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Energy Problems

Europe during the Energy Crisis

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Shortages of fuels and raw materials had been predicted for the world not before the turn of the century, and even experts were surprised that a situation of general undersupply arrived so soon. As there is little scope for substitution, and the currency system of the world is in peril, industrialised nations have only a narrow field for remedial action. In the long term, there may be some hope, however, for breaking out of the dilemma with the aid of a new technology.

With a view to the energy crisis and its incipient worldwide effects, the US news magazine, *Time,* stated that 1973 was the last year of the past whilst 1974 would be the first year of the future. That this new historical era had to begin now, and not in the 'eighties or 'nineties of the present century, was a shocking surprise even for the most pessimistic futurologists. Both these futurologists and experts on energy, almost without exception, had restricted their predictions to simple extrapolation of present trends of energy consumption for painting the immediate and the longer-term future, and to comparing the hypothetical demand for energy with the anticipated supplies of energy.

terrible danger that was rife: that of thermal pollution. Energy experts, including Professor Schaefer of Munich, also saw in thermal overheating of conurbations the decisive obstacle in the way of growing energy consumption which would probably define the outer limits of this growth. Even the highly meritorious "Club of Rome", which has probably contributed, with its publications, more to waking up humanity to the problem of limited growth than all the Herman Kahns of this world, has either neglected or attributed too little importance to the political forces that might restrict the availability of the world's resources.

Practically nobody had thought it possible that the

one which is of a significance superior to the earlier ones: political limitation of available supplies.

Oil not the Only Problem

The question arises not only with regard to oil, though present disputes about the energy supply crisis might make us believe this. Nor is it — as some Western politicians seem to believe — simply a changeover from the difficulty of obtaining sufficient quantities to the question of whether we can afford the prices charged for supplies. We have instead become eyewitnesses of a total reshuffling of the cards with which the game is played. It is often forgotten that the rules of the game have remained unchanged: they are the same that were formerly used by the industrialised countries for engineering their own economic growth. They are nothing but the rules of supply and demand and their interdependence.

After World War II, the western democratic countries stood in the forefront of the powers that built the United Nations Organisation. UNO was organised in a democratic way. It was an important experience for the self-respect of the younger nations of the so-called Third World (of which the UNO majority consists) to see that, when a vote was taken, their votes had the same weight as those of the "older" industrialised nations and those of the Socialist Camp. That both West and East tried to curry favour with LDCs has put this self-respect on an even firmer basis.

But even without the recent war between Arabs and Israelis and its political and economic aftereffects, the end of industrial Affluent Society with its perpetual surplus production and its laissez-faire policies could be foreseen. In his last Christmas address, the President of the Federal Republic of Germany, Dr Heinemann, quoted the former EEC president, Sicco Mansholt, who had stated during the summer of 1973: Only a full-scale disaster could force our industrialised society to change course, and such a disaster would then help us to evade an even worse catastrophe. Based on similar thoughts, the *Financial Times* wrote in November, 1973, that we should really be grateful to the Arabs for having forced us, against our own will, to rethink and revise our aims and the future millenium - which, historically speaking, is only a few years distant from our age — the world's population will have almost doubled, and that this kind of growth will affect mainly the countries of the Third World.

It is also known to us that energy consumption has become the clearest indicator of any nation's prosperity. The USA has a population that represents 7 p.c. of the world's total population, but this population consumes nearly 40 p.c. of the world's energy supplies. Similar relations hold good for all important raw materials. These few figures alone reveal how perilous is the continued squandering of the raw material resources of the world, which the Club of Rome foresees, already in the short term.

Nobody seems to have foreseen the chance for commodity-producing countries to profit from the rising dependence of commodity-consuming countries, through political means. Through the centuries of colonial dependence, coloured people have accumulated so much ill-will against their "white masters", who were able to do everything and, in the end, owned everything, that it had eventually to find an outlet. Only on this background will it be possible to understand the emotions which flow into to-day's haggling about quantities and prices of oil and of other raw materials. In this situation, it is a weak consolation for Western industrialised countries that, from the viewpoint of LDCs, bot they and the socialist countries of the Soviet Bloc are in the dock together, though the communist countries are less dependent on commodity supplies from the Third World, because they themselves are less developed, and because the Soviet Union owns vast mineral deposits.

But what would be a practicable way out from this inexorable dilemma for both governments and the economies of western industrialised countries? Of the three major difficulties — the supply of energy, raw materials, and food, the present article will deal only with the former two, without wanting to minimise the danger that is most threatening to the human race, the predictable insufficiency of food supplies.

