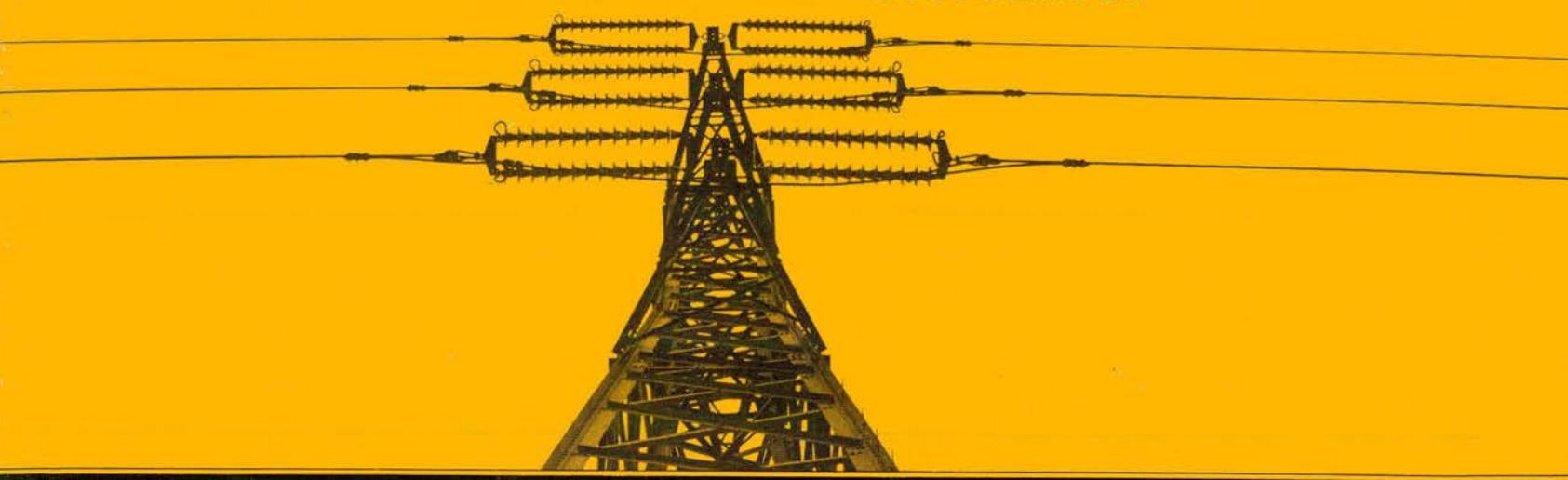


the OECD OBSERVER

ENERGY

**Towards a Minimum-Oil Economy • Future
of Synfuels • Energy for the Third World**

**Is There a New Protectionism? • Economic Outlook
for 1981-82 • Unemployment and Inflation • Foreign
and Finance Ministers Meet**



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EDITOR: Jane Bussière

ASSOCIATE EDITOR:
Ulla Ranhall-Jeanneney

ART, PRODUCTION AND LAYOUT:
Marc Delemme

ASSISTANT: Gérald Tingaud

PHOTO RESEARCH:
Silvia Lépot
Rina Maiden

All correspondence should be addressed to the Editor.

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OECD Council Meeting at Ministerial Level

Communiqué

The Council of the Organisation for Economic Co-operation and Development met at Ministerial level on 16th-17th June, 1981, under the Chairmanship of Mr. José Desmarests, Deputy Prime Minister and Minister of Planning, and Mr. Willy Claes, Deputy Prime Minister and Minister of Economic Affairs, for Belgium. Attention was concentrated on Member countries, economic prospects and policies, current trade problems, the energy situation and relations with developing countries.

Economic Prospects and Policies

Despite some encouraging developments, notably the way in which OECD Countries have adjusted to the second oil shock, Ministers recognised that they were meeting at a time when OECD economies were facing particularly difficult and complex problems, with unemployment high and continuing to rise, inflation stubbornly high despite weak activity, money and exchange markets afflicted by inflationary expectations and uncertainty, and persistent global adjustment problems.

Ministers recognised that these problems have their roots in economic developments and policies going back a number of years. External circumstances, including two massive oil shocks, have been a major factor. It is also clear, with hindsight, that insufficient attention to the medium-term inflationary and structural consequences of some policies adopted over the past two decades has contributed to current difficulties. Ministers noted that, just as it took time for these problems to develop, it will take time to resolve them.

Reviewing performance over the past year, Ministers agreed, however, that there were some encouraging factors. The general adoption of non-accommodating monetary and fiscal policies in the wake of the 1979-80 oil crisis has helped prevent higher oil prices from pushing up the domestically generated underlying rate of inflation. In contrast to the first oil crisis, there has not been a serious profit squeeze or decline in business confidence that would have sapped the recovery of investment over the longer term. The demand for energy, and oil imports in particular, has been reduced substantially as a result of increasing adaptation to the higher energy prices and vigorous energy policies.

Looking ahead, some further slowdown of inflation can be expected. In the United States, recent buoyant growth is expected to moderate for a time. In Japan, steady growth is expected to continue, with some acceleration next year. In many other OECD countries, particularly in Europe, the recovery in demand and

activity may come later this year or early in 1982, but may be insufficient to prevent a further rise in the already high levels of unemployment, especially in view of the expected rapid growth of the labour force.

Significant exchange rate variations have taken place during recent months. The pronounced depreciation of continental European currencies and the appreciation of the dollar will raise the price of imports in Europe and thereby weaken domestic demand, increase inflationary pressures and contribute to worsening unemployment prospects in the near term. Recovery will also be delayed by the sharp rise in interest rates in many countries, resulting in part from efforts to limit further depreciation of their currencies. On the other hand, an improvement in the competitive position of Europe can be foreseen provided that the inflationary consequences of the depreciation are contained. This in turn can help to promote a stronger recovery later this year and improve exports and employment prospects.

Ministers discussed the likely duration of the transition to improved growth and economic performance. In particular, it was noted that the constraints on the conduct of monetary policy in some European countries may lessen progressively when their external positions begin to improve; also some relief might be provided if the modest easing of oil prices is sustained for a period. A relatively rapid downward adjustment of inflation, inflationary expectations and interest rates in the United States would also ease the path to the achievement of better economic performance for other countries. Conversely, the persistence of other factors putting downward pressure on European currencies or a slower adjustment of U.S. interest rates might tend to lengthen this transition. These are difficult questions, and therefore assessments differed.

Assessments also differed over the risks, in this transition period, to better longer-term performance. Some emphasized that ill-timed action to reflate demand would risk undoing the progress made on reducing inflation and would result in a further entrenching of inflationary expectations, with consequent worsening of growth performance. Others stressed that, in the absence of strengthened demand, there would be increased risks of protracted high unemployment, heightened protectionist pressures, amplified structural distortions and weakened investment and productivity gains.

Policy Stance

Ministers emphasized that the objective of economic policy was to enhance the well-being of people. In the present circumstances



"Our present institutions have faults; they also have advantages: they exist. With sensible modifications and support from their membership they can still hold the line for us. The international community needs fire-fighting machinery to deal with specific and urgent difficulties. This equipment will have to come from existing institutions if it is to be available on time. The institutions must be adapted to meet this challenge."

Robert D. MULDOON,
Prime Minister and Minister of Finance, New Zealand

curbing inflation and reducing unemployment must be of prime concern. Ministers reaffirmed that bringing down inflation and inflationary expectations is the indispensable condition for re-establishing the basis for durable increases in employment and more vigorous sustainable growth. The most effective policies to reduce unemployment in the long run are those which improve the overall performance of OECD economies by revitalizing productive investment and enhancing market efficiency. All possible steps should be taken to implement these policies in ways that provide a basis for increased employment.

Ministers recognised that achievement of these objectives requires the balanced use of a range of available policy instruments, taking account of the interdependence among countries and the need to find the right balance between action directed to conjunctural and structural problems, the demand and supply sides, and the short and medium run. To this end, Ministers agreed:

- An appropriate set of policies should be followed, the mix of which depends partly on the situation of each individual country. In all countries, monetary and fiscal policies need to remain steadfastly non-accommodating of inflation, conducted with a medium-term focus and in a complementary fashion so as to avoid financial market pressures. A budgetary composition and stance that promote rather than inhibit investment should steadily be aimed for.
- The implementation of such policies, however, needs to be carefully judged. Where private demand is strong, a fiscal stance that fully supports the achievement of monetary policy objectives is particularly necessary. Where inflation threats are intensifying, and structural public sector deficits are persistently high, resolute measures are called for to curtail such deficits. Where unemployment is high and rising, attempts to reduce deficits quickly would risk being self-defeating if they induced further conjunctural weakening.
- Such mutually supportive monetary and fiscal policies should, as inflationary expectations subside, also allow durably lower interest rates.
- To achieve smooth balance-of-payments adjustment, exchange rates should reflect fundamental economic factors. But care is needed in the conduct of policies so that exchange rate fluctuations associated with interest rate volatility and other short-run factors do not gain momentum, leading to a vicious circle between imported and domestic inflation. To this end, it is of great importance also to find means of modifying practices and arrangements that accentuate the transmission of imported price changes into domestic inflation.
- Action to maintain and, where possible, improve the free and open trading system, and to create a climate conducive to technological innovation is essential to achieving a less inflationary

and more dynamic economic environment. The Orientations for a progressive shift to more positive adjustment policies adopted by Ministers in 1978 remain as valid as ever, and indeed acquire a new urgency in current circumstances.

- Depending on circumstances in individual countries, price and incomes policies and other measures to develop a stronger consensus through an improved dialogue between the social partners, enhanced and improved skill-training programmes, the non-inflationary redistribution of working time, targeted investment or employment incentives, and measures to improve labour productivity and market flexibility – can also play an important role in accelerating the transition towards a sustainable absorption of the unemployed into productive jobs.



"France agrees completely with the idea of a common strategy. At the same time we are aware of the difficulties in reaching it because of the diversity of our economic structures and specific structural problems. We realize that action on structures is necessarily long term and can be an obstacle to the harmonisation of economic policies in the nearer term. But we are convinced of the interdependence of our economies, of the fact that one of us can harm the others, and therefore we think that the OECD can help in trying to get out of our present difficulties."

From this argument I derive a plea for solidarity founded on new rules of the game. We must again find the spirit of Bretton Woods. Not the letter but the spirit, for times have changed. We must, it seems to me, combine the virtues of the free market economy, which I know and appreciate, with the concerted action of international institutions based on the acceptance of common rules of the game. This reconciliation is what I should very much like to see – in North South relations, in trade, in an orderly framework for variations in national currencies and in concerted credit and interest rate policies. In this context, each country would have duties as well as prerogatives."

Jacques DELORS,
Minister of the Economy, France



"Since most of the difficulties we face today are of a medium-term nature which do not lend themselves to overnight solutions, we must always bear in mind a medium- and long-term perspective, even when taking short-term policy measures.

The economies of industrialized countries are faced with problems such as slowdown in productivity gains due to sluggish capital investment, a wage determining mechanism detached from productivity performance, labour market rigidities, delay in the conversion of the industrial structure, expansion of the public sector, and social rigidities. All of these undermine the functioning of the market mechanism, erode the flexibility of the whole economy, and thus constitute the major cause of the aggravation of the underlying rate of inflation.

To restrain inflation and recover economic activity at the same time, is of course, an extremely difficult task. However, a new kind of policy, meeting both challenges simultaneously, is precisely what is being sought."

Toshio KOHMOTO,
Minister of State for Economic Planning, Japan



"The Member nations of OECD have the strongest economies on earth. We are blessed with strength and vitality. Our job is to harness and enhance these energies and return our economies to a path of growth and innovation without ruinous inflation. If we can restore the momentum, that once sustained an unprecedented rise in living standards expanding employment, and technological advance, we will serve the interests of people in all nations."

William P. CLARK,
Deputy Secretary of State,
United States



"At the beginning of this month, OECD's Economic Policy Committee pointed out that stability policy – if pursued in isolation – can have only limited success. Policy measures aimed at stability must be complemented effectively by an appropriate growth policy, a policy of positive structural adjustment.

Its objective should not be the short-term stimulation of demand but the sustained improvement of economic structures."

Otto Graf LAMBSDORFF,
Federal Minister of Economics, Germany

- In all countries, effective social policies are necessary. Equally, however, at a time when most OECD economies are striving to improve economic performance, there is increasing need to understand and reduce the possible adverse effects of some aspects of these policies on economic performance, or indeed on the efficient achievement of their own aims.

Ministers reiterated the importance of a co-operative approach to the conduct of macro-economic policies and the importance of taking into account the effects of their actions on others. They affirmed again that nowhere is such co-operation more important than in maintaining the open trade and payments system.

Trade Problems and Policies

Ministers noted that, despite the deterioration of the economic situation, governments have managed to keep the general orientations of their trade policies in line with the objectives of the Declaration on Trade Policy adopted in June 1980. Ministers agreed however that the persistence of serious economic difficulties and consequential protectionist pressures required increased and vigorous efforts by governments to avoid a progressive erosion of the open and multilateral trading system. They emphasized in particular the dangers inherent in recourse to trade measures not subject to agreed rules and disciplines and to trade-distorting subsidies and practices.

Ministers discussed the interrelations between trade, industrial, agricultural, fisheries and macro-economic policies. They agree that:

- Macro-economic policy should take account of the risks of rising protectionist pressures, while trade, industrial, agricultural and

fisheries policies should be conducted in recognition of the ultimately self-defeating nature of defensive action based on short-term considerations.

- Trade restrictions will not help to overcome trade problems arising from differences in productivity performance between countries: they will, over time, only aggravate them. The best solution consists in continued efforts towards positive adjustment. If difficulties are to be avoided, it is also essential that real incomes should adjust to differences in productivity trends and exchange rates should adjust to changes in competitive strength.
- Government intervention in sectors experiencing structural difficulties should be progressively reduced with the aim of facilitating their return to the normal play of market forces in reasonable time; resumption of expansion would ease such a return.

Ministers reaffirmed the objectives of the Declaration on Trade Policy adopted last year and their determination to maintain and improve the open international trading system. They agreed on the need to strengthen multilateral co-operation in order to reduce the difficulties and to ensure that trade flows continue to play an efficient role in the achievement of structural adjustment and of other general economic objectives. Their Governments will make full use of existing international institutions and multilateral rules and procedures in the trade field, recognising that in certain respects some of these rules and procedures require improvement and adaptation to current requirements. Moreover Ministers stressed the general desirability of transparency so that all trading partners may assess the content and impact of trade measures.

More specifically, Ministers:

- Reaffirmed the determination of their Governments to implement fully and effectively the commitments made in the Multilateral Trade Negotiations and agreed on the importance of action in support of the search for ways and means to improve and to liberalise conditions of international trade including in those fields which had up to now a lesser part in the process of liberalization. They therefore recognised the need to reflect on the issues to be addressed in the trade field during the next decade. This Organisation will play an important role in examining the issues. To this end they invited the Secretary General to begin as soon as possible to develop a programme of study within the Organisation, with a view to allowing the appropriate bodies to make a report on the issues by 1st May, 1982, for consideration by the Ministers.
- Regretting the absence of agreement to date, they stressed the urgent need to resolve the important outstanding issues with regard to the adaptation of the Arrangement on Export Credits. They urged Participants in the Arrangement to continue actively their negotiations over the coming months with the aim of reaching a mutually acceptable solution before the end of the year. For that purpose Participants should meet at whatever level necessary to reach decisions before the end of the year.
- Noted a progress report on the study of problems of agricultural trade which had been undertaken in accordance with the directives they had given a year ago. They agreed to discuss the study at their meeting in 1982.

"The United States remains committed to an open world trading system, with minimum barriers to the flow of goods, services, capital and technology across national boundaries, a system that allows all nations to advance in an environment of peaceful competition, and mutual advantage. The United States remains firm in its resolve to resist protectionism."

William P. CLARK,
Deputy Secretary of State, United States

- Welcomed the increased attention given within the Organisation to the service sector in view of the important role played by services in Member countries' national economies and in international trade. They recalled that the principles and objectives concerning the liberalisation of international transactions contained in the OECD Convention and referred to in the Declaration on Trade Policy of 4th June, 1980 covered the exchange of services as well as of

"There are unfortunately far too many warning signs on the horizon that we are in danger of responding to the pressures of inflation and unemployment, not with more of the liberalization that has served us so well, but with new and growing protection. Countless examples could be cited of what I call the 'new protectionism'.

The United States fully appreciates the role it must play in the world economy – both because of its size and its responsibilities as custodian of the key international currency. We do not, and will not, conduct policy without regard to the vital interests of others. To this end, we welcome opportunities for consultation such as that offered at this meeting, and by this organization".

R.T. McNAMAR,
Deputy Secretary of the Treasury, United States



"The interaction between trade and macroeconomic policies should not encourage us to employ trade to correct such basic economic disequilibria as differences in productivity. That fact should be kept in mind when discussing the problems posed by the strength of exports in the most dynamic countries."

F. HONEGGER,
Head of Federal Department of Economics, Switzerland

"I am deeply concerned about the increasing pressure which demands the protection of one's domestic industry and seeks to solve the unemployment problem through trade restriction, especially in sectors where comparative advantage has been rapidly worsening. Furthermore, given the increasing expectations placed on governments in securing employment opportunities and sustaining the wage level, I am apprehensive that this atmosphere is leading to a mounting expectation in the trade field that the government should intervene and, in effect, restrict imports. Another point of my deep concern is that such expectations tend to be organised, making the pressure more demanding and more felt. It is also to be emphasized that the cost of these trade restrictions to the general public is apt to be forgotten or set aside.

Structural adjustment and trade, through an interacting process, will bring about a virtuous circle. By resisting protectionist pressures and maintaining the open trade system, a favorable anti-inflationary effect will be induced. Furthermore, domestic competition will be stimulated and thereby help the shift of capital and labour towards growth sectors. By the same token, technological innovation and new investment by private enterprises will also be stimulated.

As the industrial sector, as a whole, goes through this positive adjustment process, economic activities will expand further, and employment will increase. Consequently, trade will also evolve along the lines of changing comparative advantage."

K. KIKUCHI,
Deputy Minister for Foreign Affairs, Japan



"Evidence that protectionist pressures and temptations are being resisted is provided by the business-like way in which the Tokyo Round agreements are being put into effect, and by the use which Member governments are making of the multilateral instruments available in GATT to resolve particular trade disputes.

Given the present economic circumstances, this record is encouraging. There is, however, another side to the coin: trade measures taken outside the multilateral framework, whose proliferation could in the long run undermine that framework; the lack of an agreement on safeguards; and continuing disagreements over trade in agriculture."

Arthur DUNKEL,
Director General, GATT

goods. Ministers expressed the wish that the on-going OECD activities in the field of services be carried forward expeditiously. They agreed that, in the light of the results of these activities, efforts should be undertaken to examine ways and means for reducing or eliminating the identified problems and to improve international co-operation in this area.

Energy Policies

Ministers reviewed the action taken on energy in various fora and agreed that:

- the oil market situation remains fragile despite reduced oil consumption and relatively stable supply;
- oil stock levels and measures for handling supply disruptions require close attention;
- the structural changes necessary to accomplish the transition away from oil and thus to assist in delinking economic growth and energy uses have begun and are gathering momentum, but better results can be achieved through intensified efforts, including actions to encourage more rational and economic use of energy and to increase the use of coal and, in many countries, nuclear power, new and alternative energy sources, appropriate pricing policies and research and development efforts.

Ministers particularly stressed the risk of complacency due to the present easing of the market and pointed out the need to continue strong efforts to reduce vulnerability to possible future supply disruptions, and that it is therefore necessary to encourage the rational use of energy and increased energy supplies.

In this respect, Ministers took note of the oral report by the Honourable J.L. Carrick of Australia, Chairman of the meeting of the Governing Board of the International Energy Agency on 15th June, on the results of that meeting.

Relations with Developing Countries

Ministers emphasized the continuing fundamental commitment of their governments to co-operate with the developing countries in their mutual interests to achieve better economic growth and sustained improvements in the welfare of their peoples. Successful adaptation to growing world economic interdependence and stronger resilience of developing countries are important factors for world stability and peace. While development depends, of course, first and foremost on the developing countries themselves, Ministers emphasized the continued contribution which must be made, by their countries and other countries in a position to do so, both to development co-operation and to the promotion of the

effective and mutually beneficial functioning of the world economy.

In the current world economic situation, Ministers were acutely aware of the balance-of-payments burdens and other economic problems affecting many developing countries. They agreed that present world economic difficulties, including problems of stagflation in many industrial countries and the disequilibrium in international payments, must be addressed urgently, recognising that their solution will require sustained efforts. They believe that successful implementation by the governments of OECD countries of the policies outlined in the preceding sections should help the developing countries in their adjustment and development efforts. They noted that developing countries too will wish to judge carefully their domestic economic policy stance.



"We are convinced in France that we will only escape from our present constraints through what I have called a planetary New Deal. The prosperity of the industrialised countries in the 1950s and 60s was only possible because the less privileged classes became consumers of goods and of leisure. The implementation of voluntarist policies on a world scale inspired by Keynesianism (which is no longer possible within a national framework) would be a powerful tool for our economies in getting out of the present crisis."

The Third World needs our machines and our semi-manufactured products. Its imports help get us out of recession and facilitate the necessary adjustment. They have a direct impact on employment in our countries.

The planetary New Deal requires that we do everything possible to put to work the savings accumulated in certain parts of the world, transforming them into economic opportunities for the medium and long term."

Claude CHEYSSON,
Minister of External Relations, France



"We cannot be in good economic health when most developing countries are not. To correct the disequilibria which affect our economies and find a better world growth path, we need a more stable international environment."

It is not surprising that the oil surplus countries are anxious to maximize the value of their assets. But if these countries have legitimate interests, they also have responsibilities. International cooperation can only be improved if these countries – and the Third World in general – are integrated into the international system and its joint management."

Gaston THORN,
President of the European Commission

International Financial Co-operation and Official Development Assistance

Ministers welcomed as an important achievement in international co-operation the expanded role of the International Monetary Fund in the financing and adjustment of global payments imbalances, particularly those of developing countries. They underlined the importance of providing the multilateral development institutions with appropriate resources. They stressed the urgency of efforts to complete the procedures necessary to enable the IDA,¹



"Interdependence and mutual interest are not sufficient as a source of inspiration for our policies, however useful in our relationship with some developing countries this may be. We can easily speak in terms of common interests when we are talking about our relations with the oil exporting countries and with the newly industrialising countries, for example. They have built up a position of strength, which makes it of direct interest to our countries to cooperate and come to arrangements with these countries."

But there are other developing countries, where hundreds of millions of people live in the greatest poverty – having the most difficult development problems – which have not built up such a position of strength and which have little to offer in negotiations and few means of putting pressure on us.

They are nevertheless obliged to import essential goods to keep their people alive and develop their economies. For that, they are totally dependent on the readiness of our countries to provide aid. I suggest that we reaffirm our commitment, in a spirit of solidarity, to increased efforts for official development assistance, in accordance with internationally agreed targets, including a reorientation to the problems and needs of the poorest countries."

C.A. van der KLAUW,
Minister for Foreign Affairs, The Netherlands

an essential source of concessional assistance for the poorer developing countries, to resume its activities.

Ministers noted that in 1980 official development assistance flows from DAC Members as a group were 40 per cent higher, in real terms, than in 1970. Ministers agreed that further increases in official development assistance are important for developing countries, in particular for the most disadvantaged among them. They affirmed the determination of their governments to contribute, to the best of their ability, to an increased international development assistance effort in accordance with their commitments to the international aid objectives. Ministers welcomed the aid given by OPEC countries and expressed the hope that these countries would further strengthen their contribution to the international aid effort. They considered that CMEA² countries should make a greater and more effective development assistance contribution.

Ministers agreed that experience gained over the last two decades had brought about an improvement in aid quality. Aid had made a significant contribution to the advances that have occurred in developing countries' production capacity, infrastructure and human resources. In this regard, Ministers emphasized the importance of the policies of both recipient and donor governments in facilitating greater effectiveness of development assistance.

Ministers endorsed the work of the OECD Development Assistance Committee on improving the volume and quality of aid and noted the decision, in principle, by the World Bank/IMF Development Committee to establish a task force to carry forward and widen the continuing study of the problems affecting the volume and quality and effective use of concessional flows, both in the shorter and longer term.

Ministers stressed the urgent character of the problems and needs of the most disadvantaged developing countries. They agreed to pay special attention to the problems of these countries. Ministers considered the United Nations Conference on the

1. International Development Agency.
2. Council for Mutual Economic Assistance.

Least-Developed Countries to be an important opportunity to provide impetus to national and international action for strengthening the development of these countries. They declared their intention to play a constructive role in working towards realistic measures to achieve this objective.

Trade and Investment

Ministers recalled their determination, as expressed in the 1980 OECD Declaration on Trade Policy, to strengthen trade relations with developing countries, taking into account the desirability of differential and more favourable treatment for developing countries, having in mind their special and differing needs, in particular those of the least-developed among them. They recognised the crucial importance of export earnings for developing countries and the favourable effects of high growth in these countries for the world economy. They reaffirmed the need to avoid restrictive measures which might inhibit the dynamic development of trade with developing countries. They underlined that, in addition to liberalization of trade by industrialised countries, mutual benefits for all trading partners would derive from progressive trade liberalization efforts by developing countries in a position to do so and, more generally, from the further integration of developing countries into the international trading system.

