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Annual Report of the Euratom Supply Agency for the Calendar Year 1976

I. GENERAL

The activities of the Supply Agency in 1976 were affected to a considerable extent by external influences. This is particularly true of the belated - and significantly slower than anticipated and hoped for - upturn in the economy after the recession of the last few years. The resulting difficulties in estimating what the increase in energy requirements and financing costs will be in the 1980s prompted the utilities to review their investment programmes and to adopt a wait-and-see attitude. No new orders for the building of nuclear power plants were placed in 1976, consequently, the Agency did not receive any orders in respect of the long-term coverage of new natural uranium and enrichment services requirements.

Another factor which influenced the situation was the delay involving nuclear power plants already under construction arising from a growing public uneasiness over the further development of nuclear energy from disruption and campaigns by citizens' action groups and environmental protection organizations, through court orders for the suspension of building work and through procedural delays in the granting of building licences.

There have also been adverse repercussions following the growing "politicization" of the commercial activities of consumers and producers as a result of intervention and decisions by governments and administrative bodies in a number of the main supplier countries concerning safeguards against the possible misuse of nuclear fuels. Alternative arrangements have had to be made because of the resulting delays in meeting agreed delivery dates and, in some cases, bottle-necks have been caused. A detailed account will given in the section dealing with the activities of the Supply Agency in the natural uranium and enrichment services sectors.

## II. THE ADVISORY COMMITTEE OF THE SUPPLY AGENCY

The Supply Agency's Advisory Committee met three times during the year: on 12 February, 22 June and 25 November 1976. At its first meeting the Advisory Committee confirmed the appointments of Mr William Butler as Chairman and Mr. Michel Houdaille and Mr. Manfred Stephany as Vice-Chairmen. The Working Party, which continued unchanged, was given revised terms of reference in respect of its activities.

The Advisory Committee and the Working Party devoted considerable efforts toward the formulation of criteria for allocating financial assistance amounting to 1.000.000 Units of account earmarked in the 1976 budget for participation in Community prospecting projects and a proposal for such criteria was prepared. There was also discussion of the criteria to apply for the funds provided in the 1977 budget, which appropriates 5.000.000 Units of account for a multiannual programme, 2.000.000 ua of which may be drawn on in 1977.

At the end of the year the Chairman of the Advisory Committee submitted a report to the Commission setting out its views on the allocation of funds which might become available in the future for prospecting projects. This report is annexed hereto. It suggested that in particular the Commission might care to take a closer look at the possibility of participating in prospecting projects outside the Community as well.

The term of office of the Members of the Advisory Committee expired on 31. December 1976. The new appointments will be made by the Council of Ministers early in 1977.

### III. NATURAL URANIUM SECTOR

As in the previous year, the natural uranium market in 1976 was characterized by a persistent shortfall in supplies from domestic and external producers. The price rise on the American market (price at end 1975: US\$ 35/lb U308) continued into the first half of 1976. In May/June 1976 the spot price rose to US \$ 40-42/lb U308 and in the second half of the year settled down at this level. At the end of the year the American specialist press reported for the first time a slight drop in the spot price of 50 cents, i.e. US\$ 41.50 to US \$ 41.

On the other hand, as regards the price for new long term contracts, there exists considerable uncertainty. Nevertheless, the Agency considers that the spot price, referred to above, cannot constitute a basis for negotiation of such contracts.

As far as natural uranium requirements are concerned, Community users are covered up to the end of the present decade. Only from the early 1980's onwards will there be a constantly growing demand, for which as yet no contractual coverage exists. It should be pointed out in this connection that the previously mentioned difficulties encountered by the electricity supply undertakings with regard to the execution of current building plans and further investment projects for nuclear power stations may result in a postponement, if not a cutback, in the uncovered requirements. Accordingly, the users adopted a wait-and-see attitude during 1976, in order to study, in particular, subsequent market trends. Some confined themselves to covering short-term requirements through spot purchases in order to top up their existing stocks. Thus only 2 supply contracts were concluded for terms exceeding two years. In addition spot purchases were effected only to meet the requirements of research centres and institutes, in order to procure the feed materials needed to operate their research reactors.

In 1976 a number of electricity undertakings decided for the first time to participate in prospection projects and secure options on the anticipated production.

As regards natural uranium prices, it must first be pointed out that in the course of 1976 virtually all prices which had been agreed between Community users and domestic and external producers under contracts concluded in previous years (1972-1974) and which were less than US\$ 10/lb U308 were renegotiated at the request of the suppliers. These prices were renegotiated at a level naturally below that applicable to new long term contracts.

