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SCENARIOS OF OIL (AND OTHER RAW MATERIAL) SHORTAGES
AND CONSEQUENT STRATEGIC MEASURES

by

Stefano Silvestri

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(Uncorrected text)

Talk of an energy crisis is no longer fashionable. OPEC's share of the world oil output dropped from 63% in 1973 to 40% in 1981 and then to 35% in the first quarter of 1982. The OECD countries' consumption has fallen by 13% since 1975. But still, optimism is not warranted. First, because the reduced consumption is attributable more to a drop in industrial activity than to real structural changes in the demand for and production of energy. Second, because the major industrialized countries, reassured by these favorable trends, are shortsightedly abandoning their energy substitution programs (with the modest exceptions of New Zealand and France).

Today the prospect of an overwhelming victory of Iran over Iraq, OPEC's demonstrated determination and ability to reduce its output if need be in order to keep the price of crude unaltered (OPEC's output is only 48% of its capacity; the Saudis alone could quite easily raise their production by 3.5 million barrels a day) as well as the British and Norwegian decision to raise the price of North Sea oil by 2.50 dollars a barrel prove that the oil producers are capable of keeping the market under control even if demand is slack and suggest that new dangers could indeed emerge.

The situation is therefore far from reassuring, and the oil-consuming countries should be deeply worried about the dangers which lie ahead. Instead, and this is a further element for concern, at the recent Versailles summit meeting the conclusions, decisions and suggestions which had emerged from the Venice summit were forgotten and the energy issue was almost completely ignored.

The same can be said, mutatis mutandis, for other strategic raw materials. Some of them (platinum, chromium, vanadium, manganese) are concentrated almost exclusively in South Africa and the Soviet Union (with small percentages of platinum in Canada, of vanadium in Chile, of manganese in Australia, and a large percentage of chromium ore in Zimbabwe). The European Community depends on imports for 100% of its platinum (the USA's dependence is 91%, Japan's 100%) and 99% of its vanadium (USA 27%, Japan 100%). Many of these minerals, essential to the armaments industry and a number of high technology sectors, cannot easily be substituted. An estimation of the strategic status of certain minerals (elaborated by E.W. Anderson and G.H. Blake of the University of Durham, July 1981) is given in Table 1. The USSR's and South Africa's combined share of total world mineral production and reserves in 1977 and the degree of dependence on mineral imports from South Africa of six major industrialized countries are indicated in Tables 2 and 3 respectively. (These tables were taken from a study conducted by the IAI, the results of which were published in E. Sassoon (ed.), Materie prime strategiche: rapporto sulla dipendenza, Milan, 1982. See also E. Sassoon, "Raw Materials and Foreign Policy: the OECD Countries and the Risk of Disruption in Supplies of Strategic Raw Materials", in Lo Spettatore Internazionale, Vol. XV, N. 4, 1980.)

There are many who hypothesize that the Soviet Union is attempting to exploit the West's heavy dependence on imports for its mineral needs. This is in fact one of the most common arguments used by South Africa when seeking support from the West. Southern Africa as a whole, including Namibia, Zimbabwe, Zambia, Zaire, Mozambique and Angola, undoubtedly constitutes a vast reservoir of critically important strategic minerals. Angola and Mozambique are already associate members

of Comecon; the others might be convinced to join too either as the result of political pressure or simply because of economic convenience. What is certain is that since 1975-76 the Soviet Union has begun to conduct what Carlo Boffito has called a "complex strategy of raw materials management." Exports of many primary products have been reduced, foreign sales of others have been cut off completely, and the Soviet Union has become a purchaser on world markets of copper, lead, cobalt, aluminium, tungsten, phosphates and chromium, despite the fact that for years now the USSR can be considered fully self-sufficient. Perhaps these purchases correspond to strategic stockpiling requirements which can not be met otherwise because of the low level of efficiency of Soviet mines. But it is also possible (and, in the long run, more probable) that behind this move there is a more far-reaching political strategy.

In research conducted for the IAI in 1981, Carlo Boffito traced the origins of this strategy to: a) failure of the Soviet economic reform program and consequent frustration of its aspiration to compete on the world industrial products markets; b) promulgation of the 1974 U.S. Trade Act which thwarted all prospects of an agreement for economic cooperation with the United States; c) the contemporaneous boom in the prices of oil and raw materials, particularly gold. These seem to be the major factors which decisively convinced the Soviets to step up their involvement in the Third World, especially in the direction of countries and areas considered key producers of strategic minerals and oil. The Soviet Union's involvement in Angola dates back to 1975.

