CONSEIL DE L'ATLANTIQUE NORD NORTH ATLANTIC COUNCIL

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DOCUMENT C-M(80)45

THE ALLIANCE AND THE PROBLEM OF OIL SUPPLIES

Note by the Acting Secretary General

- 1. In accordance with the Ministerial Guidance for Civil Emergency Planning(1), the Petroleum Planning Committee was requested to:
 - (a) determine the demand for petroleum products to meet civil and military defence needs which can be foreseen for a period of crisis and for the initial period of hostilities and the general scale of such demands for continuance beyond;
 - (b) assess in regard to oil, world trade and NATO's dependence on non-NATO sources of supply; and
 - (c) examine critical requirements and identify bottlenecks of the oil industry.
- 2. A report regarding subject (a) above, effectively an update of C-M(73)94, was noted by the Council on 11th May 1979(2). The present report, which is based on the situation as of June 1980 and on the most recent information and statistics available at that time deals with subjects (b) and (c) above. It is effectively an update of C-M(75)9.
- 3. The main purpose of this study was to assess the size and character of possible consequences of oil supply interruptions by comparing NATO's essential oil needs with different oil supply situations. Bearing in mind this broad purpose, it was not possible to describe the situation in each one of the oil exporting countries. Under present circumstances, however, some information on oil imports from Iran is considered to be useful. This information is in Annex L to the report.
- 4. There are certain indications that the structure of the international oil market is changing. These changes, some of which are briefly described in Annex M, might cause the need for adapting

This document includes: 13 Annexes

(1) C-M(77)17(Revised) (2) C-M(79)24

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the present NATO crisis management and wartime arrangements in regard to oil. The Petroleum Planning Committee will continue to monitor these developments and assess the need for adapting NATO arrangements.

- 5. The following conclusions from the report were endorsed by the June 1980 Plenary Session of the Senior Civil Emergency Planning Committee(1)(2):
 - (a) the Alliance remains heavily dependent on oil imports from non-NATO sources; although IEA and EEC member countries have agreed on oil import ceilings, there is not expected to be any significant reduction in the extent of the dependence in the near future;
 - (b) this dependence constitutes a permanent risk to the defence posture of the Alliance. Apart from the economic and financial strains caused by increasing oil prices which may well have negative effects on NATO's overall defence capability, there is the permanent risk of interruptions of supplies from major exporting countries. The IEA sharing scheme and complementary EEC arrangements have never yet been activated and their effectiveness in meeting NATO's specific needs is difficult to judge. It is therefore important to make progress in further developing flexible NATO arrangements with regard to oil(3);
 - (c) the dependence on non-NATO sources of oil supply could well have very serious consequences in war. North America's increased dependence on oil imports has reduced its capability to support a defence effort in Europe by diverting shipments originally destined for North America to Europe and/or by shipping oil from North America to Europe. However, North America's support would be of vital importance for the armed forces and for essential civil purposes, also because the European share in NATO's oil consumption in wartime might be higher than in peacetime;
 - (d) NATO might be able to maintain its defence capability in war for one or two months without imports from major non-NATO sources only if stocks and refinery capacity were still available. Stocks and refineries are in general not secure and they could well constitute prime targets. Sufficient product stocks for military and civil purposes will be of vital importance, especially in the early period of war. They would also provide insurance against losses of transatlantic convoys and ease the burden of

(1) AC/98-DS/150, Item IV.B

AC/98-D/946

(2) AC/98-D/952 and Corrigendum (3) AC/12-D/688(Revised)

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naval escorts in providing oil shipment protection. There is a need to review the wide variety of arrangements regarding civil and military reserve stocks and their inter-relationships with the aim of assessing the need for adaptations or additional arrangements;

- (e) in wartime, offshore installations and refineries are very difficult to protect from direct military attack. The level of protection against sabotage might, however, be raised significantly by a relatively modest increase in protective measures. Any such additional safeguards would be well worthwhile since offshore crude oil production is an important indigenous source of supply and the importance of refineries is greater because final products form only two-thirds of stocks;
- (f) NATO's dependence on non-NATO sources of supply and the remedial measures to be taken are both important and complex issues. The outcome of this study again emphasises the need for flexible and coherent planning to ensure the availability and equitable distribution of oil supplies. This was recognised by the Council when it tasked the SCEPC with the co-ordination of all Alliance POL planning for crisis and war.
- 6. The June 1980 Plenary Session of the Senior Civil Emergency Planning Committee also:
 - (a) invited the PPC, in conjunction with military authorities and other interested NATO POL planning bodies, to report on the arrangements regarding civil and military reserve stocks and their inter-relationships and to assess the need for adaptations or additional arrangements;
 - (b) drew the attention of national authorities to the importance of the protection of offshore oil production facilities, refineries and storage facilities against sabotage and other forms of attack;
 - (c) invited the PPC to submit to the SCEPC an updated report on NATO's dependence on non-NATO sources of oil supply if significant changes occurred in the supply situation and, in any event, in 1983;
 - (d) endorsed a statement by the Chairman of the PPC concerning the need for an adequate oil data base at NATO Headquarters(1).

(1) Annex N

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7. The Council is invited to note this report, the progress achieved so far in response to the remit given by Ministers in their 1977 Guidance for Civil Emergency Planning and the follow-up action initiated by the SCEPC.

(Signed) Rinaldo PETRIGNANI

NATO, 1110 Brussels.

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THE ALLIANCE AND THE PROBLEM OF OIL SUPPLIES

Report by the Senior Civil Emergency Planning Committee

ORIGIN AND PURPOSE OF THE REPORT

- 1. In accordance with the guidance for CEP, given by the Council in Ministerial Session, the PPC, in its work programme for 1977/78(1), undertook to:
 - (a) determine the demand for petroleum products to meet civil and military defence needs which can be foreseen for a period of crisis and for the initial period of hostilities and the general scale of such demands for continuance beyond;
 - (b) assess in regard to oil, world trade and NATO's dependence on non-NATO sources of supply; and
 - (c) examine critical requirements and identify bottlenecks of the oil industry.
- 2. The June 1977 Plenary Session of the SCEPC, inter alia, approved (2) the setting up of an Ad Hoc Study Group on the Alliance and the Problem of Oil Supplies, which was tasked to carry out the studies mentioned under (a) to (c) above.
- 3. A first report regarding subject (a) above was noted by the Council, by the silence procedure, on 11th May, 1979 (3). That report, dealing with the main demands for petroleum products for civil and military defence needs, is effectively an update of C-M(73)94.
- 4. The present report which is based on the situation as of June 1980 is dealing with subjects (b) and (c) above. It is an update of C-M(75)9 and there is, therefore, a similarity in the structure of the old and the new study. Its main elements are:
 - A. Sources of supply
 - A1. Indigenous production
 - A2. Crude oil and product imports
 - A3. Effects of interruptions of supplies in peacetime

(3) C-M(79)24

⁽¹⁾ AC/12-D/648, paragraph 4

⁽²⁾ AC/98-DS/121, Item II

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- B. Supply and demand during a crisis and the initial period of hostilities
- B1. The demand for petroleum products for defence
- B2. Supply shortfalls and crisis and wartime demands
- B3. The availability and the use of stocks
- 5. The main purpose is to come to an assessment of the size and character of possible consequences of oil supply interruptions by comparing NATO's essential oil needs with different oil supply situations.

