

# On the Interdependence of Force Size, Personnel Structure and Modernization Level under Limited Budgets: A Cursory Analysis of Defense Planning Issues in NATO's New Mission Environment<sup>1</sup>

Reiner K. Huber

Institut für Angewandte Systemforschung und Operations Research  
Universität der Bundeswehr München  
D-85577 Neubiberg  
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## Introduction

Considerable down-sizing notwithstanding, the uncertainty of the post-Cold War security environment has motivated most of NATO-Europe's major countries to preserve as much of their Cold War force structures as possible, emphasizing the capability for rapid build-up should large-scale military threats against NATO territory re-emerge. For example, the German Army regards the defense of German and Alliance territory in Central Europe as its principal mission for which it retains a force structure capable of building up from a peace-time strength of 234,000 to 500,000 troops to man seven divisions or 26 combat brigades (see, e.g., *Europäische Sicherheit 7/98*, p.28). To this end, many a German defense expert considers conscription as indispensable (Wellershoff, 1997).

However, the problems faced by conscription forces in addressing post-Cold War contingencies were amply demonstrated when France was unable to muster more than 10,000 troops, from an army of 280,000, to fight with the allies during the Gulf War. Moreover, for several years has the dramatic situation of public funds in most of Europe forced many a defense establishment to reduce investment funding for research, development and procurement in order to pay for force structures. Thus, unless defense budgets are increased soon by considerable margins, NATO-Europe's military forces run the risk of progressively losing, because of their overstretched structures, whatever combat effectiveness and sustainability they once may have had for deterring aggression and fighting a major war in Central Europe.

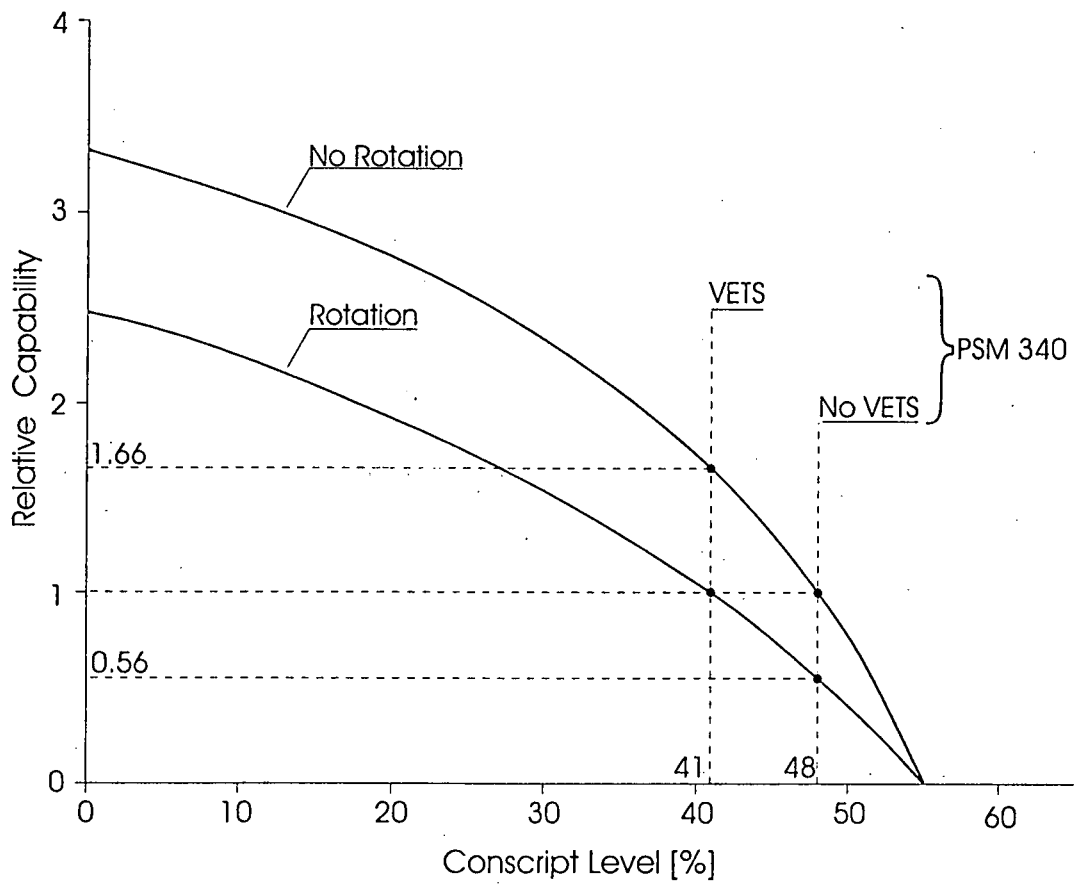
While prospects of having to fight, on short notice, a major war in Central Europe do not appear to be very plausible for some time to come, if ever again, out-of-area (OOA) contingencies abound on a global scale calling for intervention in conflicts, peace support and disaster relief. Simultaneously, defense budgets very likely will remain tight. Therefore, defense planning in NATO-Europe will have to face up to the question of how to improve the OOA-operations capability of their forces and at the same time save, from limited budgets, the money