According to Boffito, "the principal aim of the new Soviet-Cuban policy in the Third World is probably not raw materials considered as instruments which can offer immediate returns; this policy seems to be directed more toward acquiring international positions of strength which can be used in the event of difficult negotiations or clashes with the West." There is, however, no lack of purely economic considerations too. As E. Sassoon has pointed out, when the Soviets stopped selling platinum in 1980, its price jumped from 150 dollars to roughly 1000 dollars^{an ounce} in the space of a year. The same thing happened with titanium: when the Soviets suspended their massive exports, its price quintupled.

Both oil and raw materials are transported mainly by sea. A good part of the world's oil supplies are shipped from the Persian Gulf, while the ports of South Africa constitute the principal point of departure for minerals, including those extracted in other African countries. Zambia and Zimbabwe are in fact landlocked. They are linked to the oceans by three rail lines: the Benguela line (which also transports the minerals of Shaba, Zaire to the Atlantic), which is not very secure because of the guerrilla opposition in Angola and which in any case can be considered under Cuban control; the Tazara line which carries Zambian minerals across Tanzania and can therefore also be considered under indirect Soviet control and which is often impassable because of poor maintenance; and the most important and efficient line which links all the above countries with South Africa, crossing through the cushion state of Botswana.

The sea lines of communication are however beset with a number of choke points:

- a) the Strait of Hormuz
- b) the entrance to the Red Sea (Bab el Mandeb)
- c) the Suez Canal
- d) a heavy concentration of ships in the route along the Somali coast and in the channel between Madagascar and Africa
- e) the Cape of Good Hope
- f) a heavy concentration of ships in the Canaries-Madeiras-Azores triangle
- g) the Strait of Gibraltar
- h) the English Channel
- i) the straits between Cuba and Florida and to the south of Cuba towards the Gulf of Mexico
- j) a heavy concentration of ships to the south of India-Ceylon
- k) the Straits of Malacca and Indonesia
- l) the entrance to the Japanese Sea (between Japan and Korea)

Some of these choke points are obligatory, others are habitual routes made almost inevitable by the weather conditions prevailing in the Indian and Atlantic Oceans.

From the point of view of oil, Hormuz is obviously the most important of these passages. As point out by Luciani in an IAI document of July 1981, "one may wonder how strategic planners could have let the Strait of Hormuz acquire such enormous importance. Ex post this development appears as a major mistake; historically, it was only a second best solution made necessary by the difficulty of transporting oil overland to the Mediterranean. Most of the responsibility for this falls on the Arab-Israeli conflict, which caused the

abandonment of certain pipeline trunks which had been built before the war, recurrent interruption of the Tapline, and closure of the Suez Canal. Economic and political conflict, e.g. between Syria and Iraq, also played a role." The fact still remains that it is relatively simple to block the Strait of Hormuz. It is true that it would not be easy to gain permanent strategic control over the Strait (thanks to the presence of the U.S. fleet to the south of the Gulf), but it is still possible to mine or bomb it or cause damage to the supertankers passing through so as to block traffic completely.

As an alternative to Hormuz, Iraq built its "strategic pipeline" from the Basra and the Kirkuk fields to Turkey, which can be operated in either direction. The war between Iran and Iraq has interrupted the flow of oil through the pipeline only for short periods of time. It is however evident that growing tension and a stepping up of Iranian maneuvers against Iraq could completely block this strategic route as well. Iraq's other pipeline, which links its oil fields to Syria and Lebanon, is presently inoperative for political and military reasons: the conflict in Lebanon and the growing hostilities between Syria and Iraq.

The Tapline (which connects Saudi Arabia to Lebanon) is now used only sporadically for local sales. Saudi Arabia has instead built a new pipeline connecting her eastern fields to Yanbu on the Red Sea. Crude will be available at Yanbu at an initial rate of 500,000 barrels a day. The initial capacity of this line is set at 1.85 million b/d, but it could be expanded to handle 3.7 million b/d. The

crude pipeline is paralleled by an LNG pipeline which is expected to be operational in 1982. The new Red Sea orientation of the Saudi transportation system will increase traffic through the Suez Canal and the Su-Med pipeline system in Egypt.

However, even the new Yanbu pipeline will not be able to substitute the heavy traffic through Hormuz (from Saudi Arabia, the Emirates, Kuwait, Bahrain and Iraq).

The growth in importance of Middle East crises has made the problem more complex. The Iran-Iraq war has reduced Iranian exports to practically nothing and has severely reduced those of Iraq. If the war spreads and other Gulf states become involved, their capacity to export oil might also be sharply reduced.

