International co-operation towards development through fellowship training

A review of fellowship training as a gift-in-kind contribution to the IAEA

by Michael F. L'Annunziata

Each year Member States request support of the IAEA for specific development projects.* These are IAEA technical co-operation projects which, if successful, should have an important impact on the overall development in a country or region. Projects must have peaceful objectives in a nuclear field, such as nuclear physics, nuclear engineering and technology, and nuclear safety, or in fields which may require nuclear techniques such as medicine, agriculture, hydrology, biology, chemistry, and industrial applications. Fellowship training in these fields with a view towards human resources development comprises an important part of every project. This is dealt with in detail later in this article.

The IAEA provides support to projects which can have an important impact on the technological and/or economic development of the recipient Member State. Some large-scale projects of major success were cited by IAEA Director General Hans Blix in a talk on the peaceful uses of nuclear energy at the Institute of Strategic and International Studies, Kuala Lumpur, Malaysia on 14 January 1988. Among these projects, the Director General mentioned radiation induced mutation plant breeding in China, which has produced many new crop varieties with improved yields. From the higher yielding crop varieties alone, the direct economic gain from cultivation was estimated to have reached US $1.5 billion in 1984. Another project enumerated by the Director General was one intended to eradicate the Mediterranean fruit fly in Mexico through the utilization of radiation to sterilize flies and thereby prevent or reduce propagation of the species. After over half a decade of work and at a cost of US $100 million, this project now provides an estimated additional revenue of US $500 million annually.

Most IAEA-supported projects are not carried out on such a grand scale; however, all should have a vital link to the development process in a country. A few examples of hundreds of such projects are the establishment of a nuclear medicine facility in Mali which provides vital services to the population in medical diagnosis and treatment; the radiation sterilization of medical supplies in Thailand; and research and training in nuclear safety in the Republic of Korea concerning nuclear reactor design, operation, and accident prevention.

Projects selected by each Member State are those to which their Government is committed and to which the Government places a high priority in its development programme. Recipient Governments request support of the IAEA, therefore, only for projects to which they are already committed and to which assistance from the IAEA would provide the input needed to launch and sometimes strengthen the programme to become self-sustaining whenever the assistance is discontinued.

More than 400 projects with over 80 Member States are approved for IAEA support each year. These projects contain three components, namely experts, equipment, and fellowships. IAEA fellowships are grants which provide the recipients or fellows with a suitable training programme in a host country for periods of up to 12 months. Short fellowships of less than one month duration are referred to as scientific visits. The fellowship should broaden the recipient's professional knowledge and operational experience needed to support the implementation of technical co-operation projects with the IAEA or projects of major importance at the national level in the fellow's country. Fellowship training is provided as an important and generally vital component of projects. The training is often programmed in conjunction with the provision of

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* As of 1989, support for projects will be provided on a biennial basis.

equipment and expert visits. The people and their proper training is the most valuable resource of any country. The best equipment and the most qualified experts might be provided for the implementation of a project; however, without persons properly trained and working on these projects, such inputs can be meaningless and wasted.