Ministers welcomed the agreement on the establishment of the Common Fund. They expressed their determination to continue their efforts to promote international co-operation in the commodity field. They also welcomed the work of the Organisation on investment in commodity production as well as on broader supply and demand issues in the interests of producers and consumers alike.

Ministers agreed that international private capital flows play an essential role in development. They endorsed continuing efforts by the Organisation to facilitate these flows. They noted the significant and particularly effective role of direct investment, which carries with it the advantages of technical, managerial and marketing expertise. They underlined the importance of an appropriate investment climate, and expressed the hope that activities in the United Nations in the areas of international investment, the transfer of technology and restrictive business practices would contribute to expanded and mutually beneficial investments.

distribution and nutritional standards, are matters of priority. In this context policies aimed at improved market stability and at enhanced food trade are also essential for attaining food security.

Meeting Developing Countries' Energy Needs

Ministers stressed the scope for realising significant mutual benefits in diversifying world energy supplies by means of helping developing countries to deal with their particular energy problems, which range from the difficulty of meeting their oil importing requirements to the growing shortage of fuelwood. Ministers agreed that the development of conventional energy resources was a priority area for co-operation with developing countries. Financing and development of energy production will be an important task for both private and public sector institutions. In this regard, there is a need to expand the lending operations of the



"In a world of progressive interdependence any attempt to steer a single-handed economic course is doomed to failure. This goes for the industrial countries, and for most of the oil-exporting countries as it does for many developing countries."

"It is necessary to continue the dialogue between industrialised and developing countries. It will be conducted with all the greater prospects of success the more we succeed in placing the discussion on a strictly substantive basis."

"My Government views the forthcoming conference in Nairobi on new and renewable sources of energy and the one in Paris on problems of the least developed countries as opportunities for conducting such a strictly business-like dialogue between North and South."

Hans-Werner LAUTENSCHLAGER,
State Secretary, Federal Foreign Office, Germany

World Bank in the energy sector and to examine how additional energy lending could be most appropriately financed and organised. Ministers looked forward to the United Nations Conference on New and Renewable Sources of Energy as the first occasion to lay the basis for increased national efforts as well as intensified regional and international co-operation.

North-South Dialogue

Ministers expressed their satisfaction that the International Development Strategy for the 1980s had been adopted. They recognised that the impact of the Strategy will depend upon the efforts of both industrialised and developing countries to reach the objectives set out in the Strategy. They agreed that it is essential to continue to review with developing countries the problems of the world economy and development issues in competent international fora and to seek constructive international co-operation, building on mutual interests and contributing to the development of developing countries. They agreed that a wide-ranging dialogue, conducted in a flexible and realistic manner, taking account of the diversity in the problems, needs and responsibilities of participating countries, as well as their common interests, should make a positive contribution to international co-operation. They recalled the agreement by their governments at the United Nations in 1979 to launch the Global Negotiations after adequate preparations had been made, and affirmed their readiness to carry forward international consultations and co-operation with the developing countries on a wide range of matters of common interest.



"The economic interdependence between the industrialised and developing worlds may already have come to the point where the solution of our own problems may only be found in the context of the development of the Third World. By facilitating greater economic activity in poorer countries, by transfer of resources, we may find a means of making our own wheels turn more satisfactorily at the same time."

Knut FRYDENLUND,
Minister of Foreign Affairs, Norway

Food Production and Food Security

Ministers agreed that food production and food security in developing countries are of major concern. They considered that development assistance efforts, including appropriately designed food aid, to assist domestic efforts and policies in developing countries to strengthen food production and to improve food

Delayed Recovery

Highlights from "OECD Economic Outlook", July 1981

The immediate outlook is complex and difficult for most countries, with a protracted transition from recession to renewed growth, accompanied by inflation and unemployment which are too high, yet hard to reduce. Difficulties are compounded by uncertainty in money and exchange markets, and structural problems are impeding a quick recovery.

The influences most immediately shaping the overall course of the OECD economy are the after-effects of the second oil shock and the macroeconomic policies adopted to meet it. Depreciation of European currencies against the United States dollar is influencing the pattern of demand among OECD countries, as well as affecting inflation. Also important in contributing to the overall situation, however, are longer-term developments which, over the last decade or two, may have impaired the ability of OECD economies to adapt adequately to changing economic circumstances. These "background causes" are taken up below.

The Outlook

Forecasts are never certain. Even apparently well-attested regularities of behaviour, the basis of all forecasts, can change, sometimes abruptly. Particularly uncertain at the moment are the likely effects of high interest rates. Furthermore if, as frequently happens, the many assumptions underlying the forecasts are not realised, the future can look significantly different. The more important assumptions in the present projections include:

- no change in actual or announced policies. Fiscal and monetary policies can, of course, change in response to events. And while budgetary plans change relatively infrequently, expenditure and revenue outcomes can still differ from the expected. Similarly, even if monetary targets are not altered, monetary authorities have the flexibility to seek growth at either end of a target range; in addition, the impact of policy,

1. GROWTH OF REAL GNP/GDP IN THE OECD AREA^a
Percentage changes seasonally adjusted at annual rates

	1979 Share in total	Average 1969 to 1979	From previous year			From previous half-year					
			1980 1981 1982			II I II I II			1982		
			1980	1981	1982	II	I	II	I	II	1982
United States	34.8	2.9	-0.2	2½	1	-0.5	5	½	½	2½	
Japan	14.7	5.4	4.2	3½	4	3.5	3½	3	4	5	
Germany	11.2	3.2	1.8	-1½	2	-2.8	-¾	-1½	2¾	3¾	
France	8.4	4.0	1.3	-½	1¾	-0.4	-¾	¼	2	2½	
United Kingdom	6.0	2.2	-1.8	-1½	¼	-5.1	-¼	-1	½	1	
Italy	4.7	3.3	4.0	-¾	1¾	-4.3	¼	½	2	2¼	
Canada	3.3	4.2	0.1	2½	2½	1.8	3	1¾	3	2¾	
Total of above countries	83.0	3.5	1.2	1¼	1¾	-0.6	2½	½	1¾	3	
Other OECD countries ^b	17.0	3.5	1.9	1¼	3	1.1	1	2	3	3½	
Total OECD	100.0	3.5	1.3	1¼	2	-0.3	2¼	1	2	3	
Four major European countries	30.3	3.2	1.3	-1	1½	-2.8	-½	-½	2	2¾	
Total OECD less the United States	65.2	3.8	2.0	¾	2½	-0.2	1	1	2¾	3½	
Industrial production:											
Seven major countries	-	3.4	-0.6	1½	2¾	-5.0	4¼	2½	2¼	4	
Total OECD	-	3.4	-0.2	1¼	3	-4.1	3½	2½	2½	4	

especially monetary policy, is often hard to assess;

- no change in exchange rates. The determinants of exchange rate changes are not well understood; essentially for this reason OECD projections assume that rates will remain unchanged, but they have been particularly volatile of late, potentially affecting output and inflation performance;
- no change in nominal oil prices to the end of 1981 and constant real prices thereafter. While there are no current indications of turbulence, recent years have seen the OECD economy seriously affected by unpredicted events in the oil market.

On the basis of these and other key assumptions, noted throughout, OECD economies could evolve broadly as follows over the next eighteen months.

GNP (See table 1). The recovery in activity, which in December was expected to occur in the first half of 1981, now seems likely to be delayed by six months or more. OECD GNP may grow

Other OECD Countries

	1979 Share in total OECD	Average 1969 to 1979	From previous year		
			1980	1981	1982
Austria	1.0	4.3	3.6	-¾	2¾
Belgium	1.6	3.5	1.0	-½	1½
Denmark	1.0	2.8	-1.0	0	3
Finland	0.6	3.7	4.9	2¼	2
Greece	0.6	5.3	1.7	1	2¼
Iceland	0	5.5	2.5	0	1½
Ireland	0.2	3.9	1.0	1¾	2½
Luxembourg	0	2.7	0.4	-2	½
Netherlands	2.2	3.5	0.8	-½	2¾
Norway	0.7	4.5	3.8	½	2¼
Portugal	0.3	5.0	5.8	3½	3½
Spain	2.9	4.1	1.7	2	3
Sweden	1.6	2.3	1.4	-¾	1½
Switzerland	1.4	1.4	3.7	1½	2½
Turkey	0.8	5.8	-0.6	4	4
Total smaller European countries	14.9	3.6	1.8	¾	2½
Australia	1.8	3.5	2.1	5¾	5¼
New Zealand	0.3	2.5	2.7	2¾	1¾
Total of above countries	17.0	3.5	1.9	1¼	3
OECD Europe	45.2	3.3	1.4	-½	2
EEC	35.9	3.3	1.2	-1	1½

a) Aggregates were computed on the basis of 1979 GNP/GDP values expressed in 1979 US dollars

b) Half-yearly data must be interpreted with care since for ten of these countries, amounting to over 50 per cent of the total GDP of the smaller countries, half-yearly growth rates were obtained by a purely mechanical interpolation.

2. UNEMPLOYMENT IN THE OECD AREA

National definitions, historical statistics and forecasts

	1980	1981	1982	1980 II	1981		1982	
					I	II	I	II
<i>Unemployment rates</i>								
United States	7.2	7½	7¾	7.5	7½	7½	7¾	7¾
Japan	2.0	2¼	2	2.1	2¼	2	2	2
Germany	3.5	4¾	5¾	3.7	4¼	5	5¾	5¾
France	6.3	7½	8¼	6.3	7¼	8	8½	8½
United Kingdom	7.0	10½	11¾	8.0	10	11	11½	12
Italy	7.6	8	8½	7.6	7¾	8¼	8½	8½
Canada	7.5	7¼	7½	7.5	7¼	7½	7½	7½
Total of above countries	5.7	6½	7	6.0	6¼	6½	6¾	7
Other OECD countries	8.5	9½	9½	8.8	9¼	9½	9½	9¾
OECD Europe	7.1	8½	9¼	7.5	8¼	9	9¼	9¼
Total OECD	6.3	7	7½	6.6	7	7¼	7½	7½
<i>Unemployment levels (millions)</i>								
North America	8.4	8¾	9¼	8.8	8¾	9	9¼	9½
OECD Europe	11.6	14	15	12.1	13½	14½	15	15½
Total OECD	21.5	24½	26	22.5	23¾	25	25¾	26½

at perhaps only a little over 1 per cent (annual rate) this year, picking up to around 3 per cent in the second half of next year. There will probably be important differences between Europe, Japan and the United States. In Europe, partly because of important exchange rate changes and tighter monetary policy, output in the bigger countries could decline by about 1 per cent this year, before growing by 1½ per cent in 1982, helped by a depreciation-assisted boost to exports. In Japan, GNP may grow at about 3-3½ per cent until next year, when it could accelerate. The outlook for the United States is subject to more than usual uncertainty. The OECD forecast is that the recent buoyancy will give way to only modest growth, accelerating through the ½-2½ per cent range during 1982, with continuing high interest rates moderating the recovery. Should inflation slow more quickly than in this forecast, growth could be correspondingly more buoyant, particularly next year. Published forecasts from other sources range from growth rates below those of the OECD to real growth for 1982 in the region of 5 per cent, which is the outcome foreseen by the United States Administration.

Unemployment (Table 2) on these projections will rise in most countries throughout the next eighteen months, perhaps from the present rate of just under 7 per cent of the labour force to nearly 7½ per cent, some 26 million people, by the second half of 1982. In Europe the rate could be over 9 per cent. The unemployment rates of relatively disadvantaged groups will be even higher; youth unemployment in some European countries may top 20 per cent.

Inflation (Table 3). As the oil price pulse and its subsequent price effects gradually dwindle, the annual rate of inflation should, on that count, drop progressively. Weak commodity prices, a quiescent oil market in coming months and moderating wage growth should assist this. Taking all the main factors into account, the outlook is for a progressive deceleration of OECD consumer price inflation, from a rate of around 10 per cent (annual rate) in the first half of this year to about 8½ per cent in the

second half of 1982. The divergence between countries is likely to be considerable: among the larger countries, inflation in Germany could be around 3½ per cent in the latter part of next year, whereas in Canada the rate could still be 10 per cent, and in Italy about 15 per cent. And of the smaller countries, half seem likely to have double-digit inflation by the end of next year, while a few may succeed in bringing inflation down to around 5 per cent.

Current balances (Table 4). The 1981 current deficit for the OECD area should be lower than in 1980. Differential GNP growth rates, in combination with past movements in competitive positions, could lead to an increased dispersion of current account positions this year. Next year, however, as the lagged adjustment of trade volumes to the recent exchange rate changes becomes important, the dispersion of current account positions of major countries could narrow considerably. Germany, which now has the biggest current account deficit, could well see a significant improvement. On present evidence none of the major countries seems likely to have a 1982 deficit much larger than \$5 billion. The smaller OECD countries will take a bigger share of the area deficit – perhaps between \$25 and \$30 billion.

Overall the OECD area deficit may fall by around \$30 billion between 1980 and 1982. The OPEC current surplus seems likely to fall somewhat, from about

3. PRIVATE CONSUMPTION DEFLATORS^a

Percentage change, seasonally adjusted at annual rates

	Average 1969 to 1979	From previous year		From previous half-year				
		1980	1981	1982	1980		1981	
					II	I	II	I
United States	6.3	10.2	8½	8	9.2	8½	8	8½
Japan	8.6	7.0	5½	4¾	7.2	5	4¾	5
Germany	5.0	5.4	5½	4	5.5	6	4½	3¾
France ^b	8.5	13.5	12¾	11½	12.8	13	12½	11¾
United Kingdom	12.1	15.6	11½	9¼	10.8	11½	11½	9
Italy	13.1	20.3	20½	16¾	18.6	22½	18½	17
Canada	7.0	10.5	12½	10¾	11.7	12¾	11¾	10½
Total of above countries	7.4	10.5	9¼	8½	9.6	9¼	8¾	8½
Smaller OECD countries – lower inflation group ^c	n.a.	5.8	6¾	5½	n.a.	7	6½	5½
– other smaller countries	n.a.	20.9	18½	15½	n.a.	18	16¾	15½
Total OECD	7.7	11.3	10	9	10.6	10½	9½	8½
Four major European countries	8.3	12.2	11½	9¾	10.9	12½	11	9¾
Total OECD less the United States	8.6	11.9	11	9½	11.4	11½	10½	9½

a) Aggregates were computed on the basis of 1979 values expressed in 1979 US dollars.

b) Consumer price index not seasonally adjusted.

c) Austria, Belgium, Luxembourg, Netherlands and Switzerland.

4. CURRENT BALANCES OF MAJOR OECD COUNTRIES AND COUNTRY GROUPS

\$ billion; seasonally adjusted at annual rates

	1979	1980	1981	1982	1980		1981		1982	
					I	II	I	II	I	II
United States	-0.7	0.1	4½	-5½	-9.3	9.6	6	3	½	-11½
Canada	-4.4	-1.3	-4	-½	-3.2	0.6	-3½	-4½	-1½	½
Japan	-8.8	-10.8	0	-½	-17.0	-4.6	0	-¼	-1¼	0
France	1.2	-7.8	-6	-3½	-7.0	-8.7	-6¾	-5½	-4¾	-1½
Germany	-5.3	-16	-17	-5½	-14.2	-17.7	-19¾	-14	-8	-2¾
Italy	5.2	-9.9	-10½	-3½	-6.8	-13	-12¾	-7¾	-5	-2
United Kingdom	-3.5	6.4	9¾	-¾	-0.3	13	14	5½	½	-2
Seven major countries	-16.2	-39.4	-23	-19½	-57.8	-21	-23	-23½	-19½	-19½
Other OECD countries	-18.9	-37.4	-40½	-27¾	-36.5	-38	-43½	-37	-30¾	-24½
Total OECD	-35.1	-76.8	-63½	-47	-94.4	-59	-66½	-60½	-50	-43¾
<i>Memorandum item:</i>										
EEC	-14.2	-41.8	-37½	-20½	-43.6	-39.9	-40	-35	-26	-15½

Other OECD countries

	1979	1980	1981	1982
Austria	-1.9	-3.6	-2½	-1½
Belgium-Luxembourg	-3.2	-5.9	-6¾	-4
Denmark	-2.9	-2.4	-2½	-3
Finland	-0.2	-1.3	-1¾	-¾
Greece	-1.9	-2.2	-2½	-2¾
Iceland	-0.02	-0.07	-0.05	0
Netherlands	-2.3	-2.5	0	¾
Norway	-1.0	1.0	½	1
Portugal	0	-1.0	-1½	-1½
Spain	1.1	-4.5	-6½	-4
Sweden	-2.7	-5.2	-4½	-4½
Switzerland	2.4	-0.7	-½	¾
Turkey	-1.7	-2.9	-2¾	-2½
Australia	-2.2	-3.7	-6½	-5¾
New Zealand	-0.8	-0.9	-1½	-1½
<i>Memorandum item</i>				
OPEC	66	121	109	67
Non-oil developing countries	-39	-53	-61	-62
Other	-4	2	0	-3

\$110 billion this year to a still substantial \$60-70 billion next year. The decline is being slowed by the European currency depreciation, which improves OPEC's terms of trade. The deficit of the developing countries, by contrast, seems likely to increase this year, perhaps by around \$10 billion, and is unlikely to fall in 1982. This projection is based on a cautious view of the finance likely to be available to developing countries. If financing were to be more restricted than assumed or less so, developing country imports would alter accordingly.

Issues for Policy

Past lessons

In assessing the appropriate stance for policy, both at the macroeconomic level and in the more microeconomic area, it is necessary to take account not only of the forces which are proximately shaping the course of demand and supply in OECD countries, but also of the longer-term developments which may have impaired

the adaptability of OECD economies.

The antecedents. During the 1960s and early 1970s, exceptionally rapid growth was accompanied by a gradual increase in inflation, although rates were still modest by today's standards. Whenever growth flagged, stimulatory policies either at home or abroad served to restore the momentum of activity. Policy may, of itself, have contributed to the inflation of the 1960s; certainly in 1972/73 the growth of demand in the OECD area was so rapid that a serious commodity price boom ensued, culminating in a burst of speculation which added to both inflation and inflationary expectations.

Medium-term consequences. With hindsight, it appears that a number of policies were adopted with too little regard for their consistency with a desirable and sustainable pattern of medium-term development, including responsive labour and product markets, a public sector of appropriate size and structure, and a measure of independence from foreign oil supplies. The seriousness of the failure to achieve such objectives became apparent, particularly from 1973. Political factors plus excess demand in world oil markets in 1973/74 had an enormous effect on oil prices and thereby directly on OECD inflation. The stubborn increase of money wages in some countries resulted in a squeeze on profits as they bore the brunt of the terms-of-trade loss. This may well have contributed, with depressed demand, to weakening productive investment. While the large OPEC surplus necessarily implied a large OECD current account deficit and a substantial short-term increase in public sector deficits, in many countries the latter did not fall markedly when the current account started returning to more normal levels. Adjustment to changed relative prices and

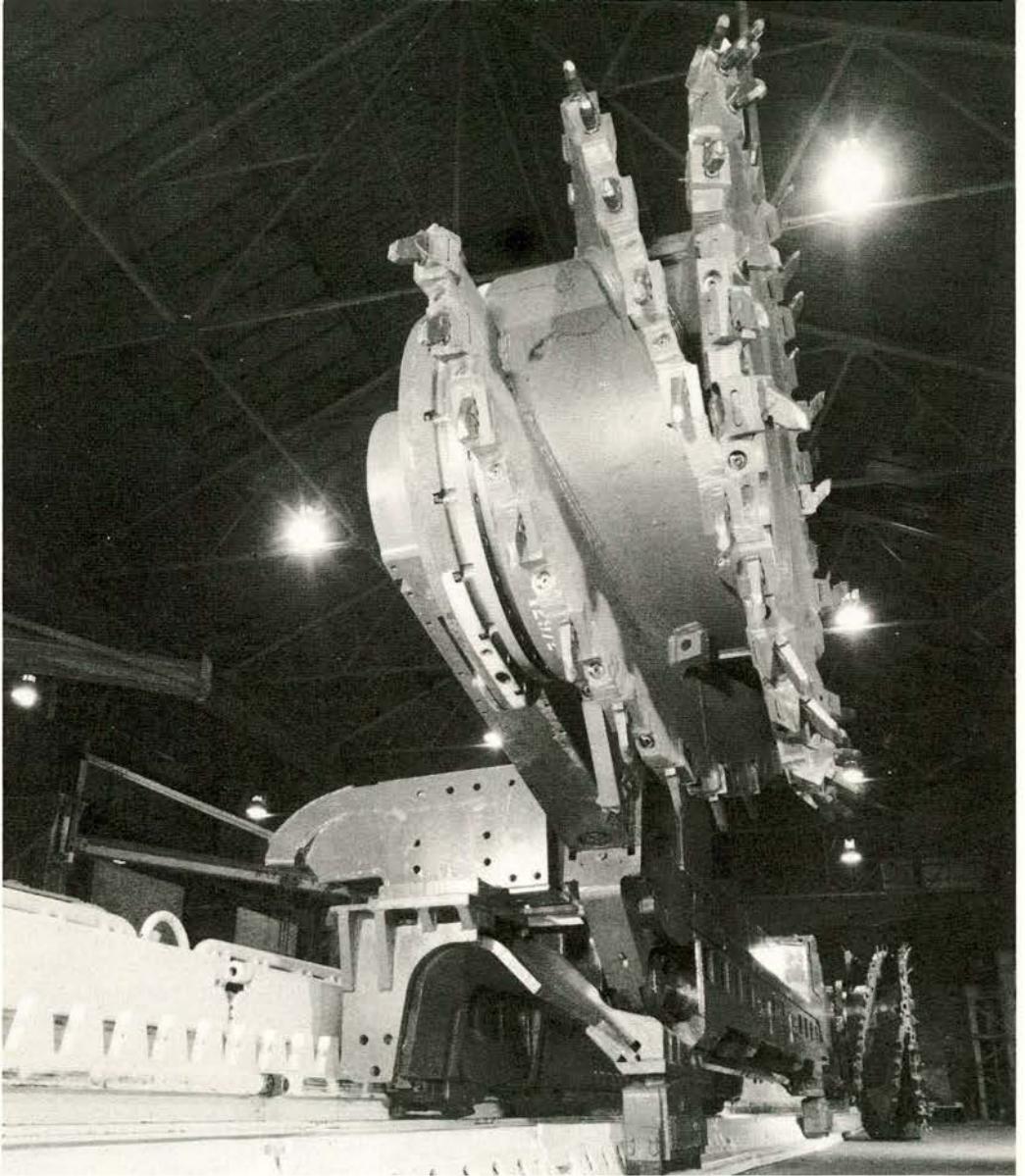
patterns of demand was protracted. Although wage and profit shares gradually moved back to historic norms, investment remained weak, public sector deficits remained large, and the movement of resources within and among sectors was sluggish. As a result the events of 1973/74 continued to reverberate throughout the OECD economy. When finally, by 1979, some deceleration of inflation had been achieved, recovery was cut short by the second major oil shock. Although this time the nominal income response has been less sharp, a second upward twist to inflation has been unavoidable, and adjustment is again proving painful, although economy in the use of oil is now proceeding faster.

There is now a widespread belief that the succession of policy actions taken over the past two decades either with a view to the conjunctural situation or to the achievement of ambitious social goals has led to some congealing of the productive structure and decreased responsiveness in labour and product markets, making OECD economies more inflation-prone. This has increased concern with policies to improve the medium-term characteristics and performance of OECD economies. Learning from their experience after the first major oil price rise, when short-term policy moves in some cases exacerbated and prolonged the impact of the oil shock, OECD countries moved uniformly and smoothly to adopt a tight stance of fiscal and monetary policies to prevent, as much as possible, the 1979/80 oil price increases spilling over into domestically-generated inflation. This policy was successful in reducing the immediate inflationary effects of the oil price increases. While nominal income growth has accelerated, it has done so by less than would have been expected from past evidence. A basis for a more satisfactory performance has thereby been laid. Nevertheless inflation is still too high in many countries, and demand and output are weak, so that unemployment in most countries is high and rising.

To ease the transition from recession to renewed growth, therefore, policy must, as OECD Ministers emphasized at their June 1981 meeting, make "... balanced use of a range of available policy instruments, taking account of the interdependence among countries and the need to find the right balance between action directed to conjunctural and structural problems, the demand and supply sides, and the short and medium run."¹

Aggregate demand policy

Within the framework of policy action to improve the conditions for a sustained



"Mutually-supporting monetary and fiscal policies should, as inflationary expectations subside, also allow durably lower interest rates, encouraging investment."

medium-term performance, aggregate demand policy needs to be set appropriately, both because the effect on the conjuncture is important in its own right, and because the achievement of desired medium-term goals can depend significantly upon a satisfactory shorter-term performance. Risks lie on both sides: "Some (Ministers) emphasized that ill-timed action to reflate demand would risk undoing the progress made in reducing inflation and would result in a further entrenching of inflationary expectations, with consequent worsening of growth performance. Others stressed that, in the absence of strengthened demand, there would be increased risks of protracted high unemployment, heightened protectionist measures, amplified structural distortions, and weakened investment and productivity gains."