The price clauses of the 2 long term contracts mentioned above spanning more than two years and providing for a total consignment of more than 1000 tonnes of uranium, envisage a base price, fixed at the time the contract is concluded, of the order of US\$ 25-30/lb U308 with an escalation clause for each of the delivery years.

The so-called spot purchases, i.e. contracts either providing for immediate delivery or running for less than two years, were effected partly by end-users in the Community and partly by intermediaries, who then resold the material outside the Community in exchange for recovered fuel. Thus of the 14 contracts concluded with the concurrence of the Agency, only 9 concern reactor operators in the Community. The total quantity of uranium involved amounts to some 2.700 tonnes. This material originates approximately one half from South Africa, one quarter from Canada and the remainder from Niger, USA and the Community.

The prices of these spot purchases were of the order of US\$ 39-42/lb U308.

In four instances Community electricity supply undertakings helped to finance mining companies' uranium prospection projects, thus securing

on a contractual basis options on a certain share of the production in the event of a successful prospection operation leading to the exploitation of uranium deposits. The Agency believes that in future this newly evolved type of contractual arrangement between producers and users for securing uranium supplies could well assume growing importance in view of the market situation and the difficulties of concluding long-term supply contracts.

In a further two instances, electricity supply undertakings, although not involved in the prospection, entered into long-term commitments with a uranium producer to take a fixed percentage of the overall production each year and in this way gave the producer a guaranteed sales outlet.

Two other contracts were concerned with the leasing of uranium.

One contract covered the supply of UO<sub>2</sub> for the fabrication of plutonium fuel elements.

In four cases depeleted uranium was involved.

Another four contracts were for the supply of monazite.

#### IV. ENRICHMENT SERVICES SECTOR

A feature of this sector is the difficult situation in which the electricity undertakings find themselves. The conditions already described in the 1975 Annual Report continued unchanged in 1976, with adverse repercussions. Particular mention should be made of: a cautious reserve in the assessment of future electricity requirements; delays to nuclear power plants under construction as a result of legal and administrative intervention; delays in the licensing procedure for new projects; and continuously rising capital costs. Thus, as stated at the beginning of this report, not only were no orders placed for nuclear power plants in 1976 but projects which were either planned or under construction were in some cases abandoned and in other cases postponed for several years.

This situation affected the demand for enrichment services, with the result that in 1976 the electricity supply undertakings concluded only a handful of toll-enrichment contracts.

With the agreement of the US-ERDA, one user took over part deliveries from an American nuclear power plant operator for 1979 and 1980 involving a total of 3,850 tonnes SWU.

Two long-term enrichment contracts were concluded between electricity supply undertakings and URENCO under which a total of 3,850 t of separative work units supplied over the period 1980-90.

In addition, two short term contracts were concluded for the supply of highly enriched uranium by the US-ERDA, involving commitments totalling 25.6 tonnes of separative work.

URENCO received three further orders for the delivery of 73 tonnes of separative work in the period 1979-82.

Since contractual commitments have already been entered into in respect of EURODIF's entire enrichment capacity, the principal shareholders of this company are considering the building in the 2nd half of the 1980s of an additional plant based on the gaseous diffusion process to be known as COREDIF. Participating in this project in addition to EURODIF shareholders will be Iran. In the initial stage it is planned to build an annual capacity of 5.000 tonnes of separative work, to be increased gradually to 10.000 tonnes. A final decision on the commencement of the work and the choice of site will be taken after the project studies have been completed in the summer of 1977. Meanwhile construction work on the EURODIF plant is proceeding according to plan, which means that the plant will become operational in 1979/80.

V. IMPORTS INTO THE COMMUNITY

A. Deferred-payment contracts

As is known the three nuclear power stations Garigliano, Trino Vercellese and SENA have concluded long-term, deferred-payment purchase contracts with the US-ERDA in its capacity as legal successor to the USAEC. The 10-year time-limit for deferred-payment deliveries has expired for all these power stations, with the result that, in addition to making cash payments for current deliveries, they have now begun repaying capital and interest.

