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IN-DEPTH STUDIES CONDUCTED BY THE SPECIAL COMMITTEE
ON THE BASIS OF THE REPORT BY THE DIRECTOR-GENERAL
ON THE ACTIVITIES OF THE ORGANIZATION IN 1984-1985

Subject: 'The brain drain problem: its causes, consequences,
remedies and the role of Unesco in this regard'

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FOREWORD

1. By decision 3.5 adopted at its 125th session, the Executive Board had recognized that one of two in-depth studies planned for 1984-1985 and notably study on the brain drain problem, its causes, consequences, remedies and the role of Unesco was not executed. Consequently, the Executive Board decided to initiate this study in 1986-1987 and designated Mr Siegfried Kaempf (GDR) and Mr Swaran Singh (India) as rapporteurs for the study in question.

2. This study was carried out during the period February-July 1987. The rapporteurs consulted a great many documents and publications on the various aspects of brain drain which the Secretariat made available to them or which they looked for in several libraries. Some of the more important publications consulted are listed in the footnotes at the end of this report.

3. The preparatory work for the study also comprised missions of national consultants to Headquarters in order to have discussions with the specialists in the Secretariat responsible for the subject in question. (February and June, 1987) One of the rapporteurs visited India in July 1987 in order to discuss with the other rapporteur a definitive version of this study and to approve a joint text.

4. In their work the rapporteurs were assisted by national consultants and by the Secretariat, particularly by specialists from various sectors composing the liaison group for this study.

5. The rapporteurs wish to extend their sincere thanks to all who helped to complete this study, especially to Prof. Dr. Sc. H. Faulwetter from the Berlin High School for Economics (German Democratic Republic) and to Mr J. Veera Raghavan from the Ministry of Human Resource Development, India.

6. The study is laid out as follows:

   - Foreword (paras. 1-6);
   - Introduction (paras. 7-9);
   - Main features and trends (Part 1, paras. 10-35);
   - Causes of migration (Part 2, paras. 36-54);
   - Effects of brain drain on societies involved (Part 3, paras. 55-62);
   - Aspects of human rights (Part 4, paras. 63-76);
   - Work done by Unesco and other United Nations agencies (Part 5, paras. 77-99);
   - Recommendations for possible action against brain drain (Part 6, paras. 100-121);
   - Towards an integrated international programme of action on brain drain and the role of Unesco in this regard (Part 7, paras. 122-144);
   - General conclusions (Part 8, paras. 145-148);
   - Draft resolution (Part 9);
   - Footnotes;
   - Annex.
INTRODUCTION

7. During the last few years a great number of analysis evaluations and proposals of theoretical and practico-political nature has been made on questions relating to brain drain. They dealt with both the outflow of highly qualified personnel from developing countries to countries with developed market economies representing a significant economic and social process, and the causes existing therefore as well as forms and methods and the effects of this migration flow. Moreover, measures were formulated and programmes developed with a view to reducing the negative effects of brain drain on nations losing highly qualified personnel.

8. Even 20 years ago, international organizations (United Nations Specialized Agencies, regional associations of States, regional economic organizations, intergovernmental institutions, etc.) were examining such questions. Their respective approaches to these processes varied because the interest governments or organizations have in this problem were and remain different. The same holds true for the great number of studies by individual politicians or scientists as well as for the actions taken by governments of many countries.

9. The most important result obtained so far is the fact that the brain drain processes have become transparent and have attracted scientific and political attention. However, after 20 years of research and action this phenomenon and its effects have not substantially changed. The migration rates of highly qualified personnel from developing countries remains high and in general these countries do not receive compensation for the losses they incur.
Part 1 - MAIN FEATURES AND TRENDS

Brain drain as a special form of international migration

10. International migration took place at different times in different dimensions, forms and directions. During the last four decades the flow of highly skilled persons became an essential feature of international migration. It has lasting vigorous effects of social life in many countries all over the world and on international relationship. This phenomenon is called the brain drain.

11. There have been efforts to define brain drain. According to Unesco 'brain drain could be defined as an abnormal form of scientific exchange between countries, characterized by a one-way flow in favour of the most highly developed countries'. The nature of this transfer is defined by an international community of economists and economic politicians from different schools in the following way: 'This outflow constitutes a one-sided transfer of productive resources embodying technology in human skills from the developing to receiving developed countries, thus limiting the developing countries' capacity for development'. This definition existing since the beginning of the 1980s was interpreted by one expert in this way. 'It is a real transfer of productive resources from poor to rich countries. In as much as technology is a combination of knowledge and capital equipment, the migration of people with skills is clearly a transfer of technology. Since such transfer takes place from the developing to the developed countries, or from the poor to the rich, the phenomenon has been termed a "reverse" transfer of technology. Further, in so far as knowledge and skills are acquired as the combined result of investment in education, training and allied activities and nurture and maintenance of the persons concerned, they could be considered as a form of productive resource embodied in human beings, or human capital'.

12. Explaining these phenomena from the economic point of view one can refer to the production factors' theory. According to this theory manpower (one of the production factors) is also migrating to places where it can be employed. This is present not only on national level but to an increasing extent, also at the international level. The price for manpower is the driving force for the respective individual movement. In market economies goods and services flow where they can expect the highest payment (where it corresponds with the marginal value of the product concerned). The labour value and surplus value theory are able to make a precise analysis. With regard to brain drain the family gets back its contributions to the production costs (in form of wages but the societies of the developing countries do not reimburse their own considerable expenditures. Moreover, the receiving countries gain the surplus value from the immigrants' work).

13. In so far brain drain to the developed market economies is a process of an unilateral flow of values, there is no return or exchange for a considerable part of the value. To put it the other way: 'Several developing countries have been devoting nearly 1 per cent of their national product to training in universities, institutes for higher learning and other forms of technical training. With the migration of half a million skilled persons, an important part of these investments turn out to be wholly wasted investments'. According to D.N. Misra 'each person who has received such
highly subsidized education and migrates abroad ... wasted the subsidy the country has invested in him. If the funds earmarked to cover the costs of education for an 'intellectual elite' are not used for raising the living standards of all members of society or for social development generally then they can be looked upon from a social point of view as wasted allocations.

14. For the receiving side of brain drain the former US Secretary of State Mr D. Rusk stated: '... The US has a rare opportunity to draw migrants of high intelligence and ability from abroad, and immigration, if well administered, can be one of our greatest national resources ...'.

15. This situation has additional consequences. Due to the non-payment of compensation by receiving societies the developing countries are not able to benefit from comparative advantages to be gained from foreign trade in goods and services. On the contrary the economies of the receiving countries profit from the difference between the production costs for highly skilled personnel in developing countries and in countries with developed market economy. In characterizing the brain drain under the conditions of the developed market economies, one should share the opinion of J. Sackey 'that brain drain phenomenon falls within the historical tendency of capitalism to progressively socialize and internationalize its production process, and along with it, the exploitation of labour power'.

16. It is a fact that human resources are flowing out of economies where it can make the greatest contribution to human welfare, into economies already well developed and having large number of highly trained, scientific and administrative personnel.