CONCLUSIONS

- 6. The following conclusions can be drawn from the results of the study:
 - (a) the Alliance remains heavily dependent on oil imports from non-NATO sources; although IEA and EEC member countries have agreed on oil import ceilings, there is not expected to be any significant reduction in the extent of the dependence in the near future;
 - (b) this dependence constitutes a permanent risk to the defence posture of the Alliance. Apart from the economic and financial strains caused by increasing oil prices which may well have negative effects on NATO's overall defence capability, there is the permanent risk of interruptions of supplies from major exporting countries. The IEA sharing scheme and complementary EEC arrangements have never yet been activated and their effectiveness in meeting NATO's specific needs is difficult to judge. It is therefore important to make progress in further developing flexible NATO arrangements with regard to oil (1);
 - (c) the dependence on non-NATO sources of oil supply could well have very serious consequences in war.

 North America's increased dependence on oil imports has reduced its capability to support a defence effort in Europe by diverting shipments originally destined for North America to Europe and/or by shipping oil from North America to Europe. However, North America's support would be of vital importance for the

(1) AC/12-D/688(Revised) AC/98-D/946

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armed forces and for essential civil purposes, also because the European share in NATO's oil consumption in wartime might be higher than in peacetime;

- (d) NATO might be able to maintain its defence capability in war for one or two months without imports from major non-NATO sources only if stocks and refinery capacity were still available. Stocks and refineries are in general not secure and they could well constitute prime targets. Sufficient product stocks for military and civil purposes will be of vital importance, especially in the early period of war. They would also provide insurance against losses of transatlantic convoys and ease the burden of naval escorts in providing oil shipment protection. There is a need to review the wide variety of arrangements regarding civil and military reserve stocks and their interrelationships with the aim of assessing the need for adaptations or additional arrangements;
- (e) in wartime, offshore installations and refineries are very difficult to protect from direct military attack. The level of protection against sabotage might, however, be raised significantly by a relatively modest increase in protective measures. Any such additional safeguards would be well worthwhile since offshore crude oil production is an important indigenous source of supply and the importance of refineries is greater because final products form only two-thirds of stocks;
- (f) NATO's dependence on non-NATO sources of supply and the remedial measures to be taken are both important and complex issues. The outcome of this study again emphasises the need for flexible and coherent planning to ensure the availability and equitable distribution of oil supplies. This was recognised by the Council when it tasked the SCEPC with the co-ordination of all Alliance POL planning for crisis and war.
- A. Sources of supply
- A1. Indigenous production
- 7. In 1979 indigenous production was 83 mio.t. in Canada, 476 mio.t. in the United States and 99 mio.t. in NATO Europe. Taking into account average refinery losses of 10% (1), this was 91% of consumption in Canada, 58% of consumption in the US and 15% of consumption in NATO Europe.
- (1) This was done by multiplying crude oil production figures by 0.9

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8. A comparison with the 1972 figures which were used in C-M(75)9 shows that for North America the share of indigenous production in inland consumption dropped from about 70% to 62%, whereas for NATO Europe the share went up from about 3% to 19% between 1972 and 1979, which was mainly as a result of the rapidly-increasing North Sea oil production and of the lower growth rate of oil consumption in Europe.

A2. Crude oil and product imports

Annexes A-H contain 1979 figures on NATO's oil imports 9. from various countries. In Annex J the information from Annexes A-H is aggregated. In 1979 imports from various areas outside NATO (in mio.t.) were (1):

TABLE I (2) IMPORTS FROM VARIOUS AREAS OUTSIDE NATO

Million Metric Tons and %

To:	NATO N	. America	NATO	Europe	NATO Total
From					
(a) OECD Non-NATO	1	(0)	5	(1)	6 (1)
(b) Near and Mid-East	129	(32)	353	(63)	482 (50)
(c) Africa	123	(31)	110	(20)	233 (24)
(d) S+C America	111	(27)	16	(3)	127 (13)
(e) Eastern Bloc	0	(0)	48	(8)	48 (5)
(f) Indonesia	21	(5)	1	(0)	22 (2)
(g) Others (Incl. China	19	(5)	27	(5)	46 (5)
TOTAL	404	(100)	560	(100)	964 (100)

⁽¹⁾ Figures between brackets indicate the share (in %) in total imports from outside NATO

⁽²⁾ Source for tables and annexes A-J: OECD Quarterly Oil Statistics NATO

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In addition to these imports, NATO North America imported 18 mio.t. from NATO Europe, whereas NATO Europe imported only about 4 mio.t. from the US and Canada.

10. The next step is to relate imports from the areas (a) to (g) to the total supplies available and to consumption in NATO North America, NATO Europe and the total NATO area, assuming average refining losses of 10% of crude oil imports. The results are:

<u>TABLE II</u> (1) (2) INDIGENOUS PRODUCTION AND IMPORTS AS A % OF TOTAL SUPPLIES AVAILABLE Millions Metric Tons

		NATO N.	America	NATO I	Europe	NATO T	otal
1.	1979 Oil Consumption	814		516		1,330	
2.	Ind. Production (multiplied by 0.9)	503	(55)	99	(15)	602	(38)
3.	2 as % of 1	62		. 19		45	
4.	Imports from:						
	(a) OECD, non-NATO	1	(0)	5	(1)	6	(0)
	(b) Near and M.East	129	(14)	353	(54)	482	(31)
	(c) Africa	_. 123	(14)	110	(17)	233	(15)
	(d) S + C America	111	(12)	16	(2)	127	(8)
	(e) Eastern Bloc	0	(0)	48	(7)	48	(3)
	(f) Indonesia	21	(2)	1	(0)	22	(1)
	(g) Others (incl. China) 19	(2)	27	(4)	46	(3)
	Total (a) to (g)	404	(45)	_. 560	(85)	964	(62)
5.	Total av. supplies (3) (lines 2 + 4)	907		659		1,566	
6.	Total re-exports and stocks building (line 5 - line 1)	93		143		236	
7.	Of which exports to non-NATO	13		46		59	•

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⁽¹⁾ Source: Quarterly Oil Statistics 1980/No. 1.
(2) Between brackets are shares (in %) in total available supplies (line 5).
(3) Oil trade between North America and NATO Europe is not taken into account.

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- 11. The importance of various import sources has changed considerably since 1972:
 - (a) (i) Near and Middle East has a 4% share in North America's available supplies in 1972, but in 1979 the share was 14%;
 - (ii) The South and Central America share in North America's available supplies, which was about 5% in 1972, went up to 12% in 1979;
 - (iii) The African share in North America's available supplies went up from 4% in 1972 to 14% in 1979;
 - (b) For NATO Europe the African share went down from 23% to 17%, but the share of Eastern Bloc imports went up from 2% to 7%;
 - (c) For NATO as a whole, the main change was an increase of the Near and Middle East share by 5%.
- 12. Another development which should be noted is the change in dependence on product imports. The share of product imports in available supplies was:
 - for NATO North America: 16% in 1972, 7% in 1979
 - for NATO Europe:

16% in 1972, 18% in 1979

- for NATO as a whole:

16% in 1972, 12% in 1979.

