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STEERING COMMITTEE FOR NUCLEAR ENERGY

PROPOSALS CONCERNING THE FUTURE
OF THE NEA DATA BANK

(Note by the Secretariat)

I. GENERAL INTRODUCTION

1. During its meeting of 18th-19th September 1986, the Steering Committee for Nuclear Energy took note of document NE(86)13 regarding the problem raised by the foreseeable changes in the work of the NEA Data Bank and requested the Secretariat, "in collaboration with the Data Bank's Study Group to formulate concrete proposals for a changing role of the Data Bank, as well as supporting cost estimates, for consideration at its next meeting". In response to this request, the Secretariat closely examined the anticipated needs of the Agency for scientific and information storage services to satisfy the urgent requests of all its Member countries. Moreover, this subject was discussed during a meeting of the Working Group of the Data Bank Committee on 17th October 1986. On this basis, the following proposals are submitted to the Steering Committee and have also been sent to the Data Bank Committee so that their advice can be communicated to the Steering Committee in a timely fashion. A meeting of the Data Bank Committee will be held on 23rd-24th April 1987.

2. The general approach agreed upon by the Secretariat can be summarised as follows:

- a) The traditional services provided by the Data Bank in the fields of computer programs and neutron data to users in participating countries continue to be of real value. However, they are gradually decreasing in priority, bearing in mind the present and future principal nuclear energy concerns of the OECD countries as a whole and the budget constraints imposed upon the Organisation.
- b) The progress shown by the Data Bank through improved work methods and better organised services have led to increased productivity. Therefore, savings on staff resources could be applied first to the field of exchanges of computer programs and later to that of neutron data, once the Joint Evaluated File project (JEF-2) has been completed.

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- c) The evolution of the Agency's programme of work in such high priority areas as reactor safety analysis and accident consequences, as well as the evolution of radioactive waste disposal systems, require the development, organisation and handling of large, complex data bases by computer, as well as the collection, testing and distribution of computer programs.
- d) The NEA Data Bank's computer infrastructure and scientific potential could easily be adapted to provide the type of services indispensable for the Agency's nuclear safety and radioactive waste management programmes.⁽¹⁾ On the other hand, the plans for development of computing services within OECD are naturally oriented towards economics and statistical applications, and make no provision for supporting NEA's scientific activities.
- e) A flexible reorientation of the Data Bank work could be made along these lines based on:
 - increased productivity at the Data Bank to permit immediate resource savings in performing its traditional tasks while maintaining the programme already approved for 1987 at the same level;
 - a precise definition of those NEA computer-based programmes in the field of nuclear safety, radioactive waste management and economic studies during 1987-1989, with a corresponding estimate of the minimum resources needed year by year for computer services.
- f) The proposed reorientation assumes:
 - a possible adjustment of the supervision structure of the Data Bank, i.e., a review of the organisation and role of the Data Bank Committee;
 - a reorganisation of the internal structure of the Data Bank;
 - the financing of the cost of Data Bank services to the "computerised" parts of the NEA work programme, by all NEA countries;
 - a relatively modest increase in the Data Bank budget. The resources absorbed by the computer-based component of NEA's programme will be to a very large extent compensated by savings made in the traditional scientific activities.
- g) No additional resources will be available to the Data Bank in 1987 (except for the remainder of the ISIRS budget, as shown later in Table A, paragraph 26). The first stage of internal reorganisation should be quickly carried out so as to allow work on the construction of data bases for nuclear safety and radioactive waste management to advance in the interim, until new resources can be made available. At the same time, the quality and volume of scientific services provided to Data Bank users should be maintained.

(1) This conclusion has been fully confirmed by more than one year's experience, on a limited basis, with the use of the Data Bank computers and staff to develop and run radioactive waste management data bases.

II. SUGGESTED ACTIONS FOR THE STEERING COMMITTEE

3. After this document and comments on it, notably by the Data Bank Committee, have been reviewed, it is suggested that the Steering Committee should first address:

- the reorientation proposed in Sections III to V, particularly its validity in terms of the Agency's evolving priorities;
- the adjustment of the corresponding resources and their use, as well as the internal reorganisation of the Data Bank (Section VI);
- the methods of financing described in Section VII.