Magnitude of skill flows from developing to developed countries

17. The statistics on international migration of personnel, in general, and those on international migration of highly skilled personnel, in particular, constitute the comparatively least developed branches of demographic statistics as a whole. This concerns both the extent of the coverage and the international comparability. The difficulties indicated for the collection of data are aggravated by the lack of political will of several developed countries, notably the main receiving countries, to quantify the brain drain phenomenon. This has particular weight because the majority of developing countries have no or insufficient data collections on brain drain.

18. Inspite of the difficulties mentioned, it is nevertheless possible to outline a general picture of the extent and of the structure of brain drain and to depict some main trends. Table 1 (see annex) shows the number of highly qualified personnel who had immigrated from the developing countries into these developed countries - main receivers of brain drain in the period 1961 to 1979. For the 1980s a dimension of the brain drain from developing to developed countries of more than 50,000 annually can be assumed. According to a study of the UNCTAD Sectt. in 1983 it can even be said that 'in more recent years, despite the slackening rate of economic growth resulting from the recession the admission of skilled people in by far the largest country of immigration - the United States of America - actually increased'.
19. Brain drain occurs mainly in two forms, one is the direct outmigration and the other is that graduates trained abroad remain there. The immense weight of brain drain becomes even clearer if the value expression of this phenomenon is explained. Certainly, it is not incidental that questions relating to the value measuring of brain drain and the results obtained were and remain to be a subject of large and heated discussions. This measuring testifies to the value and income flows crossing frontiers without being compensated. The measuring of these flows has been a subject of discussion since a number of years in UNCTAD. They trace back to a series of studies prepared by leading scientists from different countries of the world.  

20. In this context it was stated that 'There is a need for a clear distinction between the value of human capital embodied in migrants and the value of the effect in welfare terms which this capital movement caused. The former measures only the value of what is transferred while the latter is concerned with the economic, or even non-economic effects that the transfer produces in both the countries involved'.  

21. These losses are much more severe for the countries of origin of the flows as the brain drain has a multiplicative and cumulative effect.

Main characteristics of these skilled migration flows

22. These migration statistics on highly skilled personnel in the main receiving countries is mainly based on the classification such as 'professional, technical and kindred workers' (e.g. applied by the United States statistics).

23. Consequently the data available on the flow of highly skilled personnel from developing countries to countries with developed market economy, as a rule, subdivides into the occupational categories physicians and surgeons, engineers and scientists as well as technical and kindred workers (often referred to as 'others'). Between 1961 and 1976 about 61,000 physicians and surgeons, more than 100,000 engineers and scientists and 123,000 technical and kindred workers were lured away from developing countries to the three main receiving developed countries. Of course those figures are not sufficient to identify which occupational group was most severely affected. It is well known that in the majority of countries there are less physicians than engineers and scientists and those categories are, in turn, less in number than persons classified as others (technical and kindred workers). To be able to classify the occupational group according to the share they have in brain drain it is necessary to have certain reference data, as e.g. the total migration number of highly qualified personnel from all countries to the main receiving countries. (See in annex Table 2)
24. That means that in particular physicians are the most important group which was lured away from developing countries. Engineers and scientists are second ranking group and about one quarter of the technical and kindred workers immigrated in countries with developed market economy come from developing countries.

25. The influence of brain drain of highly qualified persons in the developing countries can be best illustrated when the outflows of such personnel are proportioned to the skilled manpower migration. Table 3 (annexed) shows estimations on this matter.

26. The critical nature of brain drain for the developing countries is also underscored by the fact that the majority of the migrated physicians, engineers, scientists left their home countries during the most productive years of their life. In 1970 in the US around half (49 per cent) of all the personnel lured away were under 30 years of age and further 46 per cent were between 30 and 44 years old. The main crux of the matter is that emigrants as they enter developed countries are often in the most productive phase of their professional life and by the time they return back, if they do, they are often 'spent forces' with wrong ideas not suited well for their native underdeveloped countries.

27. During the period 1961-1976 the highest number of migrating skilled personnel to the US, the UK and Canada came from Asia. This flow constitutes 55 per cent of the brain drain from all the developing countries. India, Pakistan and the Philippines are the main countries of origin of the brain drain. Although the absolute and relative figures for the other regions are considerably less as compared to Asia, it does not mean that the effects of brain drain on the other countries and regions can be denied.

Measures adopted by developed countries to induce migration

28. The large disparities in wealth and income of nations is the underlying factor behind the phenomenon of brain drain. But even with the constraints imposed by such unequal situation the developed countries could help considerably in reducing the incidence of brain drain and mitigate its consequences if they so desire.

29. Immigration policy plays an important part in promoting brain drain. For instance, it has been pointed out in the document on Reverse Transfer of Technology - (a study by UNCTAD Sectt., 1975) that in recent years the immigration policy of some countries specially the U.S.A and Canada had been substantially liberalized as far as immigration from developing countries was concerned. Since the bulk of the recent immigration was that of highly skilled labour the value of transfer involved was extraordinarily high.

30. If has also been noted that the forces pulling high level manpower to industrial countries are selectively controlled and are subject to the immigration laws of the host countries. The 'pull' acts selectively on individuals possessing desired skills and competences. It is subject to the use of immigration regulations to promote and/or obstruct the flow. The forces are controlled in the sense that the host countries possess a variety of instruments which could be activated to influence supply and demand. For example, the expansion of American medical education responded very slowly to the American demand. Dr Kidd had noted 'Highly trained people are difficult to produce and importation of brains is less expensive than the expansion of universities'. The attainment of important national goals is made easier by immigration.
31. The 'pull forces' are supported by employment in well paid jobs with good career opportunities. The associated high standards of living, science excellence, social democracy and the possibility of upward mobility all contribute to the 'pull'. All major brain drain recipient countries have highly developed legislation with respect to human rights, social justice, intellectual property and the professions. They provide stable environment and opportunities for the education of children. Although some Third World countries may offer expatriates and nationals better wages, the fact that immigrants cannot acquire property and establish roots reduces their attractiveness. There is little doubt that the possibility of building a life and career in a country which welcomes immigrants and granted them full civil, economic and political rights provided a powerful pull for the citizens of the Third World.

32. The 'pull forces' acted primarily on foreign students enrolled in the universities of industrial nations as well as on professionals undergoing medical internship and other forms of training. Over the years, a variety of other channels have been established for the direct brain drain from home country to country of destination. As for instance, the immigration of nurses from the Philippines.

33. The strength of research and development work in the developed countries is another powerful pull for researchers. Of the 85,000 foreign students who received doctorates between 1960–1982 in the U.S.A, 55,000 are estimated to have migrated to that country. The bulk of these were in science and engineering. The developing countries are yet to develop an adequate system of research and development especially in critical areas of science and technology relevant to their context, needs and concerns.

