAND FORCE MODERNIZATION  
(COMBAT FORCES)

6.1 General

In this section, alternative approaches are considered for improving ROK ground force capabilities. Logistics proposals are discussed in Section 7 and support unit improvement and modernization is considered in Section 8. Overall ROK land force structures and MAP programs are then discussed in Section 9. Underlying the analysis is the conviction that a more effective ROK/US defense force could be obtained by improving the ROK forces with funds now spent on the more expensive US land forces now in Korea.

The present MAP plan includes little modernization for the ROK combat forces. The limited availability of MAP funds acted as a constraint on MAAG planners, and accordingly, improvements in the land combat forces had to take their place in the long list of uses for these funds. The counter-infiltration program (CIGFIR) furnishes a sizable supplement to the MAP modernization, amounting to at least \$15.0 million in new items. The alternative modernization programs, designed on the basis of the ROK land force planning objective -- defense against the NKA/CFR attack until US reinforcements arrive, or for a sustained defense against a CFR/NKA attack -- include another \$317 to \$394 million. Program details are shown in Tables 6-4 and 6-18. These modernization packages are for combat units only. The additional logistic and support requirements are expensive, particularly for a sustained defense. (See Section 8.) The programs and scheduling are summarized below:

TABLE 6-1

COMBAT FORCE MODERNIZATION ALTERNATE PROGRAMS  
(Investment Cost \$US Millions)

<u>Current Program</u>	<u>FY 70</u>	<u>FY 71</u>	<u>FY 72</u>	<u>FY 73</u>	<u>FY 74</u>	<u>TOTAL</u>
MAP (current)	5.0	7.0	7.8	4.9	5.3	30.0
CIGFIR <sup>2/</sup>	15.0	--	--	--	--	15.0
Total	20.0	7.0	7.8	4.9	5.3	45.0
<u>Alternate Programs<sup>1/</sup></u>						
NKA Defense	10.6	116.1	61.5	35.0	17.7	240.9
Initial Defense						
NKA-CFR	10.6	123.8	97.6	66.5	18.6	317.1
Sustained Defense						
NKA-CFR	10.6	121.7	115.8	91.3	64.7	394.2

- 1/ Includes the present program and proposed modernization (Table 6-18). CIGFIR includes about \$15.0 million of modernization items; their inclusion in FY 70 would reduce FY 71-74 requirements.
- 2/ Includes only counter-infiltration/guerrilla portion of the CIGFIR program.

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6.2 The Current Program

Within the context of this study, programs to improve ROK ground force combat effectiveness could take several forms. At the lower end of the spectrum, the current military assistance program could be continued. As indicated in Table 6-2 below, this would cost about \$30-33 million during FY 70-74 and involve little actual modernization: 24 105 mm howitzers and 55 helicopters. The current program also includes \$44-48 million for improving support forces, as discussed more fully in Section 8. Also bearing consideration as part of the current program is the counter-infiltration (CIGFIR) supplement.\* As currently constituted, this program would cost \$46.4 million in FY 70 of which approximately \$15 million would contribute to ROK modernization: 28,000 M16 rifles, 113 armored personnel carriers, 13 helicopters, and 235 radios. The CIGFIR program is set forth in Table 6-3 on the next page and discussed in detail in Chapter Five.

TABLE 6-2

COMBAT IMPROVEMENTS IN THE CURRENT MAP PROGRAM

	<u>Number</u>	<u>Cost (\$US Millions)</u>
Small Arms	171	.1
Mortars		
Anti-tank weapons		
Tanks		
Armored vehicles		
Artillery	24	
Helicopters	55	5.7
Radios	660	11.1
Air Defense		2.7
Misc.		<u>1.0<sub>2</sub></u>
Total		<u>20.6<sup>2/</sup></u>

1/ From Table 9, Military Assistance Plan for Korea, July 1968.

2/ The total FY 70-74 program would be about \$30-33 million if the 70-73 rate were extended through FY 74.

\* Included here is only the counter-infiltration/guerrilla posture of the CIGFIR program.