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required for modernization, all the while retaining some core capability for a more or less massive build-up in the unlikely case that NATO again will face a large-scale threat to its territory.

This paper is meant to provide an analytical contribution to the debate on this question and the issues involved. It proposes a simple model showing in quantitative terms the interdependence of force size and personnel structure under limited budgets taking the German Army as an example. Based on this model and a cursory analysis of defense budget data, an estimate is made on NATO-Europe's current OOA-operations capabilities and their modernization levels. In conclusion, a common principle is proposed for improving that capability in the decades ahead.



**Fig. 1: Relative Personnel Capability of the German Army for OOA-Operations as a Function of the Conscript Level (VETS=Volunteers Extending Terms of Service)**

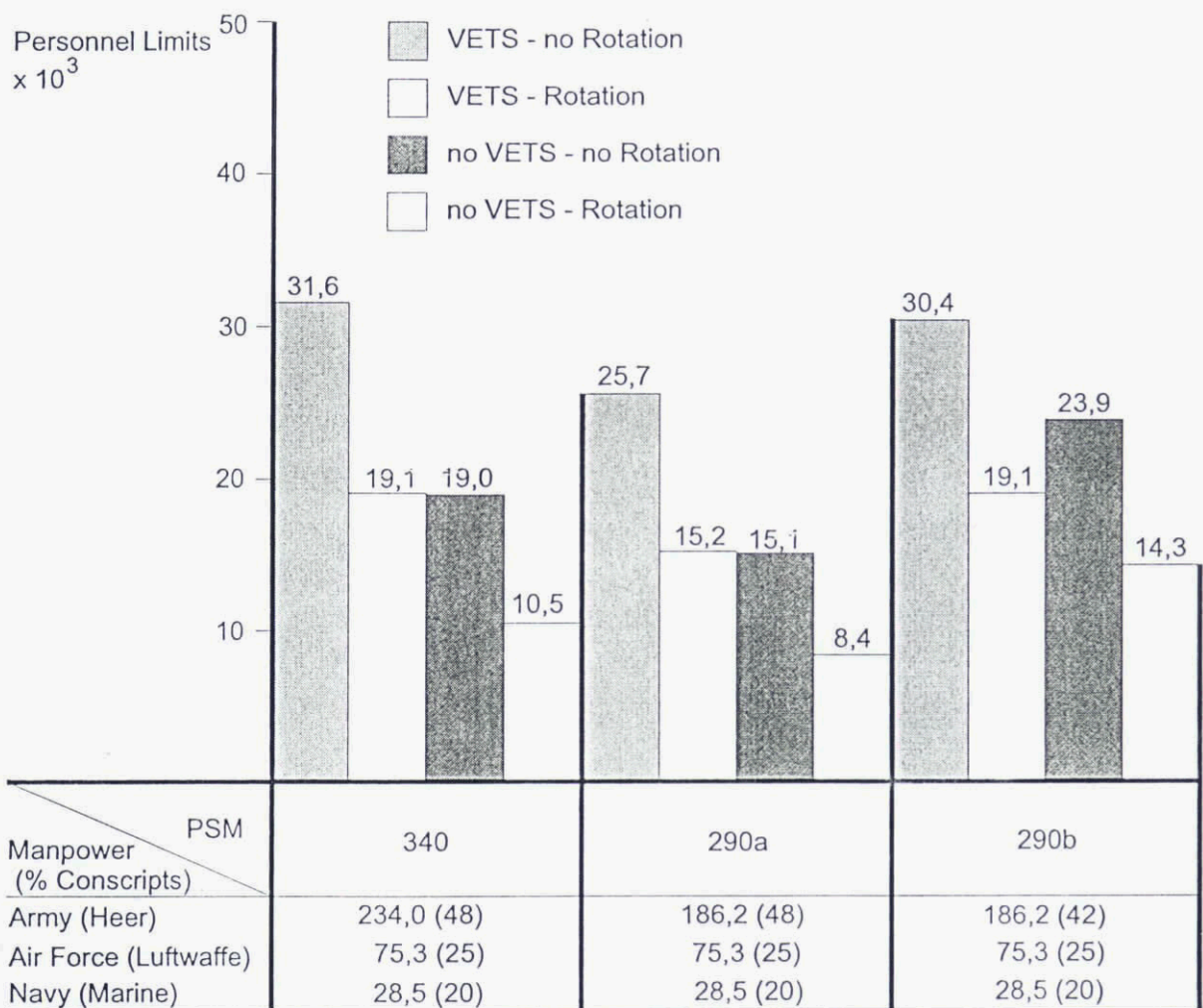


Fig. 2: Personnel Limits for Out-of-Area Operations of German Army Personnel Models (PSM)