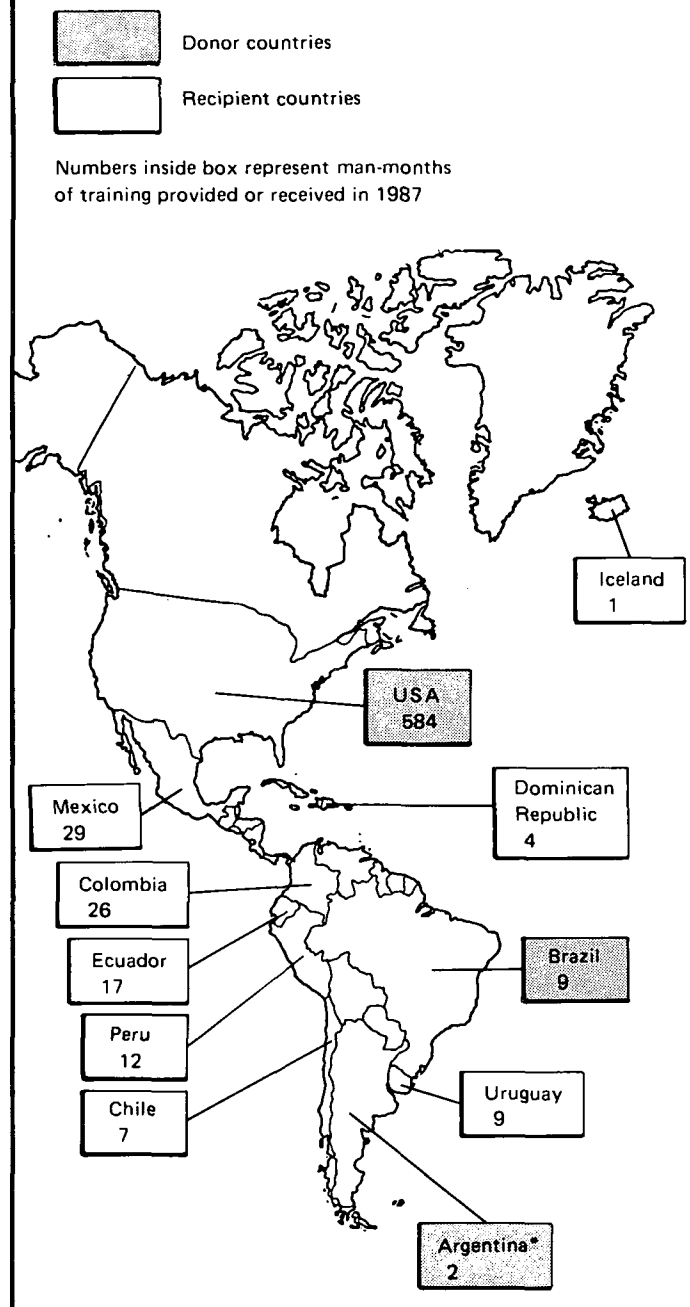
The impact of equipment and experts can be shorter lived and have a more narrow scope than the provision of trained personnel in a well-planned programme of human resources development. A properly trained person can be of long-lasting benefit in national projects. An IAEA fellow, if properly trained and the right person, will act as a catalyst in his or her country, grow in effectiveness, and will, in turn, train other less-qualified persons. For the most part, fellowship training is provided to persons working in projects approved and supported by the IAEA Technical Assistance and Co-operation Programme. Many Member States submit candidates for fellowships through a selection panel at the national level before any nominations are made to the IAEA. This measure helps Member States screen candidates properly for their technical and language qualifications and the proper relation of their training to the implementation of technical co-operation projects with the IAEA.

Fellowships as gift-in-kind contributions

Over 1000 fellowships were awarded in 1987. These were financed from IAEA funds (known as Type-I fellowships) or the training was provided as gift-in-kind contributions from Member States (known as Type-II fellowships). The contributions involved in Type-II fellowships generally consist of a stipend paid to the fellow by the host country at a rate established by it. The stipend is paid by the host country to cover the fellow's local expenses during his or her training in the donor country. Funds used to support these fellowships are never deposited into the accounts of the IAEA. The funds are paid always to the fellow to provide for his or her accommodation, board, and incidental expenses. For fellowships hosted in the USA, the Type-II contribution also provides the air ticket and covers any other fellowship expense. Some host countries provide the fellow with a stipend equivalent to that set by the United Nations; others provide a stipend rate established by the host country authorities. This is, therefore, an in-kind contribution made to the IAEA by a Member State in support of IAEA technical co-operation projects. In this way, the donor country may provide the training on a cost-free basis.