The pipeline system, theoretically more secure than the supertanker system, is however less flexible and more susceptible to political blackmail. It could become significantly more flexible only if the number of pipelines and their capacity were increased and all had the capacity to operate in two opposite directions so that consignments of crude could be rerouted to avoid eventual areas of tensions. Extension of the Arab-Israeli war to Lebanon and Syria obviously reduced the system's flexibility. Egyptian-Israeli peace instead revives the possibility of using the Red Sea-Suez Canal route as an alternative. If the possibility of renewed warfare between Egypt and Israel is excluded, this route appears relatively secure (among other things, the Yanbu pipeline avoids the Bab el Mandeb choke point) and risks being closed to traffic only if there is a global conflict in the Mediterranean or if Egypt takes the decision to close it.

Instead, the route around Africa still remains highly vulnerable. It is true that none of the coastal states (with the exception of South Africa and Nigeria) has naval forces capable of sustaining a blockade. However, the political evolution of many of these states (including the small islands located between Madagascar and Africa) has led them to open their doors to the Soviet air and naval forces, which are certainly capable of exercising all types of pressure.

Any of the current crises or wars could seriously affect the security of strategic supplies.

The dangers linked with an eventual renewal of the Sino-Vietnamese conflict which involves the Paracel Islands in the South China Sea are evident. A generalized crisis which involves Malaysia and Indonesia would give equal cause for concern. In both cases, Japan would find itself cut off from the Middle East, unless the tankers circumnavigated Australia, arriving at their destination under the protection of the U.S. bases at Guam and in the Philippines.

The invasion of Afghanistan has put the Strait of Hormuz within the range of action of the Soviet air force's fighters. It has already been for some time within the range of the Backfire bombers and Soviet SS-20 missiles.

We have already indicated some of the sinister consequences of the Iran-Iraq conflict and the Arab-Israeli wars. The major problem is that these wars dangerously limit recourse to the pipelines. Moreover, they aggravate the risks of internal instability, coups d'état, and other political factors which could suddenly and sharply reduce oil production.

The current conflict in Ethiopia (against the Eritreans and the Tigreans) as well as the continuous tension between Ethiopia and Somalia have not yet directly influenced the security of the major strategic lines of communication. We could say that, in a certain sense, the score is tied. The Soviet Union has gained support facilities in Ethiopia, while the United States has gained them in Somalia and Kenya.

The strategic balance in the Indian Ocean is thus equally divided. The Soviets control the Aden and Socotra bases (which dominate the Strait of Bab el Mandeb) and are present along the African coast. In addition to their bases in Oman, Kenya and Somalia, the Americans have their most important naval base at Diego Garcia, in the middle of the Ocean. They could also resort to South African support from the important base of Simonstown which dominates the Cape of Good Hope. However, the use of this base would imply an important political shift which would probably alienate a good part of the black African countries.

The most important South Atlantic aero-naval base is therefore the one on Ascension, in the middle of the Ocean, with the eventual support of the Azores air base further to the north. The Anglo-Argentine conflict over the Falkland Islands, from which the Royal Navy had controlled the south Atlantic during World Wars I and II, makes this large traditional base practically unusable. The cooling of inter-American relations which this conflict produced risks undermining the security of the strategic lines of communication in time of war. In fact, traditionally, the routes that

relied on Africa in normal times were switched in times of crisis to rely on South America. It is too early (and probably wrong) to speak of an eventual "overturning" of alliances, but it is evident that we are faced with a very serious problem.

Just as serious is the strategic situation in the Gulf of Mexico. The recent growth in importance of the economies of the southern and western United States has significantly increased the strategic importance of the ports situated within the Gulf of Mexico and has made the problem of "neutralizing" Cuba all the more important as a means of guaranteeing the security of strategic lines of communication in the event of a crisis.

The problem of the Strait of Gibraltar (controlled to the south by the Spanish plazas de soberania in Morocco) instead appears less dramatic, especially now that Spain has become a member of NATO. Spain is still highly vulnerable to air attacks (the country's radar coverage is insufficient), but the zone is covered by a series of forward NATO defense positions to the north, to the east, and on the Atlantic.

The key to Atlantic security lies in NATO's capability to effectively close the Iceland-Greenland gap, the Shetland-Iceland gap, the UK-Norway gap, and, of course, the Baltic Sea gap. The new British commitments in the South Atlantic have dangerously diminished the forces available for Saclant. Moreover, the strategic doubt remains as to the effective capability of the NATO surface fleets to resist massive Warsaw Pact submarine and air attacks. However, the heavy concentration of allied forces in this sector ensures a certain degree of credibility and hence protection to the energy and raw material lines of communication to Germany, England and the Benelux countries.