During 1976 the three above-mentioned nuclear power stations received the following imports from the USA:

	<u>kg U</u>	<u>kg U-235</u>
1. Garigliano	10,310.028	284.557
2. Trino Vercellese	12,302.508	550.620
3. SENA	22,914.543	928.509

B. Other imports into the Community

Imports into the Community in 1976 under existing contracts were as follows:

	from the US-ERDA		from Techsnabexport	
	<u>kg U</u>	<u>kg U-235</u>	<u>kg U</u>	<u>kg U-235</u>
< 5 % U-235	502,865.484	15,078.198	130,831.903	3,146.485
> 5 % U-235	235.043	203.650	-	-

In terms of total separative work, these deliveries represent:

from the US-ERDA	1,749 tonnes sw = 73.7 %
from Techsnabexport	616 tonnes sw = 25.9 %
	<hr/> 99.6 %

The remaining 0.4 % is accounted for by an initial delivery of uranium enriched in the Community by URENCO involving 9 tonnes of separative work.

### C. PRICES

During 1976 the US-ERDA increased prices on several occasions.

On 1 January 1976, the price of US \$ 60.95/kg of separative work came into force in respect of requirements-type contracts (previously \$ 59.80). On 25 August 1976 this price rose to US \$ 67.25 and is due to go up again to US \$ 69.80 with effect from 27 January 77.

In the case of fixed commitment contracts, the price was increased from US \$ 53.35 to US \$ 59.05 with effect from April 27, 1976.

On October 1, 1976, there was a further rise to US \$ 61.30.

The intention to allow the US-ERDA to introduce a so-called commercial price came to nothing in 1976, as it was not possible during the concluding session of Congress to put through the necessary amendment to the Atomic Energy Act. It remains to be seen whether new Bill on the subject will be introduced in the present session.

In accordance with price clauses in the individual supply contracts, the Soviet Techsnabexport adjusted its enrichment charges in line with those applied by ERDA.

### D. ADMINISTRATIVE PROBLEMS

It must be mentioned in this connection that during 1976 the execution of deliveries from the US-ERDA to the Community was hampered considerably with the result that in some cases there were appreciable delays. The splitting-up of the former USAEC into the US-ERDA and the NRC was not without teething troubles and the staffing and administrative problems which it entailed had still not been overcome in 1976.

Another factor which contributed to the delivery delays was the aspect of non-proliferation, which is becoming increasingly important, since approval must now be obtained from numerous departments of the US-Administration before the NRC grants an export licence. On top of this



came the ERDA internal decision taken towards the end of 1976 (though not made public until January 1977) to transfer responsibility for concluding and executing contracts from Washington to the Oak Ridge Operations Office. Thus there were many cases where, for want of an export licence issued in time, Community users were unable to take delivery of their enriched uranium from the ERDA enrichment plant on the due dates. Following representations by the Supply Agency, ERDA stated that, provided evidence was furnished that the export licence application had been submitted in due time, it was prepared to allow the period for settling the accounts to run not from the delivery date (as laid down in the contract) but from the date of issue of the export licence.

The American authorities are still at pains to redress the administrative defects and, at least as far as light-water reactors are concerned the expectation is that in 1977 this disagreeable state of affairs will be remedied.

Already, however, difficulties are becoming apparent concerning reprocessing within the Community of irradiated fuel elements of American origin from third countries.

As far as exports of highly enriched uranium are concerned, decisions of the new Administration on its export policy are awaited.

#### VI. PURCHASE CONTRACTS

Under the existing Master Sales Agreement with the US-ERDA, a total of 3 orders were handled in 1976, involving small quantities of fissile isotopes for research projects in the Community. Here too, administrative delays on the part of the United States had particularly adverse repercussions.

#### VII. PLUTONIUM

The difficulties described in the 1975 Annual Report as standing in the way of the creation of a genuine market for plutonium persisted in 1976. The limited facilities for reprocessing irradiated

fuel elements is the principal cause of the low level of plutonium availability. For this reason most of the transactions are concerned relate to Plutonium which is still in irradiated fuel elements and which cannot be delivered for two or three years, always on the understanding that the reactor operators themselves do not need it for recycling in their own power stations.

Altogether, the Supply Agency carried out 19 plutonium transactions in 1976. Of these, 13 related to demands from institutes, research centres and universities, the quantities involved being measured in grammes or milligrammes (in one case 1.8 kg). The total quantity covered by these contracts is 2,589.514 g.

6 contracts were for deliveries of plutonium in larger quantities for use in nuclear power plants, by fuel element fabricators and in breeder prototypes. The total amount covered by these contracts amounts to 211 kg of plutonium.

Depending on the fissile isotope content, the agreed prices for these deliveries range from US \$ 7 to US \$ 16 per gram of fissile plutonium.