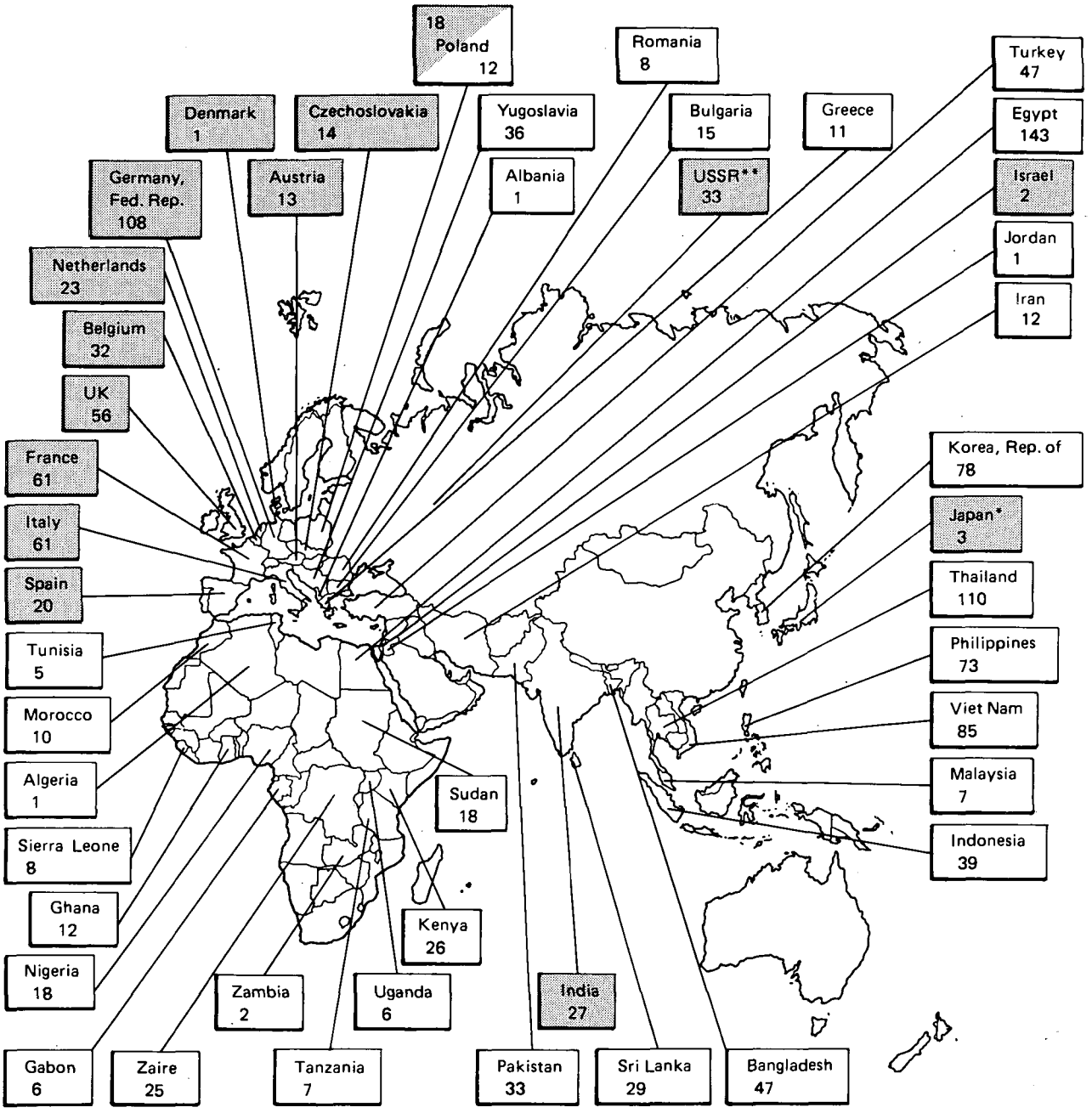
Sixteen Member States, as donor countries, provided these Type-II (gift-in-kind) fellowships in 1987 comprising a total of 1035 man-months of cost-free training. This contribution amounted to nearly 23% of the entire fellowship programme in 1987. A total of 41 countries from all regions of the world received fellowships which were gift-in-kind contributions from Member States.

1987 Gift-in-kind fellowships:



Member States which did not receive these gift-in-kind fellowship contributions were provided with fellowships financed by the IAEA. In all during 1987, more than 4538 man-months of fellowship training were provided to 1030 fellows from 73 Member States of the IAEA from all regions of the world. The number of fellowships awarded to any particular Member State depends mainly on the number of technical co-operation projects a country may have approved for IAEA support and the training needs of those projects. Fellowship

Donor and recipient countries



** From IAEA's non-convertible currency account; can be considered as a pseudo Type-II.

awards are granted to provide the training needed to reach the objectives of technical co-operation projects geared for development. The qualifications of the candidate and the needs of the country for the particular type of training requested come into play when decisions are taken by the IAEA to award fellowships.

The needs of developing Member States for training are great. Many requests for fellowship training are received by the IAEA, and less than half of these can be awarded due to financial constraints of the programme. Therefore, the selection process must be performed carefully with a clear assessment of the qualifications of the candidate and the needs of his or her country or the needs of the particular technical co-operation projects within which the candidate may be working. The selection process is a complicated one involving several persons and departments of the IAEA, persons with expertise in the field of training requested, and persons with a good knowledge of the development needs of the recipient country in fields involving peaceful applica-