All in all, though the situation is not hopeless, it is certainly fraught with difficulties.

The security of energy supplies seems to depend more than anything on the Gulf states' capability and willingness to maintain their output. The security of the sea lines of communication cannot be completely guaranteed, but neither is there an imminent risk of complete loss of strategic control over the area. It is probably more realistic to speak of a slow decline of the West's traditional control capacity.

The same can be said for the supplies of strategic raw materials.

Greater western commitment to the defense of the strategic lines of communication cannot significantly change the terms of the problem. If anything, it might be important to maintain the Falklands as an eventual aero-naval support facility for controlling the South Atlantic should the Latin American countries become more markedly neutral.

The utilization of Simonstown could be useful in the event of a local crisis but would risk increasing the political problems in Africa.

The flexibility of recourse to sea transportation is in any case declining for economic reasons. The boom in orders for VLCCs and ULCCs (very large and ultra large crude tankers) which occurred between 1974 and 1975 has been transformed into a drastic reduction to levels below those prior to the oil crisis (in 1970 orders for new tankers had reached 10 million deadweight tons against the 231 million dwt of 1974).

The major risk remains that of internal crises in the oil-producing countries, which might eventually be precipitated by international or regional crises. In such an event, however, the role of external western forces and bases would not be of much relevance.

The problem of greater coordination between the United States and Europe deserves special mention. Greater cooperation has been called for repeatedly, but is very difficult to achieve in practice, at least as long as the strategic assumptions or the objectives of this eventual collaboration are not clearly spelled out. With regard to the sea lines of communication (especially those between Great Britain and the USA) cooperation already exists. Where it is lacking is in the attempt to avert or avoid internal crises in the major oil- and raw-material-producing countries. And it is highly unlikely that such coordination will emerge as long as the European and U.S. analyses of the causes which might foment such instability continue to differ.

It should also be noted that intervention in the Third World in defense of western interests is becoming more difficult, more exacting militarily, and more costly. The need to keep two aircraft carriers stationed south of the Persian Gulf and the war over the Falkland Islands are two examples which illustrate the heavy commitments involved.

Cooperation with respect to Soviet policy (if it continues to pursue its policy aimed at controlling the world supply of raw materials, as singled out by Boffito) might be easier to achieve, more useful and opportune. But there would still be a number of problems at the practical level

unless there are also important moves toward greater multi-lateral north-south cooperation at the political and economic levels.

TAB. 1 - STRATEGIC STATUS OF MINERALS

This is an initial attempt to quantify strategic importance, using the analysis variables:

S substitution (I-4)	most easily substituted = I
LE life expectancy (0-3)	most rapid depletion rate = 3
SP scale of production (I or 3)	thousands of tonnes = I millions of tonnes = 3
MS number of major sources (I-4)	most sources = I
R reliability of main sources (I-3)	most reliable = I
WP Warsaw Pact share of world production (0-2)	no share = 0
SS Strategic status: the total of scores with those for strategic factors (MS, R, WP) X 2	

	S	LE	SP	MS	R	WP	SS
ANTIMONY	I	I	I	3	3	2	19
CADMIUM	I	I	I	2	I	I	11
COBALT	2	I	I	4	2	I	18
COPPER	2	2	3	2	I	I	15
LEAD	2	2	3	3	I	I	17
MERCURY	3	3	I	2	I	2	17
PLATINUM	3	I	I	4	3	2	23
SILVER	4	3	I	I	I	I	14
TIN	2	2	3	2	2	0	15
TUNGSTEN	3	I	I	3	3	2	21
ZINC	2	2	3	2	I	I	15
CHROMIUM	3	0	3	4	3	2	24
MANGANESE	2	0	3	4	3	2	23
NICKEL	2	I	3	3	I	I	16
ALUMINIUM	I	0	3	2	I	I	12

TAB. 2 — *The share of the Soviet Union and South Africa in world mineral reserves and production - 1977.*

	production	reserves
antimony	28	10
asbestos	53	28
chromium ore	56	84
copper	13	12
diamonds	46	28
fluorine	18	39
iron ore	31	42
gold	80	70
manganese	62	94
nickel	24	17
phosphates	23	13
platinoids	91	90
silver	15	28
tin	15	9
titanium	13	19
uranium	NA	NA
vanadium	67	49
zinc	22	22
lead	14	15

Sources: South African Dept. of Mines; The South African Foundation News; Johannesburg Minerals Bureau.