The appropriate mix of policies depends partly on the situation of each individual country. It was generally accepted by Ministers that: "... In all countries monetary and fiscal policies need to remain steadfastly non-accommodating of inflation, conducted with a

medium-term focus and in a complementary fashion so as to avoid financial market pressures. ... The implementation of such policies, however, needs to be carefully judged. Where private demand is strong, a fiscal stance that fully supports the achievement of monetary policy objectives is particularly necessary. Where inflation threats are intensifying, and structural public sector deficits are persistently high, resolute measures are called for to curtail such deficits. Where unemployment is high and rising, attempts to reduce deficits quickly would risk being self-defeating if they induced further conjunctural weakening." Such mutually-supporting monetary and fiscal policies should, as inflationary expectations subside, also allow durably lower interest rates, encouraging investment. And, Ministers observed, policy should steadily aim at "... a budgetary composition and stance that promote rather than inhibit investment".

International constraints. A constraining factor is the financial interdependence of OECD countries. With

floating exchange rates it may seem that there is no necessary reason for restrictive policies in one country, involving, for example, high or volatile nominal interest rates, to be transmitted internationally and affect policy making in other countries. These others could in principle conduct their monetary policy essentially with a view to internal considerations, accepting the resulting exchange rates. Indeed for a time, policy was conducted along these lines. But it became progressively clear that, taken in conjunction with a number of other factors affecting market perceptions, this policy would have implied substantial further currency depreciation for some countries. Such depreciation adds to inflation, directly through higher import prices and also through the price/wage spiral. This is particularly so if a currency loses ground owing to a dollar appreciation, because the dollar is the pricing currency for oil and other commodities. Once the currency of a deficit country loses ground, the current account deficit in value terms often deteriorates initially as terms of trade worsen but volume adjustments take time to occur (the "J-curve" effect). This can magnify downward pressure on the currency, leading to excessive depreciation and an unwarranted strengthening of competitiveness, with serious implications for potential trade friction. Furthermore, this can provide ammunition to advocates of increased protectionism, who tend to base their case on selected bilateral balances. In practice, therefore, the goal of controlling inflation implies the immediate task of preventing excessive exchange rate movements and ensuring the smooth absorption of the terms of trade loss. This will necessitate a tight money stance in a number of countries, particularly in Europe, at least until improving balance of payments positions lessen the external constraint.

There are, however, a number of considerations to be taken into account in achieving this objective. First, the attempt to prevent depreciation-induced inflation should not be taken so far as to delay adjustment of exchange rates to fundamental economic factors such as underlying cost and price differentials among countries. Second, attempts to control monetary aggregates should not give rise to unnecessarily large fluctuations in interest rates and hence international interest differentials. Third, monetary and fiscal policy should be conducted in a complementary fashion, taking due account of both international constraints and implications in an interdependent world.

1. See Ministerial Communiqué, page 3.

Declining Economic Performance: Four Areas for Concern and Action

Over the past decade or so, four difficult interrelated problems have increasingly concerned economic policy-makers:

- Rigidities in factor and product markets have perpetuated existing inflation and increased the vulnerability to new price shocks.
- The growth of both output and productivity has slowed down, with an upward drift in unemployment.
- Public sector deficits have widened, and the size and intrusiveness of the public sector have increased. Many countries consider it imperative to reduce both the weight of government in the economy and the size of its deficit.
- Two large oil-shocks have had serious effects on macroeconomic performance. Dependence on imported energy must be reduced, and greater flexibility achieved in the face of intermittent market upsets.

These problems have grown over the years; satisfactory solutions will probably also take time. Indeed, one important lesson which has increasingly influenced OECD thinking is the importance of shaping policies with medium-term consequences clearly in mind. Exclusive concentration on the immediate conjuncture and the shaping of policies in the interests of conventional demand management can lead over the medium term to an intensification of the very problems described above. For this reason, there is now a growing resolve in a number of countries to set policies in line with a stable preferred medium-term configuration, perhaps paying less attention to the conjunctural situation and the immediate impact of policy on it. Such policy action, however, has to be finely judged. There are medium-term policies which could improve performance even in the relatively short term. But there are some which, if implemented without adequate regard to their near-term effect on growth and employment, could unnecessarily deepen recession and postpone the medium-term adjustments being sought.

The resolve to set policies in line with medium-term objectives may also have to contend with complications arising from

the interdependence of countries. Imbalances in the domestic economies of OECD countries can lead to international distortions and malfunctioning of the exchange and payments system and these can limit the ability of individual governments to pursue the policies desired on domestic grounds. Policies which may appear feasible and desirable from an individual country's point of view can be self-defeating if attempted simultaneously by all countries. Hence, the need to achieve a certain degree of international consistency in the setting of national policies cannot be ignored.

Inflation

During the 1970s most OECD countries experienced a contemporaneous increase in unemployment, spare capacity and inflation. The origins of accelerating inflation are probably to be found in the exceptionally brisk expansion of real and nominal demand from the latter part of the 1960s, after which the situation was exacerbated by external price shocks of unprecedented size. But the perpetuation of inflation is due in substantial part to the internal operation of OECD economies.

Any rise in the prices of imported goods or primary commodities typically leads to a "second round" of wage and price increases within OECD countries. This was particularly pronounced after the first oil shock, especially in countries where relatively strong demand was maintained. The response of wages to the second oil price shock was more restrained, under the influence of tight fiscal and non-accommodating monetary policies, giving hope that the investment on which future jobs and income depends will be better maintained. Nevertheless, inflationary momentum increased, reflecting in particular a continuing rigidity of many prices and wages and a resistance to relative price changes.

Price rigidities have many causes and are to some extent inevitable in modern economies. They have perhaps been exacerbated by the strengthening of inflationary expectations over the post-war period as it

became evident, in many countries, that the government's commitment to full employment targets was greater than its commitment to a hard currency and stable prices. For this and other reasons, wages and manufactured good prices are rather insensitive to fluctuations in current market conditions. Prices of manufactures, unlike those of raw materials, are frequently set with a view to covering costs rather than clearing markets, and wages respond to entrenched expectations about real income gains or relative income shares, as well as to supply and demand. This behaviour is facilitated by oligopolistic structures in both product and labour markets, so that some groups remain relatively insulated during a period of rising slack, while unemployment, bankruptcies and other misfortunes fall on more marginal groups.

A satisfactory inflation performance has to start with realism on the part of the social partners concerning the scope for real income gains, given the behaviour of productivity, the terms of trade, the claims of the public sector and the requirements of private investment. Inflationary psychology in many countries needs to be broken. A sustained steady policy of monetary non-accommodation is likely to be a necessary component of anti-inflation policy. But in view of the rigidities involved, nominal-income restraint alone may not act very quickly. Given the nature of the inflation problem, it may also be appropriate in some countries to seek policies which directly affect the momentum process. Because the inertia of inflation is, to some extent, the result of incompatible real income targets, pursued even at the cost of increased unemployment, improved understanding of the problems of income distribution – the need to distribute a limited cake in ways which combine social equity with economic efficiency – is required. Policies must foster consensus and increase the allocative efficiency of labour and product markets.

Appropriate policies will differ between countries because of important social and institutional differences. A high degree of social consensus already exists in some, with little need for further measures or new institutions. In others, however, use of tax reductions as a compensation for lower wage claims may be considered, so long as they are geared to the system of wage bargaining and implemented without changing the overall demand-management stance. Incomes policies also need to be considered in a longer-term context. Experience shows that, while some policies (such as price and wage controls) are initially effective in reducing inflation, they often lead to wage and price distortions with a medium-term effect which is either limited or perverse. Some price rises, while feeding inflationary expectations, are necessary in

the interests of efficient resource allocation. The real price of commodities, for example, probably needs to increase to provide investment incentives and ensure sufficient capacity in the primary-producing sectors. Their further decline would create a risk of future supply bottlenecks and only postpone the necessary price adjustment.

Measures that increase supply potential and reduce labour and product-market rigidities should also be pursued. In the labour market, such measures can increase employment as well as reduce inflation; they are discussed more fully below. Their short-term contribution will usually be limited. But while slow acting, they have the advantage that their effects should be permanent, whereas inflation gains resulting purely from labour-market slack can perhaps be lost when demand and employment recover.

Slow Growth and Structural Unemployment

Slow growth combined with demographic and social patterns – notably the increased desire of women to go out to work – has created rising unemployment in most OECD countries. Labour, at least unskilled labour, is no longer a constraint on output growth. Unemployment now reflects a more-than-cyclical imbalance between labour demand and supply.

But there are other important influences. In North America and some European countries, frictional unemployment has increased through changes in the composition of the labour force towards groups (women and youths) with a relatively rapid job turnover. And in some countries improved unemployment benefits have increased job-search times. During long periods of labour market slack, there is a gradual squeezing out of the marginal elements of the labour force and newcomers find it hard to acquire experience and skills. This reduces flexibility and may be one of the factors making demand-management policies less effective, whether in influencing output or inflation. Some unemployment may be due to lower labour mobility, reflecting the rising number of two-earner households. And insufficient investment and accelerated scrapping due to rising real costs of energy and labour means that the capital stock has often not grown in step with the labour force.

Part of unemployment has thus become structural. Measures to deal with it include steps which, by removing rigidities, improve the functioning of labour markets and steps to stimulate investment so as to increase the growth of potential output and future job opportunities.

In some cases an important way of

insuring sustained employment growth consists of reducing rigidities in wage formation. Wage claims in one sector are frequently based on increases obtained in others and to the extent that sectors with above-average productivity growth act as wage leaders, there is a risk of continuing inflation and reduced employment in less productive sectors. When nominal wage claims reflect workers' attempts to maintain real incomes in the face of sharp increases in import prices, income may shift in favour of labour, which thereby prices itself out of a job. And to the extent that the shift from profits reduces investment and tilts it in a labour-saving direction, structural unemployment may be aggravated. Some optimism can perhaps be justified by the fact that the 1975-78 period saw an improvement of the non-wage share in many countries, and the second oil price shock was more smoothly absorbed than the first.

Measures to reduce frictional unemployment include increasing the flexibility of labour supply by accelerating training and retraining, and facilitating placement and mobility. Better anticipation of skill shortages is needed. Traditional measures to increase regional mobility (moving, settling, separation and installation allowances) complemented by appropriate housing policies, also have a role. The emphasis has to be on making better use of existing resources, so as to limit the expenditure growth that such policies would otherwise entail.

Employment compensation funds could be positively used for training, subsidized employment and the creation of new enterprises.



More generous unemployment benefits in the early 1970s have operated as a labour demand disincentive (to the extent that they are financed by payroll taxes) and, more importantly, as a labour supply disincentive (reducing the gap between the incomes of the employed and the unemployed). Recent reforms in several OECD countries have concentrated on stricter eligibility criteria, the control of abuse and, in some cases, the untiring of benefit levels from previous income levels net of tax. Further reforms might include more positive use of unemployment compensation funds for training, subsidised employment, and the creation of new enterprises. These should be seen in a broader context of shifting financial resources from job protection and income maintenance to training and job and enterprise creation, with less accent on rescue operations for individual firms or industries, redundancy-averting subsidies, and public sector job creation programmes of doubtful productive value.

An important rigidity stems from high minimum wage laws. If the minimum is above the market wage, labour demand will be reduced. Evidence suggests a significant adverse effect on the employment prospects of young workers. A youth differential might be advantageous, as would smaller but more regular minimum wage adjustments.

The importance of non-wage labour costs has increased generally in OECD countries, reflecting a shift towards non-wage benefits. This involves, however, a variety of possible labour market distortions: rising hiring and firing costs, payroll taxes and training costs. The gross wage cost borne by the employer thus exceeds the net money wage received by the employee and in countries which have already gone far along this road, it is becoming important not to allow this discouragement to employment to grow further.

Work sharing is a possible alternative for redistributing employment opportunities and making the labour market more flexible. The removal of institutional or behavioural impediments to less-than-full-time work has already become the objective of policy and collective bargaining in many OECD countries. Such policies – although this is not usually their explicit intention – can help to overcome certain rigidities. A more flexible use of working hours permits a better manpower adjustment to cyclical and seasonal fluctuations of product demand and a better use of equipment. More flexibility in work time can also allow a better spread of work and leisure within the family, and enable involuntary unemployment of one family member to be more easily compensated by increased labour

supply of another. The central idea being to shift working time from those who are at work to those who are not, work sharing implies a redistribution of income. In order not to be inflationary, involuntary unemployment must be transformed into voluntary leisure. Those at work have to accept less. If, instead, reductions in work hours are accompanied by compensatory wage claims, inflation will accelerate.

But even if the operation of labour markets is significantly improved, prolonged slow growth can increase the problems of particular sectors, encouraging further public intervention in the running of individual firms and industries. Impediments to faster growth have to be overcome if unemployment is to be permanently reduced. A key element lies in business investment, and evidence suggests that stimuli operating through the cost of investment, and in particular through the rate of return to enterprises, can have an important effect. In some countries tax reform may be appropriate to remove a systematic bias against returns to capital — for example, by maintaining the value of depreciation allowances which inflation tends to erode. Temporary measures to encourage investment or to target it may also have some use, but they carry the risk of administrative distortions. The major aim of investment policy should be to encourage the introduction of new processes by increasing the overall expected rate of return on them through balanced cost reduction. The aim should not be to alter the relative costs of different techniques, unless there is strong evidence that relative factor costs have already been distorted.

Size of the Public Sector and its Deficit

In many countries the public sector has become an important issue. Concern centres variously on the size of the public sector itself, the size of the deficit, the extent of public sector command over available resources, and its general intrusiveness in economic life.

Public deficits have been found particularly worrying where slower growth has pushed up unemployment payments while reducing the growth of tax receipts — the operation of the "automatic stabilisers". While they provide short-run support to demand, there is anxiety that, insofar as they are financed by issues of public debt, they may crowd out the borrowing of would-be investors. Large deficits can also hamper the control of money supply — often regarded as an indispensable signal of the government's determination to control inflation — and can fan inflationary sentiment.

The rapid increase of public expenditure in some countries over the last decade, particularly for consumption, may itself have contributed importantly to slow growth, high inflation, and structural unemployment. Such expenditures were, in some cases, more supply than demand determined, as the combination of progressive taxes and accelerating inflation up to 1973 swelled public revenues and encouraged spending plans. The resulting high marginal tax rates and relatively good welfare provision may have led to a shift in the distribution of resources towards consumption, and reduced incentives to save and invest. Inflationary pressures may also have been increased to the extent that improved welfare provision has been discounted in wage bargaining with workers negotiating on the basis of post-tax real incomes.

To redress the balance towards a smaller public sector probably takes some years. Care has to be taken to avoid too sharp a depressive near-term effect on demand; otherwise the results could, paradoxically, run counter to the achievement of medium-term aims. Experience in a number of countries shows that it is not easy to make substantial quick cuts in overall government expenditure. Deep sudden cuts can usually be carried out only in capital programmes. Unless private investors immediately step up their expenditure, the immediate demand effect is deflationary, leading to lower tax receipts and higher transfer payments to the unemployed. The deficit may be little reduced, and investment as a share of GNP may actually fall.

In some sectors, significant business decisions about investment, prices and output are often heavily influenced by governments. This may result in severe rigidities. Government intervention sometimes results in a reduction rather than an increase in social welfare, even within the sector directly affected, the effect being simply to protect sellers from the influence of market forces. The reduction or modification in regulations that tend to supplant the market can make output more responsive to changes in the pattern of demand and relative prices, without impairing the original goals of the regulations. In some cases such policy can usefully be complemented by stronger anti-monopoly laws. Greater downward price flexibility can be achieved by opening up protected positions and reducing private barriers to the entry of new competitors.

In a number of countries, costs could be reduced by a certain deregulation in such varied fields as the environment, product safety and standards, building codes and health policy. Excessive regulation can be reduced, for example, by greater use of

economic incentives to protect the environment.

Dependence upon Imported Energy

The demand for energy — and particularly for oil — is currently running well below earlier predictions, and the upward pressure on oil prices has eased considerably. This reflects three main factors:

- Weak growth of output in the OECD area, although large movements in inventories of oil make a clear distinction between consumption and imports of oil more difficult
- Lower demand in response to the 1979-80 increase in real oil prices and the continuing effects of the 1973-74 price rise
- A possible change in expectations concerning the course of real oil prices. After the first oil price shock, real oil prices may have been expected to move back towards earlier levels. It now seems more widely held that they will continue to rise over the medium term.

The elasticity of the demand for energy with respect to its price appears higher than was generally thought, but the effect takes time. The 1979-80 price rise is expected to continue to reduce demand. Nevertheless, the fragile balance between the demand for oil and its supply, and the uncertainty of supply in the future give no cause for complacency. The OECD area is still heavily dependent on OPEC oil, and

The demand for energy is currently well below earlier predictions but the uncertainty of supply in the future gives no cause for complacency: the OECD area is still heavily dependent on OPEC oil.



experience has shown the extent to which even temporary conditions of excess demand can destabilise the economic system. A wide range of policy measures is still needed:

- Price measures to reduce further the demand for energy, and encourage oil-saving through substitution. In some countries this may call for tax measures or an adjustment of energy pricing policies, perhaps offsetting the inflationary effects by reductions in other taxes. There may also be a case for alleviating the distributional consequences: higher energy prices bear more heavily on low-income households.
- Non-price measures, whether temporary or permanent. Market imperfections and externalities are widespread, and effective or optimal energy pricing policies are difficult to implement. Hence non-price measures are often appropriate for reinforcing and accelerating a desired response of energy demand
- More investment in the energy-producing sectors, even if initially contributing

towards larger public sector deficits. Present evidence suggests that there is little likelihood of a particularly buoyant performance in energy investment and even less likelihood of it being hampered by a lack of funds. The use of more energy-efficient capital equipment in the household sector can also importantly reduce dependence on imported oil. To the extent that energy and capital are substitutable, specific or general investment subsidies can provide a stimulus to growth as well as reduce energy demand.

The need is to reinforce the effects of higher oil prices on energy efficiency and to increase the speed with which demand for energy responds to higher prices. The supply of oil, and energy, in total, is a possible constraint on future growth; the speedy implementation of appropriate measures could do much to improve the medium-term prospects of the OECD area. They should not be postponed merely because of the present — probably temporary — easing of oil market conditions. ■

Outside the commercial sphere, one group of measures has focused on direct or indirect financial assistance or subsidies (advances, low-interest loans, tax concessions), including measures intended to safeguard jobs in ailing firms. The General Orientations on Positive Adjustment Policies adopted by OECD's Council at Ministerial level in 1978 specify that such assistance should be strictly temporary and related to the restructuring and financial rehabilitation of firms. Although they have not amended their position on matters of principle, some governments have, at least in certain cases, apparently yielded to pressures to apply these principles more flexibly. Subsidies aimed at maintaining activity, employment and obsolete capacity present serious dangers and generally only postpone or delay the adjustment, making it more painful later on. From the trade point of view, their effects are similar to those of restrictive measures and make the adjustment process more difficult in other countries, perhaps causing new distortions and difficulties in future. Nor do they eliminate the possibility of recourse to trade measures to replace or complement subsidies.

As to *trade measures*, alternative action has taken various forms. One example is the surveillance of imports: by recognizing that a problem exists, at least potentially, such surveillance is a response to domestic pressures and at the same time a kind of warning to foreign suppliers, since monitoring can easily lead to some more structured form of action. Technical or administrative requirements — visas, marks of origin, or other controls and procedures at frontiers or for customs clearance — have tended to become more widespread for sensitive types of goods. It could be argued that these measures are pseudo-restrictive since some of them are designed simply to prevent trade diversion and thus may be related to competitive conditions or to the need for stricter enforcement of existing or recently introduced regulations.

The use of methods to ensure normal and fair competition, particularly on the basis of price, is another indication of governments' concern to limit recourse to protective measures while endeavouring to alleviate difficulties in specific sectors. With a few exceptions, however, there would seem to have been no significant increase in the use of procedures connected with dumping or subsidies.

The main feature of trade policy over the last year and a half is related to broad-scale arrangements which affect certain very important industrial sectors and cover a large part of trade in such sectors. This approach to the major sectoral problems differs from the conventional safeguard mechanisms and may be translated into

Recent Changes in Trade Policy

OECD's Trade Committee, in a report which has just been released, makes three main observations about developments in trade policy since the beginning of 1980:

- Liberalization of trade suffered no fundamental interruption.
- Few new protectionist measures were introduced, either in the form of quantitative restrictions or tariff increases.
- There was a greater tendency to use other measures — to seek *ad hoc* and often bilateral solutions.

Liberalization of Trade

The main move in the direction of liberalization and other improvements in trade was the beginning of implementation of the Tokyo Round results: reducing tariffs, putting into effect agreements on non-tariff matters and expressing the will to apply measures already agreed upon. In addition, studies, already undertaken on trade in the services (see page 18) and envisaged for other specific problems in the field of trade and competition, indicate that governments are resolved to further strengthen the trading system now that the multila-

teral trade negotiations have been completed.

A number of liberalization measures have been taken: restrictions introduced in recent years, for balance-of-payments reasons, have been eased or abolished; quotas have been eliminated or raised; duties and taxes on specific products have been lowered. These measures, though limited in scope, are a positive element in the evolution of trade policies. However, for a few industrial goods and most agricultural products, there has been little progress in the direction of liberalization; restrictive measures and regimes remain in place.

New Restrictions

There are few new *restrictions of a conventional sort* — overall quotas or duty increases. Such measures as were introduced were very specific, affecting only goods which play a minor role in the economy of the importing country and hence not linked to their general economic problems.

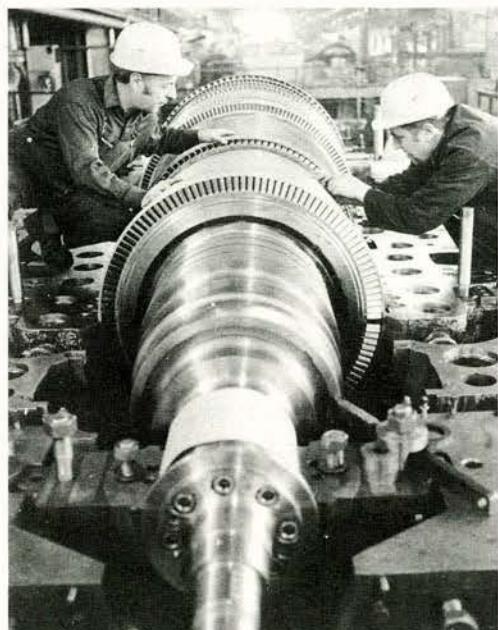
Alternatives to traditional protectionist measures on the other hand are on the rise.

various forms of action depending on the specific problem and sector involved.

These arrangements seek to reconcile some degree of liberalism and multilateralism with a measure of order in pricing and import growth. They appear to be based to a great extent on an implicit assumption that problems are so great as to justify:

- action that permits the socio-economic cost of adjustment to be kept down
- some sharing of the burden among countries facing similar adjustment problems but also including countries better placed from the point of view of international competition.

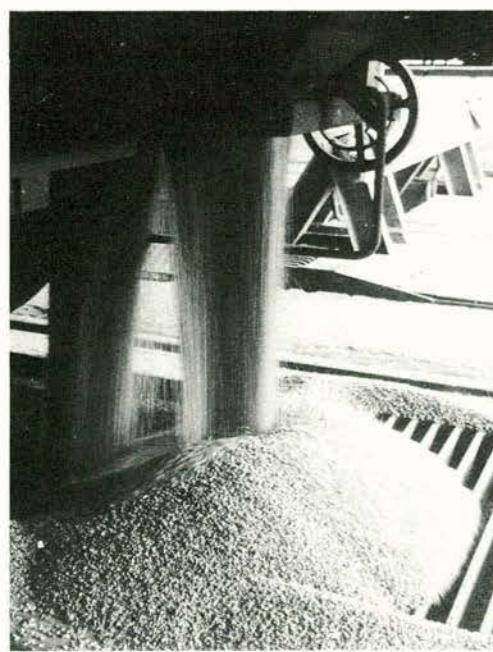
However, introducing trade restrictions, or strengthening them through such arrangements, does not contribute to structural adjustment. On the contrary, these measures may impair efficient adjustment programmes. There is moreover a danger that protection could be prolonged beyond the initial period and that similar arrangements could be extended to other sectors.



Self Restraint

Self restraint in regard to exports has over the years tended to take the place of conventional safeguard instruments. Self restraint may be formal or informal, ranging from a simple declaration of intent or a statement of prospects (following an exchange of views which has no formal conclusion) to a firm, negotiated commitment which is monitored at the time of importation. Self restraint may be outside the framework of trade policy, at the level of the industries themselves. The role of government is difficult to determine, since it can range from merely noting inter-industry arrangements to accepting them and providing various degrees of support. In many cases, governments have played a very active role.

From the point of view of trade policy, measures of self restraint present both advantages and disadvantages compared to other forms of action. On the one hand, they result from bilateral negotiation and



thus, in theory, allow the exporter to defend his interests; in addition, the exporter shares in the economic rent which results from restrictive measures. On the other hand, the outcome of the negotiation depends on the relative strength of the parties. Moreover, they do not necessarily take into account the effects on other import markets even though bilateral accommodation on sectoral problems can lead to trade diversion, distortion and damage to third countries. Since self restraint may be considered less harmful to the trading system than other types of restriction, and since it is less transparent and escapes international scrutiny, it may tend to spread more rapidly and lead to greater restraint on world trade than conventional safeguard mechanisms.