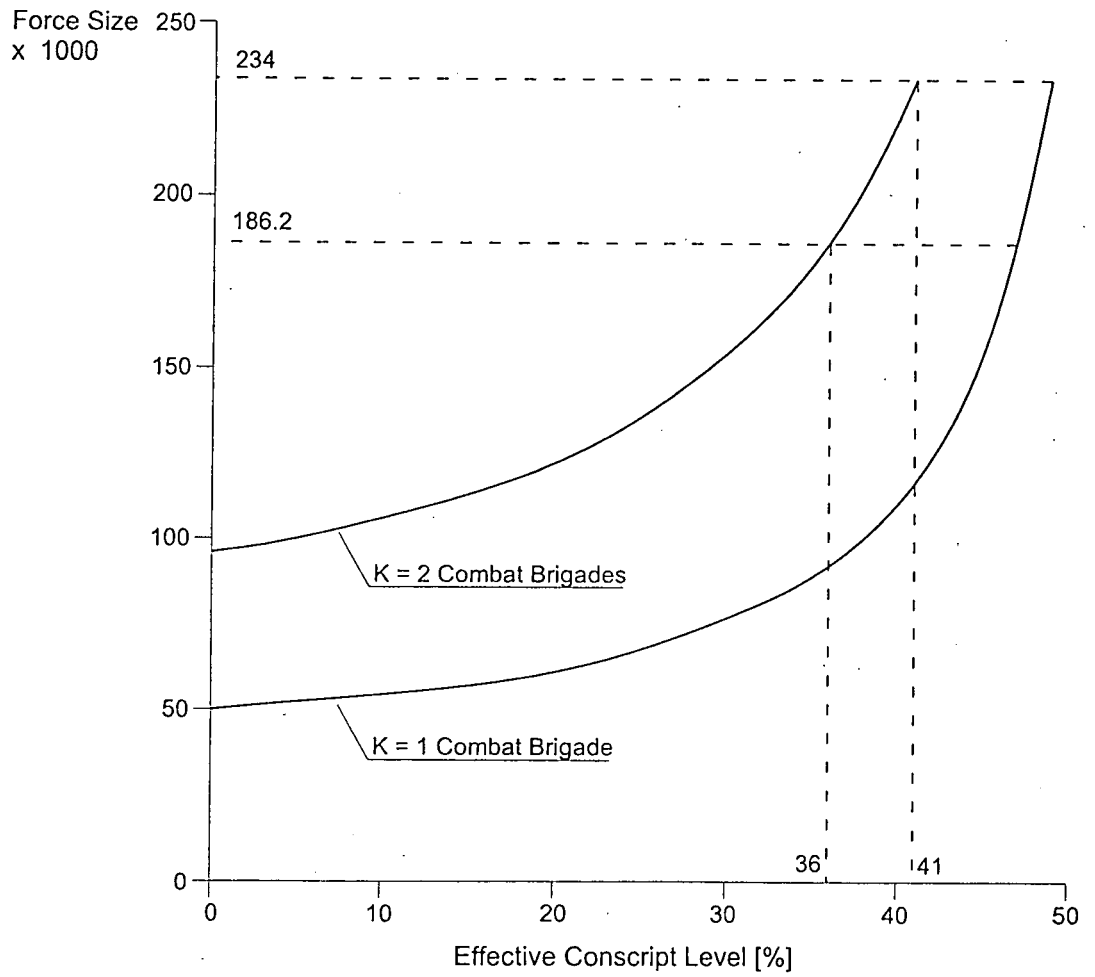


Fig. 3: Relationship between Force Size and Conscript Level for Maintaining a Capability K of the German Army for Extended OOA-Deployments

**Table 1: Manpower Ceilings for Out-of-Area Deployment of NATO-European Ground Forces**

Country	Total Manpower	OOA-Deployment Ceilings	
		No Rotation	Rotation
Belgium	28,500	7,600	5,700
Denmark	19,000	3,100	2,000
France	219,900	26,700	15,800
Germany	234,000	31,900	19,200
Greece	116,000	8,300	6,200
Italy	188,300	4,700	3,500
Netherlands	27,000	7,200	5,400
Norway	15,800	280	210
Portugal	32,100	5,100	3,200
Spain	128,500	5,300	3,970
Turkey	525,000	33,600	23,900
United Kingdom	112,200	29,900	22,400
<b>Total 1997</b>	<b>1,646,300</b>	<b>163,180</b>	<b>111,180</b>

**Table 2: Conscription Factor and Personnel Structure Categories of NATO - European Ground Forces**

Structure Category	Country	Percentage of Conscripts	Terms of Service (months)	Conscription Factor	
				No Rotation	Rotation
I	Denmark	36	4 - 12	0.61	0.51
	Portugal	37	4 - 8	0.60	0.50
II	France	50 (43)	10	0.21 (0.46)	0.15 (0.36)
	Germany	48 (42)	10	0.30 (0.51)	0.23 (0.41)
