Nuclear Iraq

Perrin protests

Anxieties about French nuclear collaboration with Iraq have now burst into the open. Last week, the grand old man of nuclear power in France, Francis Perrin, contradicted his government's statements about the supply of a research reactor and highly enriched uranium to Iraq, in a deal to exchange oil for technology. "It cannot be said", Perrin argued in an interview with *France-Soir*, "that the provision of this reactor will not enable a country like Iraq to produce an atomic weapon in a few years' time".

Without addressing the question directly, however, the French government had earlier insisted that its cooperation with Iraq is directed to "perfectly legitimate ends", and that the agreement is also covered by guarantees. The government said it was "astonished" at the accusations that had been made against it, and asked by what principle Iraq's right to nuclear power could be refused.

Perrin, who was president of the Commissariat à l'Energie Atomique from 1951, and who was confirmed in that post by President de Gaulle in 1960, does not believe that nuclear peace and war can be separated so neatly. He believes it unlikely that Iraq would directly divert any part of the 11-kg charge of 93 per cent uranium-235 to be supplied by France, for this would fly directly in the face of too many international agreements. "But evidently, if Iraq trains personnel with this reactor, they could prepare plutonium by irradiating [unenriched] uranium." This plutonium might be prepared initially for research; then, when they had enough plutonium and technicians, they could break their agreement (under the Non-Proliferation Treaty, which Iraq signed in 1969) not to build weapons.

The controls of the International Atomic Energy Agency — which requires monthly flow-sheets of fissile materials belonging to NPT signatories, and whose inspectors make regular visits to their nuclear establishments — are effective, says Perrin, but a country can always decide to reject them.

Iraq already has a small Soviet reactor, using 80 per cent enriched fuel, under IAEA safeguards. The details of the new French reactor have not yet been received at the IAEA, but the safeguards provisions require that they should arrive more than six months before the reactor is charged with fuel. Charging is, however, unlikely before the end of 1981, the date set before Iraq's chief nuclear expert, Yihya al Meshad, was murdered in Paris on 13 June. It is, however, known that the reactor will be based on the French 50-MW thermal reactor Osiris at Orsay, which takes a charge of 9½ kg of 93 per cent uranium-235. Osirak, the Iraqi version, is planned to be slightly bigger — 70 MW with an 11-kg charge.

Italy is also supplying nuclear facilities to Iraq in exchange for oil, including an isotope laboratory with a hot cell which in principle could be used for reprocessing and plutonium separation but, says the Italian government, it is much too small to have a bearing on weapons production.

President Saddam Hussein of Iraq has rejected all speculation that Iraq may be building a weapon, and has pointed out that Israel is generally regarded as already having the bomb, and has never signed the NPT. "Other countries" said an IAEA spokesman "have been less cooperative than Iraq".

President Hussein, with a \$75,000

Troubled seer

million five-year plan, also dreams of a technological transformation of his country, and recognizes that Iraq's principal need is technically trained manpower. He believes that Osirak will contribute to such a pool. Now that Iraq is increasingly turning from its East European and Soviet partners towards OECD countries for technology, it may be wise to take Hussein seriously.

Robert Walgate

Remote sensing

Going private?

Washington

Fierce arguments have been generated in Washington by plans under discussion in the Carter Administration to create a fully operational system from the remote-sensing satellites developed by the National Aeronautics and Space Administration.

Few challenge the idea that responsibility for remote sensing should eventually pass to the private sector, but there is disagreement about the pace at which the transfer should occur and the degree of control which the federal government should retain.

Responsibility for coordinating the transfer from NASA to the private sector has been given to the National Oceanic and Atmospheric Administration (NAOO). The NAOO proposes a two-stage

process, involving an initial stage for developing the sensor technology, that would extend to the end of the decade, before a fully operational system would be available for private use.

Several companies, keen to establish themselves in a potentially lucrative market, argue that this time scale is unnecessarily slow. In particular, executives from the Comsat Corporation, which has already successfully taken over responsibility for telecommunications satellites, are arguing that it could start doing the same for remote sensing by 1983.

The temptation to use telecommunications as a model for successful commercial exploitation is strong, but remote sensing is likely to have a rougher ride. The market is undeveloped and heterogeneous.

Thus at a Senate hearing two weeks ago, a spokesman for the National Governors Association said that the remote-sensing system "should be considered in the same context as census, cartographic, geological and meteorological data which are provided as a public service of the federal government".

Aware of this public responsibility, NOAA is considering two ways of allowing federal agencies to buy data under guaranteed purchase contracts. One would transfer responsibility for this entirely to a private corporation, the other would set up a new "for-profit" corporation with both privately and publicly appointed members.

The cost of remote sensing is another problem. According to NOAA administrator Dr Richard Rank, the remote sensing system will probably not be self-financing until the end of the century, and thus will rely on subsidy for the foreseeable future.

But there will still be a temptation to maximize returns, even in the early stages, and state governments are worried that high prices could discourage potential state and local government users from even exploring the potential usefulness of Landsat data, particularly if — as NOAA has suggested — experimental data during the interim period are priced the same as operational data.

Excessive pricing could also have important international implications. Some countries could complain that they are unable to afford information about their own natural resources which can be bought on the open market by multinational mining corporations. The State Department accepts the principle that prices should be consistent for both domestic and foreign users, but warns that price increases should be gradual so that foreign users can adjust to them.

Present users are, however, more concerned at the quality of the service. NASA now has two Landsat satellites in orbit, but both are having problems which have restricted the amount of data being received. Unexpected difficulties have also arisen in the next satellite, Landsat D,