- A3. Effects of interruptions of supplies in peacetime
- 13. The Ad Hoc Study Group on the Alliance and the Problem of Oil Supplies (1) was not tasked to discuss the risks and possible causes of interruption of supplies from the various areas. Statements on the effects of such interruptions can however be made.
- 14. Recent experience has shown that even supply shortfalls which may seem to be of minor importance if expressed as a percentage of supplies to the Western world can easily lead to serious difficulties for the consumers in a number of countries. Possibilities for short-term demand restraint are small as countries will wish to increase or at least maintain economic activity and prefer to avoid if possible compulsory demand measures. (See also paragraph 22 on demand restraint).
- (1) Sub-Group of the PPC, approved by SCEPC in June 1977 (AC/98-DS/121, Item II)

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Countries' oil market structure, oil product price systems and seasonal demand can have an important bearing on the consequences of supply shortages, which at first sight seem to be of minor importance. Therefore, it is obvious that the consequences of a supply shortfall of, e.g. 20% would be very serious. As they realised the possible risks in 1974, a large majority of the OECD countries established the International Energy Agency (IEA). EEC member countries, too, agreed on certain oil crisis arrangements which are mainly complementary to IEA arrangements.

- Energy Programme (all NATO countries except Iceland and France, plus Austria, Australia, Ireland, Japan, New Zealand, Spain, Sweden and Switzerland) (1) have agreed to the activation of an emergency sharing scheme, should there be an identified cut of at least 7% in supplies to one or more signatories. For any heavier cut, signatories would be required to introduce measures to restrain demand in their respective countries by not less than 10%. Supplies available to signatories as a whole would be allocated to signatory countries by the IEA on a formulated fair share basis. Signatory countries would report their respective supply and demand positions to the Agency while certain international oil companies, the "reporting companies", would report to the Agency details of their operations which would indicate to the Agency any imbalances in supplies to signatory countries. On that basis the IEA Secretariat would calculate the monthly allocation rights and allocation obligations of member nations.
- 16. Assuming that the IEA's oil-sharing scheme and complementary EEC schemes would operate satisfactorily, a supply crisis would still have serious consequences for the economy of the member countries. Increasing oil prices and a lack of confidence in overall economic short-term developments could make it difficult to prevent inflation from going up and to maintain sound trade balances. Political relations also between Western industrialised countries would probably show more weak spots as the crisis extended over a longer period. It should be clear that the IEA's oil-sharing scheme however essential and useful, cannot solve all problems which would probably arise in an oil supply crisis.
- 17. The consequences of supply shortfalls would be much more serious if the IEA were not operating or if its sharing scheme were to become ineffective. As Table II shows, a total denial of imports from the Near and Middle East would be
- (1) Norway participates in the Agency under separate terms

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disastrous, especially for NATO Europe. An additional standstill in imports from Libya would bring the shortfall up to almost 18% for NATO North America, to about 60% for NATO Europe and to about 36% for the total NATO area. Even a 50% standstill in imports from the Near and Middle East and Africa would cause an emergency, with a potential of escalating quickly.

- 18. It is possible that other international organizations, in their function of providing a mechanism for sharing oil supplies among participating countries in a crisis or in face of hostilities involving NATO, cannot serve NATO's defence interests. It is insufficient to rely solely on other international organizations because:
 - (a) they might not operate in all circumstances; and
 - (b) even when operative, complementary arrangements could be needed to meet specific NATO needs.

It is clear that NATO must be prepared to call on NATO arrangements to ensure distribution of oil supplies in the defence interests of the Alliance.

- 19. The PPC, in developing NATO flexible arrangements in regard to oil, is considering the steps to be taken under various circumstances. The basic approach is to provide for a phased activation of the NWOO, to match the developing situation and to facilitate a smooth transition from one phase to the next (1).
 - B. Supply and demand during a crisis and the initial period of hositilities
 - B1. The demand for petroleum products for defence needs
- 20. In May 1979 the Council noted C-M(79)24, a report on the main demands for petroleum products for civil and military defence needs. The estimated military requirements for a period of 40 days (10 days Alert Phase and 30 days of combat), and the minimum civil requirements for a 40-day emergency period were estimated and added together. The outcome of these calculations has been compared with a 40-day peacetime civil and military requirement. This indicated that the overall 40-day wartime requirement will probably be about two-thirds of the 40-day peacetime requirement.

(1) See AC/12-D/688(Revised)

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- 21. The estimates of minimum civil wartime demand used in preparing C-M(79)24 must be viewed with caution. Such estimates are difficult to make and recent experience has shown that it can be very difficult for economies to accommodate even modest cuts in supplies. Problems encountered during the first half-year of 1979 suggest that projected lower levels of consumption might not be attainable for a longer period of time within the context of a viable war economy. Although governments might have more support for demand restraint programmes in wartime, there will be serious practical problems and thorough preparation is therefore necessary to ensure timely and effective implementation.
- 22. Bearing in mind that the essential wartime requirement for some major products is more than two-thirds peacetime consumption, it should not be concluded that the essential requirements for all petroleum products could necessarily be met if supplies available to the Alliance were maintained at about two-thirds of peacetime levels. But to some extent, in the case of a 65-70% availability, the differing levels of wartime demand for various products could be met by:
 - (a) applying different draw-down rates on the stocks of the various products;
 - (b) changes in the refinery yields (see Annex K);
 - (c) transfer of supplies between member nations;
 - (d) substitution of oil products by other forms of energy (e.g. natural gas, coal) (1).
 - B2. Supply shortfalls and crisis and wartime demand
- 23. Nevertheless, taking into account C-M(79)24, it would become very difficult to meet NATO's defence needs if supply were to fall below 75% of the peacetime level. Table II indicates that because of the higher level of indigenous production, NATO North America would still be above or close to the 75% level in many cases, even without imports from the Near and Middle East and Africa. But without imports from those areas, available supplies in NATO Europe would be below 30% of the normal level.
- 24. In wartime supply losses would probably not be limited to imports from only one of the areas (a) (g) mentioned in Tables I and II. It is, for instance, possible
- (1) For more detailed information see AC/12-D/665

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that the Alliance might lose 100% of Eastern Bloc imports, 75% of Near and Middle East imports, 50% of African imports and 25% of all other imports from outside NATO. In this case, supplies available to NATO North America would decrease by about 20%, supplies available to NATO Europe would decrease by about 60%, and the loss for NATO as a whole would be 35-40%.

25. It is clear that in wartime it will be difficult for the Alliance to limit the shortfall in supplies from various non-NATO sources. Additionally, transport of crude oil and products within NATO might be very difficult and many of NATO's own crude oil production installations are vulnerable to enemy action. This is especially true for offshore installations which are numerous (e.g. North Sea) and will become even more vital in the near future.