III	Italy	68	10	0.10	0.10
	Norway	70	12	0,06	0,06
	Spain	63	9	0.16	0.16
IV	Greece	82 (45)	18	0 (0.27)	0 (0.27)
	Turkey	88 (58)	18	0 (0.24)	0 (0.24)

**Table 3: Defense Expenditures per Soldier in  
Thousands of US Dollars (1997-98)**  
(Source: IISS: *The Military Balance* 1997/98)

Country		Investment <sup>1</sup>	Operation <sup>2</sup>	Total
Belgium	BE	5.1	56.6	61.7
Denmark	DE	9.9	72.4	82.2
France	FR	36.6	48.5	85.2
Germany	GE	13.3	65.1	78.4
Greece	GR	4.7	17.6	22.2
Italy	IT	7.7	47.5	55.2
Netherlands	NE	25.4	95.6	121.1
Norway	NO	27.5	74.2	101.7
Portugal	PO	6.0	22.6	28.6
Spain	SP	5.7	24.2	29.9
Turkey	TR	3.0	4.1	7.1
United Kingdom <sup>2</sup>	UK	50.4	117.6	167.9
United States	US	53.2	124.2	177.4

<sup>1</sup> Includes Research, Development and Procurement (estimated from Total based on average investment rate in the period 1994 - 97).

<sup>2</sup> UK procurement data presented by IISS include expenditures on spare parts which all other countries consider to be operational expenditures. Therefore, UK data have been adjusted to reflect an investment expenditure rate of 30% as for the US.