4. If the Committee agrees to these three proposals, it should:

- i) recommend their adoption by the Secretary General and the Council, when the main lines of the programme of work for 1988 are discussed.
- ii) authorise the Director General to take the necessary measures within the Data Bank to organise the work to be undertaken from May to December 1987 (see paragraph 19 and Table D);
- iii) request the Secretariat to complete the task of defining the work and estimating expenditures (taking into account any comments made during the meeting) to integrate them into the 1988 Programme/Budget;
- iv) take step to possibly review the membership and role of the Data Bank Committee as well as the mandate of the Data Bank (Section VIII).

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III. CHANGING NEED FOR COMPUTER TECHNOLOGY SUPPORT IN NUCLEAR ENERGY

5. At its meeting in October 1986, the Data Bank Committee's Working Party examined the Data Bank's role in neutron data and computer program services. This would continue in modified form alongside work in the new areas under discussion. Both would be affected by changes in computer techniques. The major influences were likely to be developments in data base technology, communications between computers (with associated problems of security of data and programs) and the extensive use of Fourth Generation programming and data base techniques to make the Data Bank's services more easily applicable to the new areas of work. Large computers would make increasing use of parallel processing.

6. The level of programming activity to be expected in the nuclear industry over the next decade is difficult to estimate. However, a viable nuclear energy enterprise must advance its information techniques in accordance with the technology of the day. The Data Bank's change in direction comes at a time of rapid technical change, with greater use of powerful workstations for calculations by individual users, increased facility of data and program transport via network across both national and computer system boundaries, and more widespread use of supercomputers.

7. In such an environment, the Data Bank will need to stand out by the high quality of the programs and data offered to its users. There is a clear need for a Quality Assurance centre, which would have a growing international role as a repository of certified programs and data. The Data Bank, in view of its experience and method of working as a service-based organisation, would be well placed to act as such a centre.

8. This concept has in fact already been identified within the shielding and reactor physics communities and the Joint Evaluated File project (JEF) provides a good example of this kind of role. The Working Party further noted that the ready availability of properly quality-assured programs and data on a worldwide basis would lead to generally safer nuclear industry development.

9. The proposed work in Radioactive Waste Management, and with the Incident Reporting System were welcomed as highly relevant areas into which the Data Bank's work should develop. The proposals for establishing a safety codes validation matrix, appeared as naturally in line with the concept of a Quality Assurance centre.

IV. TRENDS IN THE DATA BANK'S SCIENTIFIC SERVICES, AND THE SCOPE FOR POTENTIAL SAVINGS

A. Nuclear Data Services

10. The main demand for nuclear data has stemmed historically from the development of fission reactors. Among the many fields of application for these data, only the fission and fusion energy programs have generated funds to support measurements, and the level of activity in nuclear data production can be expected to follow that of continuing work in nuclear power development. Thus the number of new neutron physics measurements published in 1985 was about one third of that for 1970. However, the volume of data produced each year and entered in the Data Bank's files has fallen more slowly.

11. These new data are of little use to reactor designers and engineers until they have been incorporated into evaluated data libraries whose quality has been thoroughly tested against standard benchmarks. The JEF project is an example of this process, and is scheduled for completion at the Data Bank in 1988, though large-scale benchmark testing of JEF-2 will continue in national laboratories through 1989. Requests for data by scientists in Member countries have remained steady in numbers over the last six years, while user interest has shifted from experiments to evaluated data and the volume of data sent out has increased sharply since the first version of JEF became available.

12. Future trends. Nuclear data measurement work has been regrouped in a limited number of laboratories in the OECD area, and may be expected to stabilise at about the current level. After JEF-2, and a new U.S. file, ENDF/B-VI, it is likely that viable further evaluation projects can only be carried out on an 'all-NEA' or world scale. User demand is expected to remain strong, particularly for evaluated data of assured quality and the multi-group cross-section data derived from them for use as input to nuclear energy calculations.