34. The most important step to be taken by developed countries in regard to the brain drain problem, however, relates to their interest and co-operation in implementing the several suggestions made by the United Nations and other organizations. Particular attention may be drawn to some of the proposals presented in 1977 by the Secretary-General of the United Nations through a paper entitled 'Brain Drain - the Disengagement Alternative'. The suggestions made in this paper call for action by developed countries in several areas such as:

(i) the developed countries should work out in co-operation with the developing countries the proposals for compensation although this will not be regarded as a solution to the problem;

(ii) the possibility of a collective agreement for excluding developed countries professional examinations and recruiters from developing countries should be explored;

(iii) a collective approach to developed countries could be considered with the objective of encouraging the non-recognition of developing country qualifications and discouraging indiscriminate subsidization of students from developing countries;

(iv) the possibility of developing different postgraduate specializations in universities of neighbouring developing countries as effective alternatives to overseas study should be examined.
35. Developed countries can help a great deal even in the context of wide variations of income and wealth that exist in the world economy and the attractions of the industrialized and developed societies to experts in developing countries. There must be a clear recognition that it is in the overall common interest of all that the developing countries should be able to utilize their own technically and professionally qualified high level manpower for development and for provision of services. The developed countries should co-operate to the fullest extent in ensuring that the developmental efforts are not thwarted due to non-availability of qualified manpower.
Part 2 - CAUSES OF MIGRATION

36. In general, the decisions of a potential migrant on staying in or leaving the country is influenced by the comparison between the living and working conditions in the home country and those in the intended immigration country for persons having a comparable level of qualification. This comparison is made under different points of view - economic, social, political, cultural and others. Often it is not a single reason but a whole bunch of causes inducing or at least promoting migration. UNCTAD studies have proved that in the majority of cases economic reasons are mainly responsible for brain drain.

37. Under the conditions of an increasing internationalization of science and technology and enormous improvements of communication and transport and the generally favourable international climate, the international mobility of highly qualified personnel has been enhanced.

38. The fact that persons with higher education have in most cases a good command of one or several foreign languages was another encouraging factor. So they are, on the one hand, able to follow international literature and foreign press. Thus, they get a relatively good survey of the conditions prevailing in other countries. On the other hand, the absence of linguistic barriers facilitates integration into the receiving society. Family ties constitute also only a minor obstacle to migration for highly qualified personnel. In contrast to unskilled persons they can mostly be accompanied by their family members to the respective receiving country.

39. Special causes of the flow of highly qualified personnel from developing countries to countries with developed market economies are to be covered in general by means of the push-pull model. This model is based on the fact that in developing countries certain push factors are inducing highly qualified personnel to migrate. Compared with this, there are certain pull factors in the countries with developed market economy attracting highly qualified personnel.

40. It has, however, been observed that the push-pull approach is analytically weak, for it does not precisely take into account the complex, comparative situations which are very crucial in the analysis of brain migration. Even understanding the push and pull factors that one factor is often only the opposite of the other the causes of brain drain are not primarily individual phenomena but have to be explained by the different levels of social and economic development between developing countries and countries with developed market economies.

41. Out migration of highly qualified personnel is one of the consequences of the existing international order which permits the industrially developed nations with market economy to offer attractive remunerations and living conditions to those whose occupations and talents they need. Pull and push factors regarding brain drain appear to be rooted in the unequal economic development of the immigration and emigration countries writes H. Khanna and draws the conclusion: 'The wider the rich/poor divide gets, the flow of talent from the developing countries to the developed societies gets more and more accelerated'.
42. One cause for the process of brain drain is the higher income level in the countries with developed market economies as compared to that of the developing countries. A Pakistani study on brain drain (1976) gives an idea of the dimension of the income differences. It says that highly qualified Pakistani earn about ten times as much abroad as in their home country. With regard to other developing countries the dimension is similar, according to a UNITAR study. A number of studies deals among others with the wage differential and how they influence on the decision to migrate. However, it is not possible to determine the exact influence which the wage differential alone has on the decision to migrate.

43. In connection with the income differences in the developing countries and the countries with developed market economy the national wage structure prevailing in the respective countries plays an important role.

44. At the beginning of the 1960s many developing countries strengthened their efforts in order to create and develop national cadres of highly qualified personnel. The achieved increase in the stock of highly qualified personnel in the developing countries led also unfortunately to a certain inability of those countries to absorb all highly qualified persons. That led to underemployment and unemployment what, in their turn seriously influenced and promoted migration. Another promoting element for outmigration is an internal migration of highly qualified personnel to certain 'excellence centres' in developing countries. At the same time, it becomes evident that unemployment among highly qualified personnel in developing countries is not a general surplus supply. It is such from the point of view of the effectively existing demand but it cannot be spoken of surplus when the demand based on the general development requirements is considered.

45. Besides internal migration the insufficient orientation and irrelevance of the educational contents to the actually existing requirements of national development plans play an important role with regard to the employment opportunities in developing countries. An essential reason therefore is the fact that the developing countries often take over the educational models of the former colonial powers. Those educational models are in the first place oriented to the social development requirements in the respective developed country and not to the specific requirements of the developing countries. Another problem was created by a rise in number of students from developing countries going to study abroad. These students were trained in a manner that after graduation their smooth integration in the societies of their home countries becomes mostly impossible. This is one of the reasons for the non-return of students to the developing countries after their studies abroad. The rate of the stay-ons has taken a substantial dimension for some developing countries.

46. There is a large spectrum of reasons ranging from a lack of information about employment possibilities in the home countries to family ties in the respective countries of the study that influence the decision of graduates to stay abroad. One can raise here the question for the effectiveness of study abroad as well as educational opportunities granted in the framework of international organizations. When this assistance is not oriented to the actual requirements of the developing countries it can at the stage of decision making by individual, be conducive to migration. The absence of a sufficient infrastructure (libraries, etc.), poor professional and technical
conditions as well as poor career prospects for young highly qualified personnel in many developing countries also induce those persons to migrate. Furthermore, the productive work of highly qualified personnel is often impaired by the general inclination of many responsible for traditionalism coupled with the general 'climate' that is not suited to introduce new working methods and innovations.

47. One should mention that general political climate in a given society or country strongly influences the situation of highly qualified personnel. In this connection A.B. Zahlan points out that political oppression violence and extensive violation of human rights are common occurrences. Discrimination in appointments, promotion and travel are also common.

48. The brain drain is apparently a part or a symptom of a larger disease - lure of the west (or and the north) and not unrelated stranglehold of the bureaucratic culture in the LDGs. The entire notion is a consequence of the 'Myth of superiority of the west'. Even though many nations are politically free, the power of the myth is nowhere near decline.

49. Besides these, the prestige value in society for foreign educated persons and good prospects and promotion facilities for them are some of social determinants of brain drain. The search for good working conditions, availability, latest information and contact with men of experience and expertise are some of the psychological determinants of brain drain.

50. The most important pull-factor is the demand of highly qualified personnel in the receiving countries. This demand largely increased in the 1960s among others because of an enormous enhancement of investments in research and development and an improvement of the public health system by those countries.

51. The number of graduates could not keep pace with the jobs available. In many areas there was a lack of labour force. In 1965 Unesco estimated: 'Scientists and engineers are in chronically short supply in technology advanced countries'. The same applied to highly qualified medical personnel. There was a direct competition between the developed countries for highly qualified labour from abroad. The former Canadian Minister of Manpower put it quite frank: '... other countries are in competition with us for immigrants'.