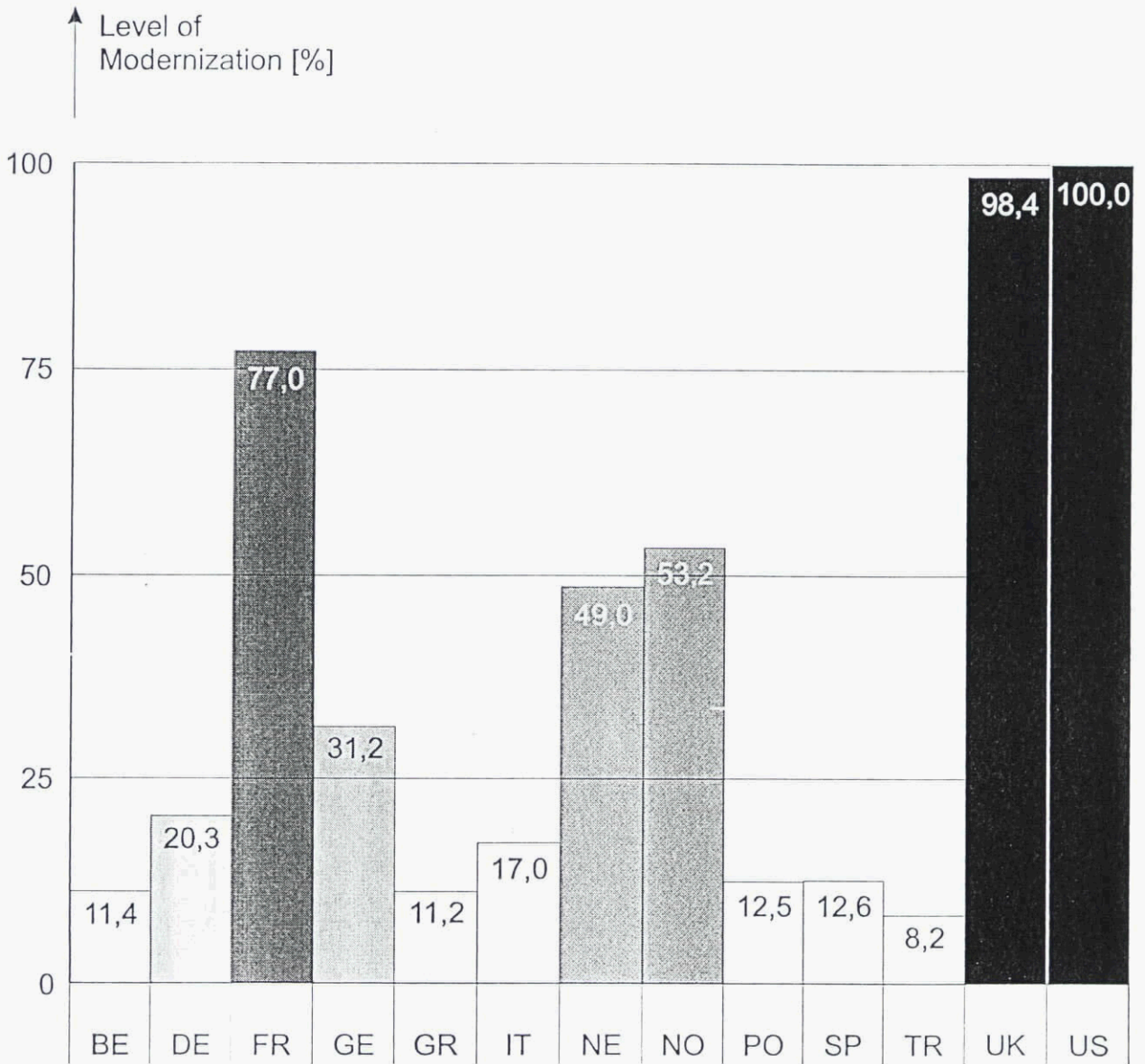


Fig. 4: Modernization Level of NATO-European Forces relative to US Forces (measured in terms of the actual defense investment expenditures per soldier (1997) versus the expenditures that would be required to match the US modernization level)

Table 4: Modernization and Conscript Levels of NATO-Forces (1998)

Conscript Level Modernization Level	Zero (0)	Low (I)	Medium (II)	Medium-High (III)	High (IV)
High (A)	US, UK				
Medium-High (B)			FR		
Medium (C)	NE			NO	
Medium-Low (D)		DE	GE		
Low (E)	BE	PO		IT, SP	GR, TR