B3. The availability and the use of stocks

- 26. To make up the difference between supply and demand, NATO countries would have to draw on their stocks. Stock levels vary from country to country, and there are fluctuations for seasonal and commercial reasons, but the average overall stock level (crude oil and products) is about the equivalent of 90 days in NATO Europe, whereas it tends to be somewhat lower in North America. Total stocks usually consist of 30-35% crude oil stocks and 65-70% product stocks. How much of the stock will effectively be available for consumption in wartime will therefore depend on the availability of refinery capacity.
- Three more reservations have to be made regarding the availability of stocks. First, stocks could well be at a low level at the outbreak of hostilities if oil has been in short supply during the preceding period. The IEA, in calculating countries' allocation rights and obligations, assumes that countries have drawn on their stocks. Secondly it should be recognized that a proportion of the stocks is tied up as operating stocks. The minimum level of these operating stocks can differ from country to country. The minimum level will depend also on the seriousness of the supply situation and expectations for the future. In discussions in international fora figures between 30 and 60 days of total consumption have been mentioned as minima for continuing operations. These ranges of stock levels must be considered for planning purposes in determining stocks available for distribution in case of a peacetime oil shortage. The minimum might be lower in war because of the preparedness to accept hardship and the stress resulting from circumstances. Thirdly, stocks are likely to be concentrated near oil refineries and ports which are possible prime target areas

ANNEX A to C-M(80)45

CRUDE + NLG + FEEDSTOCKS SUPPLIES 1979 FROM NATO COUNTRIES TO NATO COUNTRIES

THOUSAND METRIC TONS

<u>To</u> From	Bolgium(1)	Denmark	France	Germany	Greece	Italy	Notherlands	Horvey	Portugal	Turkey(3)	깺	NATO Burope	Canada	<u>us</u>	HATO Total (2)	
1. Belgium				330			189				631	1,150			1,150	
2. Denmark	[′] 19		•	64			62				352	517			517	
3. France	75	12		296		205	35				80	703		17	720	
4. Germany	21					103	33					157			157	
5. Greece	78			18		484	28					608			608	
5. Italy				322							30	352		72	424	
7. Notherland	ls 256	23		1,851		87					938	3,155		469	3,624	ı
8. Horway.	404	60	1,560	3,470		•	525			•	3,819	9,838		3,686	13,524	
9. Portugal										•						
10. Turkey														76	76	
11. UK	585	3,049	2,682	12,071		5	4,657	2,643				25,692		9,767	55,459	
12. NATO Buroj (1 - 11)	Pe 1,438	3,144	4,242	18,422	-	884	5,549	2,643	+	-	5,850	42,172		14,087	56,259	
13. Canada	,	27		150		66					23	266		19,080	19,346	
14. US				28		55	•				111	194	4,553		4.747	
15. NATO (13+10	4)	27		178		121			**********		134	460	4,553	19,080	24,093	
Total HAT((12+15)	0 1,438	3,171	4,242	18,600	_	1,005	5,549	2,643		<u>-</u>	5,984	42,632	4.553	33,167	80,352	

⁽¹⁾ Including Luxembourg.

^{(3) 1976} figures, more recent figures not available

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ANNEX B to C-M(80)45

PROM MATO COUNTRIES TO MATO COUNTRIES

THOUSAND METRIC TONS

	<u>To</u> From	Belgium	<u>Denmark</u>	Prance	Germany	Greece	Iceland	Italy	Ponze	Fether-	Horsey	Portugal	(2)	UK	MATO Europe	<u>Conada</u>	<u>ue</u>	HATO Total	
1.	Bolgium(1)		569	398	3,194	9	22	170	1,032	2,902	553	18	94	1,069	10,030		134	10,164	
2.	Donmark			59	27					155	127				368			368	
3.	Prence	529	453		2,761	962		526	88	1,510	.95	209	32	1,357	0,522		889	9,411	
4.	Cormany	211	334	1,038		3		46	159	1,079	100	.9	7	328	3,314		15	5,329	
5.	Greece	28		175	56		4	411		384			. 17	257	1,316		135	1,451	
6.	Iceland									. 11					11			11	
7.	Italy	194	296	1,696	1,139	1,118			•	2,277	41	95	267	1,517	8,640		1,662	10,502	
1.8.	Luxenbourg	8													. •				
T _{9.}	Hetherlands	3,641	2,432	1,764	15,316	111	104	145	72		453	165	108	5,693	28,004	37	760	28,601	ŀ
10.	Horney	9	544	64	145		7			260		•		348	1,377		5	1,360	
11.	Portugal	2	6		63	3	64	29		55				189	411		147	558	
12.	Turkey															•			
13.	UK	391	1,601	1,059	1,351		22	161		2,434	788	153	53		8,046		171	8,217	
14.	NATO Burope (1-13)	5,013	6,235	6,253	24,052	2,239	219	1,488	1,351	11,067	2,157	657	578	8,738	70,047	37	3,916	74,000	
15.	Canada	27	56	1	56					294	113			17	564		5,975	4,539	
16.	US	152	32	560	1,405	128		270		561	390	20	62	57	3,697	343		4,040	
17.	NATO Total (14-16)	5,192	6,323	6,814	25,593	2,367	219	1,758	1,351	11,922	2,660	677	640	8,792	74,508	380	7,891	82,579	

⁽¹⁾ Including Luxembourg.

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^{(2) 1976} figures; more recent figures not available.

ANNEX C to C-M(80)45

						1		+ NLC + PERDS			-		TH	OUBAND METS	ic Tons	
	<u>To</u> From	Belgium(1)	<u>Denmark</u>	France	Germany	Greene	Italy	Netherlands			Turkey(3)	II	HATO Burode	Canada	V8	MATO Total (2)
1.	Austria				3								3			3
2.	Pinland				٠.							4	4	•		4
3.	Ireland															
4.	Spain		18		32		255						505		31	336
5.	Byeden	110	86		52								248			248
	Switzerland	•					. 59						59			59
占 7.	0200 Burope (Hon-HATO) (1 - 6)	110	104	-	87	-	314	-	•	-	•	4	619	: •	31	650
8.	Australia											•		4	152	152
9.	Japan								٠.						3	3
10.	New Zealand	L														
11.	Other OECD (Hon-HATO) (8-10)	-	-		-		-	•				-		•	155	155
12.	OECD (Mon-MATO) TOTAL (7 + 11)	110	104	-	87	-	514	•		•		4	619	-	186	805

- (1) Including Luxenbourg.(2) Ideland not available.
- (3) 1976 figures, more recent figures not available.

UNCLASSIFIED NATO

ANNEX D to C-M(80)45

OIL PRODUCT SUPPLIES 1979

							PRON 1	CON-MATO O	CO COURTE	IBS TO HAT	COUNTRIB	<u>s</u>			THOUSANT	e pierric ec	M8		
	To Pros	Belgium	Dennark	France	Germeny	Greece	<u>Iceland</u>	Italy	leaxen-	Hether- lands	Horney	<u>Portugal</u>	Tyrker (2)	UK .	HATO Burgre	<u>Canada</u>	<u>U8</u>	MATO Total	
١.	Austria				15			30		16				•	61			61	
2.	Finlend		28		50					191	27	10		84	390			39 0	
3.	Ireland													30	38			38	
4.	Spain	68		15	39	46		84		270	61	98	51	100	834		160	994	
5.	Sweden	18	1,196	176	95					42	436	25	25	579	2,592			2,592	
6.	Switserland	20		17	51			6			4	41			139		_	139	
17.	OECD Burope (Hon-MATO) (1-6)	106	1,224	208	250	48	-	128	-	519	526	174	76	795	4,054	•	160	4,214	- T-
8.	Australia											. 8			8		129	137	
9.	Japan															4	37	-37	
10.	New Zealand															13		13	
11,	Other OECD (Non-MATO) (8-10)	_	-	•	-	-	-		_	-	-	8	-	-	•	13	166	167	
12.	OBCD (Mon-MATO) Total (7+11)	106	1,224	208	250	48	-	128	-	519	528	182	76	793	4,062	13	326	4,401	

(1) 1976 figures; more recent figures not available.