#### VIII. TRANSFERS OF AMERICAN MATERIAL TO AND FROM NON-MEMBER COUNTRIES

In 1976 the Agency obtained, on behalf of undertakings in the Community authorization from the US-ERDA for a total of 33 transactions concerning material of American origin. These authorizations break down as follows:

	<u>Imports from:</u>	<u>Exports to:</u>
Brazil	1	1
Japan	2	-
Norway	3	2
Sweden	4	8
Switzerland	3	7
Spain	<u>1</u>	<u>1</u>
	14	19

IX. INTRA-COMMUNITY TRANSFERS

The Agency concurred in the conclusion of 15 agreements on the transfer of special fissile materials between undertakings in the Community.

X. ARTICLE 75 OF THE EURATOM TREATY

Under Article 75 of the Euratom Treaty, Community undertakings submitted a total of 266 notifications relating to conversion, fabrication and reprocessing operations.

By way of conclusion, the Agency would not wish to fail to record the valuable support given by the Commission of the European Communities Delegation in Washington, whose efforts and information proved extremely useful and helpful in the face of the above-mentioned difficulties encountered by the American authorities in dealing with the delivery procedures and export and transfer licences.

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SUMMARY OF TRANSACTIONS

1. Natural uranium:

Purchase contracts	17
Acquisition of options	6
Depleted uranium	4
Lease contracts	2
2. Monazite	4
3. Enrichment contracts	8
4. Purchase contracts with US-ERDA	3
5. Plutonium	19
6. Transfers of American material to and from non-member countries	33
7. Intra-Community supply contracts	15
8. Notifications pursuant to Art. 75 of the Euratom Treaty	266

February 1977

EURATOM SUPPLY AGENCY

Felix BOUSSIER  
Director General

RESUME OF THE ADVISORY COMMITTEE'S DISCUSSION (25.11.76) ON THE BASIS FOR A  
COMMON POLICY IN THE FIELD OF URANIUM PROSPECTING AND THE NEED FOR COMMUNITY  
INTERVENTION

It was noted that the Working Party's previous discussions had related only to the expenditure of the initial 1 MUC available from the 1976 Community budget.

There was general agreement that it was in the interest of the Community to continue its financial assistance for uranium prospecting within the Community. It was also agreed that it was highly desirable that such assistance be given according to a multi-annual programme so that finance on a timescale appropriate to the project would be secured.

There was also consensus within the Advisory Committee that it is more important to have the financial support for existing programmes assured for the required number of years than to start additional new programmes.

Several principles were agreed:

1. In the spirit of Art. 70 of EAEC Treaty, Community efforts should not replace national and private efforts but complement and encourage prospecting in Member States whose territory has not sufficiently been explored.
2. The Community as a whole should benefit from the results of prospecting where it has assisted financially and such benefit should in general be related to the degree of Community support. The way in which this should be done would require careful consideration.
3. Funds should not be distributed on a pro-rata basis over all prospecting projects, existing or planned within the Community, but a selection should be made according to a set of criteria and taking account of the expertise of the geologists sub-group.
4. The process of selection should be reviewed from time to time in the light of experience.

Furthermore, most members of the Committee felt that the Commission should pursue the question of support for prospecting outside the Community by Community organisations and examine, for example, the negotiation of suitable agreements with countries outside the Community, guarantees against political risks and the possibility of finance for Community exploration efforts.

CRITERIA FOR EVALUATING  
PROGRAMMES

1. Preferably funds should be allocated to projects that might not otherwise be pursued. Funds may be allocated at any stage of programme from the reconnaissance stage up to and including the feasibility study.
2. Funds should not be spread too thinly between projects
3. The range of Community support envisaged is 30 % - 70 %, with the higher percentage given to high risk programmes
4. The project would be selected bearing in mind:
  - a. The expertise and the personnel available;
  - b. Geological favourability, including regional significance of programme in relation to similar geological targets ;
  - c. The project merit as assessed by the Geologists Sub-Group taking into account diverse factors such as:
    - i. Costs up to the feasibility stage
    - ii. Expected costs of mining and milling
    - iii. Availability of mineral rights and land access and evidence of the legal right to undertake the proposed programme
    - iv. Environmental factors
5. The possibility for multinational partnerships would be a favourable but not decisive factor.

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- Note
1. It is recommended that to avoid duplication of effort, coordination on projects concerning the territory of one country should be resolved as far as possible before submission to the Commission.
  2. It is further recommended that the principles and criteria be included in the regulation published by the Commission when seeking applications for Community assistance for prospection.

The members of the Advisory Committee agreed that in selecting any specific project the Commission should make use of the above-mentioned principles together with the criteria set out in Appendix I.