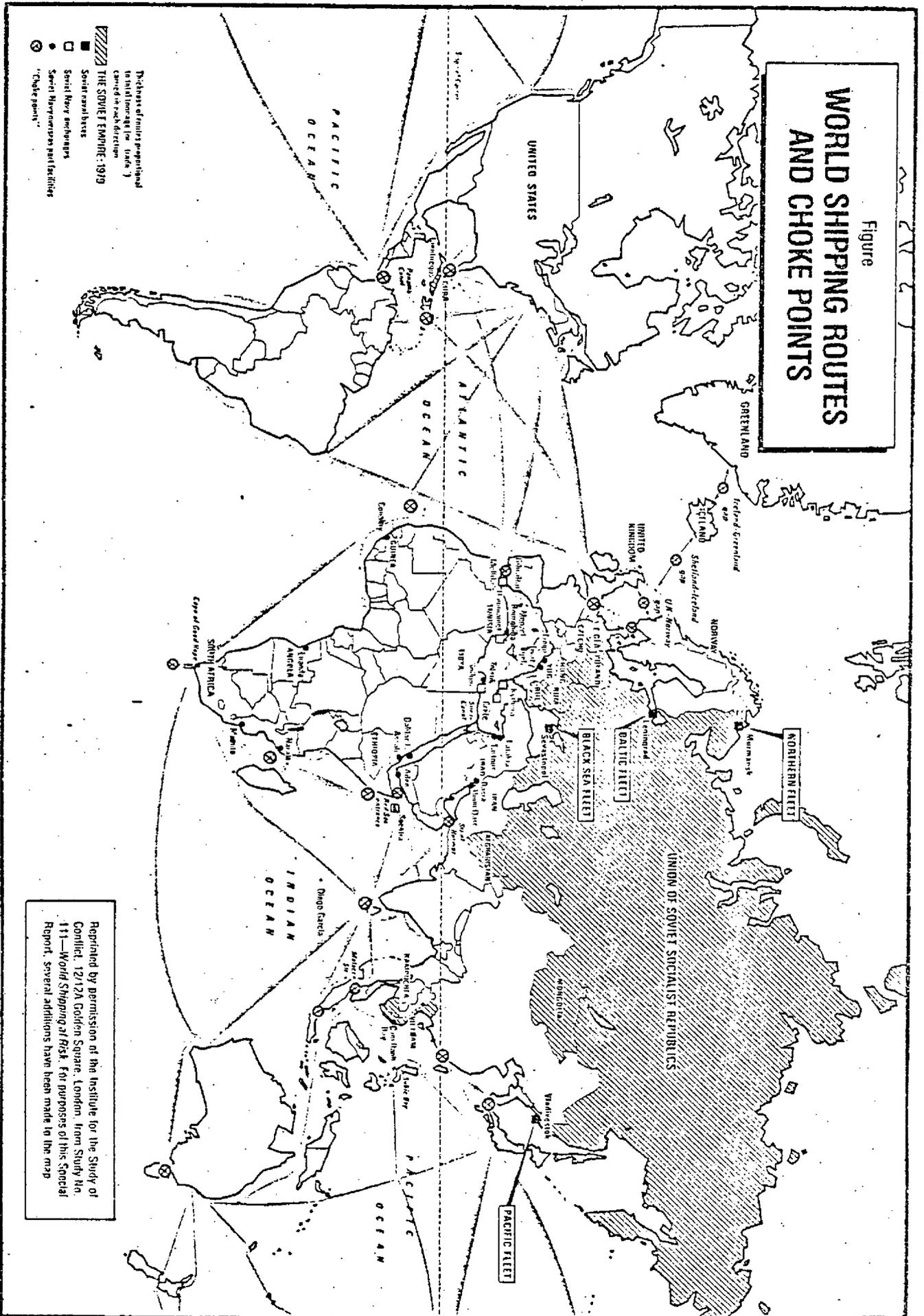
TAB. 3 — *Dependence of selected industrialised countries on minerals from South Africa (per cent of total imports in 1977).*

	Japan	USA	GB	FRG	France
antimony	4	28	90	23	14
asbestos	27	4	11	15	9
chromium ore	41	23	63	60	32
copper	7	7	8	12	1
diamonds	5	41	NA	39	2
ferrochromium	71	50	36	65	44
ferromanganese	—	34	46	45	6
fluorine	25	20	9	5	—
gold	—	1	62	18	7
iron ore	4	—	9	1	1
manganese ore	40	4	59	63	25
nickel	25	4	1	14	5
platinoids	33	50	61	11	12
silver	—	1	4	—	—
tin	—	—	5	25	—
vanadium	86	82	19	14	18

Source: Johannesburg Mineral Bureau, 1979.

WORLD SHIPPING ROUTES AND CHOKE POINTS

Figure



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