13. Investment over time in the basic nuclear data measurements now stored at the Data Bank has been enormous, several hundred million dollars since 1945, and it is essential to maintain availability of these data. Of more immediate impact is the need to compile new experimental data, to maintain the JEF-2 file, and to secure continued access to later evaluations for Member countries by promoting and participating in a broad-based long term international evaluation effort.

B. Computer program services

14. The Data Bank collects, tests and distributes computer programs on all topics relevant to nuclear energy. Approximately 100 programs per year are tested for inclusion in their collection, at the request of users. All such users have been registered only after nomination by their national representative on the Data Bank Committee, and may be considered as representative of national programs in the nuclear field: thus the topics covered in the program collection are rather closely linked to the emphasis of work in Member countries. In 1986, about 35% of the programs sent out covered problems in Safety and Waste Management.

15. The number of programs sent out has risen since the establishment of the Data Bank to between 1200 and 1300 per year. Arrangements for program exchange with U.S. centres and the IAEA give Member countries access to a world collection of programs in the nuclear field, and it seems very important to preserve this access and ensure that as many as possible of the best new computer codes continue to be included in the collection. A growing number of important new codes, or new versions of existing codes, are available only against payment, or in return for taking part in their validation.

16. The changing context. Over recent years computers have become increasingly easier to use, with a greater uniformity in the language used for scientific computing. It is intended to concentrate on the quality of the programs to be handled, rather than on their more mechanical aspects. A small number of the more important new programs will be rigorously tested: programs for large finite element calculations in structural integrity and heat transfer, or for fuel element integrity and criticality, are examples. In consequence, it will be necessary to limit the manpower expended in testing the remaining codes collected. This will be further automatised, using the Program Testing System (PTS) software, developed at the Data Bank in 1985-86. In many cases, programs will be distributed 'as is' after relatively superficial screening with appropriate software tools.

C. Savings on scientific services, 1987-89

17. Over the past few years, OECD countries have gradually reduced their expenditure on research and development in nuclear reactor physics and associated activities in nuclear data determination. Demands on the Data Bank have on the contrary shown an increase as scientists and engineers in Member countries have made better use of available information through the central services it provides, and as the JEF project has focused and coordinated the limited data evaluation effort in the countries taking part. For both computer programs and data, a contrast is observed between a decreasing rate of production of new programs and data, and a steady or increasing demand for the Data Bank's user services.

18. In order to continue the Data Bank's work at a high standard in this area, working methods must be further rationalised to the greatest possible extent, using the range of software tools available (good data base management systems, with the Program Testing System and 'tool kits' for program verification). Moreover, it is now becoming practical to make wider use of computer networking for customer service and communication. At some cost in loading of the in-house computer, on-line services will be implemented to allow accredited users a greater role in selecting programs and data for subsequent transmission to them by post or network. This is expected to reduce the burden on scientific staff of 'filtering' user requests.

19. Reduction in manpower levels for scientific services will be possible in two stages:

- As from May 1987, supervision of all traditional services will be combined under a single A4 (Deputy Head of the Data Bank) rather than two A4s as at present. Completion of PTS development and the savings expected through its use, will release one programmer, while 6 man.months can be saved by concentrating responsibility for customer service on a single scientist. A manpower corresponding to two and a half posts could therefore be devoted to new activities.
- In 1989, on completion of the JEF project, it is proposed to hold participation in a future worldwide evaluation effort down to a token level, so that two further posts can be freed for other work in response to the change in priorities.

V. NEW COMPUTER-BASED PROGRAMMES

A. Radioactive Waste Management

20. The need for new computer-based activities and a description of these activities was presented to the Radioactive Waste Management Committee (RWMC) and its sub-committees [RWM/Doc (86)6] after review by a group of qualified consultants from the most advanced countries. The RWMC Bureau was also consulted and agreed in principle with the proposals submitted. Furthermore, they will be reviewed in detail by the Performance Assessment Advisory Group (PAAG), whose conclusions will be transmitted to the Steering Committee at the end of March in an addendum to this document.