52. The pull acts selectively on individuals possessing desired skills and competence. The pull forces supported by employment in well paid jobs in good career opportunity. The associated high standards of living, scientific excellence, social democracy and possibility of upward mobility all contribute to the pull. All major brain drain recipient countries have highly developed legislation with respect to human rights, social justice, intellectual property and professions. They provide suitable environments and opportunities for education of children. Although some Third World countries may offer expatriates and nationals better wages, the facts that migrants cannot acquire property and establish roots, reduce their effectiveness. There is little doubt that possibility of building a life and career in a country which welcomes migrants and grants them full civil, economic and political rights provides a powerful pull on the citizens of the Third World.
UNITAR studies have delved deep into the:

1. individual's motives and experiences;
2. ties with home;
3. factors governing the decision to study abroad.

They have also gone into variations by countries and by speciality. These studies are particularly significant as they are based on survey data.

The UNITAR studies made a list of 29 items governing the individual's decision, some pulling him one way, some in another, affecting their migration plans.

The causes of migration as well as of return are very complex and vary with time, country, and area of specialization. Greater understanding of these causes through surveys and research studies will enable better policy measures to reduce net outflows.
Part 3 - EFFECTS OF BRAIN DRAIN ON SOCIETIES INVOLVED

55. For the determination of the effects of migration of highly qualified personnel, both an international model and a national model are throughout used. The advocates of the international model consider that international migration of highly qualified personnel is in the interest of the development of the whole world. The results obtained by highly qualified personnel in their work shall be, according to this approach, to the benefit of both the receiving countries and the countries of origin. They see, above all, positive effects for the countries involved. In contrast to this approach, the national model is based on the fact that international migration of highly qualified personnel produces unequal effects for the countries of origin and the receiving countries. Thus, societies from which cadres are withdrawn, suffer in the first place losses, whereas the immigration countries can benefit. According to this approach, migration of highly qualified personnel, in particular from less developed societies, leads to widening of the gap between the poor and rich countries of the world. Advocates of the international model maintain that for e.g. in the past many great inventions in human history have been made by emigrated scientists. These inventions became advantageous to all mankind. At least it becomes doubtful whether the effects of those inventions benefited the countries of origin to the same extent as the receiving countries because the international model presupposes a free access to the results of science and technology by all countries. An increasing monopolization of science and technology prevails and a great number of the emigrated persons contribute to the defence programmes of the immigration countries. Such work is shrouded in secrecy. The developing countries are in a particularly disadvantaged situation with regard to the availability of most recent results of science and technology. It can be added, that the withdrawal of highly qualified personnel from these countries has taken on a mass character and often the loss of personnel cannot be compensated.

Impact on developing countries

56. The developing countries had to cover, among others, high costs for training of highly qualified personnel, notably for their higher education. In case of brain drain those expenses are lost for the societies of the developing countries.

57. From many developing countries highly qualified persons are migrating who were fully employed there. This results often in a lack of personnel in these countries. Often the countries concerned are forced to call on the services of foreign experts, which causes enormous costs.

58. Brain drain also worsens the regional distribution of highly qualified personnel in the developing countries according to the social development requirements. As long as a medical doctor has at any time the possibility to migrate to a developed country he is not bound to practise in rural areas where he is urgently needed.

59. The facts mentioned ought to indicate that brain drain is actually influencing the availability of highly qualified personnel in the developing countries. These highly developed personnel are, however, a vital development potential for Third World countries. In the 1970 report of the Secretary-General of the United Nations on brain drain it is underlined that
many of the factors motivating people to migrate from developing countries to developed countries are based on the problem of under-development. On the other hand, if the most educated people do migrate the possibility of overcoming under-development is reduced, development does not occur and this in turn causes more migration which again affects the ability to develop.\textsuperscript{9} The problem is not only the numbers who migrate but also distortion in the training systems and economic structures that their mobility implies.

**Impact on developed countries**

60. The economies of the countries with developed market economy are largely profiting from the immigration of highly qualified personnel from developing countries. In the field of public health it was estimated that the US had to build and operate 15 to 20 medical schools in order to train the number of nationals commensurate to the number of physicians and nurses immigrated from other countries.\textsuperscript{10} Through brain drain the receiving countries are able to save training costs for highly qualified personnel of their own.\textsuperscript{11} The training costs saved are often many times more than the costs the developing countries had to spend on the training of this personnel. P. Mathur, R.C. Malhotra and N.M. Swani stated that 'at the international level, the gains associated with the perpetuating brain drain phenomenon is at least ten times more than the cost invested'.\textsuperscript{12}

61. Besides financial profits, brain drain has also positive effects on the institution of the labour market in the receiving countries.\textsuperscript{13}

62. The net effect of this is that the development of science and technology has been accelerated in the developed countries and has been slowed down in the drained countries. As those examples prove brain drain from developing countries to developed capitalist countries produces unequal effects for the societies involved. Lord Bowden put it that in the 1960s 'brain drain may well mean that fields in India will remain uncultivated in order that America may put a man on the moon'.\textsuperscript{14}
Part 4 - BRAIN DRAIN AND HUMAN RIGHTS

63. To date in the discussions now and then unhindered brain drain is advocated whereby the advocates of this opinion refer to the right of everybody to leave any country, including his own as enshrined in the Universal Declaration of Human Rights of 10 December 1948 (Article 13, para. 2) and in the International Covenant on Civil and Political Rights of 16 December 1966 (Article 12, para. 2).

64. Such a position in an opinion disregards quite a number of very important aspects. They include above all:

First, brain drain hampers the implementation of the right of peoples to development.
Second, the political, civil, economic, social and cultural rights of individuals and of peoples form an inseparable unity of human rights. Since they are interrelated they can only be implemented as a whole.
Third, the individual has not only rights to the community (and the State) but duties, too.
Fourth, the exit of the own nationals must be regulated in a scientific way so that it is free from discrimination; the entry of foreigners has to be regulated in the same manner.

65. With its Resolution 41/128 the UN General Assembly adopted on 4 December 1986 the Declaration on the Right to Development. In its Article 1 it defines this Right in the following way:

1. The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized.

2. The human right to development also implies the full realization of the right of peoples to self-determination, which includes, subject to relevant provisions of both International Covenants on Human Rights, the exercise of their inalienable right to full sovereignty over all their natural wealth and resources.'

66. Above all, the developing countries launched the initiative in elaborating this Right. They intended to establish a legal instrument to alter their situation that is at present marked by two aspects: their independent national development is not guaranteed and the socio-economic base for the comprehensive implementation of human rights is missing. Therefore, the right to development is to be oriented to development in the sense, of the unity of economic growth and the implementation of the right to self-determination and of the human rights as a whole.

67. It cannot be expected that anything would automatically be changed in the situation described without an adequate reshaping of the internal social structures of the State. An essential characteristic and cause of under-development is the international division of labour left behind by colonialism. Brain drain is also a constituent part of it. The purpose of the
right to development is to grant to all peoples the same possibilities to implement human rights results a special stress on a concrete aspect of the peoples' equality of rights. It is just this side of the right to development that is always underlined as in the preamble of the Declaration on the Right to Development but also in literature on the subject.²

68. Equality of rights is not only considered as having equal rights but moreover as having equal chances to exercise the right. The claim of peoples to equal participation in the development process and in the distribution of its fruits, consequently to the same development chances is met by the duty of all States to contribute towards creating such (economic and political) conditions enabling the realization of this claim. It would be possible to cite a great number of duties that result from the right to development, that are already partially embodied in international law or that are at least widely supported as a legal claim.³ It is beyond doubt that brain drain constitutes an essential cause (one of the structural causes) of the problems existing in the developing countries with regard to the implementation of the right to development and thus also the peoples' right to self-determination and the human rights as a whole. The practising or encouraging of unrestricted and uncompensated brain drain is a violation of the right to development.

