Nature Vol. 259 February 26 1976

MEDITERRANEAN

Treaty in store

Sixteen Mediterranean states meeting in Barcelona earlier this month adopted a treaty on the protection of the Mediterranean against pollution which augurs well for a future "action plan". Robert Allen reports

AN interval of only two years separates discussion of the first principles of the Mediterranean anti-pollution treaty and its signature. There are two main secrets of this success, which comes despite the sharp political differences of the participants (Spain, France, Monaco, Italy, Malta, Yugoslavia, Greece, Turkey, Cyprus, Syria, Lebanon, Israel, Egypt, Libya, Tunisia and Morocco).

One reason is the existence of a regional scientific and resource management body, the FAO's General Fisheries Council for the Mediterranean (GFCM). Arabs and Israelis, Greeks and Turks, have worked together on the Council for some years now, and are used to each other at the scientific and technical levels of government. Secondly, there is the United Nations Environment Programme (UNEP), which can not only bring governments together, but can locate, harness and coordinate legal, scientific and planning expertise scattered amongst numerous research institutes throughout the Mediterranean area and within the UN's many (often competing) specialised agencies. It is this capability which is the key to an ambitious "action plan" being developed by UNEP and the Mediterranean coastal states and involving cooperative action on four related fronts: scientific, legislative, institutional, and planning.

UNEP has set up seven research projects*, to run initially for two years, in order to establish a basic pollution profile of the Mediterranean. Each project will employ a network of laboratories, coordinated by UNEP, appropriate specialised agencies and a designated national research centre. So far, eight countries (Algeria, Cyprus, Israel, Italy, Lebanon, Malta, Spain and Yugoslavia) have nominated a total of 19 laboratories. Other countries are expected to nominate laboratories soon.

Where necessary, UNEP will provide analytical equipment and training in its use. It will also fund a common maintenance service to avoid long gaps in coordinated data collection. The International Atomic Energy Agency's Marine Radiation Laboratory in Monaco will help ensure compatibility of results by setting monitoring standards and providing intercalibration services.

The entire scientific programme is expected to cost some $10 million (almost $2 million from UNEP, and about $8 million from participating governments). For this, the coastal states of the Mediterranean will obtain a reliable pollution profile of the marine environment, derived from simultaneous measurements of pollutant levels in the same taxa, at a large number of sampling points, with the same instrumentation. There will be a comprehensive range of strictly comparable national data from the entire region instead of the present hodgepodge of hard facts, circumstantial evidence and anecdote. Without this data, planning the rational exploitation of the Mediterranean commons would be virtually impossible. It would also be extremely difficult to maintain the present rapid legislative progress when more contentious issues are tackled.

The treaty consists of a convention supported by two protocols (one on dumping, the other on cooperation in the event of pollution emergencies, such as oil spills), but the next one to come, controlling pollution from land-based sources like rivers and coastal outfalls, is the one most likely to founder if the data base is insecure. Mediterranean nations will be confronted with the substantial economic differences between north and south and difficult trade-offs between one sector of a national economy and another. With non-Mediterranean upriver states also involved, a reliable pollution profile will be essential.

Much of the additional promise of the action plan lies in its integrated planning effort, which aims to help governments develop the shared resources of the Mediterranean in a sustainable fashion. Permanent channels for cooperative planning are being set up, based on a conception of the Mediterranean Sea area as an ecological unit. It sounds slightly over ambitious, but as Peter Thatcher, Director of UNEP's Geneva office, remarked, the adoption of the treaty demonstrates that the "political leaders of the Mediterranean have overcome the divisive issues of today in order collectively to preserve their common heritage and discharge their responsibilities to future generations". □

*The 7 projects include: (1) baseline studies and monitoring of oil and petroleum hydrocarbons in marine waters (coordinated by UNEP and the Intergovernmental Oceanographic Commission, IOC, of UNESCO); (2) baseline studies and monitoring of metals, particularly mercury and cadmium, in marine organisms, and (3) of DDT and other chlorinated hydrocarbons in marine organisms —both coordinated by UNEP and the GFCM.

CANADA

New breed

Canada's space programme was back on the nation's front page and television screens again briefly last month when the United States launched her neighbour's latest satellite, the CTS (communications technology satellite). David Spurgeon reports from Ottawa

CANADA'S space programme has been one of her most successful scientific and technological ventures. Alouette I, the first satellite designed and built by a nation other than the United States or the Soviet Union, was still sending back useful ionospheric data 10 years after its launch in 1962. Three other Canadian made scientific satellites successfully followed that (Alouette II, ISIS-I, ISIS-II), and two domestic communications satellites (Anik-I and Anik-II) both continue to serve the country's communications needs, the former being the first such satellite to be used in a geostationary orbit.

Canada's vast distances, severe climate and scattered population have all meant that its space program has been oriented toward electronic methods of communication. The new CTS satellite follows this pattern. It is considered the forerunner of a new breed of high-powered communications satellites that will be able to transmit directly to small, low-cost earth stations sometimes in remote and otherwise inaccessible locations.

The CTS is in fact the most powerful communications satellite now operating, by virtue of three major subsystems. One of these is the travelling wave tube amplifier: its power output of 200 watts operating at an efficiency of 50% compares with the six watts at 30% efficiency of the current generation of tubes used in communications satellites. A pair of lightweight extendable antenna arrays carries enough solar cells to provide one kilowatt of power to the satellite; and a three-axis stabilization system, employing a fixed momentum wheel and hydrazine gas thrusters, maintains the aiming accuracy of the antenna and keeps the spacecraft oriented toward the sun (rather than letting the spacecraft spin as is usual) to ensure full use of solar power.

The CTS satellite is able to employ high power transmitters because it operates in a new frequency band of 12–14 gigaherz allocated for broadcast satellites. Current systems operate in the 4–6 gigaherz band, which is shared by other types of system on the ground. For this reason, satellite power levels must be limited to prevent interference