21. The present RWMC programme gives the highest priority to activities relating to long-term performance assessment of disposal systems. Given the need to rely on the most advanced predictive modelling techniques, the use of models, computer codes and computerised data bases is essential. The NEA sponsors and co-ordinates several projects in this area, such as the ISIRS Project which is a compilation of data on the sorption of radionuclides by different geologic media, the Thermodynamic Data Base (TDB), which concerns at the moment, ten elements selected according to their importance from a waste management point of view, and the support for the activities of the PSAC Group (Probabilistic Systems Assessment Codes Users Group) particularly with regard to the development of a library of computer modules used in the group's work.

22. The whole area of long-term performance assessment of disposal systems is presently under rapid development. The NEA plays an important role at the international level: on the one hand, by building a consensus on the basic characteristics of these assessments, thanks to the PAAG, and, on the other hand, by providing specific support such as data bases and computer programs arising directly from this search for consensus at the international level. Such support activities are particularly attractive because their credibility has been generally enhanced by the fact that they have been verified and sometimes validated in the context of international assessments and comparisons.

23. It should be stressed that the NEA does not intend to participate actively in the scientific research and development underlying these activities, but rather will act as a catalyst and co-ordinator for the efforts of Member countries. Access to integrated NEA Data Bank services which provide computer-based tools evaluated at the international level are of considerable interest compared to purely national activities. Such services, in fact constitute a complementary and logical extension to national efforts and to the more traditional activities of the NEA in the field of radioactive waste. They will, of course, require close co-operation between the NEA staff and the Data Bank staff.

24. The different scientific areas described below are already included in the programme or are planned for; the order of their presentation reflects their respective short-term priority:

- i) Chemistry, including the ongoing Thermochemical Data Base and the related geochemical computer codes. Several years of effort will be necessary to develop a thermodynamic data base adequate for long-term assessments;
- ii) Probabilistic Safety Assessment Codes and related problems. The increasing demand in this field can only be met by increased resources, particularly for PSAC Group activities.
- iii) Sorption chemistry and modelling (particularly Project ISIRS). The priority to be given these activities is somewhat controversial, although the use of data of the type found in ISIRS is still widespread. In the short term (1987-1988), the ISIRS data base deserves to be expanded in certain specific areas. The ISIRS system could then be maintained without the need for significant resources.
- iv) Near-field chemistry including near-field source term modelling codes. This is a particularly important area of research where significant developments are expected in the next few years and where NEA has been invited to make its contribution.
- v) Hydrological and nuclide transport modelling. Progressive strengthening of activities in this area is considered essential.

25. In practice, Data Bank services in these different areas would include:

- the systematic collection, testing, documentation, updating and specific distribution of codes and data bases in priority areas;
- a service function to facilitate the adjustment of these codes and data bases for use on different types of computers;
- an advisory function as to the applicability and mode of use of these codes and data bases under practical circumstances;
- the organisation of workshops, courses and training activities associated with the use of selected codes in different areas;
- the organisation and technical co-ordination of international scientific comparison or benchmark exercises, or of users groups for computer codes;
- all other kinds of assistance to Member country scientists who want to use the codes and data bases available through the NEA.

26. An estimate of the resources needed to initiate these activities over the next few years is given in the following table.

Table A

Data Bank resources/needs
for radioactive waste management

(in man/months of professional level personnel (Grade A)
directly attributable to these functions)

Task	1986	1987	1988	1989	Comments
i) Thermodynamics data base and geo-chemical modelling codes	12	16	24	24	<u>Two geochemists</u> , starting in 1988 to accelerate data base development, follow the associated code assessment and provide needed services
ii) Probabilistic Safety Assessment and PSCA Group Support	4	6	12	14	A <u>full-time scientist</u> starting in 1988
iii) ISIRS, sorption chemistry and modelling	2	10	6	6	The budget for the ISIRS Project, which is financed until June 1987, will have sufficient funds remaining to pay for <u>10 man/months</u> in 1987 (of which 8 are consultant/months). Beyond that date, needs will be limited.
iv) Near-field chemistry	-	-	4	10)Areas where important)developments are expected)later, including the)organisation of international)verification and validation)exercises.)
v) Hydrology and radionuclide transport	-	-	2	6	
TOTAL	18	32	48	60	