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TABLE 6-3

LAND FORCES COMPONENT, COUNTER-INFILTRATION PROGRAM  
(CIGFIR)

(Costs for Main Items (US Millions))

	<u>DMZ Barrier</u>		<u>Number</u>	<u>Cost</u>	<u>Misc&amp;Others</u>		<u>Total</u>	
	<u>Number</u>	<u>Cost</u>			<u>Number</u>	<u>Cost</u>	<u>Number</u>	<u>Cost</u>
M-16 Rifles	17,427	3.466	10,423	2.192	28	.006	27,878	5.664
Armored Personnel Carriers	113	4.011					113	4.011
Lighting (fences, searchlights, etc.)		9.584						9.584
Alarms, Flares, Barbed wire		1.491				.402		1.893
Helicopters (UH-1H)			13	5.203			13	5.203
NODs, starlight Scopes, Binoculars		.504		.453				.957
Communication Equip.		.665		9.010				9.675
Defoliation Equip.		1.112						1.112
Miscellaneous		5.243		3.062		.054		8.359
Totals		26.076		19.920		.462		46.458

6.3 Modernized ROK Combat Forces

The current MAP program offers little prospect for modernizing ROK forces, primarily because so few funds were available when it was developed. Modernization has not been considered a particularly pressing problem today largely because the threat of open war on the peninsula is thought unlikely: The Chinese are uninterested in joining the North Koreans in a direct confrontation with the United States (SNIE 13-69, 6 March 1969), and the North Koreans appear to have adopted a strategy of conflict below the threshold of open hostilities (SNIE 14-2-69, 29 January 1969).

Moreover, the ROK land forces are well trained, reasonably well led and moderately well equipped. As indicated in Sections 3-5 above, these forces can maintain internal security and, with external logistic and some air support, stem an attack by NK forces alone. Even in the event of a combined CHICOM/NK invasion, there is a good chance that the ROKA could fight a strong delaying action provided US air, naval and logistical support were available.

Nevertheless, there are sound reasons for examining ways to improve ROK ground force capabilities. The North Korean forces along the DMZ, particularly their maneuver units, have been improved with receipt of the AK47 assault rifle. On the other hand, the ROKA forces are currently organized and equipped to operate as US and ROK divisions did during the active phase of the Korean War. Most of the combat vehicles and almost all of the other military equipment were given to the ROKA during the US phase-down in the ROK following the 1953 Armistice

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Agreement. The limited reorganization and modernization undertaken since 1953 (e. g., the recent formation of two separate armored brigades and an organic tank company per infantry division from ten separate tank battalions) was accomplished within the personnel and materiel constraints accepted by the US at the time of the Armistice. While many of the equipment items given to the ROK since 1953 are still operable and useful, the advanced age of the equipment and shortage of spare parts often make continued use uneconomical. This is particularly true of communications equipment, wheeled and track vehicles, and some small arms. In addition, many items or systems do not mesh or integrate properly with newer, related items or systems, preventing the most modern and effective use of the limited modernization efforts. If ROK land forces are to assume a larger role and remain fully effective in the 1970s; further modernization is in order.

Modernization proposals set forth below have been designed in two dimensions: (1) against what threat and for what mission are the forces to be configured -- defense against the NKA alone, initial defense against a combined NKA/CPR attack, or sustained defense against the combined threat; and (2) what forces should be improved -- maneuver units, artillery, and/or support forces. Accordingly, a number of modernization packages have been developed and are listed in general order of priority in the table below. The NKA defense alternative was developed around a sixteen division force level, initial defense against an NKA/CPR attack was designed at eighteen divisions, and the sustained defense alternative at twenty divisions. A more detailed discussion of the programs follows in the remainder of this section.

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TABLE 6-4

MODERNIZATION PACKAGES: ROK LAND FORCE COMBAT UNITS  
(Investment Cost in US \$Millions)