69. The unity of civil, political, economic, social and cultural rights is today internationally recognised as for instance in the UN General Assembly Resolution 421 E of 1950, the Human Rights Proclamation of Tehran in 1968, Resolutions 32/130, 40/114 and 41/117 adopted by the UN General Assembly. No category or group or generation of human rights can be implemented without the other human rights (let alone against them). All human rights are equal and are interdependent. Hence follows that it is less than ever possible to single out an individual human right (e.g. the right to leave any country) and realize it in violation of the other rights. Therefore Article 30 of the Universal Declaration provides: 'Nothing in this Declaration may be interpreted as implying for any State, group or person any right to engage in any activity or to perform any act aimed at the destruction of any of the rights and freedoms set forth herein'. It is quite obvious that brain drain falls under such activities aimed at the destruction of the rights and freedoms of the majority of nationals in the developing countries. This concerns in particular such rights as 'the right of everyone to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the even of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control'. (Article 25, para. 1 of the Universal Declaration)

70. But from the inseparable unity of the rights follows also that non-implementation of those rights must have effects on the other rights. Obviously the non-implementation e.g. of the right to education impairs active exercise of political rights.

71. The individual is not in a position to live in isolation without other people. He can only exist and develop in the community. Hence follows a reciprocal responsibility of the community for the individual and of the individual for the community. Consequently, the individual cannot only enjoy rights but he has also duties. Therefore, both the International Covenant on Economic, Social and Cultural Rights and the International Covenant on Civil and Political Rights, both of 16 December 1966, proceed from the fact that the
individual, having duties to other individuals and to the community to which he belongs, is under a responsibility to strive for the promotion and observance of the rights recognised in the present Covenant(s) (preambular para. 5, in each case). In this context, Article 29 of the Universal Declaration is of crucial importance that will be completely cited here:

'1. Everyone has duties to the community in which alone the free and full development of his personality is possible.

2. In the exercise of his rights and freedoms, everyone shall be subject only to such limitations as are determined by law solely for the purpose of securing due recognition and respect for the rights and freedoms of others and of meeting the just requirements of morality, public order and the general welfare in a democratic society.

3. These rights and freedoms may in no case be exercised contrary to the purposes and principles of the United Nations'.

72. Highly qualified experts are in a better position to contribute to the development of their people and to ensuring the implementation of human rights for all. From their particular possibilities result also particular duties to their people which can interfere with their right to leave the country. In this sense B.M.A. Balasooriya also expressed his opinion (referring to Sri Lanka): 'In most instances (brain drain) has been looked at from the point of view of the professionals who form the elite of this country constituting probably under 1 per cent of the total population. Most professionals talk about the higher wages they can enjoy abroad, education of their children and so on. It is quite clear that most view points expressed at various times ... are for their own personal interests and not with much sense of responsibility towards the other 99 per cent of the less fortunate people of this country who have nowhere else to go but do or die here'.

73. In order to ensure that individuals do not only exercise their rights but fulfil their duties, the State has the right to restrict certain human rights. (Rights are not absolute. Their bounds are the rights of others.) In this sense the Covenant on Civil and Political Rights provides with regard to the right to leave any country:

'The above-mentioned rights shall not be subject to any restrictions except those which are provided by law, are necessary to protect national security, public order (ordre public), public health or morals or the rights and freedoms of others, and are consistent with the other rights recognised in the present Covenant.' (Article 12, para. ...)

74. Measures to prevent or restrict brain drain seem to be a typical case because of which States may restrict the exercise of the right to leave any country. The Declaration on the Right to Development provides that the creation of conditions favourable to the development of peoples and individuals is the primary responsibility of their States (preambular para. 14). This requires that the States mobilize and use their national resources for their development, as it is envisaged for example, by the United Nations Programme of Action for Africa's Economic Recovery and Development 1986–1990 (Res. A/5–13). Hence, it is not sufficient that the State does not violate human rights, it has the duty to use its resources with a view to implementing these rights in a more and more comprehensive sense. The position where human rights would be merely considered 'free space' for the individual
vis-à-vis the State cannot be maintained. Notably with regard to the economic, social and cultural rights it is evident that none of these rights can be implemented without effective measures taken by the State.

75. But the active engagement of the State is also needed with regard to the civil and political rights. Is it possible to imagine that the ban on torture or slavery, the rights of people in trials, the freedoms of association and assembly and the right to take part in the conduct of public affairs or any other right could be implemented without any active act of the State? Even the freedom of religion or belief at least requires that the State enables the citizens to participate in religious acts. In the framework of the international obligations accepted by States there is the duty to care for the realization of human rights which makes it necessary to regulate the competence of the State in which way these rights will be arranged in its internal legal system. A State which, on the one hand, does not fully exhaust its resources (the material and the immaterial ones) in order to advance the implementation of the human rights as a whole for all its citizens and which permits, on the other hand, brain drain because it will not interfere with the right of the individual to leave his country hence offends against its international obligations.

76. It is interesting to know that particularly States with developed market economies which have the highest profits from brain drain keep demanding the right to free exit (without any restriction) but on the other hand they block more and more the entry of less qualified persons from developing countries. Thus, it amounts to a discrimination on grounds of the education standard.
Part 5 — WORK DONE BY UNESCO AND OTHER UN AGENCIES

77. A good summary of work done by several UN agencies in the issue of 'Brain Drain' can be found in the document 'The Brain Drain Problem: Outflow of Trained Personnel from Developing to Developed Countries' presented in June 1978 to United Nations Economic and Social Council. The report brings out in brief the results of the work done by:

1. The Department of International Economic and Social Affairs of the UN Secretariat.
2. The United Nations Conference on Trade and Development.
3. The United Nations Institute for Training and Research.
4. The International Labour Organisation, and
5. The World Health Organization.

78. It is surprising that this report of 1978 which was expected to take into account relevant work being undertaken in various parts of the UN system with particular attention to comprehensive studies completed recently on the subject made no mention whatever of Unesco or its work or studies. Except for this rather obvious omission, the report provides a useful and comprehensive glimpse into the several recommendations made by various UN bodies. As these are very elaborate and the original documents are readily available for reference and as in any case a brief summary is also available in the report referred to above, only certain salient features are examined here.

79. The Department of International Economic and Social Affairs of UN Secretariat examined the data of international migration referred to the study of UNCTAD according to which the outflow from developing to developed countries of scientists, engineers, physicians and surgeons approximated to 300,000. It pointed out that loss of even a handful of skilled manpowers could be critical in some countries. It noted that none of the current methods of measuring the impact of the outflow was entirely satisfactory or comprehensive. In particular the indirect impacts on the country of origin such as the effect of skilled manpower, shortages and imbalances of economic growth were impossible to estimate. It suggested co-operation among developing countries for negotiations with countries of immigration policies of those countries whose regulations gave an implicit preference to skilled personnel. Two other areas of co-operation suggested were technical co-operation among developing countries involving changes in education and training, rationalization of education and manpower planning and policy and promotion of research and development activities. The report pointed out that in the mid 1970s only about 2 per cent of world expenditure on research and development was carried out in developing countries and the research centres should be strengthened by regional co-operation.