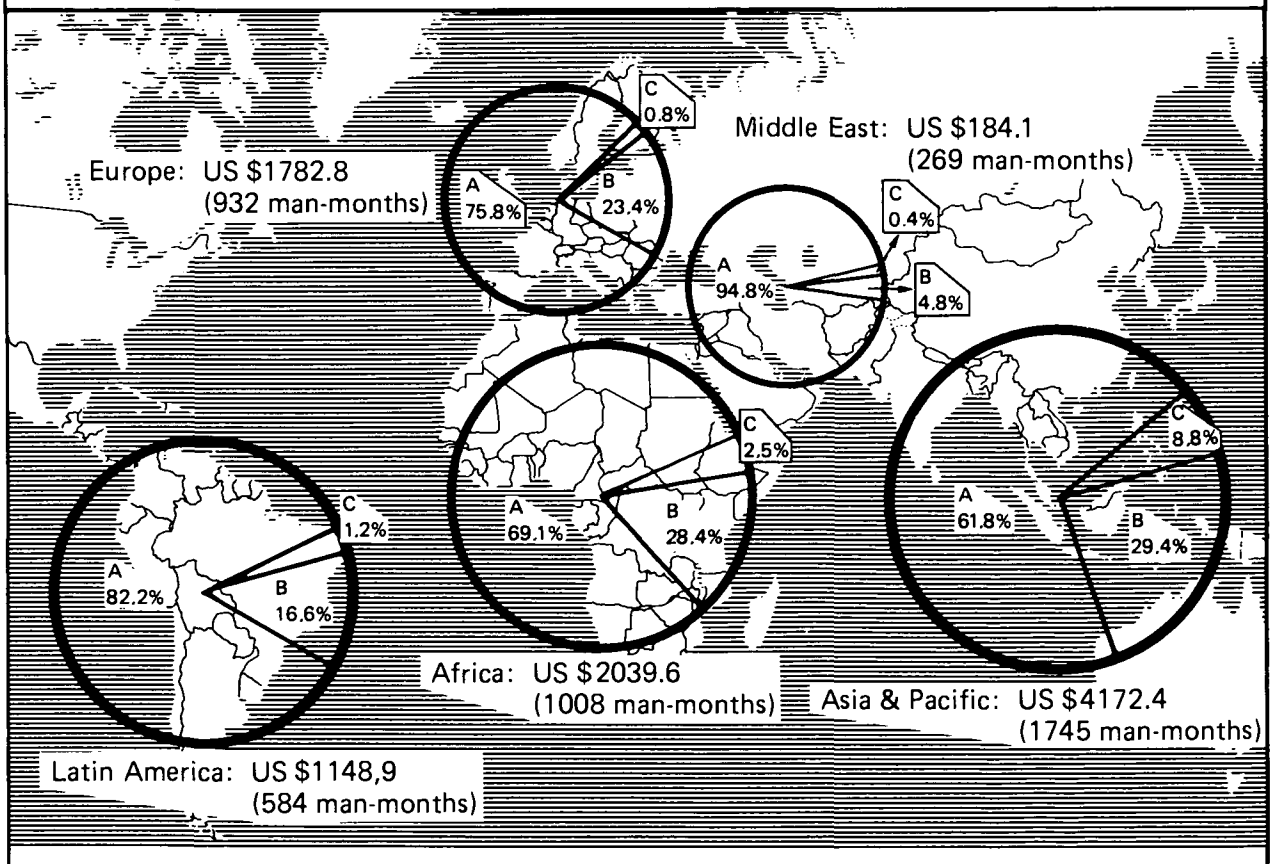
tions of nuclear energy. Only the most qualified candidates and those which will return to their country to play important roles in development projects in their country are selected for IAEA fellowships.

Co-operation with institutions for training

As briefly outlined above, the selection of IAEA fellows is an important task; however, the finding of a suitable host country and host institute may be just as consequential. Hundreds of different universities, and national and international research institutions of as many as 50 countries, host IAEA fellows each year. The country and host institute selected by the IAEA for fellowship training depends on many factors. Due consideration is given to the country and institution requested by the fellow; however, another institution or country may be selected by the IAEA. The host institution is selected on the basis of several criteria such as the specific training needs of the fellow and his or her language qualifications, the capability of an institution to provide the specific training required at the particular time it is needed, the costs involved, and possible financing of the fellowship training by the host country as a gift-in-kind contribution (Type-II fellowship).