B. Nuclear Safety

1) The NEA-Incident Reporting System (IRS) Data Base

27. The NEA-IRS was first established in January 1980 in order to facilitate feedback of operating experience in nuclear power plants to regulatory authorities in Member countries. The objective of the IRS is, firstly, to alert regulators and operators in Member countries about shortcomings detected elsewhere and, secondly, to identify weaknesses in plant design and operation with the view to preventing mishaps from recurring and to point out possible improvements. To date some 900 incident reports have been circulated through the IRS. NEA also acts as a clearinghouse for exchange of incident reports between NEA and IAEA. Since 1982 the incident reports circulated under the NEA-IRS have been stored in a computer file operated by the CEC in Ispra, based on their Abnormal Occurrence Reporting System (AORS).

28. The Chernobyl accident has underlined the importance of learning from operating experience. An essential element in this process is not only the exchange of incident reports but also to analyse their meaning. The Committee on the Safety of Nuclear Installations (CSNI) has decided to strengthen the NEA Incident Reporting System, notably by developing an improved computerized data base on nuclear incidents. Review by experts has indicated that considerable upgrading of the data base is required to enable joint analytical efforts. Changes concern the preparation and coding of reports as well as input quality control and search procedures, including a preparation of the data base for computerized analysis. The NEA Secretariat has undertaken to assure these improvements and new analytical activities, and has devoted to this activity the major part of the additional resources available for nuclear safety after Chernobyl.

1i) Data base for the reactor safety code validation matrix

29. Following discussions in the CSNI Principal Working Group on Reactor Transients and Breaks, it is proposed to install a data base for the CSNI code validation matrix*. As a first step, countries having agreed to release their experimental data will be asked to provide information on the form in which these data are available (analogue tape, digital tape, hard copy plots, reports).

30. The first objective is to have the data of all tests of the matrix (about 70 for PWR, about 50 for BWR) stored at a central place. This will considerably improve the code assessment work and the application of the validation matrix: Users request all data they need from one central location, and the laboratory providing the data deals with only one request from the Data Bank. The second objective is to standardise these data in order to provide them to the user in a format compatible with the user's computer.

* This matrix defines a minimum set of relevant experiments required to validate codes for use in reactor safety analysis.

iii) Data bases on materials properties and vessel and piping performance

31. The Principal Working Group on Primary Circuit Integrity has under consideration a computerised data base on reactor pressure vessel toughness properties (RPSTP). Generally available software would be used and the role of the NEA Data Bank would be to archive and distribute data provided by users (input and distribution by floppy disc or packet switching telephone, at users' expense).

32. The data bases for probabilistic assessment of pipe leakage and failure in nuclear power plants would be improved. This would require the systematic availability of data on primary and secondary circuit piping. The data bases will assist Member countries in their evaluation of primary and secondary system integrity.

Table B

Data Bank resources/needs
for nuclear safety

(in man/months of professional level personnel (Grade A)
directly attributable to these functions)

Subject	1986	1987	1988	1989	Comments
1) IRS	5	12	12	12	Reactor engineer or physicist with very good knowledge of electronic data handling
11) Code Validation Matrix and Materials Properties	1	12	12	24	Physicist or engineer experienced in data processing and signal analysis
TOTAL	6	24	24	36	

VI. EVOLUTION IN THE DATA BANK'S REQUIREMENTS AND CHANGES IN ITS INTERNAL STRUCTURE

33. The following Tables provide an analysis and estimates of the evolution of resources of the Data Bank over the period 1986-89 together with the corresponding organisation charts. The information given for 1986 reflects the interim arrangements which have been made for initiating the provision of support services to the Agency on a modest scale. The data for 1987 include the reorganisation indicated in paragraph 19 above, which would enable continuity in the work on the building up and operation of support services. The estimates of expenditures proposed for 1988 and 1989 are based on the assumption that rapid progress can continue to be made in this direction while maintaining scientific services at the level required both in qualitative and quantitative terms. This implies that the proposals in the present document will be approved in time for implementation within the framework of the 1988 programme of work. The figures given for 1989 are tentative but in view of the planned evolution of the programme, the total budget will not be higher than in 1988, due to economies following completion of the work on JEF. After 1989, the resources requirements both for scientific services and for support services to the Agency are expected to remain at a stable level, but it would be difficult to provide an estimation at this stage.