More Formal Bilateral Agreements

More formal bilateral agreements are usually concluded in the framework of



arrangements which cover a large part of a sector and a large number of exporters. Generally they seem to be concerned with maintaining some degree of equity between the partners who are subject to the restrictions. In the case of textiles, bilateral agreements fit into a formal multilateral framework. In other cases, arrangements are first negotiated bilaterally between the main partners and then extended to other less important suppliers. This is perhaps inevitable, but the fact remains that bargaining power plays a major part in these bilateral dealings. The fact that bilateral arrangements are juxtaposed cannot be considered as a form of multilateralism. Bargaining power may differ even among major countries or groupings which expect certain advantages from the bilateral approach, with the result that partners derive much less benefit than they expect. A *fortiori*, countries that are less well placed in bilateral negotiations might suffer if bilateral agreements were to become generalised and might be led to take unilateral measures. This fact is important for developing countries as well as developed ones: if the trend continued, it would harm the integration of the developing countries into the multilateral trading system.

Economic and political circumstances – concern for the security of supply of certain commodities, chiefly energy, the associated aim of encouraging export growth in order to improve the trade balance and the level of activity of exporting industries – have led governments to involve themselves more directly in international trade and also in specific transactions.

Shrinking domestic markets and current-balance difficulties are causing firms and governments to look to foreign markets, notably those of third countries. In addition to measures of export promotion or incentives, perhaps the most important point to note in this connection is that the participants in the Arrangement on Export Credits were unable to reach a mutually acceptable solution on improvements to the Arrangement, particularly regarding interest rates, by 1st December 1980, the deadline set by the governments. The situation as it has developed has expanded the role of officially supported export credits, with the volume of credits increasing and more widespread recourse to mixed credits. Negotiations are in hand among the participants in the Arrangement on all these issues, with the aim of seeking solutions so as to avoid a further and damaging credit war.

Overall Evaluation

In seeking to assess progress in trade policy since the beginning of 1980, the

worsening economic environment must be borne in mind, as must the scale of the difficulties facing governments and the domestic policy constraints to which they are subject. In the circumstances, the overall picture of developments in trade policy may be judged to be positive, chiefly because the line of defence against protectionist pressure has generally held firm.

This does not, however, warrant undue complacency or optimism. Undoubtedly the most striking feature of the recent period has been the worsening of the overall trading climate, as the OECD countries went into economic recession, and as sectoral problems became more acute and spread to other sectors, the motor industry in particular. The tensions which have grown up have especially affected relations between OECD Member countries. Generally speaking, though, trading partners have been able to keep these developments under control.

The exceptional character of present economic and social difficulties is sometimes invoked to justify restrictive trade measures. But it should be recognised that even if the economic situation does play a role in trade difficulties, the latter are mainly due to a lack of adjustment to change in demand or in technology and to weakening of international competitive positions. It is true that, in a weakened market, import penetration through international competition is felt more keenly. However mild, measures to restrict the impact of imports are protectionist in nature and cannot bring about a fundamental solution. Even if they alleviate domestic difficulties, they may divert international competition to third markets,

thereby increasing the problems of exporting to those markets for the countries taking the restrictive measures. This may entail a risk of recourse to various forms of export subsidisation.

The unpromising economic outlook extending well beyond the short term, the persistent problems of adjustment in the face of continued – or possibly accelerating – changes in international production in the world economy do not offer any real grounds for hope that in the short term there will be any lowering of tension or risk in trade policy.

In these circumstances the generally favourable assessment applies to a relatively short period and cannot allay possible fears for the future. Governments appear, where trade policy is concerned, to be looking for solutions that do the least harm both in the form and scope of their action. On the one hand, the aim is to maintain market access while controlling the rate of import growth or penetration, taking account of developments in the domestic market; on the other, it is to find pragmatic solutions, based on agreements which are frequently bilateral.

The problem is how to assess this trend in terms of trade policy. While it appears to have been kept relatively well controlled until now, there is nevertheless the danger that a consolidated pattern of varied arrangements and measures might emerge with the aim of exerting control over trade flows and organising an increasing proportion of international trade. Future international cooperation should be shaped in the awareness of this risk and in accordance with the motivations and objectives of the Declaration on Trade Policy.

Trade in Services

In their expression of political support for work in the OECD on services, the Ministers focused on an increasingly important sector of the national economies of Member countries. By the late 1970s, 40 to 55 per cent of the Gross Domestic Product of the OECD countries and 40 to 70 per cent of civilian employment was being generated by service industries. Services are also a major element in international trade, with receipts having increased by some 400 per cent during the decade of the 1970s and accounting for about 25 per cent of all trade flows.

One of the difficulties confronting work on the service sector is the broad, heterogeneous nature of service-producing activities. The service sector is commonly considered to consist of industries which produce intangible output, "services", in contrast to other industries which produce tangible output or "goods". But there are also many services which are produced and counted in the material goods sector (for example, the technical assistance usually provided with capital equipment). One method of classifying the services which enter into international trade is by the two

principal ways in which services can be provided to meet demand in a foreign market. The first, "across-the-border trade in services", includes those which can be provided by a supplier in the exporting country to a consumer domiciled in a second country. This is the case for logistics services, that is, services necessary to the international movement of goods, people and information (e.g. cargo and passenger transport, cargo insurance, port services, telecommunications). Also, there are producer services provided to industrial customers in the consuming country such as management services and technological services, franchising and the provision of intangible assets such as intellectual property. A number of other services are commonly traded across borders directly to foreign consumers, including engineering services, film and information services and some aspects of insurance and banking.

The second way in which services are provided to foreign consumers, "establishment trade in services", involves either the consumer travelling to the supplier country

Trade in services reflects the heterogeneous nature of the service sector itself. Examples include cargo and passenger transport, communications and tourism.



or the establishment of the supplier firm in the country of the consumer. The major examples of the former method are the provision of tourism, education and health services while establishment in the consuming country is often necessary for the provision of such services as advertising, accounting, legal services, repair and maintenance services, equipment rental, retail trade and some aspects of banking and insurance.

This brief description shows that much of the trade in services is not conducted purely for its own sake but is closely related to the production of and trade in material goods. This complementarity underlines the fundamental role played by the service sector in the economic system and the desirability of having an efficient provision of services through effectively functioning markets.

The OECD from its inception has recognised that its principles and objectives concerning the liberalisation of international transactions cover the exchange of services as well as goods. Member countries have adopted several instruments

relevant to these principles and objectives (the Codes of Liberalisation of Capital Movements and Current Invisible Operations, the 1976 Declaration and Decisions on International Investment and Multinational Enterprises, the 1980 Trade Pledge). Yet, at present no coherent overall international framework exists for resolving trade problems in services, in contrast to the situation for trade in goods, where over the past several decades a body of international rules and procedures has developed which contributes to the maintenance of a free and open multilateral trading system for goods.

Much of the work currently under way in the OECD on services involves identifying and analysing existing barriers or obstacles to trade in services. While still incomplete, this work in the OECD has revealed that there exists a variety of barriers confronting efforts to provide services internationally, including:

- interference with access to markets either by across-the-border trade or from an establishment within the consuming country
- limitations on the right of establishment
- interference with transactions and financial structure
- government regulations or treatment which place foreign-owned firms at a disadvantage (lack of National Treatment)
- direct government intervention
- government procurement practices.

This work on obstacles, of course, must take account of some relatively unique qualities in many service sectors, most importantly, the fact that a number of them are highly regulated by governments to assure that the interests of consumers and broader societal goals are properly protected (e.g. in the sectors of banking, insurance, transportation, communications). While such governmental economic, social and national security objectives provide an explanation for many of the existing obstacles to trade in services, it is not always evident that regulations designed to achieve such legitimate governmental objectives have been designed and implemented in a manner which is least disruptive to trade and the efficient functioning of service markets.

As indicated by the Ministers in their Communiqué, the results of this ongoing work on services in the OECD should serve as the basis for efforts aimed at examining ways and means for reducing or eliminating the identified problems and improving international cooperation in this area. It is recognised that this will be a complex and challenging task but, given the importance of the service sector to the overall economic system, this effort is considered to be an essential one.

Aid in 1980

Real aid rose in 1980 by some 9 per cent or from 0.35 to 0.37 per cent of GNP. But this relatively favourable result was to some extent influenced by the irregular timing of funds paid to multilateral institutions, in particular the International Development Agency.¹

Members' performance in 1980 was supported by the continuing upward trend in the ODA of such donors as the Netherlands, Japan and France; and a noteworthy encouraging development was the increase – quite sharp in some cases – in 1980 in the ODA provided by some countries whose ODA/GNP ratio has traditionally been below the DAC average, such as Austria, Italy, Finland and Switzerland. However, some other Members experiencing high rates of inflation were unable to keep pace with prices and in some instances encountered difficulties in protecting ODA allocations from the impact of budgetary restraint.

Individual Countries' Performance

Countries having reached the 0.70 per cent target

In spite of serious economic difficulties, the Netherlands in 1980 again allocated resources corresponding to about 1.2 per cent of GNP to development co-operation. As a result of an increase in bilateral aid, and in particular of loan disbursements, the Netherlands ODA reached a record level of 0.99 per cent of GNP in 1980 (0.93 per cent in 1979). In view of the continued high level of budgetary resources devoted to ODA, the Netherlands' net disbursements may be expected to remain in the vicinity of 1 per cent of GNP.

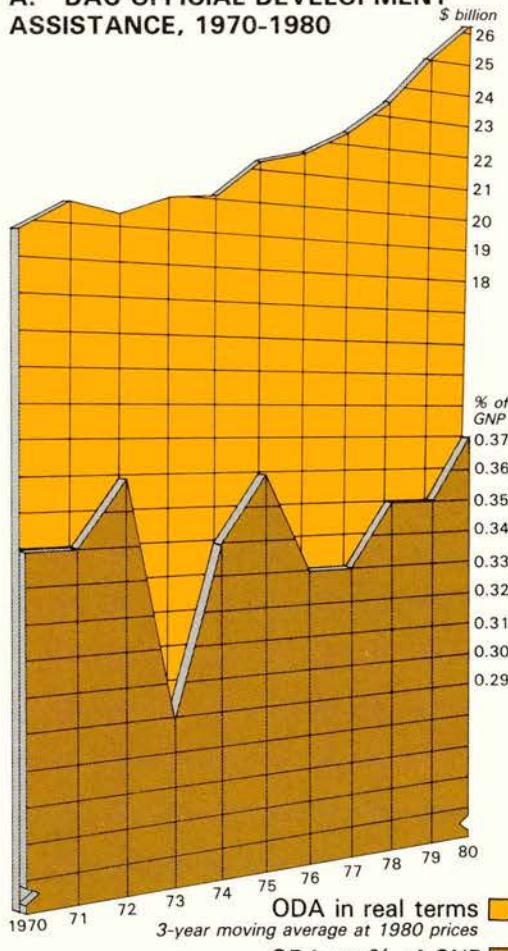
Norway's ODA/GNP ratio fell from 0.93 per cent in 1979 to 0.82 per cent in 1980, mainly as a result of the difficulties encountered by the Norwegian authorities in adjusting budgetary aid appropriations quickly to the rate of inflation. The Norwegian government recently announced that it is aiming to achieve a level of aid appropriations corresponding to 1.3 per cent of GNP by 1985.

There was a sharp drop in Sweden's ODA/GNP ratio from 0.94 per cent in 1979 to 0.76 per cent in 1980. This mainly reflects the fact that the note deposits to IDA in 1980 were not made in time (\$96 million in 1979), and some

slowdown in the disbursement of bilateral aid. An increase in the ODA/GNP ratio can be expected again in the current year, since budgetary aid appropriations are being maintained at a level close to 1 per cent of GNP.

Denmark reached the 0.7 per cent target for the third successive year although its ODA/GNP ratio declined to 0.72 per cent in 1980 from 0.75 per cent in 1979.

A. DAC OFFICIAL DEVELOPMENT ASSISTANCE, 1970-1980



Between 1970 and 1980, ODA provided by DAC Members as a group rose in real terms by some 40 per cent, corresponding to an annual average increase of between 3 and 4 per cent (with fluctuations in individual years). For the first few years of the 1980s, the information available on current trends and policies indicates a continued moderate but significant increase in the volume of Members' ODA, at a pace similar to that recorded in the 1970s, when there was also a slight upward movement in the ratio of ODA to GNP for DAC Members combined.

During the period 1981/1984 aid appropriations are to be stabilized at 0.7 per cent of GNP.

Others above the DAC average

In 1980, France increased both bilateral and multilateral disbursements and its ODA progressed as a share of GNP from 0.59 per cent in 1979 to 0.62 per cent in 1980.

A decline in outflows to multilateral agencies, largely as a result of delayed approval by the Parliament of contributions to IDA, and the very modest growth of bilateral disbursements led Belgium's

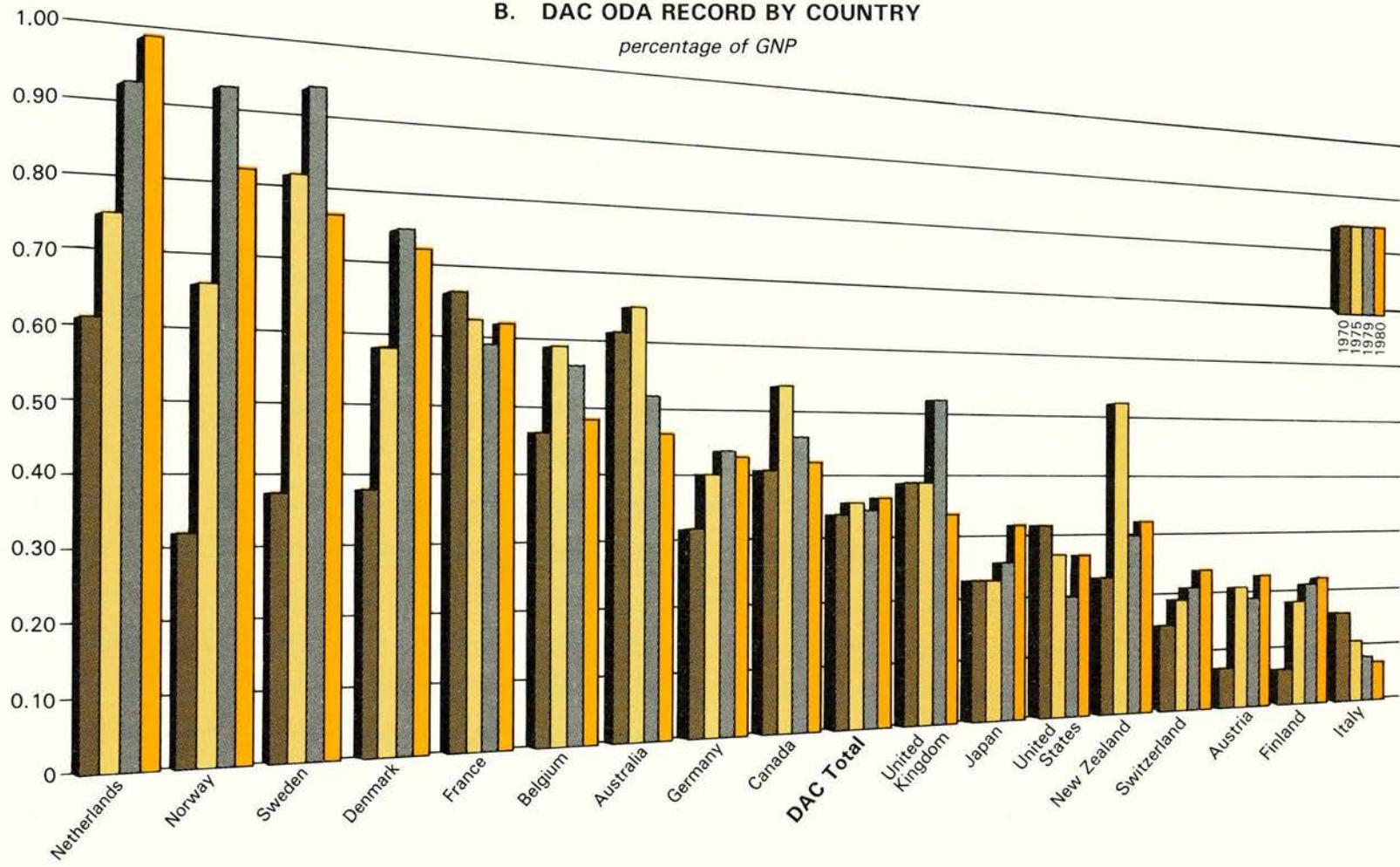
¹ A part of the significantly higher US outflow, enough in itself to account for the entire improvement in Members' combined ODA/GNP ratio, reflects the entry in the US data for 1980 of notes which it had hoped to issue in 1979. (The combined ODA/GNP ratio of DAC Members other than the United States remained at its 1979 level of 0.43 per cent.)



The Netherlands' ODA reach a record level of 0.99 per cent of GNP. Above: Dredging canal inlets, Gezira irrigation scheme in Sudan.

B. DAC ODA RECORD BY COUNTRY

percentage of GNP



The steep drop in Sweden's ODA/GNP ratio is mainly due to technical causes, and an increase can be expected again this year. Above: Swedish aid in Guinea-Bissau.

CONCESSIONAL ASSISTANCE BY NON-OECD MEMBERS 1975-1980
Net Disbursements

Donor Country	As per cent of GNP						\$ million		
	1975	1976	1977	1978	1979	1980	1975	1979	1980
Algeria	0.28	0.37	0.24	0.18	0.87	0.21	41	272	83
Iraq	1.64	1.44	0.33	0.76	2.60	2.19	218	868	854
Kuwait	8.11	4.52	10.02	7.36	4.08	3.87	976	1,053	1,186
Libya	2.30	0.63	0.65	0.99	0.51	0.92	261	118	281
Qatar	15.62	7.95	7.90	3.56	5.89	(5.28)	339	277	299
Saudi Arabia	5.62	5.13	4.09	2.27	3.08	3.66	1,997	2,298	3,033
UAE	11.68	9.21	8.05	4.82	6.17	3.96	1,046	1,171	1,062
<i>Arab donors</i>	4.99	3.83	3.75	2.39	2.86	2.66	4,879	6,057	6,798
Iran	1.12	1.43	0.29	0.37	0.03	0.03	593	21	29
Nigeria	0.04	0.19	0.13	0.16	0.04	0.05	14	31	42
Venezuela	0.11	0.33	0.35	0.27	0.17	0.23	31	82	130
<i>Non-Arab donors</i>	0.55	0.67	0.21	0.24	0.07	0.09	638	134	201
Total OPEC	2.59	2.14	1.91	1.29	1.51	1.46	5,517	6,191	6,999
USSR	0.07	0.10	0.10	0.10	0.13	0.14	517	1,403	1,580
Eastern Europe	0.07	0.08	0.07	0.09	0.09	0.06	225	358	237
Total CMEA	0.07	0.09	0.09	0.10	0.12	0.12	742	1,761	1,817
<i>For reference:</i>									
Total DAC	0.36	0.33	0.33	0.35	0.35	0.37	13,840	22,413	26,708

Source: *OECD Secretariat except for GNP figures for OPEC countries which were supplied by the World Bank.*

ODA/GNP ratio to fall from 0.56 per cent in 1979 to 0.48 per cent in 1980. A recovery is expected to take place in 1981.

Australia's ODA/GNP ratio declined from 0.52 per cent in 1979 to 0.48 per cent in 1980. ODA prospects are being affected by the Government's overall expenditure restraints and these are likely to limit progress towards the 0.7 per cent target in the near future.

After rapid progress in 1978 and 1979, Germany's ODA disbursements in 1980 increased by only 4 per cent (in national currency) and declined slightly in relation to GNP (from 0.44 per cent in 1979 to 0.43 per cent in 1980). Over the next few years, further aid increases are to be expected following the decision by the Government to increase aid appropriations of the Ministry of Economic Co-operation by a rate at least double that of the Federal budget.

Canada's ODA/GNP ratio continued to decline in 1980 to 0.42 per cent – its lowest level since 1973. In 1980, the Government announced its intention of reversing the downward trend of aid by accepting an appropriations target of 0.5 per cent of GNP for the middle of the decade and of 0.7 per cent for the end of the decade.

Below the DAC average

After having reached the exceptionally high level of 0.52 per cent of GNP in 1979,



Japan's ODA has more than doubled between 1977 and 1980 and the government intends to increase it even more within the next five years. Above: the Bang Na-Klong Toey Port Expressway Project in Bangkok.

United Kingdom ODA net disbursements dropped sharply in 1980, by 15 per cent (in national currency) to 0.34 per cent of GNP – its lowest ratio reported so far. To a large extent this reflects the fact that the United Kingdom did not deposit any promissory notes to IDA before the end of the calendar year 1980 (as compared with \$479 million in 1979), and also that drawings by some of its major recipients, notably India, were slower than anticipated. While an increase in the United Kingdom ODA/GNP ratio can be expected in the current year, future ODA volume prospects will be affected by the Government's policy of overall public expenditure restrictions. According to the most recent White Paper on Public Expenditure published by the British Government on 10th March, 1981, the aid budget is to be cut by 15 per cent in real terms during the period 1980-1981 to 1983-1984.

In 1980, *Japan* substantially exceeded its target of doubling ODA between 1977 (\$1.4 billion) and 1980, when net disbursements reached \$3.3 billion and 0.32 per cent of GNP, up from \$2.6 billion and 0.26 per cent of GNP in 1979. Further increases in ODA may be expected on the basis of the Japanese government's declared intention to extend during the years 1981-1985 at least double the amount of ODA disbursed during the previous five years, while endeavouring to increase the ODA/GNP ratio.

After falling in 1979 to the lowest figure recorded so far as a share of GNP (0.20 per cent) *United States* ODA recovered to 0.27 per cent in 1980. The low 1979 figure was due to procedural delays in completing capital subscriptions to multilateral development banks, and the 1980 recovery was largely accounted for by note issuances during the year of \$1.9 billion. The Administration's budgetary requests for the fiscal year beginning in October 1981 provide for a modest increase in bilateral ODA. The United States authorities have stated that they will honour internationally negotiated multilateral commitments but that contributions will be made over an extended period of time. United States ODA may be expected to decline somewhat in the near term. Longer run prospects for United States aid are uncertain given the Administration's decision to reduce the growth of Federal expenditure.

New Zealand's ODA remained approximately stable in nominal terms in 1980. As a consequence, its ODA/GNP ratio declined further from 0.30 per cent in 1979 to 0.27 per cent in 1980. No significant expansion of New Zealand's ODA is to be expected in the current economic circumstances.

As a result of an increase in bilateral grants, *Switzerland* raised the share of ODA in GNP from 0.21 per cent in 1979 to 0.24 per cent in 1980. The adoption by Parliament of a new "programme credit" of 1.65 billion francs – about \$1 billion – is an important step towards achievement of the government's objective of raising the

ODA/GNP ratio to 0.30 per cent in the near future.

After a sharp decline in 1979 *Austria*'s ODA as a share of GNP recovered slightly in 1980 to 0.23 per cent (from 0.19 per cent in 1979). This reflects significantly higher official export credits at concessional terms; both bilateral grants and multilateral contributions declined in relation to GNP. Austria has stated its intention to move towards the DAC average ODA/GNP ratio.

Finland continued its slow but steady progress in raising its ODA volume. As a

proportion of GNP, ODA net disbursements reached 0.22 per cent in 1980, after 0.21 per cent in 1979. The Finnish government intends to increase aid appropriations to 0.32 per cent of GNP in 1982 and to 0.7 per cent by the end of the decade.

Italy's ODA/GNP ratio increased from 0.08 per cent of GNP in 1979 to 0.17 per cent, mainly as a result of a rise in multilateral disbursements. Further rapid increases in the ODA/GNP ratio are expected in the light of the government's decision to raise this ratio to the DAC average during the three-year period 1981-1983.

Energy and Aid

Increased energy production has become a key priority for the oil-importing developing countries: their economies are expanding and modernising while their oil bills have shot up from \$30 billion in 1978 to nearly \$80 billion in 1981¹ (two-thirds of it for the newly industrialising countries).

Investment, planning, training and research needs are enormous. The World Bank, which is now exploring the possibility of setting up an agency to develop energy production in the Third World, puts the annual investment needed between now and 1985 at around \$40 million² (twice the annual figure of the last five years) with an acceleration for the period beyond. The developing countries depend on outside help in this task. In providing external support to the energy sector of Third World countries, bilateral and multilateral donors are guided by the development priorities set by these countries themselves.

While much of the aid to the energy sector provided by Members of the OECD Development Assistance Committee (DAC) is channeled through the multilateral institutions (Table 1), their bilateral contributions are the main source of aid support. These bilateral contributions – together with non-concessional financial support – are analysed in an OECD Secretariat report submitted to the forthcoming UN Conference on New and Renewable Sources of Energy, to be held in Nairobi from 10th to 21st August, 1981. The article which follows outlines the contents and briefly describes, by way of illustration, recent action taken by five countries: France, Germany, Japan, the Netherlands and the United States.

Official Development Assistance (ODA) to the energy sector has risen substantially over the past few years. Bilateral financial commitments by the DAC countries increased from \$507 million in 1976 to \$1.6 billion in 1979 and some \$2 billion in 1980. In absolute terms, the main aid donors in 1977 to 1979 were Japan, Germany, the United States, Canada and the United Kingdom, together accounting for 85 per

cent of DAC countries' bilateral ODA to this sector.

