

Planning Antarctica's future

The thirteen signatories to the Antarctic Treaty met in London earlier this month. **Paul Cheeseright** reports

IN THE face of increasing international economic pressures, the Antarctic Treaty is on the verge of substantial change, which could dilute, at least to some extent, the environmental stringencies practised to date by the signatory powers. The essential problem is how to control an area without having the recognised forms of sovereign jurisdiction.

For three weeks in London the thirteen consultative powers, as the signatories like to call themselves, tried to come to terms with the problem of finding regimes for the control of marine and mineral resources, while at the same time preserving the non-political approach which has hitherto dominated their scientific work. Inevitably their success has been only partial.

This inevitability is the direct result of the framework in which the Treaty powers had to work. There are thirteen of them: Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, Poland, South Africa, Britain, the USA and the USSR. They make an oddly variegated bunch of states, having either geographical, historical, political or scientific links with Antarctica.

The Treaty which binds them was signed in 1958 and came into effect in 1961. Its effect has been to make the most inhospitable continent in the world a gigantic laboratory, where the work of one was subject to the inspection of all in a demilitarised nuclear-free zone reserved for peaceful purposes. "The question of man's impact on the Antarctic environment" is, the Treaty powers say, "a subject which subsumes all the main preoccupations of the Antarctic Treaty powers with regard to the area".

The early years of the Treaty's existence provoked no problems. The area was out of the way. The scientific work was expensive and only the powers involved were interested in making provision for it. But in 1969 questions were being asked in the New Zealand parliament about the mineral resources of the region. The seeds of difficulties were being sown.

There were two reasons for this. The first was that the Treaty itself made no mention of resources in the area and what to do about them. The second was that the Treaty effectively froze all territorial claims to the area for thirty years. It was at least partly in order to lay the claims to rest for a generation that the Treaty was signed

in the first place.

Seven Treaty signatories have claims: Argentina, Australia, Chile, France, New Zealand, Norway and Britain. But these claims are not recognised by the other signatories and are not accepted even among the claimant powers, because the claims of Argentina, Chile and Britain overlap. In addition some 15% of the Antarctic land mass is unclaimed. The danger of the mineral resources problem was that it could bring out into the open the territorial claims, because in the event of mineral exploration or exploitation there would need to be some jurisdiction over the activity.

Rights questioned

In recent years however, the rights of the Antarctic Treaty powers to define even loose methods of control of the area have been questioned. The United Nations Law of the Sea Conference embraced the concept that the oceans were the heritage of mankind. There is no reason, some Third World powers have argued, why the same concept should not be applied to Antarctica.

In the event the problem of mineral resources has not had quite the same urgency as marine living resources. The latter involve primarily the krill, a crustacean seen by some scientists as a major untapped source of protein which could be harvested in sufficient quantities to double the world's annual fishing catch.

The depletion of the region's whale stocks has led to an increase in krill stocks, pointing to the role of the

creature in the ecosystem of the southern oceans. But detailed knowledge of the ecological interaction of the krill and other Antarctic marine species has not yet been accumulated. It is not even known whether the Antarctic contains one or numerous distinct krill populations.

Nevertheless the proliferation of the krill and its ready exploitation have already attracted the attention of West Germany, which has reported catches of 40 tonnes an hour, the USSR, Japan, Chile and Poland. It has also been the subject of survey by the Food and Agricultural Organisation (FAO).

The implications of all this for the Antarctic Treaty powers at the London meeting were serious. If environmental damage was to be prevented then it was necessary to find a regime of conservation, but the regime would have to be voluntary. Unless national territorial claims with 200 mile economic zones were to be recognised in defiance of the Treaty and of some of its signatories, there could be no policing. At the same time the lack of any internationally accepted system of authority meant that any nation could move its fishing vessels into the area.

The Treaty powers are planning a conservation regime, which they hope will be ready for signature at the end of next year. Such a regime will embrace several principles, they decided. In the first place it will include the "rational use" of resources, so harvesting is not prohibited. In the second place they are mainly concerned with the seas south of latitude 60°S.

The third principle is that the regime would exclude catch allocations. At the same time, however, it could involve a total catch figure. It is not clear how it is possible to have the latter without involving the former.

The fourth principle is extension of the freezing of territorial claims into the conservation regime. The effect of

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Krill, caught on the wrong side of a whale

this is to ensure the rights of free access into the southern waters adjacent to the continental landmass. While this constitutes a leap over a major political hurdle and ensures a degree of order in the affairs of the continent, concomitantly it means looser control.

But the way has been opened for widening the international acceptance of the Treaty. The powers are considering inviting countries like West Germany to take part in the drawing up of a conservation regime, and international organisations like FAO could send observers.