34. The evaluation of professional staff requirements for the various tasks in radioactive waste management and nuclear safety, as detailed in Tables A and B above, has been made on the basis of the experience gained up to now in working with the Data Bank and in consultation with experts in data handling techniques in the relevant areas. The expenditures have been estimated following the standards used by the Organisation and are presented in a simplified form with the purpose of giving the Steering Committee a clear view of the amounts involved. At this stage, the figures provided should not be seen as budgetary data.

Table C
Manpower Requirements by Sector
 (in man.months)

Sectors[1]		1986	1987	1988	1989
<u>Personnel</u>					
<u>A Grades</u>	a	70	56	48	42
*Consultant ISIRS	b	75	66	62	42
**2 A2/A3 posts in	c	18	26+8*	54	66
the new areas	d	5	20	28	42
proposed for 1988	e	-	-	-	-
		168	168+8*	192**	192
<u>Computing Staff</u>					
<u>B Grades</u>	a	29	22	18	15
***1 B5 programmer	b	31	26	22	15
post is proposed	c	7	13	18	30
for 1989	d	2	8	11	21
	e	3	3	3	3
		72	72	72	84***
<u>Supporting Staff</u>	All sectors	72	72	72	72

Notes: The work of the Head of the Data Bank and of the Systems Manager is distributed in proportion to the number of man.months assigned to each specific activity. See the organigrams for the four years in Table D.

For 1987, the current establishment is maintained (168 man.months of professional staff); the sharing of staff among sectors takes into account the reorganisation proposed as from May 1987. The figures for 1989 include two additional A2/A3 posts proposed for assignment to Safety and Radioactive Waste Management work, while an additional B5 programmer is proposed for 1989.

[1] Sectors: a nuclear data services
 b computer program services
 c radioactive waste management
 d nuclear safety
 e economic studies

Table D

Structure and Redeployment of Data Bank Staff 1987-89

1986

1 Head of Data Bank A5

Data Services	Systems Manager	Program Services	Help to NEA
1 Deputy A4 4 1/2 A2/A3	1 A2/A3	1 Deputy A4 4 A2/A3	1 1/2 A2/A3

Total: 168 man.months.

1987 (May-December)

1 Head of Data Bank A5

Scientific Services	Systems Manager	Waste Management	Nuclear Safety
1 Deputy A4 7 A2/A3* *includes service to NEACRP/NDC	1 A2/A3	2 A2/A3 1 Consultant (8 months)	2 A2/A3

Total: 168 man.months, plus 8 months consultancy from the ISIRS budget.

1988

1 Head of Data Bank A5

Scientific Services	Systems Manager	Waste Management	Nuclear Safety
1 Deputy A4 7 A2/A3	1 A2/A3	4 A2/A3	2 A2/A3

Total: 192 man.months (2 A2/A3 posts are proposed for 1988).

1989

1 Head of Data Bank A5

1 Deputy A4			
Scientific Services	Systems Manager	Waste Management	Nuclear Safety
5 A2/A3	1 A2/A3	5 A2/A3	3 A2/A3

Total: 192 man.months.

Table E

Cost Estimates (Indicative)
(in French francs at 1987 prices)

Sector	1986*	1987	1988	1989
<u>Staff Expenditures</u>				
a)				
b)	8 328 000	6 906 250	5 910 000	4 492 000
c)				
d)	1 422 000	2 843 750	4 662 000	6 383 000
e)				
<u>Computer Costs</u>				
a)				
b)	4 523 000	3 664 000	3 136 000	2 080 000
c)				
d)	773 000	1 509 000	2 634 000	3 387 000
e)				
<u>Other Expenditures</u>				
a))	
b))1 489 000	1 131 000
c)	2 818 000	2 779 200)	
d))1 269 000	1 627 000
e))	
	17 864 000	17 702 200**	19 100 000	19 100 000

* To simplify the comparison, appropriations for 1986 have been recalculated in 1987 francs.