The volume of non-concessional financial commitments (mainly export credits) is, in absolute terms, several times that of ODA commitments. In relative terms, for DAC Members collectively, the share of

1. Assuming an average price of crude oil of \$35 per barrel in 1981.

2. In 1980 dollars.

**1. COMMITMENTS FOR ENERGY DEVELOPMENT
by DAC Members and multilateral institutions**

	Official Development Assistance (ODA)						Non-Concessional			
	\$ million			Per cent			\$ million		Per cent	
	1977	1978	1979	1978	1979	Average 1977-79	1978	1979	1978	1979
1. DAC Members	841	968	1,606	4.9	6.8	5.7	6,180	6,844	18.1	14.6
Australia	17	15	9	3.3	2.0	3.1	-	4	-	0.5
Austria	31	31	4	27.0	5.7	24.2	100	6	25.7	2.4
Belgium	-	..	-	-	-	-	6	6	-	0.8
Canada	70	104	169	9.2	25.0	12.6	667	658	41.0	-
Denmark	-	9	19	2.3	6.6	3.2	-	-	-	-
Finland	-	1	-	2.9	-	-	-	-	-	-
France	18	49	74	1.6	2.0	1.5	517	730	12.9	14.9
Germany	169	150	364	6.1	9.2	8.4	398	961	5.1	13.6
Italy	-	-	-	-	-	-	162	251	4.3	5.6
Japan	339	340	391	15.0	15.5	16.0	868	1,120	20.0	8.0
Netherlands	27	13	40	1.0	3.0	2.3	312	219	40.8	37.1
New Zealand	-	7	2	14.9	3.8	6.7	-	-	-	-
Norway	-	4	13	1.8	5.6	6.2	-	-	-	-
Sweden	19	7	13	1.3	1.7	2.0	43	5	12.7	2.1
Switzerland	-	14	6	12.7	3.4	4.8	389	312	25.1	41.8
United Kingdom	3	14	272	0.9	13.8	6.9	582	88	16.6	2.5
United States	104	196	220	4.1	4.2	3.6	2,096	2,358	40.0	30.7
EEC	44	14	10	1.3	0.6	1.9	41	126	24.0	22.1
2. Multilateral institutions	249	405	661	9.8	16.1	11.8	1,509	2,011	17.5	21.6
World Bank Group	183	248	506	8.7	18.9	12.5	916	1,148	14.0	16.5
Inter-American Development Bank (IDB)	6	122	86	17.9	11.1	10.6	342	553	30.9	44.3
African Development Bank (AFDB)	6	-	15	-	6.6	3.8	37	45	17.9	16.4
Asian Development Bank (ASDB)	54	35	54	9.0	12.7	13.3	214	265	27.5	31.7
3. Overall Total	1,090	1,373	2,267	5.7	8.1	6.7	7,689	8,855	18.0	16.2

export-credit-supported energy financing in total export-credit financing (14.6 per cent in 1979) is more than twice as large as the corresponding share in total ODA programmes (6.8 per cent).

Aid for Energy

Donor efforts to achieve an appropriate balance in aid programmes between the various energy sub-sectors are guided by the following considerations:

- *Effective energy planning* by Third World countries is the key prerequisite for energy development which, in turn, is related to broader development orientations and provides a basis for effective choices between different energy sources and technologies.
- *Conventional energy sources* (including oil, gas, coal, hydro) will remain the mainstay of energy development, given their large share in energy supplies, the well-known technologies involved, and their capacity to relieve energy scarcity in the medium term.

• *Effective conservation and demand management* offers considerable opportunities in developing countries.

• *Traditional energy sources*, e.g. firewood, charcoal, animal and agricultural wastes, are of utmost importance in many Third World countries, especially the poorer ones, and face rapid depletion, with grave consequences for rural development, the environment and meeting basic human needs. This raises the thorny question of alternative land (and water) use for food versus energy production.

• *New and renewable sources of energy* provide an important challenge for satisfying decentralised energy needs in rural areas and also for some commercial uses. While the energy problems of developing countries are too urgent to rely primarily on solutions with long lead times, new and renewable sources of energy deserve special attention for those applications with significant economic potential. Hydro power, for instance – particularly on a small scale – and biomass have a sizeable potential for meeting energy needs in

certain areas. Several DAC Members have recently launched important programmes for promoting new and renewable forms of energy. (See below).

A breakdown of DAC ODA commitments to the various energy sub-sectors shows that the main emphasis of bilateral ODA financing, \$1.6 billion in 1979 (of which over one-third was in the form of grants) has been on conventional sources of energy – coal (\$263 million), oil and gas (\$89 million) and, above all, hydro-electric production (\$534 million) and power transmission and distribution (\$507 million). New and renewable sources of energy other than hydro received only marginal support. However, because of deficiencies in statistical reporting, about one-fifth of total ODA commitments to the energy sector are not allocable to a particular sub-sector.

Recipients

Over one-half of total bilateral DAC ODA commitments in recent years was for

low-income countries (including the least developed countries) and the remainder mainly for middle-income countries; the relative importance of ODA commitments for energy development varied greatly for individual developing countries. The percentage of ODA commitment for energy in total ODA receipts ranged from 2 to 20 per cent. It was 7 per cent for the group of least developed countries, 8 per cent for the low income countries and 9 per cent for the middle income countries, taken as a group.

Action by Five DAC Countries

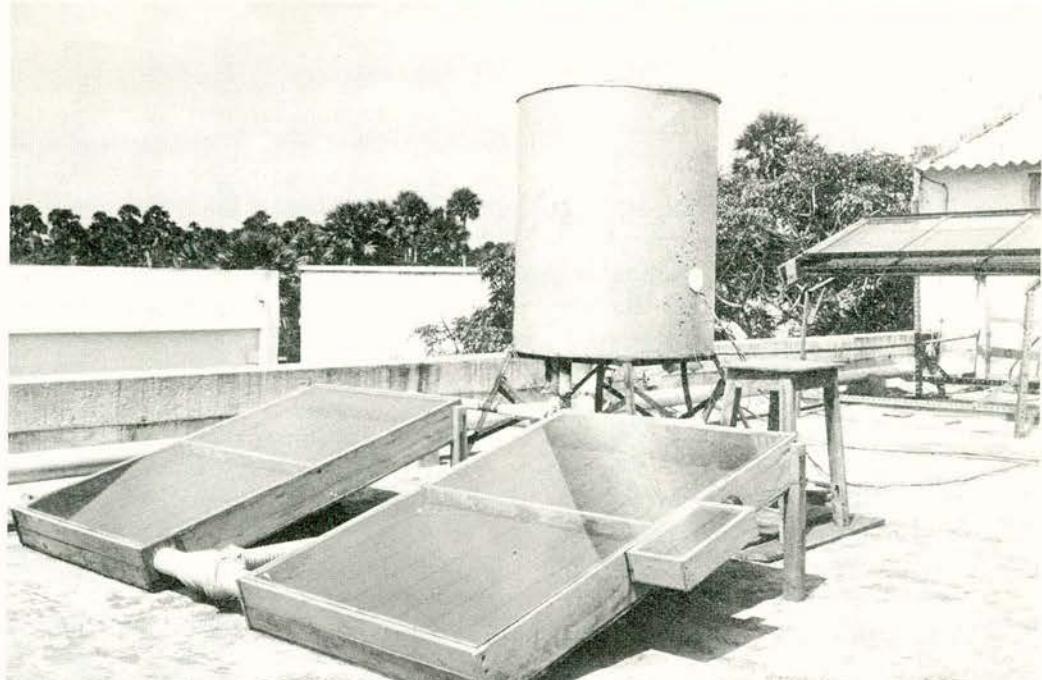
France

France's energy support for developing countries rests on three principles:

- Energy co-operation must cover all stages of the energy chain, i.e. in addition to energy production, also the essential phases of energy planning and distribution.
- The choices of energy sources must be adapted to both local conditions and needs; there is no generally applicable solution, and all energy sources have a role to play.
- The solutions found must be able to be implemented by the recipient countries themselves; this requires an adaptation of the technologies to local users as well as an important training effort.

Consequently, the French assistance programme follows four principal orientations:

- France participates in the financing of investment in conventional sources of energy: thermal power stations, dams and hydro power, development of hydro carbons, electricity distribution. The type of financing is adapted to the project characteristics: while soft funds finance large-sized projects with long gestation periods (e.g. large dams in Africa), commercially viable projects, especially in the hydro-carbons sector, are financed by official funds on non-concessional terms.
- France supports training and technical assistance activities in all types of energy development, involving a variety of French institutions (Institut Français du Pétrole, Bureau de Recherches Géologiques et Minières, Électricité de France, Commissariat à l'Énergie Atomique).
- France attaches particular attention to new and renewable sources of energy which appear well suited to a variety of needs in developing countries, e.g. the decentralised use of solar energy for rural populations, notably in Africa. French support is provided as part of an integrated programme, combining scientific research, the development of equipment, demonstration and training. An example is the



Solar energy has an important potential in the Third World. Above: applied solar research at the Indian Institute of Technology, Madras, financed by Germany.



Planning is a prerequisite for energy development. Above: Geophysical survey financed by Japan in Luzon, Philippines.

"Sahel-Énergies Nouvelles" programme, started in 1976 and since 1979 extended to other African countries.

- France promotes international co-operation in the energy sector through such actions as support for an enlarged World Bank role and for the proposed creation of an Energy Affiliate, as well as contributing to the creation by FAO of a research network whose findings in the field of new and renewable resources of energy, are to be disseminated for the benefit of agriculture.

Germany

Following the Bonn Summit in July

1978, the German Government decided to expand the scale of its energy co-operation with the developing countries. Consequently, financial commitments to the energy sector show a rising trend. Measures focus on three sectors in accordance with the new policy guidelines of 1980: promotion of conventional energy sources to reduce the dependence of developing countries on oil imports (this sector includes hydro power production and distribution); support for afforestation programmes; promotion of new technologies in the field of new energy sources, particularly solar, wind and biomass.

In 1979, the Federal Government estab-

blished a "Special Programme for the Utilisation of Renewable Energy Sources" for Third World countries. This programme now covers a total of twenty countries. All research and development projects are designed to achieve close co-operation with a local scientific institution or agency involved in the practical application of research findings. This is to ensure that the acquired technology can be used productively and further developed in the recipient country.

For 1980, a total amount of \$35 million was set aside under the Special Programme. The breakdown for sub-sectors financed is shown below, together with the comparative figures for the past five-year period.

	1975-79 \$ million	1980 \$ million
Institution building and energy planning	3.4	11.2
Small-scale hydro	8.9	5.8
Solar	19.1	7.7
Biomass, incl. wood	4.5	6.1
Wind	4.0	4.0
Tidal	0.1	—
Total	40.0	34.8

Japan

Japan regards energy development as a priority sector in the development assistance programme, attaching special importance to such new and renewable energy sources as hydro power, biomass, geothermal and solar energy. During the first

half of 1980, thirteen official direct loans were committed to the energy sector. Among those approved were the Wuquiangxi hydro-electric power project in the People's Republic of China and the Jong geothermal power plant construction project in the Philippines.

As for grants, Japan made contributions of \$3.9 million for the construction of research centres at Kasetsart University in Thailand.

The Japan International Co-operation Agency, which is responsible for technical co-operation, implemented study and training programmes on hydro power and geothermal energy for trainees from developing countries. Under the new programmes for ASEAN countries training courses on solar energy and biomass will also be provided. The Agency also sent experts to Guatemala (geothermal wells) and Thailand (planning of hydro power projects). Survey missions in most cases took the form of feasibility studies. Development surveys were conducted in regard to hydro power in nine developing countries (including Indonesia, the Philippines and Colombia), geothermal energy in four countries (including Indonesia, Kenya and Chile), and solar energy in the United Arab Emirates.

The Netherlands

The Netherlands Government is increasingly emphasising co-operation in regard to non-conventional energy resources.

While bilateral conventional energy projects (e.g. electrification projects in

Pakistan and Indonesia amounting to \$57 million in 1977-1979) still account for the bulk of funds disbursed. In 1979, projects in new energy resource development greatly increased.

The research programme, amounting to some \$4 million technical assistance grants in 1979, consisted mostly of the development and application of wind energy projects (\$1.6 million) to promote the use of windmills in five African countries, but also some biogas and solar energy projects (\$1.6 million for investigation into solar driers and biogas in Indonesia, \$26,000 for a solar ice production unit in Sri Lanka), and some \$900,000 for a gas generator fuelled by agricultural waste in Tanzania. Over the next few years, some \$10 million will be made available for further research and about \$40 million will be spent on studying the possibilities of reafforestation in the Sahel. Budgetary funds for the development of newer forms of energy amounted in 1980 to \$5 million and in 1981 will rise to \$15 million.

United States

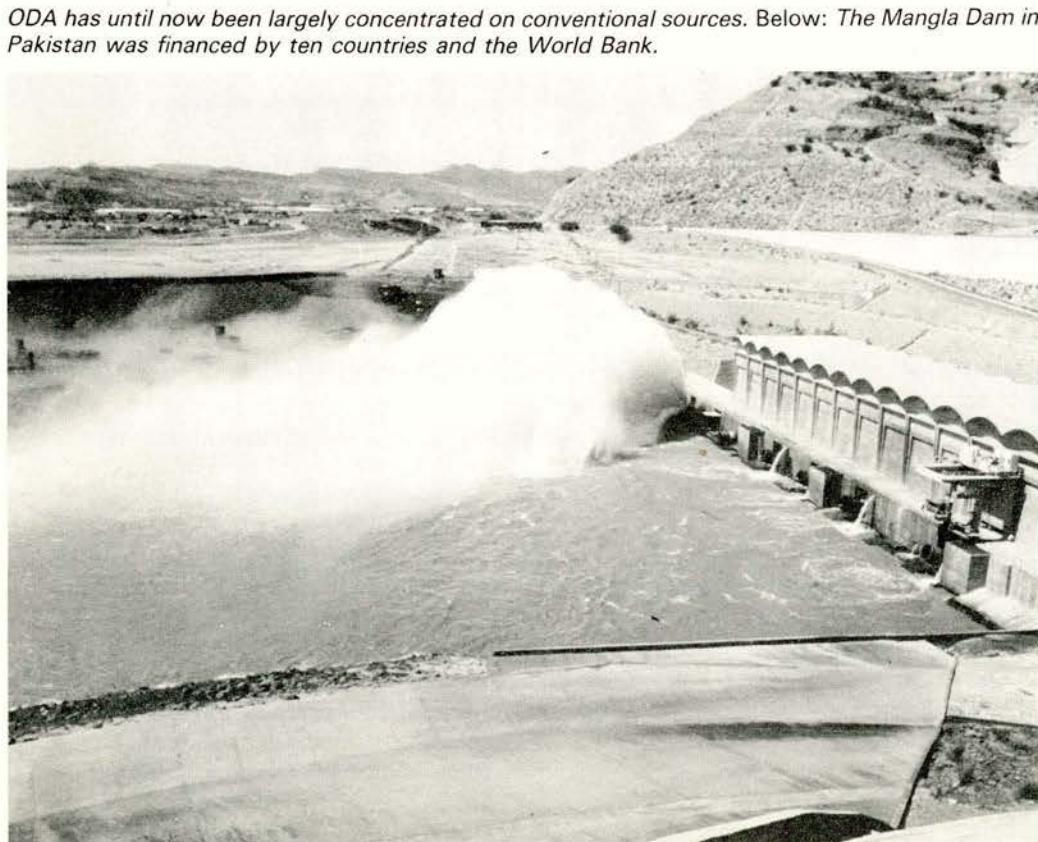
The Agency for International Development (AID) is the lead agency for bilateral energy assistance programmes, although the Department of Energy has supported energy assessments and research, and the U.S. Peace Corps is supporting fuel wood projects and rural energy surveys.

AID programmes have evolved from a concentration in past years on electric power generation and distribution to an increasing concern for the current and projected scarcity and high cost of both conventional and renewable energy resources. Programmes have stressed technical assistance activities, with major emphasis on national energy planning, renewable energy, and fuel wood for rural applications. AID is now formulating a comprehensive policy for renewable and conventional energy to guide future aid programming.

In the new energy sector, principal programme areas for cooperation with developing countries include:

- the analysis of energy needs, uses, resources and policies through studies, surveys and other technical assistance (e.g. in Indonesia, Thailand, Sudan, Dominican Republic, Argentina, Taiwan, Egypt, Peru, South Korea);
- research, development, demonstration and commercialisation of renewable energy technologies;
- training and institutional development including planning assistance.

AID assistance for renewable energy grew from \$20 million in 1978 to \$35 million in 1980. The planned programme for 1981 is \$70 million, and it is projected to expand to over \$100 million in 1982.



Synthetic Fuels: OECD/IEA High Level Group Proposes Plan for Commercialisation

by Niels de Terra and Willem Smit¹

If a concerted effort is made by industry and government between now and 1990, synthetic fuels could contribute somewhere between 4 and 8 million barrels a day oil equivalent (mboe/d) to OECD energy supplies by the year 2000, that is to say some 16 to 37 per cent of 1980 oil imports. This is one conclusion reached by an OECD/IEA High Level Group which was given the task of examining the prospects for a selected group of alternative energy technologies and of developing a plan for their commercialisation.

Which Technologies Were Singled Out?

The High Level Group was asked to focus on technologies that met two criteria:

- They could make an early and significant impact on the energy supply/demand balances of individual countries;
- Their commercial deployment risked substantial delays because private industry would be unwilling or unable to assume the technical and commercial risks of constructing the first multi-billion dollar plants. On this basis six technologies were examined (see next page).

What Did the High Level Group Do?

Working through the participating governments,² the High Level Group surveyed commercial-scale projects planned for the 1980s in the specified technologies — some 350 projects in all. To obtain a realistic picture of the capacity likely to be in operation by 1990, each project was scrutinised for certain key factors such as the state of development of the technology, the degree to which financial and siting arrangements had been finalised and the timetable of the project. The 350 projects were then separated into those likely to be realised by 1990 (some 150 projects) and those with uncertain prospects for that year (200 projects). Following the project survey, participating governments made projections of production capacity in each technology for 1990 under various scenarios, and estimated a range of output levels for the year 2000 assuming that the industrial capability to deploy these technologies is developed during the 1980s.

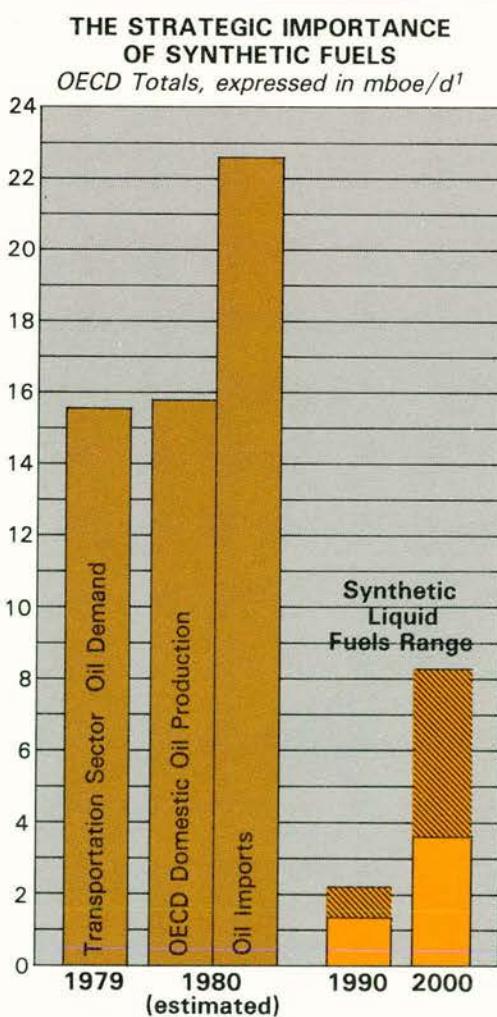
Based upon the project survey and projections of output — as well as discussions with industry — the High Level Group concluded that the group of technologies could be producing between 1.6 and

2.6 mboe/d by 1990 if present government policies are implemented and certain constraints to commercialisation are removed. This output would include 1.4 and 2.2 mboe/d of liquids respectively. It is probable that the 1990 level will be closer to the lower than to the upper level.

How Important Could Synfuels Be in 1990? ...

Achieving production levels of some 1.6 mboe/d would have three major implications. First, synthetic fuels could have strategic importance by 1990 for individual countries. This may be seen by comparing a few key 1980 energy statistics with the projected 1990 liquid output levels of 1.4—2.2 mboe/d. Such levels would be equivalent to 9-14 per cent of estimated 1980 OECD domestic oil production, 6-10 per cent of estimated oil imports in that year, and 9-14 per cent of oil demand in the transport sector in 1979 (see chart). If 6-10 per cent of oil imports seems at first to be a small figure, it must be remembered that changes in oil supplies of this magnitude have triggered major price increases in recent years.

Second, processes based on coal could make a material contribution to meeting the objective set by the 1980 Venice Economic Summit to double coal use by the early 1990s. The third and longer term significance of achieving these 1990 output levels is that the first generation industrial base would have been created so that the



1. million barrels of oil equivalent per day.

1. Office of Research, Development and Technology Applications, Combined Energy Staff, OECD/IEA.

2. 21 OECD countries plus the Commission of the European Communities.

THE SIX ENERGY TECHNOLOGIES

1. Extraction and processing of tar sands, heavy oils and oil shales.

Enormous deposits of these oil bearing structures, containing billions of tonnes of oil, are found mainly in North America (tar sand: Canada; oil shales: United States), while the very heavy oils are located mainly in Venezuela.

For the processes involved, the raw material is extracted by mining and/or application of heat. After removal of the excess quantities of mineral material and metals, the final product, synthetic crude (syncrude for short) can be processed in a refinery.

Currently two commercial scale tar sand plants are in operation in Canada.

2. Direct and indirect coal liquefaction

In terms of economically recoverable reserves, coal has very great potential for expanded use (world coal reserves represent more than five times as much energy as world oil reserves).

Coal can be turned into a variety of liquid fuels by numerous processes that are at very different stages of development. The *indirect* processes are: a process producing gas, followed by a catalytic conversion into hydrocarbons like gasoline, diesel, naphtha and methanol. These technologies were first used on a commercial scale during the Second World War, and today only two plants using the indirect liquefaction route are in commercial operation, both in South Africa. Due to low efficiencies, these processes may only be economic at very low coal prices and at high oil prices.

In *direct* coal liquefaction, hydrogen reacts with coal under high temperature and pres-

sure to produce a liquid fuel similar to petroleum.

In the medium to long term, a number of direct and indirect processes can become attractive to produce a range of products, but at this stage there is considerable technical and economic uncertainty with respect to most coal liquefaction technologies.

3. Coal gasification

Coal gasification offers another variety of fuel options for using coal because the product range can be varied to include low-medium calorific gas or as a basis for further processing to other gaseous and liquid fuels such as gasoline, methanol and synthetic natural gas.

Low-medium calorific gas can be used directly as a fuel for boilers, industrial furnaces, and kilns. Moreover, a coal gasifier in combination with turbines seems an attractive proposition for the efficient and environmentally acceptable generation of electricity.

The production of synthetic natural gas with coal as feedstock is technically possible today, but its use will probably be conditional on higher natural gas prices than present ones.

It is generally expected that a start will be made on the design and construction of the first generation of commercial-scale coal gasifiers in Europe, the United States and Japan during this decade.

4. New coal combustion technologies

Coal-oil mixtures and atmospheric fluidised bed combustion both have good near-term potential in competition with more conven-

tional coal burning technologies. Pressurised fluidised bed combustion as a means of power generation is potentially attractive but still a long way from its first commercial application.

5. Fuels from biomass

This technology has to date concentrated on the production of ethanol from corn (the United States) or sugar plants (Brazil). It is being used as a gasoline additive ("gasohol") and on an experimental basis as a pure motor fuel with a modified combustion engine. The future of ethanol may be limited if it continues to be dependent on food feedstocks. Methanol from coal or wood, and ethanol from cellulose may be more economic, but other factors such as infrastructure and market requirements will influence the impact these fuels could have.

6. Liquid fuels from natural gas

The technology for the production of methanol from natural gas is commercially available. Methanol can be used as a chemical feedstock or burned as a turbine fuel. Other possibilities are mixing it with gasoline or using it directly as a transport fuel, requiring modifications in the engines as well as market distribution systems. An additional option is the further conversion of methanol into gasoline, but this process will not be commercially demonstrated until later in the 1980s.

Application of these technologies is limited to those countries with an abundance of natural gas in combination with a shortage of liquid fuels (New Zealand) or where the remote location of some natural gas deposits does not justify the expansion of the gas pipeline network (United States, Canada).

Left: Coal gasification at the Rheinbraun AG experimental plant near Frechen, Germany. Right: Oil shale project at the Parachute Pilot Plant, Colorado, United States.



private sector could expand its output much more in the 1990s.

... and in the Year 2000?

The High Level Group has concluded that, if industrial capacity is developed in the 1980s, it would be possible to reach energy contributions of between 5 and 11.6 mboe/d by the year 2000, of which 3.6 and 8.3 mboe/d respectively would be liquids. Such an expansion could produce strategically important contributions for individual countries and the OECD/IEA as a whole: the 2000 liquid output levels would be equivalent to 23-52 per cent of estimated 1980 OECD domestic oil production, 16-37 per cent of estimated oil imports in that year and 23-53 per cent of oil demand in the transport sector in 1979.

What Are the Constraints?

A major constraint to the commercialisation of these technologies is the degree of uncertainty, both technical and economic, of certain processes. The High Level Group does not believe that overall capital availability or world coal production levels are likely to constrain the commercialisation of the technologies. However, the very large capital costs involved in building plants for many of these technologies, in combination with long construction times and high interest rates, do create obstacles for the first-generation plants. For some countries, the economics of importing coal for conversion to synthetic fuel may delay commercialisation of these technologies. Priority needs to be given to reducing delays and uncertainties caused by environmental reg-

ulatory procedures. The availability of skilled manpower will also pose problems for some countries, but orderly development of industrial capability in the 1980s should help to alleviate shortages in the 1990s.