ANNEX E to C-M(80)45

CRUDE + MGL + PERDSTOCKS SUPPLIES 1979
FROM STAR AND MIDDLE BAST AND APRICAN COUNTRIES TO MATO COUNTRIES

	.*				<i>1</i> 2	OH HEAR AN	O MIDDLE	MAST AND AVE	CAR COUR	MIN TO IA	TO COURTHING	l .	. THOU	BAND NOTELO	2008	
	<u>Io</u> From	Belsium(1)	<u>Denmark</u>	France	Germany	Greece	Italy	<u>Hetherlands</u>	HOTHAX	Portugal	Turkey(3)	<u>uk</u>	Europe Europe	Canada	US.	TATO Total(2)
1.	Abu Dhabi	557	382	7,116			1,090	1,387		292		2,205	13,029		9,637	22,666
2.	Other U.A.R.	1,108		1,524	7,556		1,565	2,932	٠.			1,415	16,098	245	6,399	22,740
3.	Iran	3,091	750	6,664	11,540	357	2,224	5,284	456	1,647	1,674	5,069	38,764	2,262	22,733	03,759
4.	Ireq	1,677		24,474	2,255	5,512	22,357	1,976	76	3,199	6,614	6,963	72,861	415	4,514	77,810
5.	Euvait	1,145	463	4.870	2,703	311	10,941	8,388	3			12,406	41,310	882	1,422	43,614
6.	Qatar	1,358	166	3,791	514		1,164	1,271		72		419	0,755		1,512	10,267
7.	. Saudi Arabia	10,825	1,366	44,530	17,945	8,856	33,433	18,633	813	2,072		10,549	157,022	9,586	68,476	235,084
녆.	TOTAL Hear+Middle I (1 - 7)	19,761 last	5,155	92,969	42,491	12,836	72,774	39,871	1,346	7,282	6,266	47,104	347,859	15,388	114,695	475,940
9.	Algeria	317		5,018	9,742	79	2,909	498				619	19,182	449	28,175	47,809
10.	Gabon			1,294	768		99						. 2,161	•	2,203	4,364
11.	Li bya	99		4,012	17,887	870	14,992	933			2,730	541	42,064	372	36,764	79,200
12.	. Nigeria	2,112	317	9,617	14,570		3,000	13,004	596	100		381	45,697		52,963	96,660
13.	Africa (9 - 12)	2,528	317	19,941	42,967	949	21,000	14.435	596	100	2,730	1,541	107,104	821	120,108	228,033
14.	(8 + 13)	22,289	3,452	112,910	85,458	13,785	93,774	54,306	1,944	7,582	11,018	48,645	454,963	14,209	234,801	703,975

⁽¹⁾ Including Luxembourg.

NATO UNCLASSIFIED

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⁽²⁾ Iceland not available.

^{(5) 1976} figures, more recent figures not available.

ANNEX F to C-M(80)45

8,507

H

11,467

								OIL P	RODUCT SUP	PLIES 1979								
						PROM	NEAR AND MI	DDLE RAST	AND AFRIC	AN COUNTRIE	S TO HATO	COUNTRIES			THOUSAND	METRIC TO	MS	
	Îo Pron	<u>Pelgium</u>	Denmark	France	Corpeny	Greece	<u>Iceland</u>	Italy	ponta Inxes-	Nother- lende	ROLMAY	Portugal	Turker (1)	<u>uk</u>	Parope	Canada	<u>181</u>	Total
1.	Abu Dabi									+ · · · · ·								
2.	Other UAE			57				137	•				17		211			211
3.	Iran			719	67			140		280				117	1,323		373	1,696
4.	Ireq				1			41		,			16		58		22	80
5.	Kweit	72			475			698		758	19		66	92	2,200			2,200
6.	Q iter										2				2			2
7.	Saudi Arabia	14	1	546	25	125		417		256	47	3	17	22	1,473		135	1,608
8.	Total Hear + Middle East	86	1	1,322	568	125	-	1,433	<u></u>	1,294	68	3	136	231	5,267	-	530	5.797
9.	Algeria	40		68	51	17	•	38		585	129			46	774		1,049	1,823
10.	Gabon			112	154		•			475					741			741
11.	Libya		6.	106	4	304		302		270	180	. 16	33	195	1,416		810	2,226
12.	Nigeria	24	8	<u> </u>	131					146					309		571 .	880
13.	Total Africa (9-12)	64	14	286	340	321	-	340	-	1,276	309	16	33	241	3,240	-	2,430	5,670

(1) 1976 figures; more recent figures not available.

Total (8+15)