** Total allocation approved by the Steering Committee and the Council.

VII. FINANCING DATA BANK WORK

35. If the Steering Committee - including the representatives of countries participating in the Data Bank - approve the reorientation of the future priorities of the Data Bank toward a progressive reduction of effort devoted to its traditional scientific tasks, and an increase, on a permanent basis, of support services for other Agency activities, it would be logical to envisage the following financial plan:

- countries participating in the Data Bank would continue to meet the total costs of the activities related to neutron data and computer programs, according to the scale applicable at the present time (taking into account slight annual variations in the OECD scale set up by the Council);
- all NEA Member countries (including those participating in the Data Bank) would pay for support services to the Agency according to the scale used for its budget.

36. The two above-mentioned scales, as adopted by the Council for 1987 [document C(87)17 Final] are reprinted in Table F. According to this Table and the financial estimates given in Section VI above:

- the contribution to be paid in 1988 by all the countries participating in the Data Bank for the traditional scientific tasks will be approximately FF 10.5 million*, compared to FF 17.7 million in 1987 (in real 1987 terms);
- all NEA Member countries will pay for the cost of support services for the Agency, which for 1988 will be 8,565,000 FF** (in real 1987 terms), according to the scale used for the Agency's budget;
- for the countries participating in the Data Bank, this latter contribution will be approximately 5.7 million FF (in real 1987 terms) and will be added to the sum given in the first sub-paragraph above, for a total of approximately 16.25 million FF, slightly less, in real terms, than the Data Bank budget for 1987, due to the savings realised from the traditional scientific tasks;
- for the countries which do not participate in the Data Bank, their 1988 contribution for support services will be approximately 2.9 million FF (in real 1987 terms), which will be added to their present Agency contribution.

Table F below illustrates, for each country, the 1988 budgetary results of the proposed reorientation (using provisionally the 1987 scales).

$$* \quad 5.910.000 + 3.136.000 + 1.489.000 = 10.535.000 \text{ F.F.}$$

$$** \quad 4.662.000 + 2.634.000 + 1.269.000 = 8.565.000 \text{ F.F.}$$

37. In view of this financial structure, budgetary methods should be determined in consultation with the various capitals, but they seem to pose no particularly difficult problems. The requests for contributions will, in any case, be made by OECD. It would no doubt be easier for the countries which participate in the Data Bank to continue to make their entire contribution part of the Data Bank budget. For the contributions of the countries which do not participate in the Data Bank, it would seem possible to create an additional line in the NEA budget, to reimburse the Data Bank for their share of the cost of these support services. Other methods could also be devised, for example a voluntary contribution to some special programme.

Table F

Contributions to the Data Bank budget
for 1988 (estimated)
 (Scale C(87)17 Final and Expenditure estimate from Table E)
 in 1987 F.F.

Countries	Scale N E A	% D. B.	Estimates of Scientific Services	expenditures Additional Services	Total contributions
A.					
Austria	1.02	1.71	180 149	87 363	267 512
Belgium	1.29	2.15	226 503	110 489	336 992
Denmark	0.82	1.38	145 383	70 233	215 616
France	7.96	13.31	1 402 209	681 774	2 083 983
Finland	0.81	1.38	143 276	69 377	212 653
Germany, F.R.	10.29	17.21	1 813 074	881 239	2 694 313
Italy	5.80	9.70	1 021 895	496 770	1 518 665
Japan	21.35	25.00	2 633 750	1 828 628	4 462 378
Norway	0.87	1.48	153 811	74 515	228 326
Netherlands	2.11	3.53	371 886	180 722	552 608
Portugal	0.30	0.49	51 620	25 695	77 315
Spain	2.61	4.37	460 380	223 547	683 927
Sweden	1.51	2.52	265 482	129 390	394 872
Switzerland	1.71	2.85	300 248	146 460	446 708
Turkey	0.79	1.32	139 060	67 664	206 724
U.K.	6.96	11.64	1 226 274	596 124	1 822 398
Total A	66.20	100.00	10 535 000	5 670 030	16 250 030
B.					
Australia	2.51			214 982	
Canada	5.31			454 802	
Greece	0.53			45 394	
Ireland	0.25			21 412	
Iceland	0.10			8 565	
Luxembourg	0.10			8 565	
U.S.	25.00			2 141 250	
Total B	33.80	--	--	2 894 970	
TOTAL GENERAL	100.00	--	--	8 565 000	19 100 000