	<u>NKA</u> <u>Defense</u>	<u>NKA-CPR</u> <u>Initial Defense</u>	<u>NKA-CPR</u> <u>Sustained Defense</u>
<u>Maneuver Unit</u>			
Rifles (M16)	17.1	20.0	34.0
Machine Guns (M60)	2.7	3.0	3.7
Mortars 4.2"	2.1	2.4	3.1
Recoilless Rifles (106)	3.8	4.3	5.5
Tanks M48/M88	28.0	28.9	35.4
Anti-Tank (LAW)	<u>.3</u>	<u>-.3</u>	<u>.4</u>
TOTAL	54.0	58.9	82.1
<u>Artillery</u>			
105 mm	2.8	4.0	4.0
155 mm (TOW)	--	.9	.9
155 mm (SP)	4.3	4.3	2.1
8" (SP)	6.7	10.1	15.1
175 mm (SP)	<u>--</u>	<u>1.9</u>	<u>7.7</u>
TOTAL	13.8	21.2	29.9
<u>Mechanized Mobility</u>			
Armored Pers. Carrier	--	11.8	11.8
<u>Air Mobility</u>			
Helicopter UH-1H	35.8	35.8	35.8
Helicopter AH1G	<u>9.3</u>	<u>9.3</u>	<u>9.3</u>
TOTAL	45.1	45.1	45.1
<u>Air Defense<sup>1/</sup></u>			
Air Defense Artillery	44.1	44.1	44.1
SAM (HAWK)	--	55.4	94.0
Redeye missiles	<u>5.4</u>	<u>99.5</u>	<u>138.1</u>
TOTAL	49.5	99.5	138.1
<u>Communication/Command Control</u>			
Radios, Personnel (AN/PRC-25)	8.9	10.0	11.2
Radios, Vehicular	8.1	9.1	14.4
Radar, AN/PPSS	25.0	25.0	25.0
Light Helicopters (LOH)	<u>6.5</u>	<u>6.5</u>	<u>6.5</u>
TOTAL	48.5	50.6	57.1
OVERALL TOTAL	210.9	287.1	364.1

<sup>1/</sup> For Alternatives, see Table 6-14 and Section 4, Chapter II.

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6.4 Maneuver Unit Improvements

6.4.1 Rifle and Machine Gun Modernization

The ROK Army is currently equipped with M-1 and M-2 rifles and carbines as the principal individual weapon. On the basis of the effectiveness of the M16 as compared with other weapons (see Section 5) there is agreement that modernization with M-16s is desirable. A total re-equipment is sought by the Koreans which would amount to 650,000 rifles; however, since modernization is needed in other categories as well, three alternative concepts are being considered: (1) equipping only maneuver units with the M-16; (2) equipping maneuver units plus artillery; and (3) equipping full divisions plus non-divisional artillery. The number of M-16s required under these three concepts are indicated below:

TABLE 6-5

M-16 REQUIREMENTS <sup>1/</sup>

<u>Concept</u>	<u>14</u> <u>Divisions</u>	<u>16</u> <u>Divisions</u>	<u>18</u> <u>Divisions</u>	<u>20</u> <u>Divisions</u>	<u>23</u> <u>Divisions</u>
Maneuver	93,408	108,544	124,544	140,112	179,032
Maneuver + Artillery	140,493	161,221	181,949	202,677	249,377
Division + Artillery	193,696	222,021	250,349	278,677	336,737

<sup>1/</sup> In all cases, it is assumed that the two ROK divisions now in Vietnam return with their M-16s.

Various proposals for furnishing the weapons to the ROK bear consideration ranging from complete manufacture of the weapons in Korea to purchase (or grant) of the weapons from the United States. For the number of weapons involved, the least cost approach would be weapon assembly in Korea even if ROK labor productivity is considerably less than expected -- detailed cost factors are set forth in Table 6-6 below.

TABLE 6-6

M16 MANUFACTURING COSTS <sup>1/</sup>

	<u>Total</u>	<u>Manufacture</u>	<u>Manufacture</u>	<u>Manufacture</u>	<u>Assembly</u>
	<u>Manufacture</u>	<u>80 Parts</u>	<u>37 Parts</u>	<u>8 Parts</u>	<u>Only</u>
Fixed Cost, All Cases <sup>2/</sup>	\$19,205,355.00	\$18,049,955	\$17,356,800	\$15,099,600	\$1,530,400
Variable Cost Plus Royalty <sup>3/</sup>	34.07	39.08	49.88	66.23	96.24
Variable Cost if Labor Productivity only 20%	47.18	51.30	60.08	73.57	97.68
Variable Cost if Irregularities are Smoothed	34.07	38.11	47.71	61.94	96.24

<sup>1/</sup> Source: U.S. Army Rifle Program Cost Effectiveness Evaluation, 15 Sep 68.

<sup>2/</sup> Costs to establish facility, regardless of number of weapons to be produced.

<sup>3/</sup> Labor, number of parts imported from US vs. number manufactured in ROK.