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2,570

377

ANNEX G to C-M(80)45

CRUDE + HGL + PERDSTOCKS SUPPLIES 1979 PRON VARIOUS NON-CROD COUNTRIES TO MATO COUNTRIES

THOUSAND METRIC TONS

<u>Zo</u> Fron	Belgium (1) <u>Densark</u>	France	Germany	Greece	Italy	Hetherlands	Horvay	Portugal	Turkex(4)	PK	HATO Europe	Canada	V8	HATO Total(2)	
1. Boundor														1,451	1,451	
2. Venesuela	225	501	1,052	1,380		957	217	115			1,568	5.795	11,025	19,980	36,800	
5. Other 8+C		17	85	170		407	44				142	865		31,451	32,296	
4. 8+0 Ameri (1 - 3)	225	318	1,117	1,550		1,364	261	115	-	-	1,710	6,660	11,025	52,662	70,547	Į
5. Romania				326								326		15	341	
6. USSR	292	1,714	5, 136	6,121	962	5,934	947	692	826		2,157	24,781			24,781	
7. Other Bas Buropean	<u> </u>	209	19	263		526	5		•		34	1,056			1,056	
8. Eastern B (5 - 7)	100 292	1,923	5,155	6,710	962	6,460	952	692	826	•	2,191	26, 163	•	15	26,178	
9. China						360						360		465	825	
10. Indonesia			67	430		55						550		19,203	19,753	
11. Other(3)	156	63	3,242	1,982	2,424	11,252	716	864	274	212	1,848	23,033	1,065	14,901	38,999	
	Prom 1. Boundor 2. Venesuela 5. Other S+C America 4. S+C ineric (1 - 3) 5. Romania 6. USSR 7. Other Bas European 6. Eastern B (5 - 7) 9. China 10. Indonesia	From 1. Equador 2. Venesuele 225 5. Other S+C anerica 4. S+C America (1 - 3) 225 5. Romania 6. USER 292 7. Other East European 8. Eastern Bloo (5 - 7) 292 9. China 10. Indonesia	From 1. Boundor 2. Venesuela 225 501 5. Other SeC 17 4. SeC America 17 4. SeC America (1 - 3) 225 518 5. Romania 6. USSR 292 1,714 7. Other East European 209 8. Eastern Bloo (5 - 7) 292 1,923 9. China 10. Indonesia	From 1. Equador 2. Venesuela 225 301 1,052 3. Other Sec America 17 85 4. Sec America 225 318 1,117 5. Romania 6. USER 292 1,714 5,136 7. Other East European 209 19 8. Eastern Bloo (5 - 7) 292 1,925 5,155 9. China 10. Indonesia 67	1. Equador 2. Venezuela 225 301 1,052 1,380 3. Other S+C	1. Equador 2. Venesuela 225 301 1,032 1,380 3. Other 8+C	1. Equador 2. Venezuela 225 501 1,052 1,380 957 3. Other S+C	1. Bouador 2. Venesuela 225 301 1,052 1,380 957 217 3. Other 8+C America 17 85 170 407 44 4. S+C America (1-3) 225 318 1,117 1,550 - 1,364 261 5. Romania 326 6. USSR 292 1,714 5,136 6,121 962 5,934 947 7. Other Bast Buropean 209 19 263 526 5 8. Eastern Bloo (5-7) 292 1,923 5,155 6,710 962 6,460 952 9. China 560 10. Indonesia 67 430 55	1. Ecuador 2. Venesuela 225 501 1,032 1,380 957 217 115 5. Other SeC America 17 85 170 407 44 4. SeC America (1 - 3) 225 318 1,117 1,550 - 1,364 261 115 5. Romania 326 6. USSR 292 1,714 5,136 6,121 962 5,934 947 692 7. Other East European 209 19 263 526 5 6. Eastern Bloo (5 - 7) 292 1,923 5,155 6,710 962 6,460 952 692 9. China 360 10. Indonesia 67 430 55	1. Boundor 2. Venesuela 225 501 1,052 1,580 957 217 115 3. Other 8+0 America 17 85 170 407 44 4. 8+0 America 225 518 1,117 1,550 - 1,364 261 115 - 5. Romania 326 6. USSR 292 1,714 5,136 6,121 962 5,934 947 692 826 7. Other East European 209 19 263 526 5 8. Eastern Bloo (5 - 7) 292 1,923 5,155 6,710 962 6,460 952 692 826 9. China 360 10. Indonesia 67 430 53	1. Boundar 2. Venesuela 225 501 1,032 1,380 957 217 115 5. Other 8+0 America 17 85 170 407 44 4. 8+0 America (1 - 3) 225 518 1,117 1,550 - 1,364 261 115 5. Romania 326 6. USSR 292 1,714 5,136 6,121 962 5,934 947 692 826 7. Other East European 209 19 263 526 5 8. Eastern Bloo (5 - 7) 292 1,923 5,155 6,710 962 6,460 952 692 826 - 9. Ohina 360 10. Indonesia 67 430 55	1. Boundar 2. Venesuela 225 501 1,052 1,380 957 217 115 1,568 5. Other 8+0 America 17 85 170 407 44 142 4. 8+0 America (1 - 3) 225 318 1,117 1,550 - 1,364 261 115 1,710 5. Romania 326 6. UBSR 292 1,714 5,136 6,121 962 5,934 947 692 826 2,157 7. Other Bast Burgean 209 19 263 526 5 34 8. Eastern Bloo (5 - 7) 292 1,925 5,155 6,710 962 6,460 952 692 826 - 2,191 9. China 360 10. Indonesia 67 430 55	To Prime Political Prime Prime Greece Italy Retherlands Howard Retherlands Portugal Purkey(4) UK Rutone Purkey(4) <	Proper Palaium Panark Prance Garmany Greece Link Ratherlands Rovar Portuent Turkex W Ratherlands Proper	EQ. Rolation (1) Denmark Prome Garmany Greece Italy Setherlands Hours Portuent Funker(4) HK Burden Change 1. Boundor 2. Venesuela 225 301 1,052 1,380 957 217 115 1,568 5,795 11,025 19,980 3. Other Self 17 85 170 407 44 142 865 31,431 4. Sel America (1-3) 225 318 1,117 1,550 - 1,364 261 115 - - 1,710 6,660 11,025 52,862 5. Romania 326 326 15 - - 1,710 6,660 11,025 52,862 5. Romania 292 1,714 5,136 6,121 962 5,934 947 692 826 2,157 24,781 7. Other East Buropean 209 19 263 526 5 34 1,056 8. Eastern Bloo (5-7) 292 1,925	To Prime Religion (1) Pensark Prance Grands Halz Retherlands Hors Posture Turker (4) HK Ruxone Canada UB Total (2) 1. Boundor 2. Venesuela 225 301 1,032 1,380 957 217 115 1,566 5,795 11,025 19,900 36,800 3. Other Sed America 17 85 170 407 44 142 265 31,431 32,296 4. Sed America (1 - 3) 225 318 1,117 1,550 - 1,364 261 115 - - 1,710 6,660 11,025 52,862 70,547 5. Romania 326 326 5,934 947 692 826 2,157 24,781 24,781 7. Other East Burgeau 209 19 263 526 5 34 1,056 - 1,056 8. Bastern Bloo (5 - 7) 292 1,925 5,155 6,710 962 6,460 952 692

⁽¹⁾ Including Luxenbourg.

⁽²⁾ Iceland not available.

⁽⁵⁾ Other countries not mentioned in Tables 1-4: Other West Burope, Other Burope, USSR + China (not the sum of 6 and 9 above) and non-specified.

^{(4) 1976} figures, more recent figures not available.

ANNEX H to C-M(80)45

OIL	PRODUCE	SOLATION	1979

								FROM VAL	TOUS NON-	ORCD COUNT	RIES TO MAT	O COUNTRI	18			THOUSAM	e metric :	ROMS		
		To From	<u> Polgiun</u>	Denmark	Prence	Germany	Greece	Icelan4	Italy	Ponta	Hether- lands	Horsey	Portugal	Turker (2)	TK.	HATO Purode	Canada	15	Total	
	1.	Ecuador											-					696	696	
	2.	Yenesuela	76	334	724	251	32		1,544		568	115	43	97	124	3,900	208	21,074	25,190	
	3.	Other SeC	10	410	618	1,776	49	35	187	•	1,880	66	64	44	492	5,629		25,526	31,155	
	4.	8+C America (1-3)	86	744	1,542	2,027	81	35	1,731	•	2,448	181	107	141	616	9,537	208	47,296	57,041	
	5.	Romania	55		297	764	439				1,654		36			3,225	. 12 , . •	374	3,599	
	6.	USER	1,314	316	963	3,213	. 119	365	449		4,845	126			736	12,446	· · · · · · · · · · · · · · · · · · ·	62	12,508	
	7.	Other Sast Buropean	32	165		3,021	762		555		1,155	17				5,617	en de la companya de La companya de la co		5,817	
Ė	8.	Enstern Bloc (5-7)	1,401	481	1,340	6,998	1,320	365	1,004	-	7,634	143	36	•	766	21,488		436	21,924	Ļ
	9.	Chink					15				. 16					31		20	51	
	10.	Indonesia			46					•	54					100		1,656	1,756	
	11.	Others (1)	105	60	345	230	310		742		652	1		751	596	3,770	272	2,661	6,703	

⁽¹⁾ Other countries not mentioned in Tables 1-4: Other West Europe, Other Europe, USSE + Chine (not the sum of 6 and 9 above) and non-specified.