A. Countries participating in the Data Bank.

B. Countries not participating in the Data Bank.

VIII. SUPERVISION AND TERMS OF REFERENCE OF THE DATA BANK

38. The present Data Bank Management Committee is made up of one or more delegates from each of the sixteen Participating countries. Several countries send two members, usually representing national programmes in nuclear data and in reactor physics and computing. The European Communities and IAEA are similarly represented, and in fact several of the delegates are also members of NEACRP and NEANDC. This arrangement has proved beneficial throughout, in view of the roles of NEACRP and NEANDC in co-ordinating national programmes in precisely the areas of work covered by the Data Bank's services.

39. It is now proposed to consider whether the composition, the structure and the role of the Data Bank Committee should be modified with a view to maintain the representation of the interest of the countries participating in the Data Bank in the supervision of the scientific programme of the Data Bank in nuclear data and reactor physics, while taking into account the operation of new services in support to work carried out under the technical responsibilities of RWMC and CSNI.

40. The existing Terms of Reference for the NEA Data Bank [attached NE(77)28 Annex] are drawn rather widely, and may continue to provide an adequate framework for the expanded programme of work. Slight modifications may however be required to better accommodate the responsibilities regarding the new sectors of work.

ANNEXTERMS OF REFERENCE FOR THE NEA DATA BANK

The principal justification for creation of the proposed NEA Data Bank in succession to the two existing Centres is that the complementarity of the professional resources needed to operate CPL and CCDN means that their combination will create a service potential considerably greater than could be provided by continued separate operation of these two existing Centres. The Data Bank will be better able to respond to the changing needs of the future and in the longer term its potential should be realised by the provision and development not only of direct services to Member countries, but also of data and computing support in relation to the wider field of activities carried out within the NEA programme.

The Terms of Reference proposed are:

1. The NEA Data Bank should undertake the collection, validation and dissemination of computer programs and scientific and technical data within the Agency's field of interest. It should be under the direction of a Management Committee representative of the participating countries. The Management Committee should determine the future programme of work of the Data Bank on an annual basis, having regard to the activities of other organisations, and submit programme and budget recommendations to the Steering Committee.
2. In particular, the Data Bank should:
 - (i) Assume responsibility for the work in compiling, validating and distributing nuclear data and computer programs for nuclear technology previously assigned to CCDN and CPL. This comprises compilation, validation, exchange with data centres outside the OECD group of countries, and dissemination within Member countries of bibliographic and numerical nuclear data (including evaluated data) and computer programs for nuclear technology;

- (ii) Provide for the continued development of these services to nuclear science and industry in Member countries, notably the collation and analysis of user experience with computer programs in the nuclear field;
 - (iii) take over the relations with external organisations with which CPL and CCN are currently involved;
 - (iv) Maintain the necessary expertise and contact with advanced development in computing and scientific information;
 - (v) Organise seminars in fields of interest to the community of scientists and technologists using its services and, as necessary, in areas of computing and scientific information techniques relevant to the operation of the Data Bank itself.
- 3 Having due regard to the availability of resources and maintenance of approved services, and as may be determined by the Management Committee from time to time, the Data Bank may:
- (i) Provide support to other parts of the Agency's activities (e.g. by compilation and dissemination of data, or computer modelling and benchmark studies, in such fields as Nuclear Safety, Radioactive Waste Management, and Nuclear Fuel Cycle studies);
 - (ii) Fulfil such other functions in the nuclear information field as may be determined, for example the compilation and dissemination of data and computer programs relevant to nuclear fusion power development,