80. Secondly, in the broader area of economic co-operation among developing countries the report provided examples of regional efforts to create incentives for skilled people to contribute to the development of their own country. The report suggested that since material incentives, working conditions and even research facilities did not seem to provide a sufficiently strong basis for policies to reduce the outflow, creation of a climate for making immigration less attractive was a decisive factor. It stated that a reduction in the exodus of skilled workers was not easy to effect and that
it was more likely to be achieved through long term measures and by encouraging an approach to devising international and national and regional policies of incentives and disincentives in the context of a stronger developmental initiative. It also referred to a number of specific suggestions for co-operation among developing countries made in a book entitled 'The disengagement alternative' prepared by a consultant and presented to the Commission for social development at its 25th session.

United Nations Conference on Trade and Development

81. The subject of reverse transfer of technology of brain drain has received considerable attention from UNCTAD. Several studies have been made over the years and a group of Governmental Experts on Reverse Transfer of Technology convened in Geneva in March 1978 had adopted a resolution which also endorsed subsequently at the General Conference of ILO. The main recommendations fell under four categories:

(a) Revenue sharing proposals;
(b) International labour compensatory facility;
(c) International resource flow accounting;
(d) Principles for regulating reverse transfer of technology.

82. The group of governmental experts adopted a set of agreed conclusions and recommendations on Reverse Transfer of Technology as a result of negotiations on proposals submitted by the Group of 77 and supported by Group 'D' and proposals submitted by experts of Group 'B'. These agreed conclusions and recommendations referred, inter alia, to the following:

(i) That the UNCTAD within its competence had to play a role in the examination of the process of Reverse Transfer of Technology.

(ii) There was need to study experiences of countries belonging to different geographical areas. Such in-depth analysis of the problems at country level was essential for improving the response of countries and for further appropriate action at regional and international levels.

(iii) Developed countries should support measures designed to encourage absorption of trained personnel in developing countries and support activities of international organisations aimed at finding solutions to this problem without prejudice to existing international agreements.

(iv) Developing countries should give immediate consideration to the modalities for promoting collective self-reliance amongst themselves with a view to using their own resources on the basis of co-operation within the fields of trade-technology and capital.

(v) Developing countries should monitor the changing characteristics of the brain drain problem and take appropriate remedial measures to mitigate the adverse consequences associated with the phenomena.
83. There were several other detailed recommendations and the group requested the Sectt. of UNCTAD to continue the studies on experiences and policies of individual countries and requested that the feasibility of arrangements for measuring human resource flows should be examined. As many as 15 UNCTAD documents were cited in the report.

United Nations Institute for Training and Research

84. The study sponsored by UNITAR is one of the most comprehensive one to date to look into the psychological, social, political and economic factors underlying brain drain as well as the losses and gains therefrom. The study was taken up through students, stayons as well as returnees and had come to the conclusion that losses of foreign educated professionals are 'small proportions' of the total number but whether the losses are serious must be judged in the light of each country's situation. It made a distinction between emigration and those temporarily working abroad with the intention to return.

85. Ties with homes and barriers to assimilation were strong enough to induce to those stayons to return. One of the policy measures recommended would, therefore, be to strengthen connections with students and stayons abroad. Journals and information about work and life at home should be circulated more widely and promptly to nations studying abroad. National clubs could also increase their membership overseas. Communication channels could be improved so that the students and professionals overseas can learn more about the job market and transmit qualifications to employers. There were also suggestions for better planning of work experiences so that students are better prepared for work at home. Temporary work in rapidly developing countries, Third World countries, or in frontier regions of developed countries might be more valuable for the home country than the current pattern of narrow assignment in big cities of developed countries.

86. Other suggestions included the sending of high level research teams to contact professionals working abroad. There was also the need to improve working conditions within the home country. Almost every one would be happier with more time for research and better opportunities to keep in touch with new developments abroad. The structure of ranks and salaries needed to be widened so that more people feel they have opportunities to rise and can change employers safely. Improving laboratory equipment, communication with professionals working abroad and research opportunities could be other methods of attracting experts.

87. The problems of professionals' families also needed attention. Foreign spouses should be welcomed hospitably and be assured of work permits.

88. Further effective planning could be done right at the process of selection of students and their placement abroad. Proper placement and assurances of challenging and permanent assignment on return can be important factors in attracting students after their studies or experience abroad. Educational and manpower planning should ensure that entries to universities and the employment prospects both in the near and more distant future were better co-ordinated. Curricula and work study programmes should stress relations of professional fields to circumstances in the home country.
89. The activities of the International Labour Organization in the area of international migration of labour have two independent and complementary objectives - i.e. to ensure that the migrants receive equal opportunities and treatment and to ensure that migration proceeds under the best possible conditions and is organised as effectively as possible within the framework of concerted migration policies. The ILO's recommendation No. 151 concerning migration workers (1975) provides that any migration policy should be based upon the economic and social needs of both countries of origin and countries of employment and it should take action not only of short term manpower needs and resources but also the long term social and economic consequences of migration for migrants as well as the communities concerned.

90. ILO mobilizes all means of action available to it by gathering and disseminating information and conduct studies and research promoting a better understanding of migration and its consequences and by its collective activities, that is, the adoption of the international labour conference, all conventions and recommendations and the mutual supervision of implementation of these accepted instruments providing guidelines for activities of national leaders. ILO also works with various Specialized Agencies such as Unesco.

91. ILO's major activities and programmes are: employment training, industrial relations and labour administration including worker education, working conditions, social and health services, work safety, sectoral activities including co-operatives, international standards, including fundamental human rights and non-discrimination in employment and social security.

92. The problems arising from international migration have to be tackled at different levels - world wide level, the regional level and the national level. ILO provides technical support for activities at all these levels. The paper calls for a gradual pragmatic working out of regional solutions among countries that are bound together by geographical proximity as well as with other factors that has demonstrated its effectiveness in the activities undertaken by ILO.

World Health Organization

93. The World Health Organization has undertaken a study of the problem of international migration among the physicians and nurses. The first phase of the study was based on existing published and unpublished information redrafted with the assistance of WHO's regional offices and studies. This information while incomplete and unreliable in some instances, nevertheless provided valuable clues as to the dimensions, directions, determinants and consequences of health manpower migration.

94. A number of follow-up studies have been taken up with the objective of designing a feasible programme of action to modify the pattern of migration of the physicians and nurses on desired ways, the focus being on resolving the inconsistencies with the health manpower system and the health services system.