^{(2) 1976} figures; more recent figures not available.

ANNEX J to C-M(80)45

THOUSAND METRIC TOMS

OIL SUPPLIES TO HATO 1979

	To			HATO E	UROPE		• • •	1		HATO NORTH	AMERICA		 	l		HATO 9	OTAL		
	To Prop	CHUDE	PTC.	PROD	JC78	CRUDS + 1	RODUCTS	CRUDE I	TC.	PROD	ICTS	CHUDE + 1	RODUCTS	CRUDE	TC.	PRODU	073	CRUDS + I	RODUCTS
		1000 metr t.	% of	1000 metr t.	% of prod.	1000 metr t.	% of total	1000 metr t.	% of orude	1000 metr t.	% of prod.	1000 metr t.	% of total	1000 metr t.	% of orude	1000 metr t.	% of prod.	1000 metr t.	% of total
1.	NATO Burope	42,172	7.6	70,047	57.5	112,219	16.6	14,087	. 3.6	5,953	6.2	18,040	4.0	56,259	6.0	74,000	39,8	130,259	11.6
2.	NATO North	460	0.1	4,261	5.5	4,721	0.7	23,633	6.1	4,318	6.7	27,951	6,2	24,093	2,6	8,579	4.6	32,672	2,9
3.	NATO Total	42,632	7.7	74,308	61.0	116,940	17.3	57,720	9.7	8,271	12.9	45,991	10,2	80,352	8.5	82,579	44.4	162,931	14.5
4.	ORCD Europe (Non-MATO)	619	0,1	4,054	5.3	4,673	0.7	31		160	0.3	191	-	650	0,1	4,214	2.5	4,864	0,4
5.	Other OECD (Mon-MATO)	-	-	8	-	8	-	155		179	0.3	334	0.1	155	•	187	0,1	342	-
ے 6. ا	OBCD Total (Non-NATO)	619	0.1	4,062	3.3	4,681	0.7	186	. =	339	0.5	525	0.1	805	0.1	4,401	2.4	5,206	0.5
7.	Hr/+ Middle East	347,859	62.7	5,267	4.3	353,126	52.2	128,081	35.1	530	0,8	128,611	28.5	475,940	50.1	5,797	5.1	481,737	42.7
8.	^ I	107,104	19.3	3,240	2.7	110,344	16.3	120,929	31.3	2,450	3.8	123, 559	27.4	228,033	24.2	5,670	5.0	233,703	20.7
9.	S + C (America)	6,660	1.2	9,537	7.8	16,197	2.4	63,887	46.5	47,504	74.1	111,391	24.7	70,547	7.5	57,041	30. 7	127,588	11.4
10.	Bastem Bloo	26,163	4.7	21,486	17.6	47,651	7.0	15	-	436	0.7	451	0.1	26,178	2,8	21,924	11.8	48,102	4.5
11.	Indonesia	550	0.1	100	0.1	650	0,1	19,203	5.0	1,656	2,6	20,859	4.6	19,753	2,1	1,756	0.9	21,509	1.9
12.	Others incl. China	23,393	4.2	3,801	3.1 —	27,194	4.0	16,431	4.3	2,953	4.6	19,384	4.3	39,824	4.2	6,754	5.6	46,578	4.1
	TOTAL	554,980	100.0	121,603	100.0	676,783	100,0	386,452	100.0	64,119	100.0	450,571	100.0	941,432	100.0	185,922	100.0	1,127,354	100,0

-1-

ANNEX K to C-M(80)45

CHANGES IN REFINERY YIELDS - JET FUEL AVAILABILITY

- 1. The Ad Hoc Study Group on the Alliance and the Problem of Oil supplies studied several aspects of changes in refinery yields, in crisis and war. Jet fuel availability is an important facet because of the ministerial decision to adopt aviation kerosene (F 34) as the standard jet fuel for land-based turbine engined military aircraft. The decision was based upon a number of NATO and national studies as to performance, safety, technical feasibility and availability, and the experience of the UK and France who were already using the safer fuel. The work to implement this ministerial decision is being undertaken by AC/297(WG/4).
- A USAF report (AFAPL-TR-74-71) in 1975 stated that the use of aviation kerosene (F 34, NATO), AVTUR (UK) and JP8 (US) would put the Department of Defence in competition with US commercial airlines in that 19 billion gallons a year were available, of which 13 billion gallons were used by the airlines and 5 billion gallons by the military. The report included assumptions of use by the scrapped US Supersonic Transport, and by Concorde. A Military Agency for Standardization report in 1975 made the point, however, that previous fears as to poor refinery yields of kerosene as opposed to naphtha had been dispelled by improvements in refinery practice. Report No. 93 of the Advisory Group on research and development on "Future Fuels for Aviation" published in 1976, stated that aviation kerosene accounted for 1-4% of the barrel in NATO Europe, whereas 10-12% could be made available from straight run distillation. European refiners would thus have no difficulty in supplying increased aviation demand. In the United States about 12% of the barrel is used for all aviation fuels, but as a proportion of heavier fractions are "cracked" to produce 40-45% of the barrel to meet US demand for "automotive" fuels, there is sufficient refinery flexibility to produce aviation kerosene. The report also suggests that shifts in energy use should lead to a greater proportion of the barrel becoming available for the production of aviation kerosene.
- 3. AC/12-D/677 concludes that NATO requirements for military forces are about 3% of the barrel in peacetime, and are likely to at least double in wartime. Given the figures in AGARD report No. 93, and in Annex IV to that report, the opinion of JOS is that there should be no difficulty in meeting peak wartime demand for aviation kerosene without impinging heavily on civil demand for middle distillates.
- 4. Advice from the Directors JOS, sought by the Chairman of the Study Group, amply bears out this conclusion. While JOS(W) emphasises that his figures are necessarily only broad approximations, his advice is that in North America:

ANNEX K to C-M(80)45

-2-

- (a) an extra volume of JP8 could be obtained by sacrificing 0.4 volumes of mogas and 0.8 volumes of gas oil/diesel; and extra 0.2 volumes of heavy fuel oil would then also be obtained. Similarly,
- (b) an extra volume of JP4 would decrease yields by 0.7 volumes of mogas and 0.4 volumes of gas oil/diesel, with an extra 0.1 volume of heavy fuel oil;
- (c) a switch of one volume of JP4 to one volume of JP8 in refinery yield would mean the loss of 0.4 volumes of gas oil/diesel and a gain of 0.3 volumes of mogas and 0.1 volume of heavy fuel oil. (All these options depend upon refineries not being already near their economic maximum kerosene yields, which in general they are not.) On any likely supposition as to change of crude mixes, we conclude that the total Western hemisphere demand for jet fuels could be met, and this without reducing the yields of mogas or gas oil below those needed to support a war economy.
- 5. In considering the same question for Eastern hemisphere NATO, we again have the problem of what assumptions to make on the changed sources and mix of crudes. The JOS Directors' advice is that, on average:
 - (a) an extra volume of JP8 could be obtained by sacrificing two volumes of gas oil/diesel, when an extra volume of heavy fuel oil would also be obtained;
 - (b) an extra volume of JP4 could be obtained by sacrificing one volume of gas oil/diesel, and 0.5 volumes of mogas, where an extra 0.5 volumes of heavy fuel oil would also be obtained;
 - (c) a switch of one volume of JP4 to one volume of JP8 would mean the loss of one volume of gas oil/diesel, and gain of 0.5 volumes of mogas and 0.5 volumes of heavy fuel oil.
- 6. In all cases in which a fairly large proportion of crudes processed are from existing stocks or indigenous supplies, the clear conclusion is that jet fuel demands could be met, again without jeopardising minimum requirements of mogas or gas oil/diesel. However, the recent loss of Iranian supplies has led to difficulties in meeting all peacetime requirements of jet fuels. Some of these difficulties may be regarded as transitional, pending the adjustment of refinery outputs or restoration of Iranian supply. It will always be necessary in such circumstances to avoid drawing on stocks without full regard to defence needs while readjustments are made (1).