At the present time, it is the oil crisis that seems most acute, and it has turned already into a general energy crisis. Three ways to overcome it are

total energy needs, it will be found that — apart from iron and steel making, chemistry, and non-iron metallurgy — practically all industries draw more than 40, and a good number of them more than 60, p.c. of their total energy requirements from oil.

It has to be specially underlined that oil is an indispensable raw material for the chemical industry and for other industries dependent on it including the textile industry and plastics processing, and that, naturally, also the automotive industry, with its thousands of sub-contractors and suppliers, is firmly tied to the price and the volume of oil supplies. All these industries are subject to perpetual changes of their structure, and this process will be accelerated by the energy crisis. In the past, market shifts, problems of location, an adverse cost structure (especially in the field of labour costs) were the prime movers of such structural changes, but from now on, costs and availability of energy and of raw materials will be the additional and decisive force which determines the course of further developments.

Inevitable Geographical Shifts

More shifts in industrial locations than in the past are to be expected. It is to be foreseen that the combination of costs, including wage levels, raw materials and energy prices, will enforce novel forms of the international division of labour. Entire branches of industry will lose their competitiveness in their countries of origin and will have to emigrate to LDCs. Other industries may be compelled to leave their original domiciles under the pressure of conditions imposed on them by the governments of raw material and oil exporting states. Reflecting a closely related trend, the classical home countries of industry will aid and abet LDCs in building up their own industries. LDCs are averse to limiting their industrial activity to the extraction of their mineral resources and wish to develop processing industries up to a high degree of sophistication, and to share in marketing their products.

The Shah of Iran seems to be typical for this attitude. Drovided that it is true that he recentlv material suppliers to profit from the dependence of industrial countries on their commodity exports in a similar way as OPEC members have done. Vital raw materials for European industry can be supplied only fractionally from national resources: the percentages in the case of copper are about 12.8 p.c, of tin 4.4 p.c, of lead 34.9 p.c, of zinc 51.5 p.c. A 100 p.c. dependence on overseas suppliers is inevitable in the cases of all tropical and sub-tropical products, e.g. coffee, cocoa and tea, phosphates, cotton, etc. The hectical rise of the prices for the most important commodities traded in the world commodity exchanges is frightening. The countries of the Soviet Bloc, which are often important suppliers of raw materials and semi-finished products to western industries, have joined this drive for higher prices unhesitatingly.

Incentives for Technological Innovations

For many people's thinking the oil crisis has suddenly strengthened the incentives for the industrialised countries to use their ingeniousness and imagination for inventing new technologies and methods for economising in the use of energy that has now become so precious and of all raw materials whose prices are inexorably rising, because they have become scarce. The two classical indicators for economic operations, the capital requirements and the manpower requirements, will be supplemented by a third one of equal importance: the fuel and raw materials requirements. Since a large part — experts are even of the opinion: the major part — of energy consumption is sheer waste, energy-saving methods in industry and domestic heating and lighting could help to close the energy gap without any undue tightening of the belts. Energy-saving appliances are bound to become a large market for industry.

High capital costs, which, to a large part, will remain inflationary for a long time because of the oil price policy of the producers, set up a strong incentive for industry to apply its research and development efforts to finding new, capital-saving methods and techniques. The same incentive operates in the use of raw materials and in en-

to act rationally, and they cherish the hope that the cartel of oil producing countries would, one fine day, break up.

Western remonstrances that sales prices for oil had been pushed up to unacceptable heights are being countered by the oil countries through the pointer that final consumer prices still contain a very much higher share of consumer countries' fiscal imposts than the producer's revenues. Besides, they use the classical argument of the monopolist that nobody is compelled to buy their crude.

The World Currency System in Peril

The exhortations of western economists and politicians thrown into the debate that the immense deficits on international trading account, on the one hand, and the correspondingly vast surpluses of producer countries, on the other hand, cannot but destroy the equilibrium of any conceivable world currency system, must be taken as seriously as possible. Western industrialised countries will have to carry, through the next few years, annual net outgoings of the order of US $ 30 to 50 bn. The accumulation of such surpluses in the producing countries' coffers would create funds of such immensity that they would be far bigger than the currency reserves of all the western industrialised countries taken together, within a small number of years.