Energy Ministers of the IEA countries meeting on 15th June, 1981 stated their intention to establish conditions in which industry can build and operate commercial scale plants within each technology area by 1990. If this can be achieved, economic and technical uncertainties for the major processes will be reduced and technologically viable options created for the second phase in the 1990s. At that time production can be expanded as industry and governments see fit. International co-operation can help governments make better use of scarce budgetary resources.

RECOMMENDATIONS

of OECD/IEA High Level Group on Energy Technology Commercialisation noted by OECD's Council and endorsed by Ministers at the IEA Governing Board Meeting of 15th June 1981

Phased Approach to Commercialisation

National energy policies should indicate the technology areas in which contributions to future energy balances will be needed. As one indication of their resolve to encourage structural changes that will reduce dependence on imported oil, governments should state their intention to create conditions under which industry would be prepared to design, build and operate commercial scale plants by 1990 in the requisite technologies. In this regard, each government should apply, within its constitutional framework, the measures set out below where they are felt to be needed and appropriate.

Measures to be Adopted at National Level

Structural measures

Environmental Regulations. A resolution must be sought between the objectives of environmental protection and the need for alternative energy technologies. National systems of environmental regulation should be structured in such a way as to simplify and place realistic time limits on procedures for issuing permits. Premature generic technology regulations should be avoided. Instead, consideration should be given to licensing on a plant-by-plant basis, with maximum efforts made to assure stability in the regulations under which such plants will operate. Government and industry should develop equitable arrangements for handling environmental problems that may be revealed by new scientific discoveries.

Economic Regulations and Fiscal Policies. Where government regulations and procedures can adversely affect investment decisions (energy pricing and use, foreign investment regulations, etc.) these should be reviewed and structured in such a way as to minimise obstacles to entrepreneurial investment initiatives. Stability in the fiscal regimes affecting synthetic fuels plants would favour their development.

Resource Use Policies. Governments at the national and state or provincial level should ensure that their resource use policies are formulated in such a way that the necessary resources would be made available for the development of synthetic fuels production.

Technology-specific measures

There are numerous measures by which governments can encourage investment to flow in directions that they deem to be in the national interest. These include grants, joint-financing, direct loans, promotional programmes, product-price guarantees, product purchase agreements, loan guarantees, tax credits, and accelerated depreciation allowances. The very large front-end investments typical of synthetic fuels plants make investors' decisions particularly susceptible to favourable fiscal measures. Each government should be prepared to apply such measures as appropriate in order to foster the establishment by 1990 of the requisite industrial capabilities to pursue commercialisation of relevant technologies in the post-1990 period.

International Co-operation

The view of the High Level Group is that commercial-scale international co-operative projects can accelerate the rate at which technological developments in one country are used in other countries. Since improvements in the energy-security position of one consuming country also benefit the other consuming countries, technological transfer is to be facilitated. Governments should declare their intention not to alter long-term commitments with respect to co-operative projects, unless by mutually acceptable arrangements.

Governments should make maximum use of opportunities for international co-operation to accelerate the solution of R & D problems, including the environmental and supporting technologies that will be needed.

Monitoring Commercialisation Developments

Existing OECD/IEA bodies, taking account of the views of industry, should be charged with the task of monitoring and assessing progress towards commercialisation of relevant technologies and the effectiveness of actions being taken to encourage commercialisation, and with making appropriate recommendations.

Towards a Minimum Oil Economy: Progress of Eight Countries

Every year, the International Energy Agency reviews the energy policies of participating countries¹. Eight were reviewed in depth this year. Summaries of the findings appear below.

AUSTRALIA

Australia is one of the few energy exporters in the IEA. (Net exports presently account for 20 per cent of Australian energy production.) But as to oil, only 70 per cent is produced at home, and the proportion is decreasing. Reducing dependence on oil therefore is one key aim of Australian energy policy. The main tool to achieve this goal is the so-called "import parity" price level for oil adopted in 1977. As a result of this measure the price of domestically produced crude oil has moved up to world levels (the marker is Saudi Arabian light).

Conservation

If energy policy in Australia is to be successful, it must focus on transport fuel which accounts for more than half of the country's oil consumption. Gasoline prices doubled from 1978 to 1980 but taxes are low, and hence gasoline prices in Australia are among the lowest in the IEA – about half the European level. Fuel efficiency requirements for new cars are voluntary – 27 miles per gallon (10.2 litres per 100 km) at present, with 30 miles per gallon (9.4 litres per 100 km) the goal for 1983 – and these standards are less stringent than the mandatory requirements for the auto industry in the United States and Japan. Nor does the public transport system offer an attractive alternative to the private car, although the government has been helping the states to develop such systems since 1973. Thus IEA focusses its recommendations on transport, suggesting excise taxes as an incentive to conservation, (experience in other countries has shown that price increases can result in greater gas savings than one might think) stricter fuel efficiency standards and registration taxes proportional to engine or car size as well as more support for public transport.

The share of oil used in industry is low

compared with the IEA average, but efforts have been made to reduce oil use nevertheless. A national industrial management scheme was launched on 2 October 1980 to subsidize energy auditing, give awards to firms for excellence of performance and offer tax concessions to industry for conversion from oil-fired equipment. Only 6 per cent of all energy is consumed by the residential and commercial sector. IEA recommends strengthened conservation measures for industry, homes and shops. Electricity generation on the other hand uses little oil (mostly coal) so there is little room for savings.

Energy Sources

Coal. Australia's dominant resource is coal which powers 74 per cent of the country's electricity. Production is expected to much more than double by 1990 at an average annual growth rate of 8-9 per cent, and the industry is expected to become much more export-oriented. Already Australia is the world's third largest coal exporter after the United States and Poland, with 18 per cent of world trade in coal. Australia expects a strong increase in

Australia is already the world's third largest coal exporter. Its coal production is expected to much more than double by 1990 and the industry will become even more export-oriented. Below: Hay Point Export Terminal, Queensland.



foreign demand and little constraint on the investment side.² Australia's coal mines are presently 40 per cent foreign-owned, and it should not prove difficult to attract additional capital, given the likelihood of strong world demand for coal, as long as the price remains competitive. In principle, export capacity is expanded only when there are long-term contracts for purchase of the coal, and government approval is required for its export under the Australian constitution; the government seeks to ensure that terms and conditions are in line with those in the world market.

But if foreign investment is not expected to be in short supply, labour is, and IEA recommends cooperation between the central government, the states and industry on programmes to increase the number of engineers and skilled labourers.

As to infrastructure, IEA encourages Australia to give due consideration to articles 10, 15, 22 and 23 of the principles for action on coal agreed to by IEA members in 1980 when it applies export guidelines for the coal trade. These articles recommend expansion of coal trade and measures to facilitate that expansion, especially long-term contracts.

Oil and Gas. Australia produces two-

1. The reviews are carried out under the responsibility of a rapporteur from another country and noted by IEA's Standing Group on Long-Term Energy Policies. They are published in Energy Policies and Programmes of IEA Countries: 1980 Review.

2. Foreign investment in the coal industry is subject to the government's foreign investment policy which requires that Australians have a minimum of 50 per cent of the equity and of the voting rights. If the government deems that Australian capital is unavailable or insufficient, it can approve Australian ownership of less than 50 per cent, but will try to increase the share to half by the time the project reaches the production stage.

thirds of its oil at present, but the figure will decline to 40 per cent unless there are additional discoveries or production of synthetics. Exploration has not been too promising despite a series of fiscal incentives which IEA judges "can scarcely be improved".

As to natural gas, Australia is self sufficient; it is an important component of the Australian energy picture, 4 per cent of total supplies, but is not presently exported. Exploration of gas is hampered by the limited size of the Australian market, and IEA encourages a "more progressive policy on the part of the government towards natural gas exports" which would encourage exploration. Gas prices were negotiated before the oil crisis and are low compared to oil or gas prices elsewhere. This too hampers exploration and encourages use of gas where coal could as well be employed, in electricity generation for example. IEA recommends higher gas prices in order to encourage switching and also to encourage new exploration. Australia is expected by IEA to be an exporter of natural gas in liquified form by the latter part of the 1980s.

Oil Shale. Shale oil could become the most promising of all the liquid fuels, the IEA report judges, since there are large recoverable reserves at the Rundle Oil Shale deposit. It now appears that the project will not be scaled up at the rate expected earlier.

Uranium. Australia is also a potential major uranium producing and exporting country with large reserves of reasonably assured resources. Output of uranium oxide, presently 2,300 tonnes a year, is expected to reach 7,000 tonnes by 1985 with almost 50 per cent committed under export contracts. (Like coal the export of uranium is under government control.) Despite this rich endowment, Australia does not consider nuclear power generation an important option because of its large resources of steam coal. (Only Western Australia which lacks coal is studying the introduction of nuclear power plants and only after 1995.)

IEA Comment

Australia has set itself a 1985 oil import objective of 17 Mtoe but is now projecting that it will be able to undershoot this target by some 2.3 Mtoe. In 1979 the country imported only 11.4 Mtoe. IEA's report notes that "Australia has the capability to reduce its 1985 net oil imports even further."

Recent evidence indicates that the process of structural change to reduce reliance on oil has begun and that the import parity price system has started to work; oil has fallen from 46 per cent of primary energy use in 1973 to 44 per cent in 1979.

AUSTRIA

Austrian energy demand almost doubled between 1960 and 1973, and most of the growth came from imported oil which increased fifteen fold during this period. Since 1973, much progress has been made in conserving energy and oil. Between 1973-79, oil consumption declined by about 2 per cent, while total primary energy demand rose 11 per cent. Most of the growth in energy use was provided by hydro-power and imported natural gas. Higher energy prices and energy saving measures have reduced the amount of energy needed to produce a unit of GDP by about 3 per cent from 1973-79 and this may be reduced by another 16 per cent in the 1980s.

Conservation

Energy use in *industry* – which accounts for 36 per cent of total final energy consumption – declined by about 10 per cent between 1973-79 in spite of the fact that the gross domestic product grew at 2.3 per cent a year. Savings have been the result of improved efficiency and "some restructuring towards less energy-intensive industries". The government actively encourages energy conservation in this sector, providing advice, information, consultation and tax depreciation, along with the promotion of the use of industrial waste heat for district heating and defining tariffs for the supply of electricity from industrial combined production of heat and power (CHP).

In the *transportation* sector, which used 21 per cent of final energy consumption in 1979, efforts have been made to improve public transportation and to co-ordinate measures to reduce gasoline use in co-operation with other countries. The share of transportation in total primary energy use is expected to decline from 21 per cent of total final consumption in 1979 to 19 per cent by 1990.

Above-average growth in energy consumption is projected for the *residential/commercial* sector which at 40 per cent of total final energy consumption is already the biggest energy consuming sector. In recent years, energy conservation measures have been passed covering, among others things, regulations for insulation, and favourable tax treatment for efficiency improvements of heating equipment, appliances, heat pumps and conversion to district heating, solar, biomass and other renewables.

Efforts to promote district heating from industrial waste heat and combined production of heat and power constitute a priority area in Austrian energy policy. The

initial investment costs are high, but so is the potential pay-off. Some mandatory measures and incentives by local and federal authorities may, however, be needed to further advance this source of potential energy savings.

Assuming average economic growth rates of 3.5 per cent a year for the coming decade, Austria estimates that the above price and non-price measures will reduce energy demand substantially (about 15 per cent) below previous estimates.

The IEA believes that the Austrian estimates may be on the high side because lower GDP growth in 1980 and 1981 and the effects of the 1979/80 oil price increase on demand were not taken into account in the assessment.

Production

Austria produces less than 45 per cent of the energy it consumes but about 57 per cent of energy output consists of renewable resources, mainly hydro power. The unused *hydro power* is still substantial, and an impressive construction programme is expected to increase it by almost 40 per cent in the coming decade.

The country has substantial *coal* resources but the low calorific value of the coal reduces its use primarily to power stations. Austria still consumes four times as much coal as it produces and the percentage of coal imports will rise further in the 1980s. Most of the imported coal comes from the Eastern European countries but efforts are being made to diversify supply sources. The IEA Secretariat believes that Austria can surpass its own estimate of 21 per cent growth in coal use between 1979 and 1990.

Generation of *nuclear power* is for the time being forbidden by law following a 1978 referendum on the subject. A new parliamentary debate on the issue is planned and, if the necessary two-thirds majority are in favour of rescinding the existing law, another referendum will take place.

Indigenous oil and natural gas output is projected to decline by about half in the coming decade. Considerable efforts are being made to find new reserves and to improve the recovery of existing oil reserves, but it is unlikely that the decline can be stopped. As a result, both oil and gas imports are estimated to grow. Natural gas imports from the USSR and Algeria may double in the 1980s, thereby increasing the share of natural gas from 17 to 18 per cent of the total primary energy use. The Austrian government estimates oil consumption will grow by 20 per cent and oil imports by about 24 per cent during the next ten years.

IEA Comment

In view of the 1979-80 oil price increase and slightly lower economic growth over the period of the forecast, the IEA considers that oil imports can be kept at the 1979 level in 1985. Moreover, the higher oil prices are likely to induce higher domestic coal production and use, freeing some natural gas currently projected for electric power generation for premium use, such as in home heating.

On balance, IEA considers Austria to have made considerable progress in developing energy policies over the past two years. In view of the dimension of the problem, Austria — together with all other IEA countries — has to intensify policies to further reduce dependence on imported oil. With the proper price signals to consumers and producers, additional conservation measures, increases in hydro and coal use and by resolving the nuclear deadlock, IEA believes that this goal can be met.

CANADA

The Government of Canada introduced a new National Energy Programme (NEP) in October of 1980 — a complex and comprehensive set of measures. Elements of this new policy had been issues in the preceding February's election which was lost by the government then in power.

The new energy policy is still subject to lively debate throughout the country. It has met with strong opposition from some provincial governments, chiefly from the Government of Alberta, the main oil-

producing province, and from the petroleum industry. Not all of the details of the programme have yet been worked out or presented to Parliament, and there is the prospect of further negotiation between the federal government and the province of Alberta with regard to petroleum prices and revenue-sharing.

The formulation of energy policy in Canada involves considerations of a fundamental nature, such as the ownership of natural resources (which, under the Canadian Constitution is a power of provincial governments rather than the national government), the sharing of the benefits accruing from these, and the degree to which Canadian energy resources can be used to insulate consumers from international forces. In the energy debate now taking place in Canada, many of the arguments are heavily influenced by considerations with regard to the existing Constitution. As a consequence, energy issues are in the forefront of public discussion, and the situation is evolving rapidly.

Substitution — the Off-Oil Programme

The NEP aims at a "truly dramatic shift ... away from oil, towards gas, electricity, renewable energy and coal". The goal is to use no more than 10 per cent of oil in the residential, commercial and industrial sectors in every province. Achievement of this aim would mean a decline in oil use of 18 per cent or 16 Mtoe and zero net oil imports by 1990. (Even so, Canadians would be among the biggest per capita oil users in OECD.)

The main emphasis will be on what IEA calls a "remarkable" substitution of domes-

tically produced gas for imported oil. This switch alone would cut oil imports by two thirds from previous projections. To encourage conversion, gas prices will be kept low (lower than oil which itself is to be kept below world levels). The lack of gas transmission facilities, which now creates gas surpluses in Alberta and British Columbia, will be remedied by extending pipelines both East and West. For this purpose, \$500 million of federal money will be set aside. (Gas will also be delivered from the Arctic to the Eastern coast in icebreaking ships year-round by 1985.) Finally, a gas bank will be organised to ensure sufficient cash flow for Canadian owned and controlled companies that cannot presently sell their gas. Gas export has a low priority; there is a clear preference for using energy domestically, although there may be sales from British Columbia to Japan in addition to currently authorized exports to the United States.

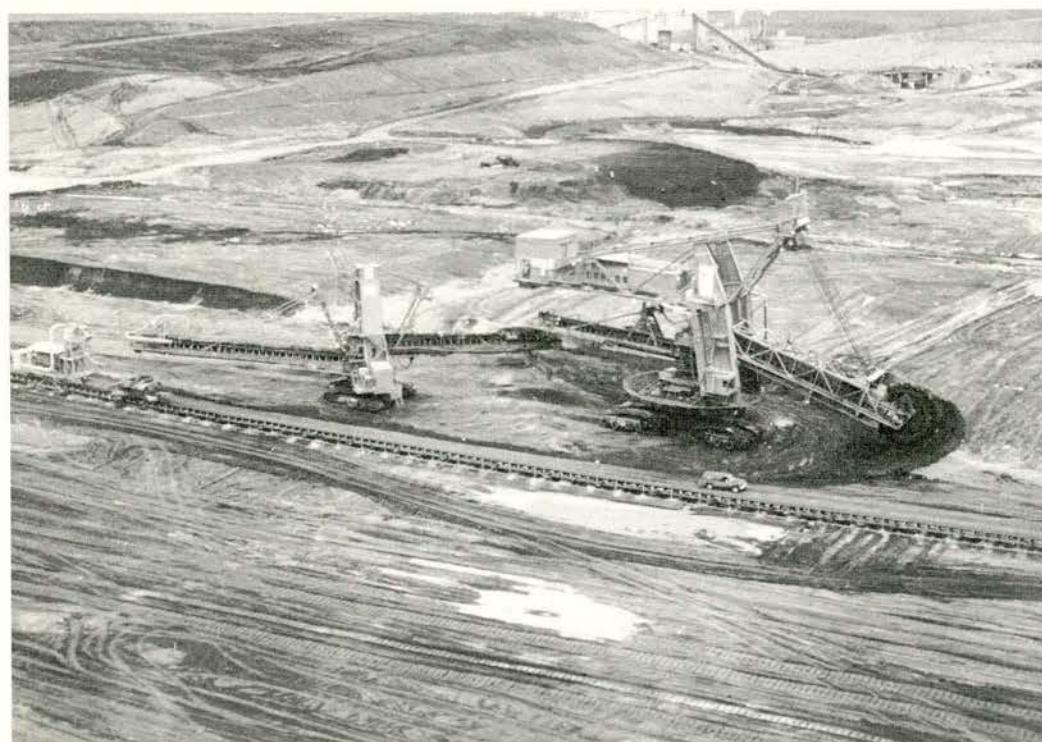
After natural gas, electricity will play a major role in the NEP programme of conversion from oil, particularly for space heating. In the conversion to electricity, hydro-power will play an important role: for example, the gigantic James Bay project in Quebec, which started delivery at the end of 1979, will at completion in 1990 have a capacity of about 10.5 GW. Institutional and environmental problems may make it difficult to link transmission lines to other provinces and to the US.

Nuclear power¹ and coal are also possible substitute fuels but are not included in the NEP; they are being reviewed separately. The present policy towards coal is "hands off", leaving the industry to the play of commercial forces. Alternatives to gasoline — propane and, depending on further R and D efforts, compressed natural gas — will be promoted.

Financial incentives are given for wood, agricultural and municipal wastes and other renewable sources of energy. A new Canadian Alternative Energy Corporation funded at \$70 million will support commercial production of renewables and conservation technology. There is also a project to install solar hot water heating in 1,000 homes. Grants will be offered homeowners and businesses to convert from oil-fired to other types of heating.

Stimulation of Exploration and Exploitation

Proved reserves of conventional oil and gas are concentrated in Alberta (90 per



1. Canada is the second largest producer of uranium (6,900 tonnes) and production was expected to double by 1985, but the slowdown in nuclear programmes has reduced demand and the price of uranium, and plans for future mines are likely to be deferred.

cent and 70 per cent respectively). They could sustain present oil production for only 13 years. Gas reserves, however, are enough for about 25 years. The NEP concludes that, with expected demand and licensed exports, the amount of gas that can be used to substitute for oil will be some 14 Mtoe a year through 1990.

Non-conventional reserves are far larger. Oil sands, again mostly in Alberta, may be about six times as large as conventional oil reserves (only 5 per cent in fields currently being exploited). Heavy oil and enhanced recovery are also potential non-conventional sources. But the rise in non-conventional oil is projected only to offset the decline in conventional oil. The northern frontiers (Beaufort Sea) and eastcoast offshore (Hibernia) are thought to have significant reserves, but development will take time and be costly. They are not included in the NEP because the latter includes only proved reserves.

Incentives will be offered for exploration of both gas and oil, and on Canada (federal) lands (see map) the government proposes to increase the pace of exploration by forcing holders to make effective use of their rights. A controlled increase in oil prices is expected to act as an incentive to exploration and exploitation.

Stronger Energy Conservation

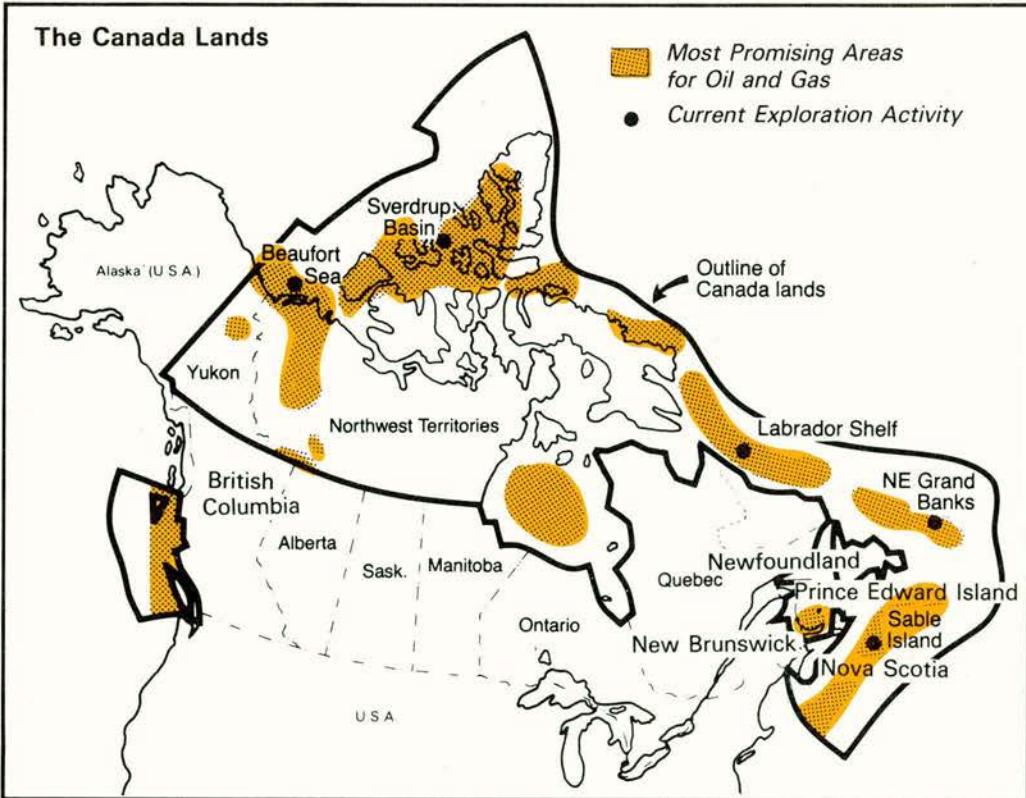
The NEP includes:

- Federally financed grants of up to \$500 to help homeowners insulate their homes. The budgetary cost has increased from \$80 million to \$265 million a year. (IEA suggests that a way should be found to pass the cost of retrofitting on to tenants.)
- A \$6 million demonstration programme to build 1,000 super-efficient, low-energy residences and to retrofit federal buildings (\$75 million over five years, plus ploughback of the money saved in fuel).
- Creation of energy conservation jobs in cities (\$20 million).

In the transportation sector, the most influential element is Canada's decision not to follow world oil prices. But the gasoline price will nearly double in five years, and the government intends to introduce legislation establishing mandatory mileage standards which would be consistent with recommendations of the IEA.

Organisational and Financial Changes

The NEP contains very sweeping and controversial proposals for restructuring the organisational and financial aspects of oil and gas production, most of which do not result strictly from energy considerations. These have created a great deal of uncertainty and led to an adverse reaction that could reduce overall exploration and development, at least in traditional areas.



The most important of these is *Canadianisation* of oil and gas, now about 75 per cent foreign owned. The government fears that a large part of increasing oil and gas profits will be exported or used by multinationals to diversify into other sectors of the Canadian economy. The government also believes that Canadians have the capital and know-how to do far more in this sector, particularly in the development of new technologies, and that the involvement of the public sector is very low compared to most other oil-producing industrialized countries.

With more Canadian involvement in the gas and oil industry, the federal government feels that it will be easier to raise gas and oil prices, and more exploration may take place in areas where foreign and/or private companies are reluctant to go such as the frontier areas where the potential is higher than in traditional areas.

Thus the NEP contains many proposals to secure a major shift in ownership and control of the oil and gas industry. The targets are the following:

- to have at least 50 per cent Canadian ownership of oil and gas production by 1990
- to have Canadian control of a significant number of the larger oil and gas firms
- to increase the share of the oil and gas sector owned by the Government of Canada.

The federal government aims to have a far higher share of oil and gas revenues — almost 30 per cent in 1983 as against 10 per cent in 1979 at the expense of industry (30 per cent as compared to 40 per cent now) and the provinces (40 as

against 50 per cent). The federal government argues it needs the additional funds to adjust to the oil-price shock and to finance the NEP. To reach this redistribution, the depletion allowance, thought to favour large established corporations and work against Canadian participation, will be phased out except for federal lands and non-conventional oil, and instead higher prices to the producer will be relied upon to encourage production, and the cost of these incentives will pass from general taxpayer to consumer.