(1) See also AC/12-WP/137

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ANNEX L to C-M(80)45

OIL IMPORTS FROM IRAN

1. In 1978 Iran was the world's second largest oil exporting country. Exports almost came to a standstill in January 1979. They increased later on, but average exports were only 1 million barrels a day (1) during the first quarter and 3 - 3.5 million b/d later in 1979, whereas the 1978 average was 5.2 million b/d with a peak of 6 million b/d.

2. The table below illustrates the decreasing rôle of Iran as a supplier to NATO:

IMPORTS FROM IRAN

In million As % of imports As % of from non-NATO countries metric tons consumption <u> 1978</u> <u> 1979</u> <u> 1978</u> <u> 1979</u> <u> 1978</u> <u> 1979</u> 19 6 91 40 16 7 7 48 25 10 3 3

1. NATO
Europe
2. US +
Canada

- 3. Japan was a large non-NATO importer of Iranian oil. In 1978 Japan imported 39 million metric tons, 17% of Japanese oil imports and 17% of its consumption (2). In 1979 imports from Iran were down to 24 million tons, about 10% of total imports and 10% of Japanese oil consumption.
- 4. In order to arrive at an estimate of 1980 stock levels Western experts in 1979 developed OPEC production scenarios which best represented their views on the way production in 1980 could evolve. In those scenarios the "best case" forecast for Iranian production was 3.5 million b/d. The alternative was 2.8 million b/d, which was part of a scenario under which all discussed OPEC production costs would be realized.
- 5. It is now clear that Iranian production in 1980 will probably on average be far below 2.8 million b/d. It was already below 2 million b/d in March 1980, probably only around 1 million b/d in April and below 1 million b/d in May and June 1980.

According to various oil industry and government experts Iran is making efforts to replace former contracts by new sales to clients from Eastern Europe and neutral nations who are willing to pay the high price or who are receiving disguised discounts. Rumania is known to have increased its 60,000 b/d contract to 100,000 b/d and East Germany, Poland and Bulgaria could also be customers for smaller quantities.

(1) 1 million barrels a day = 50 millions tons a year
(2) Japan's indigenous crude oil production only amounts to about 1% of its oil consumption

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6. It would be very difficult for Iran to rapidly increase its oil production and its refinery output substantially once a political decision to do so would be taken. Developments in 1979 and 1980 have led to poor maintenance of installations, there are not enough experts left in Iran and the country is said to be short of modern equipment and spare parts.

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ANNEX M to C-M(80)45

TRENDS IN THE STRUCTURE OF THE INTERNATIONAL OIL MARKET

1. The structure of the international oil market is changing. The most significant factor causing this change in recent years is the increasing number of country-to-country contracts ("bilateralism").

For economical and political reasons oil producing countries are going to sell their crude oil more and more directly to the consumer-countries, whereby very often governments are involved. This development diminishes the traditional rôle of the major international oil companies very seriously. "Petroleum Intelligence Weekly" recently estimated the majors' share of the total world-oil-supply this year at 58%; in 1973 this share amounted to 92%.

- 2. The consequences for the international oil supply are threefold: loss of efficiency (rising stocks, costs and prices), loss of flexibility (possible complications for sharing the oil in emergency-situations) and increasing influence of "politics" with all inherent risks. Two other developments worthwhile noting are the growing importance of the independent oil traders on the spotmarket and the increasing participation of the oil producing countries in downstream activities by building up own refinery-capacity (e.g. Saudi Arabia) and for processing deals with international companies.
- or less controlled by a limited number of international oil companies, oil exporting countries themselves are now looking for agreements with international companies, under which these companies would process and market oil on behalf of, for instance, Saudi Arabia's state-owned Petromin. In this way, the oil producing countries would make more profit on each barrel of oil they sell, at the expense of the oil companies since sales would be in the form of end-use products, such as gasoline. In effect, the producing countries would be renting the use of the companies' refineries as well as the companies' marketing and distribution networks.

In the past the international oil companies generally avoided helping oil exporters enter the product market. They may now see more advantages in helping the exporters move downstream, such as possible improvements in security of supply and in operating efficiency.

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ANNEX. N to C-M(80)45

STATEMENT BY THE CHAIRMAN OF THE PETROLEUM PLANNING COMMITTEE AT THE JUNE 1980 MEETING OF THE SCEPC IN PLENARY SESSION

Mr. Chairman,

1. As the Chairman of the Petroleum Planning Committee I would like to draw your attention to the following.

Oil supplies as we all know are of vital importance. Taking into account the dependence on non-NATO sources and on vulnerable installations in NATO countries the supply situation constitutes a permanent risk to our defence. This implies that we have to prepare contingency plans. We try to monitor oil market developments, we develop oil crisis management and wartime arrangements and we organize training sessions for designees of the NATO Wartime Oil Organization.

- 2. It has now become absolutely clear that all this is of no real value if there is no adequate oil data base at NATO Headquarters. It is, for instance, impossible for crisis management elements of the NATO Wartime Oil Organization to provide sound technical advice and to develop policy proposals in case of an oil shortage without such a data base.
- 3. Creating and maintaining this data base, which would also facilitate the monitoring of oil market developments so that possible adverse effect on NATO's civil and military defence capacity can be recognized at an early stage, is an indispensable activity for NATO's International Staff.
- 4. Modern technical equipment should be used for this data base; the International Staff both independently and in support of crisis management elements should have direct access to it and it should be kept up to date.
- 5. The JOS(West) designees at several occasions have been most vocal in their insistance that preferably two data analysts be added to the Civil Emergency Planning Directorate. The Director JOS(West) recently stated that a large pool of expensive experienced personnel provided by industry and governments to contribute to NATO Oil Emergency Planning must be complemented by the relatively minor expenditure for one or two data analysts.
- 6. We, of course, realize that funds are limited. On the other hand the resources made available to NATO's Oil Emergency Planning are most limited compared to the resources devoted to Oil Emergency Planning in the International Energy Agency and in the EEC. The IEA, for instance, will conduct a third test of its emergency system later this year and for the third time governments seem to see no problems in spending millions of dollars for that purpose.

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7. We do not claim that NATO's work is more important than that of other international organizations but it should be pointed out that much of the enormous planning effort and financial investment in the total area of defence could be wasted if there are no adequate arrangements for ensuring oil supplies in an emergency. An oil data base is the most vital element of such arrangements. I, therefore, ask the members of this Committee to strongly support future International Staff's proposals for a limited expansion which is absolutely necessary so that the data base can be established.