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ROK Army machine guns are also outdated and in need of replacement. At present, the Browning M1919A4 and M1919A6 are the primary weapons in the inventory. These weapons are large and cumbersome for the Koreans and do not have the reliability or effectiveness of the newer M60 machine guns. The weapon comparisons in Section 5, Table 5-7, indicate the advantage the newer weapon would afford the ROKs against North Korean troops equipped with the RPD or DPM. On the basis of this data and the force comparisons in Table 5-8, at least 14 of the ROK divisions should be re-equipped with the newer weapons in order to match North Korean automatic firepower in the program years (FY 70-74). The number of weapons involved and program costs are indicated in Table 6-10 on page 11 and range from \$2.110 million for NKA defense to \$3.640 million for sustained defense against NKA/CPR attacks.

6.42 Mortar Improvements

Currently, the ROK maneuver unit mortar strength is slightly greater than the NKA numerically. The North Koreans have more medium-size 120 mm mortars; however, they use this weapon primarily as artillery. The NKA artillery unit mortars are more relevant in the discussion of changes to ROK artillery capabilities. ROKA and NKA mortar strengths in maneuver units are summarized in the table below.

TABLE 6-7

COMPARATIVE MANEUVER UNIT MORTAR STRENGTH

<u>Mortar</u>	<u>NKA</u> <sup>1/</sup>	<u>ROK</u> <sup>2/</sup>				
		<u>10 Div</u>	<u>12 Div</u>	<u>14 Div</u>	<u>16 Div</u>	<u>18 Div</u>
60-82mm	1,989	1,476	1,780	2,094	2,382	2,670
107-120mm	342 <sup>3/</sup>	244	294	344	392	440

1/ For more detail, see Table 5-1.

2/ For more detail, see Table 5-2 and 5-3. The ROK currently has 3,273 60mm mortars and 1828 81mm mortars.

3/ Total 107-120mm mortar strength is 1,320.

As indicated in Section 5, Table 5-9, the following factors are also relevant in comparing mortar effectiveness: (1) quality of ammunition (fragmentation patterns); (2) quality of fuze (point detonating or variable time); (3) ability to accurately locate the target (target centroid error); (4) ability to communicate adjustment of fires; (5) efficiency of target fires (ability or tendency to cut back on fires after initial casualties have been obtained); (6) ammunition supply rate. Two other factors -- posture differences and target utility -- also bear consideration; however, the problems entailed in differentiating between ROKA and NKA fires in these dimensions are quite complex, and would not significantly increase ROK difficulties anyway.

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On the basis of firing data and fragmentation experiments with both ROK and NKA mortar systems, the factors determining differences between the mortars have been quantified and range as follows: ROK 4.2" mortar/NKA 120 mm mortar -- 1.2 - 18 to 1; ROK 81 mm mortar/NKA 82 mm mortar -- 4.1 - 77 to 1. Detailed data were set forth in Table 5-9. If one considers both strengths and effectiveness, the maneuver units of twelve ROK divisions compare favorably with the current NKA force, even if the NKA is credited with system improvement it has not yet undertaken. Increasing ROK 4.2 inch mortar strength so that each battalion has four tubes improves the comparison considerably as can be seen in Table 6-8 below. The cost of such a proposal ranges from \$1.870 million for 14 divisions to \$3.080 for 23 divisions. Ammunition costs would entail another \$3.97-\$14.85 million -- (Table 7-3). More detailed data on costs for the mortar proposals is given in Table 6-10, page 105 .

TABLE 6-8

COMPARATIVE MANEUVER UNIT MORTAR RATIO  
OF ROKA TO NKA EFFECTIVENESS<sup>1/</sup>

Mortar	ROK Divisions:	10	12	14	16	18
<u>Current</u>						
60-82 mm		3.0	3.6	3.4	4.9	5.5
107-120 mm		.9	1.1	1.3	1.5	1.7
<u>Proposed</u>						
60-82 mm - No change						
107-120 mm <sup>2/</sup>		1.8	2.2	2.6	3.0	3.4

<sup>1/</sup> See lowest factors in Table 5-9.

<sup>2/</sup> Assumes doubling of ROK 4.2 inch mortar strength in maneuver units.