In time of zero financial growth of the IAEA, Member States are asked to support more fellowships as gift-in-kind contributions. Fellowships which are financed at least in part by donor countries may involve training programmes in support of projects in recipient countries which are of interest to the donor countries. Host countries which provide support for fellowships are in a position to inform the IAEA which fields of training they would like to finance and for which recipient countries the support could be offered. These countries can, therefore, pick up fellowships for financing in a similar way that they may choose certain projects for which they may offer financial support. Donor countries which provide these gift-in-kind contributions to the fellowship programme have, to a certain fashion, a first-hand pick of the fellows and training programmes to their liking. Fellowships not financed by host countries are financed whenever possible from IAEA funds provided for technical assistance and co-operation (Type-I fellowships). The placement of Type-I fellows may be in any country of the world

1987 Regional distribution of fellowships, by type and expenditure (thousands of US dollars)



Notes: A = IAEA financed fellowships (Type-I)
B = Gift-in-kind fellowships (Type-II)
C = UNDP and extrabudgetary fellowships

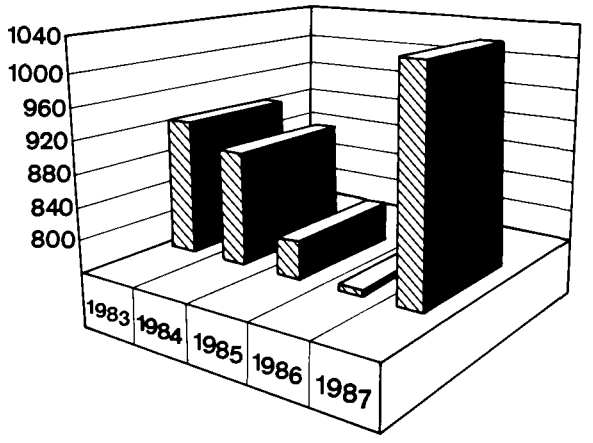
including those countries which finance fellowships. In fact, it generally occurs that the number of Type-I fellowships hosted in a given country is greater than the number of Type-II (gift-in-kind) fellowships that the donor country may provide.

The financial support provided by donor countries for Type-II fellowships is of vital assistance to the IAEA's technical co-operation programmes in developing countries; it is also of benefit to the donor country which hosts the fellow and provides the training programme. Such Type-II offers from donor countries make it possible for the IAEA to channel to the host countries particular fellowships of interest to them. This can be an attractive arrangement to a host country in the long term. Fellows who receive several months of training in a particular country take with them, in abstract terms, a little of the host country when they return home to their own country. That is, the fellowship can generate a stronger link between the recipient and donor countries and foster an increase in exchange in culture, science, and commerce between the two countries. IAEA fellows are generally select persons in their country who eventually can find themselves in key decision-making positions in their governments. They generally preserve cherished memories of their experiences in the host country and the friendship and hospitality provided them. These memories and continued scientific exchange between the former fellow and his host institute sometimes results over the years in an agreement for commercial and scientific exchange at a larger scale between governments. The gift-in-kind contributions made by host countries to the financing of Type-II fellowships provides not only the immediate transfer of technology needed for development, but in the long term they promote goodwill and friendship between the donor and recipient countries. This often results in trade agreements to the mutual benefit of the countries participating in the programme.

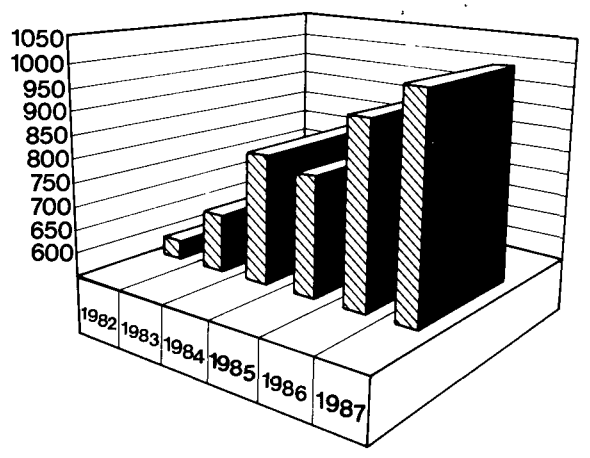
Although most training is provided in the industrialized countries, developing countries host IAEA fellows as well. Some developing countries even provide the gift-in-kind fellowships to other developing countries. This is one aspect of technical co-operation among developing countries. Fellowship training programmes in the developing countries may be preferred at times to those available in the more industrialized countries because in the former the fellow may encounter conditions similar to those in his or her own country. It can be sometimes a mistake to train a fellow from a lesser developed country in one of the most modern laboratories of the world. After such training the fellow may become frustrated when returning home and he or she realizes that the most modern and computerized instrumentation made available to them in the host country will not be at hand in their home institute. A total of 35 countries which received IAEA technical assistance in 1987 hosted 245 fellowship training programmes that year. Among these host countries,

