## research and technology

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- \*\* It seems possible that national programmes in the FAST REACTOR field can now be BROUGHT TOGETHER ON A COMMUNITY BASIS and the Community is striving to foster this (see Newsletter No. 26). A short description of the present situation in a field in which the Community's Council of Ministers recently decided to promote large-scale comperation is APPENDED (see Newsletter No. 36).
- \*\* MODERN METHODS OF DEFINING, PROGRAMMING, MANAGING
  AND IMPROVING NUCLEAR RESEARCH PROGRAMMES were
  discussed by some 15 experts from research organizations in Community and non-member countries and
  about ten officials of the Commission of the European
  Communities at a meeting held by the Joint Research
  Centre in Brussels on 8 and 9 December. The meeting
  had been planned for several months and was of particular importance since the Community's Council of
  Ministers recently requested a reexamination of the
  structural and operational set-up of the Joint
  Research Centre (see Newsletter No. 36).

The specific cases put forward by those attending pointed to the fact that, in the research field, the use of modern management methods such as ../..

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MIS (Management Information System), PPBS (Planning Programming Budgeting System), cost/benefit and cost/effectiveness analysis, etc., becomes essential, subject to the necessary adaptation, of course, as soon as the scale of the activities passes a certain point, the extent to which these methods are used depending on the overall volume of the activity in question.

- \*\* THE DIRECT PRODUCTION OF HYDROGEN from water by means of a high-temperature chemical reaction (by a process discovered by a team of scientists at the Joint Research Centre's Ispra Establishment) was discussed recently at a round table conference held at Ispra and attended by representatives of the Community's chemical, metallurgical and nuclear industries.
- \*\* The practice of SUBCONTRACTING, is on the increase in the field of research. There is a growing tendency for firms to farm out certain research projects to specialist firms or to other firms in related fields in the interest of rationalization. In order to gain a better insight into the working of this system, a study is to be undertaken on behalf of the Commission of the European Communities which, it is hoped, will provide answers to such questions as the following: Which firms in the Community subcontract? To whom? What? Why? How? What is the economic importance of subcontracting?
- \*\* In all, 60% of the higher education diplomas awarded annually in Germany are for ENGINEERING AND HIGHER TECHNICAL STUDIES. The figures for other countries are: Netherlands 48, France 31, Belgium 25 and Italy 10%. This emerges from a statistical paper on the ../..

## COORDINATION OF NATIONAL PROGRAMMES AT A CORMUNITY LEVEL NOW SEELS POSSIBLE IN THE FAST REACTOR SECTOR

The European Community's effort in the fast reactor (or breeder) sector is a considerable one: according to the most widely accepted estimates, it will be financed from public funds to the tune of approximately 1,000 million dollars over the next 5-8 years.

In France, where the projects are being carried out by the Commissariat à l'Ener ie Atomique (CEA) in collaboration with Electricité de France (EDF), the industrial architect chosen for the PHENIX prototype is the Groupment Atomique Alsacienne-Atlantique (GAAA). Construction of the PHENIX reactor is in progress at Marcoule and is benefiting from the fact that all the work done in the fast reactor field is being devoted to it. A general research and development programme on fast reactors, on which about 500 people are employed, is being conducted both by CEA and, to a lesser extent, by EDF.

In Germany, Belgium, the Netherlands and Luxembourg the efforts have been combined both by virtue of an intergovernmental agreement and as the result of an arrangement between the firms of Siemens (Germany), Interatom (Germany), Belgonucléaire (Belgium), Neratom (Netherlands) and Luxatome (Luxembourg).

The principal immediate objective is the SNR (Schneller Natrium Reactor), the construction of which is due to begin in 1970. The total staff assigned to general research and development work on fast reactors at the establishments of the Gesellschaft für Kernforschung (GfK) in Germany, the Centre d'Etudes Nucléaires and Belgonucléaire in Belgium, the Reactor Centrum Nederland and the Nijverheidsorganisatie TNO in the Netherlands, and Luxatome in Luxembourg is in the region of 700.