6.43 Anti-Tank Systems

As was indicated in Section 5, Tables 5-4 and 5-10, the ROK tank/assault gun strength does not dominate that of the Asian Communists: below 18 divisions the ROKs are outnumbered by the NKA alone. The quantitative data is summarized in 6-9 below. In tanks alone, the ROKs are stronger, outnumbering the NKA nearly two to one. However, most of the ROK tanks are old and in need of overhaul or replacement. Of the current tank strength, 532 are 90 mm M47s, 140 are 90 mm M48s, and 28 are M4A1s. Little is known about the condition of North Korean tanks, but to hedge against their being in a better state of readiness, improvements to the ROK anti-tank force should be considered. The current NKA and ROK tank-anti-tank weapon strengths are summarized in Table 6-9 on the following page:

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TABLE 6-9

CURRENT TANK AND ANTI-TANK SYSTEMS  
ROK - NKA <sup>1/</sup>

	<u>NKA</u>	<u>ROK</u>
<u>Tanks</u>		
Light (76 mm)	12	--
Medium (85-106 mm)	314	713
Heavy (122 mm)	86	--
<u>Anti-Tank Weapons</u>		
Assault Guns	420	220 <sup>2/</sup>
AT Guns	288	339 <sup>3/</sup>
Rocket Launchers	6870	7,906

1/ Current strengths. Does not include CBR reinforcement of the NKA -- see Table 5-4.

2/ Gun, SP, HTRK, M16 - FY 74. (20 division level).

3/ Rifle, 106 mm (20 division level).

6.44 Tanks and Recovery Vehicles

Improvements in ROK anti-tank capabilities could be obtained by: (1) modernizing some of the ROK tank units -- those equipped with the M4A3 and the M47s; and (2) increasing and modernizing the ROK anti-tank weapons. To improve tank capabilities, rebuilt M48 tanks could be made available to replace the M47s and M4A1s. There is a stock of 1200 unmodified M-48 tanks in CONUS which could be reconditioned with improved engines and fire control equipment at a cost of about \$43,700 per tank. Such a tank would be superior to anything expected in the North Korean tank/assault gun inventory in the next decade. The M-60, which would be much more expensive at \$224,900, is not a realistic alternative for cost reasons and because higher priority US unit requirements would limit the availability of M60s for Korea until after FY 72. Alternative tank modernization programs, involving from 492 to 645 tanks for 14 to 23 divisions, would cost from \$21.5 to \$28.2 million. More detailed costs are indicated in Table 6-10, page 105.

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TABLE 6-10

**ALTERNATIVE FIREPOWER MODERNIZATION PROGRAMS FOR ROK MANEUVER UNITS**  
(Cost in \$US Millions)

Force Level Proposal	M16 Rifles		M60 Machine Guns		Mortars-4.2"		Tank-M48		Recovery Vehicle-M88		Anti Tank LAW		106mm Recoilless Rifle		TOTAL
	Nbr	Cost	Nbr	Cost	Nbr	Cost <sup>1/</sup>	Nbr	Cost <sup>2/</sup>	Nbr	Cost	Nbr	Cost	Nbr	Cost <sup>2/</sup>	
<b><u>NKA Defense</u></b>															
14 Divisions	93,408	10.51	4,126	2.11	336	1.87	492	21.52	22	4.40	4,200	.20	336	3.36	43.97
16 Divisions	161,221	17.05	5,352	2.74	384	2.14	526	23.01	25	5.00	4,800	.25	384	3.84	54.03
18 Divisions	250,349	25.63	5,854	3.00	432	2.40	560	23.33	28	5.60	5,400	.28	432	4.32	64.56
<b><u>NKA/CPR Defense (Initial)</u></b>															
16 Divisions	108,544	11.98	4,628	2.36	384	2.14	526	23.01	25	5.00	4,800	.25	336	3.84	48.48
18 Divisions	181,949	20.00	5,854	3.00	432	2.40	560	23.33	28	5.60	5,400	.28	432	4.32	58.93
20 Divisions	278,677	28.53	6,356	3.25	480	2.67	596	26.07	32	6.40	6,000	.31	480	4.80	72.03
<b><u>NKA/CPR Defense(Sustained)</u></b>															
20 Divisions	202,677	21.04	6,356	3.25	480	2.67	596	26.07	32	6.40	6,000	.31	480	4.80	64.54
23 Divisions	336,736	33.95	7,109	3.65	534	3.08	645	28.21	36	7.20	6,900	.36	552	5.52	78.97

<sup>1/</sup> Does not include ammunition which could amount to \$11,800 per weapon for 60 days (see Table 7-3).

<sup>2/</sup> Does not include ammunition (see Section 7).