As an instrument of this policy, exploration-incentive payments will vary according to the degree of Canadian ownership and control (\$4 for every dollar invested in the most favourable case.) (Modifications of the NEP in 1981 allow the companies more time than the original NEP to adjust their ownership shares.) Also the National Energy Board will be asked to take Canadian ownership into account when granting export licences. On lands under federal, as opposed to provincial, control (see map) (the coast, the Yukon and North West Territories), 50 per cent Canadian ownership will be required for any production licence.

The Federal government also intends to acquire one or more large oil and gas firms, with financing for such acquisitions provided through special charges on oil and gas consumption.

These proposed organisational and financial changes are the most controversial aspects of the new Canadian programme and have met with strong opposition from both the producing provinces and the industry. In response to many aspects of

the NEP, the Alberta government curtailed oil production by 60,000 barrels per day on 1 March 1981, and cut back again by the same amount in June. Unless agreement is reached, there may be another cutback in September. Alberta has also indicated its refusal to authorise further oil sands developments until agreement on pricing and revenue sharing has been reached with the federal government.

The industry too has reacted, by reducing exploration and development and indicating that such activity will be further cut down in the future. The magnitude of possible cutbacks is still unclear, as is the extent to which they result only from the provisions of the NEP.

Pricing

Oil. Central to the NEP is the Canadian government's decision that "Canadian oil consumers will pay prices that, while rising substantially, will remain significantly below world prices." This was a critical issue in the 1980 election campaign and remains a point of conflict between the Canadian government and the government of Alberta. The Canadian oil price is not to exceed 85 per cent of the international price or the average price of oil in the US, whichever is lower.

Prices have already risen – they are now about half international levels – and should continue to do so, but the Canadian price is likely to remain well below the 85 per cent figure, at least for the next few years.

The new "made in Canada" price to consumers will be a weighted average cost of imported oil and the various streams of domestic oil. The latter include three prices – the price paid to producers (wellhead price) of conventional oil, the price for synthetic crude from oil sands (except for the Suncor plant) and oil produced by tertiary recovery, assuming the relevant province maintains or enriches existing fiscal incentives for tertiary recovery. No prices have yet been set for oil produced in the frontier areas.

The IEA review notes that "the Canadian price path for oil and gas is much lower than would be in accordance with IEA and Summit decisions, which have repeatedly drawn attention to the importance of keeping oil prices at world levels or moving to them as quickly as possible."

Gas. The price of natural gas produced and consumed within the province will be set by the province itself but will also be affected by a new federal excise tax. For gas shipped between the provinces, the government will establish "city gate" prices for all centres east of Alberta. Consumer prices for gas will include both taxes designed to provide revenue for the federal government and regulated wellhead prices designed to provide increased revenue to

producing industries and provinces. Gas prices to the consumer will rise less quickly than oil prices to encourage a shift from oil to natural gas – and average gas prices to consumers will decline from 80 per cent of the price of conventional Canadian crude to 67 per cent in 1983.

Can Canada Meet its Goals?

IEA's review calls the NEP an "ambitious" plan. The resistance from Alberta, which has led to production cuts, may delay production from oil sands and heavy oil production in the short term and lead to increased oil imports. Resistance from the oil industry will also reduce exploration and development, at least in 1981.

The most problematic factors are the difficult constitutional setting of Canadian energy policy (division of responsibility between federal and provincial governments), the "Canadian path" for oil and gas prices, the new system of revenue sharing and the Canadianisation programme. IEA judges that price increases announced in the NEP, though capable of slowing down energy growth and reinforcing conservation, might not be sufficient to support the optimistic projection of zero oil imports, since prices will still be held well below world levels. They could also be too low to accelerate the search for and development of new oil and gas finds, though this is in part offset by other incentives. The adverse effects of maintaining lower than world oil prices will be most serious in the field of energy conservation and may make Canadian industry more energy intensive than its competitors.

IEA's review recommends that the Government of Canada take steps to increase domestic oil prices to world market levels – the "key" issue in improving energy balances. Official price paths in NEP, impressive as they may be, could to a large extent be eroded by inflation. As long as world market prices have not been reached, the government should keep the public well informed about energy prices compared to those of other IEA countries. IEA also recommends that the Government of Canada clarify as quickly as possible the wellhead price to be allowed for oil production from Canadian frontier areas.

Another main obstacle IEA sees to realisation of Canada's energy goals is Canadianisation which, as the government knows, could decrease exploration and development, at least in the short term. Because of this risk, which is important to the world as well as to Canada, the government should make every effort to satisfy itself that attaining its national objectives in this area does not lead to reduction in the quality or quantity of exploration and development activity and is carried out in a fair and non-discriminatory manner.

On structural changes more generally, IEA says that since oil, and to a lesser degree gas, involves real "mega projects" such as oil sands and Arctic exploration, the organisation and technical aspects may be critical, and it will be important to ensure that the structural changes proposed for the industry do not threaten the organisational ability to undertake such projects.

IEA comments on the need for a comprehensive policy for coal and wider introduction of foreign interests. Expansion of coal imports would benefit both Canada and the world at large.

JAPAN

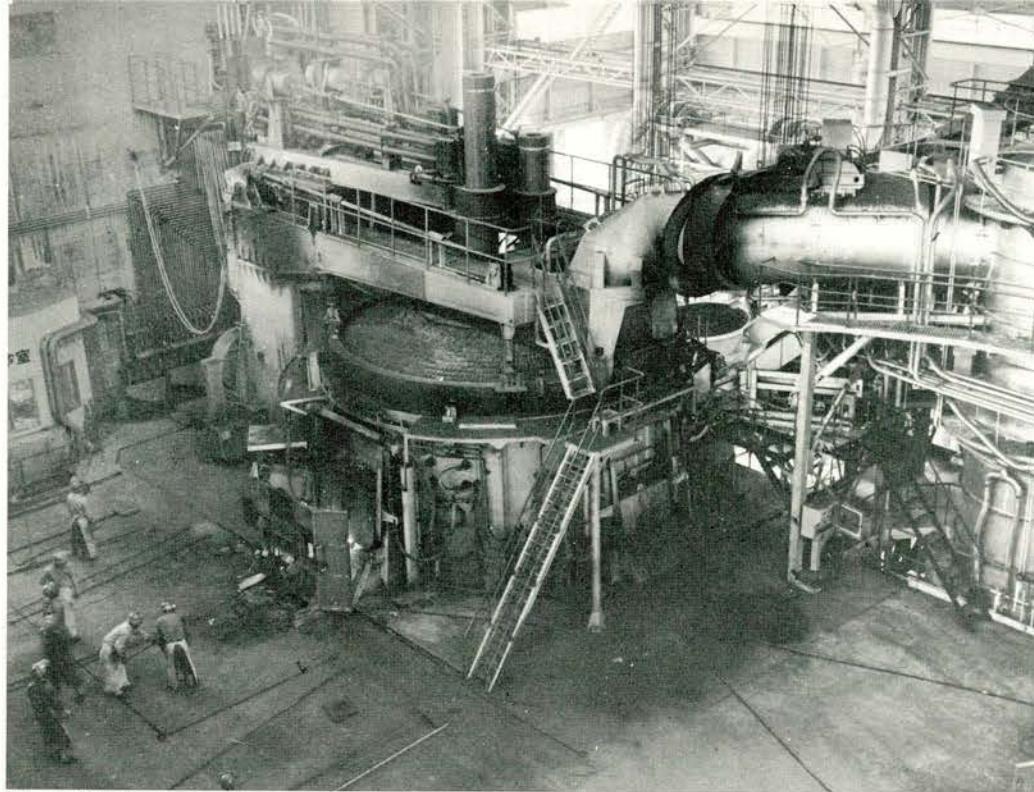
With few energy resources of its own, Japan needs vast energy supplies to maintain the world's third largest economy. It is among the most oil-dependent regions in the OECD, 71 per cent of its total energy consumption in 1979 being oil. Because it is one of the biggest oil importers in the IEA, its energy-policy achievements are important for the overall success of IEA strategies to reduce import dependence.

Since 1973, when Japan was 82 per cent oil-dependent, substantial progress has been made in reducing oil import dependence. At the Tokyo Summit in June 1979 (and the December 1979 IEA Meeting), Japan pledged to keep oil imports down to 5.4 mbd for 1980 and 6.3 mbd for 1985. Today, total oil imports have remained below the 1973 level and, in fact, have undershot their 1980 target because of higher oil prices, milder weather and fuel-switching. The government aims to keep oil imports below 6.3 mbd by 1990, thereby reducing oil dependency from 71 per cent to 50 per cent by the end of the decade.

Conservation

Energy conservation in all sectors of the economy has been important since 1973. Results are evident in a reduction of 14 per cent in the ratio of primary energy use to GDP between 1973-79, a ratio which is expected to decline further but at a slower pace. "The government acknowledges the importance of market forces in promoting energy conservation and has acted to ensure that the prices of all petroleum products reflect import parity levels" IEA notes. Taxes on some petroleum products have also been increased.

Industry. Industry, which consumed about 40 per cent of Japan's primary energy in 1970 and about 33 per cent of the oil, is the most important target of conservation policy. The government has focussed on five major energy-intensive industries in developing conservation initia-



The rationalisation of Japan's energy consumption includes conversion to non-oil fuels in several industries, e.g. iron and steel which has been converted almost entirely to coal. Above: Steel plant at Toshin Steel Corporation.

tives. It introduced a special depreciation allowance of 20 per cent in the first years for installation of conservation equipment and a one-third reduction in taxes for three years after such acquisition. Loans, generally at commercial rates, are available to finance investment in both conservation and equipment using coal and natural gas. Some 4,500 factories (accounting for about 80 per cent of total industry energy consumption) are designated to participate in an energy management programme; energy managers are appointed in each factory and will participate in energy audits of their operations which will be available to the government. To meet industry's needs, an intensive training programme for energy managers has been set up. Some industries have already achieved considerable energy savings, e.g. iron and steel which reduced oil consumption per unit of output by 29 per cent and total energy use by 8 per cent from 1973-78. Industry sources maintain that most of the easy steps in conservation have now been taken, and technological innovation is needed to further promote conservation.

Included in the rationalisation of energy consumption is the substantial conversion to non-oil fuels in several industries, e.g. iron and steel which has converted back almost entirely to coal, and cement where coal use has increased dramatically from 13 per cent in 1979 to 60 per cent in 1980. The cement industry has had special advantages in that it had operated with coal in the past, it could use old equipment and methods, and faced no waste disposal problems as the ash can be utilised in cement manufacture. It is more difficult to switch to non-oil fuels in industries that

have environmental or waste disposal problems.

Homes and Shops. Energy consumption in the residential and commercial sectors is substantially less than in the industrial sector. Energy consumption per dwelling in Japan is still among the lowest in the industrial world, yet additional savings have been made since 1973. Because the government foresees continued growth of energy consumption per dwelling with further increases in living standards, energy consumption is projected to grow in this sector, but electricity, gas and oil are expected to be the main sources. Various measures to encourage energy efficiency have been introduced — retro-fitting, insulation and energy-efficiency in building, appliance efficiency, house design guidelines — and government financial assistance is available.

Transport. Consumption in the transportation sector is projected to increase by over 4 per cent per annum in the 1980s (compared with 2 per cent from 1973-79). Fuel efficiency targets for motor vehicles, lowered speed limits and programmes promoting improved driving practices have been introduced; public transportation is promoted.

Electricity. Electric power companies have been asked to review all possibilities of converting existing oil power plants to coal but such conversion is difficult. Only 8 out of 250 existing units can convert to coal, but with some modifications it may be possible to use coal-oil mixtures. With the exception of 5 GW of oil-fired plants currently under construction in Japan, no new ones can be built and future plants must be

either nuclear, coal-fired or use liquid petroleum gas or natural gas as fuel sources. In the 1980-85 period, therefore, possibilities for switching from oil to other fuels are limited in this sector. Private industry doubts whether the government's ambitious long-term target of reducing the proportion of oil-based power generation to 20 per cent by 1990 can be achieved unless the government provides major assistance. To meet this target, nuclear is projected to increase to about 33 per cent of total power generated, coal to about 12 per cent and liquid natural gas to 18 per cent.

Supplies

From 1960-80, Japan saw its share of domestic energy (coal and hydro-electricity) reduced from 62 per cent of total energy needs to only nine per cent. Indigenous supply forecasts some growth — to 19 per cent — by 1990. Domestic coal production declined while hydro-electric power increased over the past 20 years. Since 1973, natural gas has accounted for almost all growth in energy imports, and nuclear power has grown six-fold. The government expects to achieve its 1990 target of reducing oil imports to 50 per cent of energy requirements by switching more rapidly to alternative energy sources such as natural gas, coal and nuclear power.

Natural gas. Consumption of natural gas, an important fuel in Japan in view of its environmental advantages, is projected to increase from 5 per cent in 1979 to 9.7 in 1990. Further diversification of supply sources (now limited to Alaska, Brunei, Abu Dhabi and Indonesia) is being studied. For heating purposes, town gas is the prospective alternative to kerosene, along with electricity. Whether burned directly or used as feedstock for power generation, it is a potential oil substitute. About 75 per cent of liquid natural gas imports are used for electricity generation, 23 per cent by town gas manufacturers and the balance by industry. Since energy losses in LNG power generation are high, the direct use of natural gas in industry is preferred.

Coal. Coal consumption is expected to grow from about 14 per cent of primary energy use to almost 18 per cent in 1990. About two-thirds of steam-coal consumption is in electricity generation. Coal-generation power is projected to multiply fivefold during the next decade and steam-coal imports to increase from one million tons in 1979 to over 50 million tons by 1990. Government supported coal centres have been under construction to handle coal imports. However, environmental, siting and waste disposal problems continue to pose major obstacles to the development

of coal use in electricity generation and industry. The government has assisted in pollution abatement attempts and has improved technology for use of coal-oil mixtures. It has financed surveys of sites for coal-ash disposal. However, it still encounters serious opposition by fishing interests to thermal plant sites in coastal areas and coal-ash dumping in offshore areas. Industry is concerned that public opposition may slow progress in the development of coal-fired power stations in Japan.

Nuclear. Japan currently has 22 operating nuclear reactors with almost 15.5 GW of total capacity. Nuclear power is the priority in reducing oil-based power generation. Ambitious targets in previous years have been scaled down several times. As of April 1981, eleven reactors with 10.2 GW of total capacity were under construction. Five more have been authorised adding a further 5.3 GW to total output. However, not all have received construction approval and considerable effort will be required to attain it. The lead time to build a nuclear power plant is fairly long (an average of 8-9 years). Prior to authorisation, it takes time to select a site and negotiate with community interests on compensation and safety matters. As with thermal plants, local interests may oppose nuclear power plant sites. Negotiations with this group are most difficult at the planning stage. The government is attempting to overcome opposition by providing substantial subsidies and public information programmes on nuclear safety.

Renewables. Japan looks not only to hard technologies to replace oil consumption but also encourages solar and geothermal energy development. Solar systems have reached the commercialization stage. Solar heating and cooling systems now penetrate domestic and commercial markets. The government provides low-interest loans for solar panel installations and assists in solar promotion campaigns.

With abundant geothermal resources, the government encourages coordinated development of this energy. Siting presents problems as the most suitable spots are in national parks. In promoting geothermal energy, IEA's report notes the importance of the government resolving conflicts between competing land uses in such cases. In 1980, as a major step towards commercialization of alternative energy sources, Japan established the New Energy Development Organization (NEDO) to concentrate on developing technologies in coal liquification, solar energy and geothermal power generation. This organisation will offer low interest loans to the private sector for coal exploration over-

seas. Japan has also enacted a new law to provide a comprehensive framework for these developments.

IEA Comment

Japan's overall efforts to reduce import dependence have indeed been impressive but the task ahead remains formidable. To achieve its ambitious goals, IEA recommends that Japan further strengthen its energy conservation and fuel-switching efforts wherever possible.

Conservation and Substitution

Electricity. Oil has been almost totally displaced in electricity generation. The policy is to back out natural gas as well and to replace it with hydro and geothermal energy which already supply 90 per cent of electricity generation. Since the availability of water power varies widely depending on rainfall, coal will be used as a back-up fuel to meet demand in dry years.

Homes and Industry. Oil has also been backed out of the residential-commercial sector to a great extent. And in industry gas is replacing oil.

Transport. It is transport that presents the biggest problem in New Zealand since its share in oil consumption is the highest in the IEA – 35 per cent of total oil use. Because of the magnitude of this demand for oil, New Zealand has begun to implement a transportation demand management programme which is unique among IEA countries. It includes an extensive fuel substitution programme: compressed natural gas (CNG), liquid petroleum gas (LPG), synthetic gasoline and possibly ethanol or methanol blends will be used to replace conventional gasoline. The target is conversion of 150,000 vehicles – 12 per cent of the fleet – to compressed natural gas by the end of 1985 which would mean 10 per cent of the motor fuel market. The government currently provides a 25 per cent grant for the capital cost of installing a CNG facility and an immediate tax write-off for the balance and for the cost of converting business vehicles. Furthermore, the 1979 budget commits the government not to tax in such a way as to put these alternative fuels at a disadvantage as against gasoline. By mid-1980, a little more than 3000 conversions had taken place, less than had been hoped for, and, in November 1980, new incentives were implemented – a \$NZ200 grant for each conversion, an extension of the coverage of the 25 per cent grant and associated tax write-off, \$NZ60,000 for publicity, and the removal of CNG from price control to ensure market-place competition. (The price is expected to remain below that of gasoline despite decontrol.) Another 4,500 vehicles had been converted to LPG as of mid 1980.

Synthetic gasoline has even greater potential: almost one quarter of transport fuel could conceivably be replaced by this source.

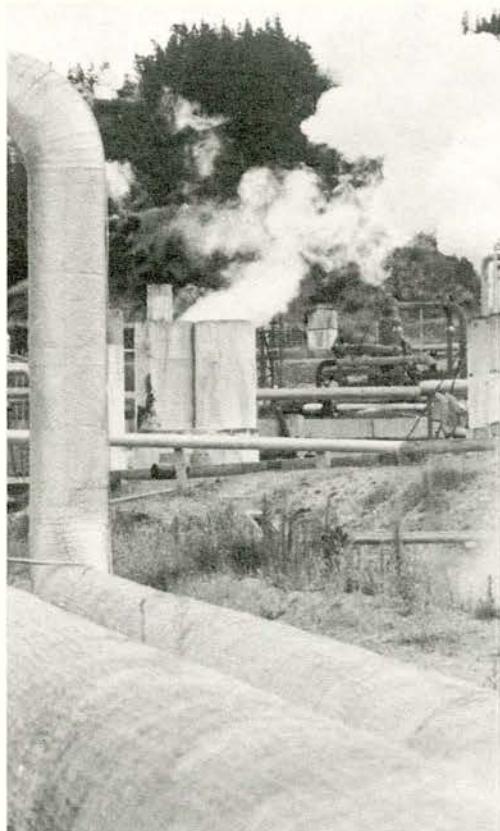
In July 1981, a government decision is expected on whether to proceed with a 580,000 tonne/year synthetic gasoline plant which would use domestic natural gas as a feedstock.

New Zealand has just completed an in-depth assessment of methanol as a gasoline blend and concluded that, for the

NEW ZEALAND

New Zealand has made significant progress over the past six years in increasing its level of indigenous energy production and reducing its demand for oil and oil imports. Between 1973 and 1979, New Zealand increased its energy self-sufficiency from 60 per cent to almost 70 per cent. The figure is expected to continue to rise, to 77 per cent in 1985 and 86 per cent in 1990. New Zealand has more than met increased demand for energy with growth of domestic production – hydro, geothermal and gas – so that net oil imports in 1979 were below the 1973 level.

This approach of maximising indigenous resources to substitute for imported oil is "one of the most creative in the IEA, especially given its limited supplies of conventional liquid hydrocarbons".



Hydro and geothermal energy supply 90 per cent of electricity generation in New Zealand.
Above: Wairakei geothermal plant.

time being, a mandatory methanol blend is not warranted but that this option should be reviewed.

In addition to fuel substitution, there is a programme of conservation of transport fuel – an 80 km per hour speed limit and government help to local bodies in efforts to promote ride sharing.

A graduated sales tax on new vehicles based on engine size was introduced in 1974 and seems to have had a significant effect on fuel economy. A voluntary system of goals for fuel consumption and fuel-consumption labelling for new vehicles is planned.

Production

Oil and Natural Gas. Taxation and other measures have been taken to clear the way for renewed exploration for oil and natural gas. Gas will be used not only to supply homes, shops and industry in high density areas but also to provide the feedstock for methanol, ammonia/urea and synthetic gasoline, if the government grants approval. The energy balance after 1985 will "depend critically" on whether or not it does.

Oil has just been discovered in the Taranaki area of the North Island, though it is too early to tell how significant the find is. Currently, New Zealand's domestic petroleum production of 0.4 Mtoe per year consists entirely of condensate.

Coal deposits are substantial, but high distribution costs and inconvenience have led to a decline in its use. Existing capacity is limited and long lead times will constrain the expansion of production through the 1980s. The Prime Minister of New Zealand, R.D. Muldoon, speaking at OECD's Ministerial Council, noted that "the exploitation of indigenous energy resources, notably gas, hydro-electricity and coal, can reduce dependence upon imported transport fuels and develop new energy-based exports which should return prices more in line with international movements than those received for traditional exports".

The Energy Plan

In mid 1980, New Zealand published its first Energy Plan which describes in some detail government energy policy and programmes. Energy strategy is placed in the context of a detailed forecast of expected energy supply and demand. "The Plan provides a significant contribution, not only in setting out policy but also in identifying uncertainties." However, the problem of what alternatives should be adopted if expectations do not materialise has not yet been addressed despite the risks inherent in forecasts of energy supply and use in New Zealand.

The IEA report recommends that New Zealand:

- develop long-term contingency plans to address uncertainties in supply – coal and synthetic gasoline production – and in energy use – electricity demand.
- given the magnitude of the transport sector's use of oil, vigorously pursue education programmes.
- consider further incentives to encourage use of compressed natural gas in transport and, should the supply situation warrant, also support a greater use of LPG.
- consider the import of coal in the mid-term to supplement domestic production should it not keep pace with demand.

NORWAY

Norway's energy position – abundant oil, gas and hydro-electricity – is "clearly favourable" according to IEA's report. Formulation of energy policy is reaching an important stage. Two White Papers – one on general energy policy and the other on oil and gas – are being discussed.

Hydro Power

One focus of the first White Paper (which also discusses energy in the broad context of industrial, regional, social and manpower planning) is the optimal allocation of hydro resources over the long term. Hydro power is Norway's largest source of energy, supplying 60 per cent of total energy demand; consumption of water-powered electricity by households, commerce and agriculture has been increasing as a substitute for oil. This change is linked by IEA to the fact that the price of electricity has remained virtually constant in real terms during the Seventies while real oil prices have risen.

Although Norway has ample resources of hydro power, there are constraints – environmental, long lead times due to prolonged consent procedures and, in the last two or three years, financing difficulties for the utilities. Hence the government is encouraging more careful use of these resources. Tariffs, it is now felt, should be made to correspond to long-term marginal costs of electric power (based on a 6 per cent rate of return) and the White Paper sets that as an objective for 1985. This would mean an increase of about 2 per cent in real terms per year, or 10-15 per cent in nominal terms. In 1981, prices are to be raised by 15 per cent (again in nominal terms) and taxes by 10 per cent. Prices are also to be equal between regions and consumers insofar as possible.

Power-intensive industries, such as aluminium, ferroalloys and pulp and paper, however, present a special problem. Electricity prices for these industries have obvious implications for the industrial

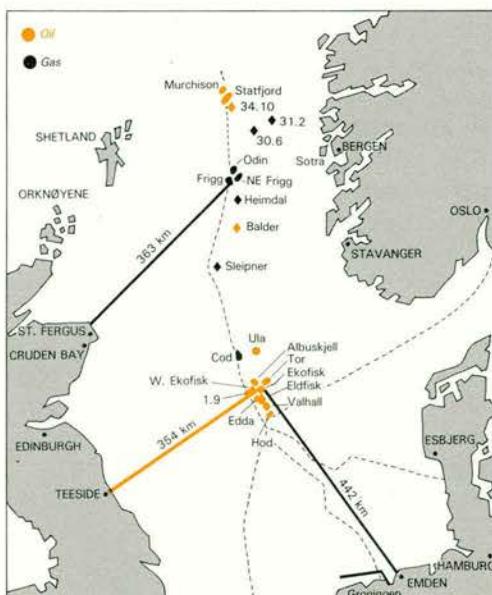
structure and competitive ability of Norwegian industry in export markets. Thus these industries will have a longer time to adjust. The White Paper also sets a consumption ceiling for these industries for 1985 and 1990.

It may be, the IEA report remarks, that the government will soon need to consider alternatives to hydro power, especially if the pricing objectives are not met. These objectives "are welcome" and satisfy recommendations made earlier by IEA. But the price increases they imply may prove too ambitious. If domestic energy supply and demand balances are to be achieved, therefore, the pricing objectives should be supplemented by a stronger conservation effort. There is scope for that in industry, IEA notes, for although industry has reduced its share of both electricity and oil in total energy consumption, it has maintained overall consumption of energy at about the same level since 1973 with no growth in industrial production. Financial incentives to install new energy saving equipment in existing plants should be considered.