United Nations Educational, Scientific and Cultural Organization

95. The General Conference of Unesco at its seventeenth session in 1972 had reviewed the steps taken hitherto by the Organization and the Member States in regard to the problem of brain drain and felt that the situation was
continuing to deteriorate and further measures were needed. Accordingly it adopted a resolution (L.322) by which it called upon highly developed Member States to discourage firms, institutions and private agencies and those under Government Control from offering incentives to foreign scientists and technicians to leave their home countries and to introduce regulations to check the process of migration of talent. The resolution also recommended the developing Member States should adopt measures to eliminate socio-economic structures that impede creation of scientific infrastructure required for retention of scientific and technical personnel. It also authorized the Director-General to continue the study programme in consultation with Member States and other organisations in the United Nations system. Accordingly information was collected from Member States and this information was further analysed and presented in 1974 to the Executive Board at its 95th session under document 95 EX/29. The same meeting also considered the analysis presented by the Secretariat and the activities of Unesco in collaboration with other UN agencies and adopted a resolution recommending that the Director-General should expand the activities relating to exchange of skilled personnel and Member States should discourage emigration from developing to developed countries. Unesco has been helping Member States directly and indirectly in the following manner:

(1) Member States are helped through consultation and fellowships to improve their training particularly with a view to plan for national training programmes that relates to the country's needs.

(2) Member States are assisted in encouraging their educational and manpower policies through country programming.

(3) Within the framework of training abroad programmes study programmes are carefully planned keeping in mind national priorities for social and economic development.

(4) Unesco has a particular responsibility within the United Nations system for helping to keep operational and exchanging scientific and technological infrastructure in developing countries and to strengthen their scientific and technological capabilities.

96. In pursuance of this strategy, governments' attention has been drawn by Unesco to the need for ensuring appropriate career prospects for scientific researchers.

97. Unesco programmes relating to engineering education in the developing countries are directed towards improvement of national educational institutions, provision of better facilities for teaching and research for regional co-operation amongst educators.

98. Local and regional training has been encouraged as far as possible, particularly taking into account relevance of training and national needs. Contacts are made with foreigners during study period and afterwards at Headquarters. Unesco also co-ordinates its action with other UN agencies, and with the United Nations, both in regard to studies and in regard to collection of data.
99. The second Medium-Term Plan for 1984-1989 also analyses the brain drain situation particularly in the context of Science and Technology. It points out how difficult it is for developing countries to master or control the transfer of technology in as much as they do not possess enough specialists capable of selecting and adopting foreign technologies and ensuring that such technologies are assimilated. It points out that this shortage of specialists is worsened by brain drain. Unesco has thus been fully conscious of the problem of brain drain and has contributed directly and indirectly to the issues and problems relating to brain drain as well as by assisting in the development of relevant education as well as mutual co-operation among nations to the understanding and solution of the problems connected with this issue. It is in furtherance of this objective that the Unesco Executive Board had decided to undertake this in-depth study for further consideration of action within Unesco's sphere of competence. The time is, therefore, appropriate, keeping in view the roles and responsibilities of various UN agencies with whom Unesco had always close co-operation on this as on other issues, to chalk out a clear cut programme of action to enable particularly the developing countries to have the benefit of services of their highly qualified manpower.
Part 6 – RECOMMENDATIONS FOR POSSIBLE ACTION AGAINST BRAIN DRAIN

100. The present study, as well as others, have highlighted the complexity of the problem of brain drain and the widely divergent conditions obtaining in different countries. No single set of solutions will be appropriate or effective for all the situations. Therefore while we set below some of the more important steps that need to be taken to mitigate the effects of brain drain and to discourage the flight of skilled manpower, we are aware that the implementations and feasibility of these steps will depend very much on the circumstances of the given case. Nevertheless, it is desirable that national as well as international agencies review the suggested steps and take all feasible measures to retain skilled and trained manpower and to attract back those who have already migrated abroad.

Measures to prevent/restrict brain drain

101. One of the important measures to be taken at the national level is the reorientation of the education systems with a view to discourage the migration of trained and educated people. Education planning has to define, in conformity with the social strategy (notably the economic strategy), the manpower needs and the structure of qualifications and skills and decide on this basis howsoever approximately the types and levels of personnel required. The subsequent education policy must be in conformity with the assessment of needs. Admittedly in the past such manpower planning has not been a great success in a number of developing countries affected by brain drain. The reasons for this have to be gone into and processes and procedures suitably refined with appropriate flexibility. Contents of education should be formulated and educational mechanisms should be established also by making use of the historical experience of own and of the other countries. The curricula and study programmes should strengthen professional training making it more relevant to the countries' own needs. Education and training policies have to be reviewed and rectified, if needed. They should ensure a continuous absorption of personnel demanded by different sectors of society and branches of its economies.

102. Studies abroad have to be fitted in with the requirements of home country. It should be possible to fit in such studies with specific requirements and to depute students abroad after appointment to specific positions so that they have a clear goal and purpose in seeking education abroad and a stake in returning back to their positions.

103. More education opportunities within the home country and qualitative improvement of the training can reduce the pressure for studies abroad. Bilateral foreign aid programmes and fellowships by international organizations should be utilized fully for such training. A central national institution or a regional one (where it exists or should exist) could coordinate these questions. For instance regional employment pools could be established.

104. The long-term education policy has also to take into account the concrete economic and social position of the different groups of highly qualified personnel within the whole society, and it has to take permanent account of possible problems and suggest relevant modifications.

105. The granting of favourable conditions of stay and employment for highly qualified personnel in their countries of origin should be given high priority.
106. Experience shows that in countries where an adequate income and social policy had created favourable living conditions for highly skilled personnel, the tendency to migrate has diminished among others. These conditions include such as dwelling and living conditions, consumption level, a good offer of consumer goods, travel facilities, and adequate taxation policy, good medical and correct treatment by appropriate administration, educational opportunities including that for children, a political and moral climate conducive to the intelligencia. But the practice shows that, in most cases, there are only limited possibilities, due to certain policy and financial shortages e.g. because the wage and salary structures altogether cannot be too much distorted.

107. Favourable training conditions should be offered to the various strata of the intelligencia at the same time bearing in mind the overall conditions in the country. They include above all: appropriate conditions for the admission to higher education, access to international literature, opportunities for research and publication of its results, offers of courses being of importance to development problems, possibilities for part-time studies. In addition, the creation of a scientific infrastructure should be encouraged and bias against national certificates should be removed.

108. Indigenous industries together with foreign enterprises settled in the country should support this policy. In particular, economy and scientific institutions in the country should be induced and encouraged to create appropriate jobs and working conditions through administrative and economic measures. These include notably prerequisites for employment that is adequate to the occupation, restriction of misemployment (e.g. the unreasonable employment of technical personnel in the management because of certain wage structures), elimination of structures of the internal division of labour impairing the working process, etc.

109. For decreasing the number of graduates staying on abroad several of the above measures and their implementation are of paramount importance, e.g. employment consistent with the qualification acquired, acceptable income and social conditions, scientific climate, readiness to receive graduates trained abroad to work in the teams created by national enterprises. Working agreements between indigenous and foreign institutions (possibly under governmental agreements) or the establishment of institutions working also for the international market can render the return more attractive since they expand the fields of activities of the individuals and maintain an international scientific contact.

110. Already during their study abroad the students have to be prepared by training institutions to meet the conditions and situations in which they will work on return to their home country to be expected. In other words it should be expected from the receiving countries that they facilitate the return of graduates, e.g. by providing training programmes which take into consideration the actual conditions in developing countries and information about working and developing feasibilities in their native countries, maintenance of certain scientific contacts (e.g. the sending of documents, financing the participation in seminars).

