Facing Israel's water problems

from Kapai Pines, Jerusalem

IN spite of a 25-year-old development scheme for water resources, Israel is faced with a crisis which threatens to damage seriously the country's agricultural programme. The Israelis' ingenuity in water management has achieved spectacular results, particularly in the cultivation of the so-called wilderness areas, but now the country has reached the point where exploitable resources are strictly limited, while consumption is growing and promises to go on growing.

Israel has a uniquely uniform pressurised supply system which encompasses virtually the whole country and integrates almost all of its water resources; 95% of available natural sources are used. The problem is how to expand, and even to conduct, the system in a situation of growing demand and limited supply, exacerbated by the problem of deteriorating quality.

Recently, water problems have been the subject of a lively public debate, in which almost everybody is trying to participate. In a memorandum submitted to the Prime Minister, Mr Rabin, the Minister of Agriculture, Mr Ozan, appeals for an urgent allotment of IL 500 million for the development of new water resources this year. Mr Ozan claims that there has not been any development of such new resources for many years and that, if immediate steps are not taken it will be necessary to divert 300 million cubic metres of water from agriculture in order to meet the expanding demands of urban consumption. As a result, agricultural production will shrink by 25%.

Further, on February 10, almost all the Knesset (Israeli Parliament) factions united in adopting a resolution calling for water planning funds to develop new water resources while carefully utilising the existing resources to the peak of their economy and efficiency. The resolution warns against pollution of underground water, Lake Kinneret (Sea of Galilee), rivers and wadies; it calls for the implementation of sea water desalination by nuclear energy.

It is characteristic that the experts are divided among themselves as to the right solution. In the face of almost fully utilised natural resources what are the alternatives? There are several. There is, of course, the possibility of limiting the growth of consumption and adjusting it to the level of supply. It is also possible, some experts claim, to increase the actual yield of the resources by using water which has not been used for various reasons so far (brackish water or sewage effluents, very deep borehole well water or flood waters in winter streams). It is also possible to produce 'artificial water' (artificial rainfall and converted saline water). An additional way is 'mining' of water from underground reservoirs, which are one-time-only reserves.

As far as desalination goes, almost all experts agree that the technologies available at present are generally too costly for producing water for agricultural use. Since the urban and the industrial sections have been given priority, agriculture must take the blow. □

Water yield and consumption in Israel (in millions of cubic metres per annum)

(a) Water yield

Resource	Potable water: Present yield capacity (1972–73)	Potable water: Estimated future development (end of century)	Marginal water (brackish flood water reclamation of waters, sewage effluents): Present yield capacity	Marginal water (brackish flood water reclamation of waters, sewage effluents): Estimated future development
Lake Kinneret (Sea of Galilee)	560	150		10
Main aquifers	960	20	160	20
Floods	30	20–40	13	8
Sewage Effluents		100	26	100
Desalination	2	12		
Total	1,552	302–322	199	138

(b) Water consumption

Sector	Potable water: Consumption in 1972–73	Potable water: Recent annual increase	Other waters: brackish, flood-water, sewage effluents
Agricultural	1,175	20	167
Domestic	285	12	
Industrial	60	5	32
Total	1,520	37	199

Mr. Wilson's deal with Russia

from Vera Rich

THE recent visit of Mr Wilson to the USSR has resulted, *inter alia*, in an impressive programme for scientific and technological cooperation between the UK and the USSR for the next decade. This programme is, in fact, a conseqeunce of a number of meetings and discussions on this theme, going back as far as 1968 and culminating in the Agreement on the Development of Economic, Scientific, Technological and Industrial Cooperation signed in London on May 6, 1974.

The programme envisages a wide range of activities in which scientific and technological cooperation can be "encouraged" on a "mutually advantageous basis", ranging from high temperature plasma physics to "continuous beer production", and it is difficult to assess how far any particular clause will be implemented. Some subjects seem to have been included on a rather unilateral basis—it is difficult to to see, for example, what precise benefit the UK would receive from the joint study of irrigation—and others are already there as a sop to the prevailing trends of world opinion (energy-saving studies and reduction of diesel exhausts); yet others (such as astronomy) are so wide ranging that it is difficult to know precisely what cooperation is envisaged. To complicate the matter further, the official programme blandly states after an impressive list of fields of cooperation that it is only "of a recommendatory nature, and is subect to modification and adjustment as and when necessary", a statement which appears to be something of an escape clause.

Nevertheless, some areas of cooperation can be defined more closely. A general statement of cooperation on "flameproof equipment for use in mines subject to sudden gas emissions and coal and rock bursts" seems to link up with a clause in the detailed schedule on "Cooperation to equip Soviet mining machines supplied to the United Kingdom with British-made electric equipment in accordance with British safety standards" (a somewhat surprising statement in view of the frequent *Novosti* releases on the safety of the Soviet mining industries) and the suggestion that the Soviet Union should participate "in the realisation of the programme of the National Coal Board for the modernisation and expansion of coal output" (which could raise some piquant problems with the Trade Unions). Meanwhile, in the Soviet Union, British know-how is to be used in the supply of goods ranging from "airport equipment" to "equipment for