In general the Treaty powers are anxious that any nation which is active in the area should accede, so that practical answers may be provided to practical questions. The Treaty is not closed, but the powers remain concerned about the possibilities of hegemony by an international organisation which might diffuse authority still further and act not as a spur to action but as a block.

Interim guidelines

In the meantime, pending a definitive conservation regime for marine living resources, interim guidelines have been established. But they do not go beyond commitments to cooperate in research, coordinate shipping programmes and the exchange of catch statistics. The

guidelines are accompanied by an acceptance of the need not to harvest the resources to the extent that there will be depletion.

In common with the principle adopted for marine living resources, control of the continent's mineral resources will not affect the position on territorial claims. But the Treaty powers have made their strongest commitment so far not to engage in mineral resource exploration until a regime of control has been established. This they intend to work towards. That said, however, there is no theoretical reason why a company should not start drilling in the area.

But this is not likely. Mining companies have already pointed to the distance of Antarctica from the world markets, the easier access available to resources in more hospitable climates and the expense of coming to terms with land covered by an ice sheet. The reservations of the companies are also held by experts from the Treaty powers. Their discussions and conclusions have taken a good deal of the pressure away from the need to reach quick solutions on control.

It is thought that it will take at least five years to amass the scientific and technical data necessary to provide a foundation for exploration and subsequent exploitation if conditions are to

be found which safeguard the continental environment. Exploratory drilling itself might take ten years. In short the possibility of exploiting mineral resources is at least 15 years away, and probably more like 25.

This assumes that the continent has hydrocarbon and other mineral resources economically worth exploiting. This is not proven. Geological history indicates the possibility, but so far only traces of mineralisation have been found on land, although unmetamorphosed tertiary sediments, often associated with oil and gas, have been discovered in areas offshore.

There is no technology available for oil production all the year round in Antarctica. The concepts for self-contained installations on the seabed exist but that is all. On land there is no technology available for drilling through the ice shelf.

Meanwhile the Treaty powers have the immediate problem of ensuring that the information they collect is made available to all who need it. The continent is vital within the international meteorological system, but the powers have discovered that only 25% of their observations ever reach the world system. Somewhere between the Antarctic research stations, the global telecommunications system and the world weather watch, the rest evaporates. □

Ninety days and more

As the Windscale inquiry draws to an end, Eben Wilson sums up progress

THE Windscale inquiry has become an institution—the British democratic tradition gone wild in the interest of a public debate about nuclear power. In its ninety days, independent and government scientists from throughout Britain and abroad have for the first time been disagreeing and airing their uncertainties in public, while wrestling with the thorny problem of the close links between nuclear power development as an energy option and its social and political consequences for the future.

The inquiry has taken over a civic hall of 1960s' architectural utility in Whitehaven, a small town perched almost inaccessibly on the Irish Sea coast to the West of England's Lake District, eleven miles from Windscale. Inside one large room, the inquiry inspector, Mr Justice Parker, a high court judge, and his two assessors, Sir Frank Warner and Sir Edward Pochin, sit trapped at a green baize table among a pile of papers. They look out

on five rows of lawyers, scientists and environmentalists who hide behind their green baize tables loaded with documents, articles and studies on nuclear power.

Out of that sea of paper a pile of daily transcripts now four feet high has appeared. Many say these will become an historic document, the quintessential reference work for the international nuclear debate.

Although the inquiry is specifically trying to decide on a planning application to build an oxide fuel reprocessing plant (THORP) alongside Britain's present Magnox reprocessing facilities at Windscale, it has become the platform for discussions on Britain's future energy options. Ranged against British Nuclear Fuels (BNFL), who own the present plant, is an array of pressure groups and individuals, from the established Friends of the Earth (FOE) to local housewives worried about their children.

The Friends of the Earth have waged

war on the economic case for reprocessing and have convinced the inquiry that the British taxpayer will have to pay somewhere between £300 million and £500 million to recycle spent oxide fuel from Britain's advanced gas cooled reactors (AGR). The exact figure depends on where the price of uranium lies between \$30 per pound and \$100 per pound, and a notional price for plutonium above £90,000 per tonne. BNFL estimate an ex-works price for recycled fuel of £260,000 per tonne or above depending on whether permission is given for a 1,200 tonne per year plant with capacity for foreign reprocessing contracts, or a 600 tonne a year plant only for British fuel.

The FOE alternative consists of importing uranium for fuel, storing fuel elements on a long term basis and abandoning reprocessing. They have asked for a ten-year delay to THORP while long term storage is researched. If this fails, they say, the delay would at least give time to try to evolve safeguards against plutonium proliferation.

British Nuclear Fuels have an unhappy history of Magnox fuel elements deteriorating in their cooling ponds at Windscale and have revealed that AGR fuel, still less than ten years old, is already showing signs of corrosion.