The general situation is being aggravated by the fact that sparsely-populated countries, including Saudi Arabia, Kuwait, Libya, etc., can hardly cope with the problem of exchanging their billions and billions of future revenue against investment and consumption goods. On the other hand, they have only limited chances to invest these funds fully in oil consuming countries or in other investment chances offered by the relevant centres of Western finance.

On the other hand, the crude-exporting countries are fully aware of the fact that their crude reserves, at the rate at which they are now being exploited, cannot but be almost depleted within the measurable future — current estimates quote the next 50 and not, as in the past, the needs of consumer countries, seems more likely. Even if oil would cease to remain a source of energy - which is higly improbable — it would still remain, for ever, a raw material for the chemical industry, for which no substitution is possible. For this purpose, about 10 p.c. (but with a rising trend) of available supplies are being used at present.

Whether the Western nations could be forged into a more united front by the oil crisis is, unfortunately, no longer a question that requires an answer. The trend goes in the opposite direction: the crisis has revealed how brittle the Atlantic Alliance is, and how the members of the European Community are driven into different directions by their national interests. In exploring the prospects of the Energy Conference called by President Nixon to Washington in February, James Reston of the *New York Times* expressed himself with much scepticism, mainly because all important Western countries, at the time, were headed by weak governments. Looking over their shoulders for the reaction of their electors, all these governments would therefore attempt to reap the maximum advantage from bilateral negotiations with the oil-producing states.

The slogan: *sauve qui peut* was also the guideline for the governments of the most important industrialised countries, when they drew up their individual programmes for energy research. For the time being, nobody thinks of coordinating these programmes, let alone of pooling available resources. The only country that is relatively independent of Arab oil shipments is the USA. Already in November 1973, President Nixon proclaimed his "Project Independence", which will be funded by amounts which are inconceivable under West European conditions, in order to make the USA self-sufficient in energy by 1980. As the published plans go, it is even intended to make the USA again a net exporter of energy.

Oil as an Industrial Raw Material

After having reviewed the discouraging prospects of tackling the energy crisis by political efforts, its purely economic effects have to be surveyed,

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Oil as an Industrial Raw Material After having reviewed the discouraging prospects of tackling the energy crisis by political efforts, its purely economic effects have to Be surveyed briefly. In doing so. It must be stressed that different brandies of industry are dependent on oil supplies to 9 varying extent, industry in the Federal Ropublic of Germany covers about ona third of its energy requirements by oil. In reference to turnovors tho share of fuel oil is largest in cement- and brick-works as well as in paper processing. Counted in absolute figures, by far the leading oil consumers are the industries quarrying and processing stono and constituents of the soil, the chemical and the Iron and steal industries, and

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The Shah of Iran seems to be typical for this attitude, provided that it is true that he recently stated that, after another ten years, "not a drop of Iranian crude will be sold abroad, but western industrialised countries will be offered the chance to buy aspirin and other chemicals from Iran." It remains to be seen whether these and other ambitious plans will ever come to fruition, but we should become accustomed in good time to industrial power being redistributed worldwide soon.

Oil exporting countries, obviously, had underestimated for a long time the power potential of their monopoly position, but now that it is being exploited, it provides a strong spur for other raw material suppliers to profit from the dependence of industrial countries on their commodity exports in a similar way as OPEC members have done. Vital raw materials for European industry can be supplied only fractionally from national resources: the percentages in the case of copper are about 12.8 p.c, of tin 4.4 p.c, of lead 34.9 p.c, of zinc 51.5 p.c. A 100 p.c. dependence on overseas suppliers is inevitable in the cases of all tropical and sub-tropical products, e.g. coffee, cocoa and tea, phosphates, cotton, etc. The hectical rise of the prices for the most important commodities traded in the world commodity exchanges is frightening. The countries of the Soviet Bloc, which are often important suppliers of raw materials and semi-finished products to western industries, have joined this drive for higher prices unhesitatingly.

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High capital costs, which, to a large part, will remain inflationary for a long time because of the oil price policy of the producers, set up a strong incentive for industry to apply its research and development efforts to finding new, capital-saving methods and techniques. The same incentive operates in the use of raw materials and In encouraging their recycling. Coal will see a revival, both as a source of energy and as raw material. However, the most important source of energy for the future is, according to the unanimous judgment of all experts, nuclear energy. During the period of transition, nonetheless, until sufficient atomic energy becomes available, especially Europeans will have to heed the advice of the President-designate of the American Industrial Research Institute, a forum of research-oriented big US Industry, Dr A. Bueche of General Electric, who said in his winding-up speech at the autumn congress of IRI in Chicago: "Be nice to the Arabs."