In *transport*, there is relatively little scope for restraining demand since speed limits are relatively low, the tax rate on gasoline high at about 40 per cent and there are substantial subsidies for public transportation. It is in households and commerce, where electricity consumption has grown because of price stability, that there is most scope for substantial retrofitting. A loan scheme that existed between 1976 and 1978 for retrofitting of residential buildings has been discontinued, and IEA recommends a new programme to this end.

Oil and Gas

The second White Paper deals with activities on the Norwegian continental shelf. Production of Norwegian oil and gas, from this shelf, rose sharply between 1977





Estimates for oil and gas exports – 55 Mtoe for 1990 – could, according to the IEA, be too low since they are based only on fields currently on stream or under development. Above: Platform in the Statfjord field.

and 1980 and net oil exports almost doubled, from 9.5 Mtoe in 1979 to 16.9 Mtoe. They are expected to rise at a slower rate between 1980 and 1985. Norway's contribution to the IEA's group oil objective for 1985 is "to pursue a goal of net oil exports of 18.3 Mtoe".

The oil and gas White Paper has several themes:

- The degree of state involvement and the Norwegian role in resource development and marketing, i.e. granting concessions
- Moderate but steady oil and gas production: a 90 Mtoe per year level represents an illustration by the government of a moderate pace. The White Paper states that 70 Mtoe is possible between 1985 and 1990, 90 Mtoe for the early 1990s and higher than this before 2000.

There have been five rounds of oil exploration concession so far, the fifth round taking place early in 1980. It included three blocks north of the 62nd parallel which theretofore had been excluded from concessions. The government view is that the continental shelf should now be treated as an entity with no artificial borderline at that parallel. Although total proved recoverable reserves of oil and gas have decreased in fields already on stream or under development, they have increased sharply in the newer fields, one of the most promising of which is the "31 area", so that on balance reserves have increased sharply – almost a quarter since last year. An important find has been made in the one block so far awarded in the 31 area, and the surrounding blocks are expected to prove rich in resources as well.

Recent exploration activity indicates that gas will constitute an increasing share of proved hydrocarbon reserves, perhaps enough of it to support a gas gathering

system and pipeline. But there are constraints – water depths, manpower availability, the oil-gas mix and capital. Hence production will not necessarily be available by 1990. Yet it is clear that Norway has the potential to contribute importantly to European gas requirements.

In one field, the Statfjord, the gas which is associated with the oil production is currently being reinjected into the well (for safekeeping and pressure to help the oil flow) but if this continues beyond 1985 it could brake oil production. A gas gathering system must therefore be instituted in 1981. The options as put forth in another White Paper are:

- linking the field to the United Kingdom gas system
- installing a pipe-line to Norwegian land so that some gas can be used, in part for use at home, and some can be re-exported to continental Europe
- linking the field directly to the Ekofisk-to-Emden (in Germany) existing gas delivery systems – perhaps via other smaller fields.

The government backs the second option and the parliament concurred on 10 June this year. Norway's estimates (1 January 1981) for oil and gas production and export – 60 Mtoe for 1985 and 55 Mtoe for 1990 – are not only achievable but, IEA notes, could be too low, especially for 1990 since the estimates are based on fields now on stream or under development. Decisions must be made soon about exploitation of recent discoveries of oil and gas, especially near fields which are already in production. "There is need to make firm decisions soon on the development of some fields, and recent discoveries of oil and gas, given the long lead times required, particularly for natural gas and

associated liquids" the IEA notes and adds that "it would be helpful if such decisions took into consideration the important role that Norwegian energy resources could play in the international energy context over the next ten to twenty years."

TURKEY

Between 1973 and 1978, Turkey's primary energy requirements increased rapidly – by 5.8 per cent a year, 60 per cent more than GDP – but domestic oil production fell off. Despite the completion in 1974 of the Keban Dam, a power station on the Euphrates River which more than tripled hydro-electricity production, electricity also had to be imported from neighbouring Bulgaria.

In 1979, due to the serious lack of foreign exchange, oil imports had to be cut by 21.9 per cent, causing serious shortages in the domestic oil market; as a result, transport and homes had to cut consumption sharply, and there were major power shortages. In 1980 payments for oil exceeded the country's entire export earnings.

Prospects for the Turkish economy hinge on the country's ability to secure sufficient indigenous energy supplies to minimize fuel imports. The key seems to be the large-scale development of lignite and hydro power. This is the focus of Turkish energy policy, which also aims at raising prices to promote conservation and encouraging foreign companies to explore for oil in Turkey. "These are generally excellent policies", IEA's report comments. "It is unfortunate that the latter two especially appear to have been adopted only in the last year or so."

Lack of foreign exchange is a major hindrance in carrying out Turkey's aims of increasing domestic production, and the report recommends that development of domestic energy resources continue to be given the highest priority despite the difficult financial situation. Conversely, if oil imports can be limited and domestic resources used instead, this would help Turkey solve its financial difficulties.

Domestic Sources

Coal. Coal, mainly in the form of lignite, is the single most important domestic energy source in Turkey and has great potential for the future. The new Five-Year Plan envisages that lignite will be used to the hilt. Production of thermal coal (mainly lignite) will triple by 1985 and quadruple by 1990. Apparently a shortage of funds, especially foreign exchange, has delayed building of coal-fired stations. Infrastructure, in particular railroad facilities, also seems to be a constraint.

In 1979 Turkish coal supplied 21 per cent of the country's energy requirements. Turkey has large lignite reserves, half of them in the south-east but little proved hard coal (there is substantial potential near the Black Sea). The state-owned National Coal Company produces and markets practically all the coal in Turkey. There is a movement to return some nationalised coal mines to private ownership to improve productivity.

Oil. Oil is produced primarily by the state oil company, Turkish Petroleum (41 per cent of output), Shell (49 per cent) and Mobil (10 per cent). Domestic production has declined since the early 1970s; oil fields have been depleted, and the search for new ones has not been very successful.

Turkish Petroleum is exploring for oil, but a lack of foreign exchange and a loss of highly trained manpower to North America, where there is a shortage of skilled oil-field personnel, has caused problems. Thus legislation has been modified to improve the terms under which foreign companies can explore for oil. Foreign companies will be taxed at the normal corporate rate (55 per cent) and may be able to export 35 per cent of the oil discovered. These terms appear "quite attractive". Whether they will attract foreign oil companies, however, depends on the foreign companies' evaluation of prospects in Turkey.

Techniques for enhanced recovery of oil also appear to have potential for increasing output since Turkish oils tend to be heavy, and recovery is quite low. An innovative carbon-dioxide injection scheme for enhanced recovery will be financed in part by the World Bank.

Hydro power. Turkey has considerable hydro-electric potential, and only 10 per cent of it has been harnessed. Now 65 new hydro power plants are planned so as to increase that figure to 30 per cent by 1990. The rest is to be harnessed by the end of the century.

The main source of hydro power is the Euphrates River Basin, where the Keban power station now provides about half of Turkey's present hydro-electricity. Further down the river, the Ataturk Dam will not only supply large amounts of electricity but will regulate the flow of the river and provide irrigation for new farm land.

Other fuels. Non-commercial fuels, primarily wood and dung, accounted for approximately a quarter of Turkish primary energy use in 1979. Much of it never enters the market system but is gathered and burned by peasants. Over the next five years, use of non-commercial fuels is not expected to grow very much — a good thing since harvesting more would aggravate the problem of deforestation.

It is expected that in the late 1990s the

country will have to rely increasingly on nuclear power since much of the hydro power and known lignite resources will have been tapped, and Turkey is seriously considering construction of a 600 MW nuclear power plant.

In addition, there is some geothermal capacity, and experimental work is being carried out to make greater use of Turkey's abundant solar power potential and to use biogas converters to obtain low grade methane from dung.

Conservation

The most important step in energy conservation is to allow increases in the price of energy. Over the past two years, the Turkish government has increased prices for petroleum products substantially. Since late 1978, prices of most products have risen fivefold. Average petroleum product prices are somewhat above world wholesale levels. The highest retail price is gasoline which bears a tax of 60-65 per cent.

The price of coal also has been permitted to increase substantially and is apparently now priced close to cost; electric power prices also have risen sharply.

Will Turkey Meet its Goals?

The Turkish government is forecasting very rapid increases in energy demand, more than 12 per cent a year till 1985 and 8.2 per cent thereafter, based on a fast recovery of the economy. (GDP is forecast to grow at 6.8 per cent and 8.2 per cent in the two respective quinquennia.)

Dependence on imported energy is expected to rise from 38.2 per cent in 1979 to 54.3 per cent by 1990, and oil imports from 11.9 Mtoe to 24 Mtoe in 1985 and to as much as 38.8 Mtoe by 1990. The IEA report expresses doubt as to whether the projected rates of GDP growth can be realized. A calculation based on a lower rate — 4 per cent — would yield a far lower energy demand of about 20 Mtoe in 1985.

IEA Comments

IEA's report notes that although Turkey's basic policy of trying to limit oil consumption by raising prices and using direct measures is definitely a major move in the right direction, there does appear to be some further scope for improvement in the energy balance with the pursuit of a more vigorous conservation and fuel policy. The report suggests

- stepping up co-ordination among the financing authorities and the Turkish energy companies
- more complete and stringent standards for insulation in new buildings as soon as possible
- accelerating work on:

- regulations concerning energy-using equipment
- the formation of energy conservation advisory committees
- district heating and co-generation
- fuel substitution.

- formulating an overall financing plan for energy investments and giving them a very high priority in the allocation of scarce foreign exchange
- increasing the self-financing of the energy companies
- encouraging private initiative in coal mining by providing a stable investment climate
- avoiding the continuing loss of scarce technical managerial talent, especially in oil, by increasing their pay.

THE UNITED STATES

Policy Measures

The IEA report concludes that the United States made much progress on energy policy in 1979 and 1980. A number of factors created the right political climate for stronger measures, some of which were part of the 1977-1978 national energy programme. The most noteworthy are mentioned below:

• Price Decontrol

Oil. A programme to phase out control of crude oil prices, leading to total removal of price controls by October 1981, was announced in April 1979 (legislation was not required) and accelerated by the new Administration which in February 1981 immediately decontrolled the price of both domestic crude oil and those products still under price controls. Associated with decontrol is the Windfall Profits Tax enacted in April 1980 which will be in force until 1990 or until it has raised \$227 billion in revenues. Some of the proceeds will be used to promote energy investment and savings. Partial decontrol of oil already had helped to reduce oil demand. Between 1978 and January 1981, for example, the price of gasoline at the pump roughly doubled. (Taxation on gasoline, however, is much lower than in Europe.) A decline in gasoline consumption in 1979 of about 4 per cent was the first for many years and was followed by a larger decline in 1980, on the order of 7 per cent. There was a sharp decline in net oil imports between 1978 and 1980 — from 8 mbd to 6.2 mbd, attributed by IEA to this decontrol coupled with the increase in the world price of oil and the fuel-efficiency standards legislation for cars. The strong market pull of fuel-efficient cars as evidenced by large sales of imports and increasing domestic production of fuel-efficient cars also have been factors.

Natural Gas. Although 1978 legislation

is leading to decontrol of some natural gas prices, the process is slower than for oil, and about 40 per cent of production still will be under price controls in 1985. IEA recommends accelerating the trend and removing other regulations on supply so as not to hinder substitution of gas for oil.

• Other Measures

Part of the June 1980 Energy Security Act created a Synthetic Fuels Corporation with a life of 17 years to provide financial assistance and guarantees for these forms of energy (see page 27). Tax credits for the purpose are available under the Windfall Profits Law, and the aim of the preceding Administration was to produce 0.5 mbd oil equivalent by 1987 and 2 mbd by 1992. The Act permits expenditure of up to \$20 billion in the first phase and another \$86 billion at a later stage. An Energy Conservation and Solar Bank is provided for in the same law as is resumption of a Strategic Petroleum Reserve and funding for biomass, alcohol fuels (gasohol) and geothermal energy. Other provisions of the Energy Tax Act of 1978 and the Energy Security Act of 1980 promote tax credits for residential conservation, assistance for low income families to weatherise their homes, and subsidies to schools and hospitals for energy conservation improvements. Utilities are required to give advice to customers on conservation and are permitted to finance installations – a scheme which IEA recommends be extended into a comprehensive package.

A number of other measures recommended by IEA were introduced by the Administration in 1979-80 – rationalising environmental consent procedures, speeding up nuclear licensing and assisting utilities in converting to coal – but failed to pass Congress. A proposed gasoline conservation fee and a law setting up an Energy Mobilisation Board also were voted down.

Production

Oil and Gas. Although price decontrol has accelerated drilling activity, domestic oil production is expected to fall (estimates of how much vary widely), certainly in the "lower 48" states, and that decline is thought unlikely to be offset by new discoveries in the Outer Continental Shelf and in Alaska; a new five-year offshore leasing schedule (June 1980) has markedly stepped up the rate of leasing which, however, is still low compared to other IEA countries.

Gas production is expected to slow down between now and 1990, but this estimate could be pessimistic. Again the Continental Shelf and Alaska are the most promising sites and construction of the Alaskan gas pipeline is considered by IEA to be essential.

IEA feels that imports of liquified natural gas may have to be given higher priority and that there should be greater scope for increasing imports of pipeline gas from Mexico and Canada in the 1980s. To this end, constraints, such as lengthy consent procedures, should be removed.

Coal. Coal is likely to be the most important area for energy policy. Most recent projections for the increase in production are large (from .775 billion to 1.2 billion tons in 1990, of which 100 million tons for export) but not up to the Venice Summit commitment to double coal production and use by 1990. The key



United States coal production is expected to increase from 775 million to 1.2 billion tonnes in 1990 of which 100 million tonnes for export. Above: The Department of Energy's Lawrence Livermore Laboratory is developing a new technology to gasify deep-lying coal.

constraint is the limit on utilities' and industries' ability to burn coal directly. The Power Plant and Industrial Fuel Use Act of 1978 forbids (with exceptions) new large oil or gas-fired boilers, but many utilities find it difficult to fund the investment necessary to switch to coal, in part because some states' regulations do not permit rate increases to cover the capital costs of new power plants during construction. (A 1980 bill to remedy this situation failed to pass Congress.) Air emission controls are another important constraint, and the coal programme seems a likely focus for the energy/environment debate in the next few years. Clean air legislation expires in 1981, and renewal terms will be crucial, particularly in view of the North American acid rain controversy. Siting and transport are further problems. There is some danger that upgrading rail facilities will increase fares so much as to eliminate coal's economic advantage. For coal slurry pipelines, which have been under consideration for some time, legislation to enforce right-of-way consents would be required but has so far not been possible.

Nuclear Power. Nuclear power estimates have again been revised down: from 4.5 to 3.5 mbd oil equivalent in 1990. No new orders for plants have been placed since 1978 and none appear likely for some time, but licensing, temporarily suspended

after Three Mile Island, has been renewed. Nuclear power, like coal, is affected by the utilities' inability in many states to include certain capital costs in electricity tariff structures. IEA judges that "the revival of the nuclear option must be regarded as a matter of urgency in the U.S., particularly if slippages occur in coal-fired power".

Synthetic Fuels and Renewables.

Construction of the first major high BTU coal gasification project has now been initiated in North Dakota, but synfuels are not thought likely to make a significant contribution in this decade and should not be seen in the view of IEA as a substitute for direct use of coal. The various forms of assistance and incentives being provided for other unconventional oil and gas technologies – enhanced oil recovery, heavy oil production and development of unconventional gas reserves – could make an important contribution to energy supplies in the long term. Renewable energy – passive solar, wind and biomass, which are also being encouraged through tax measures – are also a long-term option.

IEA Comment

Assessments of the world oil situation have become more pessimistic and, for that reason alone, the future performance of the United States energy economy has become even more crucial. IEA Members have agreed to undershoot the 1985 group oil import objective by a substantial amount, which would clearly require the United States to undershoot its individual target of 8.5 mbd. The central forecasts in the review predict, however, that the United States may still import as much as 8.3 mbd in 1985. This clearly illustrates that further action is needed despite the clear progress that has been made. In that sense the uncertainties outlined in the report represent a major risk for the United States and for the IEA as a whole.

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At the recent meeting of IEA's Governing Board at Ministerial level, U.S. Secretary of Energy, James B. Edwards, outlined the new Administration's intentions on energy policy:

- Deregulation of pricing of energy to promote conservation, production and trade;
- Reducing unnecessary regulations which impede maximum efficient use of domestic resources and seriously restrict development and use of coal and nuclear power;
- Reconciling energy and environment objectives so national resources can be used even as air, lands and water are preserved;
- Eliminating government subsidies for domestic energy production and refocusing the government's role in energy research and development on long-term high-risk ventures.

Coping with the Oil Crisis: an Energy Minister's Point of View

by Poul Nielson, Minister of Energy, Denmark

In 1973 Denmark, with virtually no production from indigenous resources, relied on imported oil for 90 per cent of its energy supplies. By 1980 the figure was down to 67 per cent. Coal imports and consumption increased five times between 1973 and 1980. With 10 million tons per year, Denmark currently ranks among the biggest importers of steam coal in the world. Between 1973 and 1979 real GNP increased by 12 per cent whereas total energy consumption was up only 6 per cent.

These results, favourable as they are compared to the point of departure, still leave the country painfully exposed to the effects of continuously increasing oil prices. The oil import bill was up from 2 billion Dan. Kr. in 1973 to 21 billion in 1980 and now amounts to 20 per cent of total imports. Thus the Danish Government must plan for the further reduction of oil imports during the 1980s.

1970s: Conservation and Coal

Two main factors contributed to the change in the pattern of Danish energy consumption during the 1970s: the early development of a comprehensive energy conservation programme and an exceptionally quick conversion of power stations from oil to coal.

In scope and choice of measures, the energy conservation programme is not much different from programmes in other OECD countries. The reason it had a considerable impact on consumption as early as the 1970s is partly that it got off to an early start and partly that conservation is easiest in the residential sector which in Denmark accounts for more than 40 per cent of total energy consumption so that there is a sizeable potential for saving. Also energy prices in Denmark fully reflect world market prices and, in addition, taxes are rather high, particularly for gasoline.

Since the question of whether coal is, in fact, competitive with oil for electricity production has been a subject of controv-

ersy in many quarters, at least until recently, it should be noted that the conversion took place on purely commercial grounds, with no subsidies at all. However, the government has made sure that no unnecessary constraints, administrative or otherwise, hindered investment in new boilers, port facilities, etc. As coal imports have grown, the government has worked with the power companies to create stable, long-term relations with present and future coal producing and exporting countries. To this end, a Committee for Coal Supplies was set up in March 1980, the members representing the power companies, the Ministry of Energy and other ministries involved.

Denmark, therefore, puts great emphasis on the work of IEA on coal policy and the IEA principles on coal, adopted by Ministers in 1979, as well as on the work of the IEA's Coal Industry Advisory Board. The exporting capacity of the producing countries, the infrastructure and port facilities must be expanded and the market for steam coal freed from rigidities in handling and consumption that could lead to unnecessary price fluctuations. To this end, close co-operation between importers and exporters of coal as well as between government and the coal industry is absolutely necessary.

Tasks for the 1980s

The results we are aiming at in the coming decade can be illustrated by the oil import targets undertaken by the Danish Government within the IEA. For 1980 the target stood at 16.5 million tons (because of special factors at work in Denmark as in a number of other countries, imports were much lower – around 13 million tons). For 1985 the target is 11 million tons, and the current forecast for 1990 is 10.7 million tons.

A strong energy conservation and management programme will be continued, and coal use in the electricity sector may be raised to as much as 90 per cent. However,

the main contribution to reducing oil imports during the 1980s will come from the exploration of Danish resources of oil and gas in the North Sea. Within the next couple of years, oil production is expected to increase from the current 0.3 million tons a year to around 2.5 million tons. A similar contribution can be expected from natural gas when production starts in late 1984. This means that, from the middle of the 1980s, Denmark will be able to cover around one-third of its energy needs from indigenous resources.

In order to accelerate exploration and production of domestic fuel, the Government initiated negotiations in 1980 with the private Dansk Undergrunds Consortium (DUC) with a view to altering its 1962 sole rights concession for exploration and production of hydrocarbons in the Danish subsoil and to building an oil pipeline.

These negotiations resulted in May 1981 in an agreement which fundamentally changes the 1962 concession arrangements. According to the agreement, 50 per cent of the total area of Denmark plus its surrounding waters (144,000 km² in all) will be relinquished at the beginning of 1982, a further 25 per cent in 1984, and almost all the rest in 1986. DUC will retain ownership of fields which are producing or where production is planned at that time plus 1 per cent of the area in the central part of the North Sea. The agreement introduces the right of the state to purchase part of the oil produced. Moreover an oil pipeline will be built by the state oil company, Dansk Olie and Naturgas A/S, in cooperation with DUC.

It is expected that, as a result of new licensing in the relinquished area, there will be an increase in exploration activity and hence greater stability of oil and gas supplies.

In order to establish a basis for future activities in the Danish subsoil, the Parliament has adopted new legislation on the matter which, like the negotiated settlement with DUC, entails a thorough reform of Danish policy on exploration and use of domestic oil and natural gas. We now look forward to establishing new working relationships with interested oil companies.

The Heat Plan

Denmark intends to make the most of its gas resources within the broader framework of the so-called Heat Plan. Since domestic heating is the single most important energy consumption item in Denmark, the Heat Plan has been designed to provide an integrated solution to the task of finding the most efficient way of heating the 22 million or so individual homes in the country.

The idea is to get rid of as many of the oil



The residential sector – 40 per cent of Denmark's total energy consumption – has a sizeable potential for savings. The aim of the Heat Plan is to replace as many as possible of the oil burners installed during the Sixties and Seventies. Above: Incineration plant in Copenhagen which provides heat for city residents.

burners installed in the 1960s and 70s as possible and to replace them with either piped natural gas or district heating, primarily in the form of surplus heat from power stations. It is estimated that these two forms of heating will be able to cover around 70 per cent of total heating requirements by the middle of the 1990s.

Having decided on the target, the next problem is which regions are to use natural gas heating, which ones district heating and which regions other energy sources.

Two main conditions must be met for centralised heating systems to be economically advantageous. A relatively cold climate, which makes it necessary to heat most of the year, and an area that is densely populated. Both conditions are found in Denmark, but while the natural gas network has to be started from scratch, district heating has a long history, and Denmark has the world's highest penetration rate for this type of heating. If the considerable investment involved is to be used to optimal effect, it is imperative that natural gas and district heating be used more or less exclusively in the areas best suited for centralised heating, i.e. for the two-thirds of Denmark's buildings that are in densely populated areas. The distribution will be decided through detailed planning at the local level over the next few years. It is assumed that a suitable system of price incentives will make compulsion

unnecessary, but existing legislation gives the municipalities powers to demand that consumers join the collective heating system. The areas outside the cities have roughly a third of total heating requirements. Here, a wide range of heating devices will be employed: some remaining oil burners, bottled gas in a few cases, some electric heating, primarily in combination with heat pumps or storage, and as much use of renewable sources of energy as possible.

About 40 per cent of the energy research programme of the Ministry of Energy is devoted to renewables, mainly wind, geothermal, solar and biomass. Renewable energy resources will have special importance in the areas not covered by natural gas or district heating and it is currently estimated that over the next 15 years renewables could cover up to 6 per cent of Denmark's total energy requirements. Such a level, however, presupposes heavy investment.

Finally, the Heat Plan envisages a role for electrical heating. Already some 100,000 homes are electrically heated, and direct electrical heating will continue. However, the Heat Supply Act makes it possible for municipalities to forbid such heating in new houses and flats in areas for which district heating and natural gas are planned. For well insulated houses, electrical heating is less costly than oil since it

will be supplied by coal-fired combined heat and power stations.

The Heat Plan is a powerful policy tool to ensure the most efficient use of scarce and expensive resources. In this it may provide a stimulus for other countries in much the same situation. But not even the most careful planning can negate the fact that 10 or 15 years from now, when the plan has been fully implemented, Denmark will still have to import about two-thirds of its total energy requirements, primarily oil and coal.

Outlook

In dealing with the repercussions on Denmark of the oil price increases of 1979 and 1980, one can say that an acceleration of the internal price-wage spiral has been avoided and, excluding the rise in energy costs, the current balance of payments has clearly improved since 1978, in part as a result of government policy. Thus at the end of 1979 energy price increases were taken out of the wage-regulating price index. Energy imports were kept down in 1979 and 1980 by increased indirect taxation on energy consumption. Also the generally depressed level of economic activity has had a restraining impact on energy consumption.

The exceptionally low energy demand of 1980 is hardly a lasting phenomenon. When economic activity picks up again, energy consumption can be expected to start increasing. Even a period of nominally stable oil prices could reverse the downward trend in consumption.

Of course, rising energy costs cannot be disregarded as a matter of practical policy. As we will have to continue to import the major part of our energy needs, we should aim for stable prices, reflecting the long-term trend in real replacement costs for energy. This will give us a reliable background for planning during the period of transition from an oil-based society to an economy increasingly based on other sources of energy. This should be the main consideration in long-term co-operation on energy within the OECD and the IEA.

The political will to solve basic long-term problems is a must. The political leadership must accept the heavy responsibility of initiating policies and defining measures that may be unpopular in the short term, but vital to our future. In this context, I welcome the fact that the meeting of IEA Energy Ministers in June was primarily devoted to long-term issues. It is important to use the present breathing space in the energy situation to lift our eyes a bit from day-to-day problems. Unfortunately, I am convinced that it is only a breathing space in a long problem-filled process that will occupy us for many years to come.

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