Trends in fellowship training

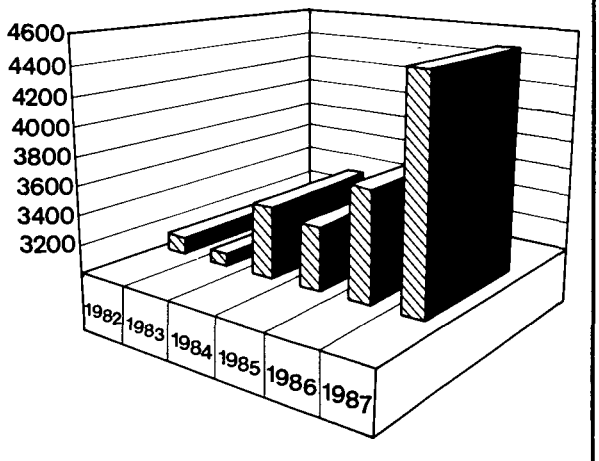
Gift-in-kind fellowships (man-months)



Number of fellows trained



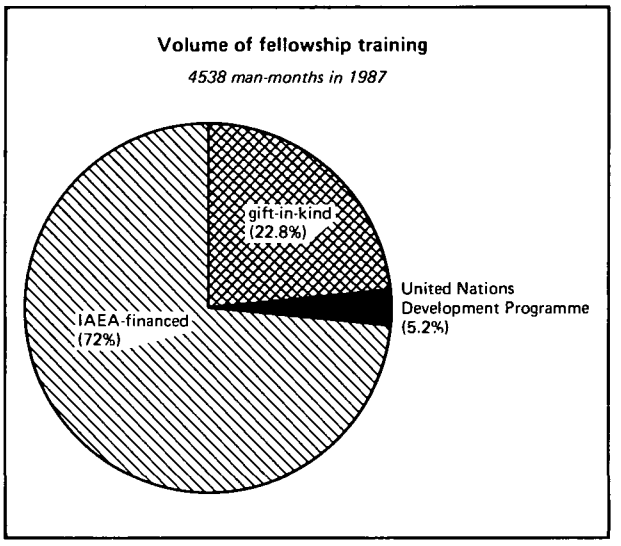
Man-months of total training provided



Man-months of gift-in-kind fellowships

Donor (host country)	1984	1985	1986	1987
United States of America	377	406	358	584
Germany, Fed. Rep. of	85	93	73	108
Italy	54	61	47	61
United Kingdom	40	23	46	56
Hungary	53	10	9	42
Belgium	9	6	29	32
India	41	23	31	27
France	33	18	42	25
Netherlands	47	28	11	23
Spain	18	24	9	20
Poland	12	21	8	18
Brazil	16	41	26	9
Czechoslovakia	78	60	70	14
Austria	15	7	1	13
Denmark	4	4	8	1
Israel	1	—	—	2
Argentina	10	2	—	—
Japan	5	3	—	—
Yugoslavia	2	—	—	—
Total	900	830	768	1035

Note: Fractional months are not given. In addition to those listed above, other Member States, such as the USSR, Bulgaria, German Democratic Republic, Pakistan, and China, have hosted fellows financed from non-convertible currencies in the accounts of the IAEA.



some have provided gift-in-kind fellowship training programmes to other recipient Member States. Brazil, Czechoslovakia, Hungary, India, and Poland have together provided 110 man-months of gift-in-kind fellowships for other recipient countries.

Financial impact of gift-in-kind fellowships

The technical assistance furnished to recipient countries as fellowships in 1987 amounted to US $9.3 million. Of this amount, the gift-in-kind fellowships provided by 16 donor countries was valued at US $2.5 million. Without these in-kind fellowship contributions, comprising up to 23% of the fellowship training programme, the IAEA would not be in a position to provide the training needs of the technical assistance and co-operation projects it is supporting. As donor countries pick up and finance certain fellowship training programmes which may be to their particular interest, the IAEA is left with more funds to finance fellowship training programmes under its regular budget for technical assistance. Particularly under the present constraints of zero financial growth, the need for increased contributions of gift-in-kind fellowship training is crucial to meet the present and growing training needs of projects.

Not all donor countries provide gift-in-kind fellowship training, which leaves considerable room for growth. Some that do contribute in this way could hopefully support a larger number of IAEA fellows training in the donor country. Gift-in-kind fellowships, while of benefit to the IAEA's Programme of Technical Assistance and Co-operation, are often arranged to be of mutual interest to host and recipient countries.