111. The extent and the structure of training and assignment of highly qualified personnel will be determined by the structures of economies and other fields of social life in the developing countries. A systematic and specific structural policy can also influence brain drain. This calls for, in
particular, the preferential development of modern industrial branches, the updating of production, the reinforcement of research and development and the provision of prerequisites and means for the qualification of personnel and their assignment (e.g. provision of adequate personnel, practical courses, manuals and teaching aids of training centres). The gradual change of the role a number of developing countries plays in the international division of labour also calls for the creation of centres of excellence providing and containing services packages (e.g. qualified researchers, data processing and software) and first of all in the export sector training and research institutions could be established in selected fields. They may also become attractive to personnel from developed countries as internationally leading enterprises benefiting from a favourable natural location and low wage level.

Regulatory policies

112. 'In order to co-ordinate their educational and manpower planning and gain maximum benefit from their investment in human resources, the developing countries have also found it necessary and desirable to control the outflows of personnel', states the UNCTAD study (1983). This policy has so far been pursued by a number of developing countries in different ways.

Measures to mitigate the adverse effects of brain drain

113. The initiation of reimbursement to compensate the personnel losses suffered by the developing countries should be considered as one of the measures to mitigate the adverse effects of the brain drain. Such contributions in the majority of cases have to be made from the gains of the receiving countries and/or by the enterprises profiting from brain drain. Some proposals made in this regard are:

114. The establishment of funds to be jointly financed and used such as the proposal for the creation of an International Labour Compensatory Facility made at the ILO conference in 1977. It is to function like a trust fund for compensatory facilities within the International Monetary Fund. The necessary resources, in the main, have to come from those countries importing labour. In addition, other ILO Member States should, in the spirit of goodwill and solidarity, make a contribution to it. The funds gained should be distributed to the developing countries exporting labour. The distribution ratio would be determined by the costs ensuing from the loss of labour.

115. The establishment of a compensatory facility was repeatedly demanded, so among others also by the UN General Assembly at its 35th session.

116. It was proposed that financial obligations of a receiving country with regard to compensation should become effective when a certain percentage of labour representing a certain occupational group has outmigrated. The countries of origin would be entitled to claim compensation amounting to this percentage.

Measures to initiate return flows of highly qualified manpower

117. Efforts for the return to their home countries of formerly emigrated personnel have gained growing importance. This can be explained by the effect to be expected from such movements. The developing countries concerned
equalize with this return not only the losses suffered before but they have 
the chance to get back manpower rich in knowledge, experience and skills. To 
make full use of this enrichment presupposes jobs that are, in general, 
already existing in the economically and technologically more developed 
countries or they exist in branches with modern production or services.11 
Development of centres of advanced research and excellence in scientific and 
technical areas would help in this process.

118. The Intergovernmental Committee for Migration should in the framework of 
its possibilities, pursue its activities for the return of talent.12

119. The creation of institutions which are known in several countries as 
scientists pools could facilitate the return. The measures to be recommended 
to developing countries with regard to the prevention of brain drain can also 
be applied, even to a greater extent, with regard to the stimulation of return 
flows.

120. The Transnational Corporations operating in the country should be 
induced to equip their branches with effective research and development 
sections. Scientists or experts formerly working in developed countries would 
be well suited, due to their knowledge gathered there, to co-operate with 
these sections at least in the interest of national scientific and 
technological developments. Several countries scored some success in their 
efforts for a temporary return of highly qualified personnel. This personnel 
should be available for consultancy functions, for co-operation in national 
research, for lecturing at universities, etc. Governments of developing 
countries, scientific institutions and economic enterprises should pay 
attention to the dissemination of the TOTKEN concept as adopted by UNDP.13

121. The attitude of the developed countries towards the return of qualified 
personnel to developing countries should be changed. It cannot be continuously 
marked by attempts to keep these personnel for their own products and 
services. These countries could rather encourage such personnel to return, 
using among others, economic measures.
Part 7 — TOWARDS AN INTEGRATED INTERNATIONAL PROGRAMME OF ACTION
ON BRAIN DRAIN AND THE ROLE OF UNESCO IN THIS REGARD

122. The existence of brain drain and the effects it produces on
ternational relations and, moreover, on the economies of many developing
countries call inevitably for action with regard to all those affected by
brain drain. Existing at different levels (national, regional and
international) those actions should be supported by different bodies, i.e.
governments, enterprises and associations, international institutes,
international economic associations and political groupings. It is obvious
that they will produce the highest effect when they are co-ordinated and
implemented as a package. Special importance has to be attached to the UN
Specialized Agencies in shaping and programming this action. Unesco in
coopération with other organizations has to play an important role in this
process. Unesco actions in this field should focus on educational, scientific,
cultural as well as on the social, socio-economic aspects of the problem.
According to its fields of competence Unesco should analyse the brain drain
problem from the stand point of its interrelationship between education and
science development and the cultural identity of the countries concerned.
Unesco should help to maintain and improve existing scientific and
 technological infrastructures of developing countries, and to strengthen their
scientific and technological capacities in general.1 Unesco resolution 1.332
(1972), the Report of the Director-General to the 95th session of the
Executive Board, document 95 EX/29, Unesco, Paris, 20 September 1974, and
Unesco's Biennial Programme for 1984-1985, document 22 C/5, para. 0562
(calling for the preparation of studies in brain drain trace out the course to
be followed by the Organization and its Member States in this field).

The framework for future action

123. The programme for future action should be based on the results achieved
through present planning and programming, on measures taken so far which have
to be further developed and the continuation of which has to be possibly
ensured even if the objectives will be amended or their priorities changed.

124. The whole package of future measures should be in conformity with the
requirements resulting from the present and the expected general international
situation. They should fit into the programme aiming to restructure
international economic relations and become an element of the global strategy
to improve the position of developing countries through combined efforts of
the international community.

125. The programme of action should be based on the progress made in the
implementation of the concept of Economic Co-operation and Developing
Countries (ECDC).2 Through greater bargaining power of the developing
countries and in co-operation with the other States interested in practical
changes, their common interests can be better protected and better progress in
solving the problem of brain drain can be scored.

126. At the same time, the programme should aim at protecting the interests
of all countries participating in international co-operation. It is only
through the consensus of all that effective solutions can be arrived at. It is
also necessary that the governments of the developed countries should take
political decisions against practices that lure away highly qualified
personnel which are detrimental to the developing countries.3
127. Measures to be provided should take account of the specific financial situation of the majority of developing countries. Due to their shortage of funds it is difficult for them to make structural changes in the economies with a view to overcome brain drain.

128. Measures to be provided in a programme should at the same time promote developing of skills and technologies in all countries thus forming a basis for such an international exchange in which all countries can take part on an equal footing.

129. Evaluations of existing and proposed measures and the state of their implementation and of the positive or negative results obtained should be undertaken. From the evaluation, proposals for the further policy with regard to these measures should be formulated and adopted. Unesco may wish to have the advice of a group of experts assisting to formulate proposals for decisions to be adopted by the Member States. Future biennial programmes of Unesco take account of the essential components and findings of this evaluation.

130. High priority should be given for the adoption of measures by Member States to organize planning of economic and technological development and educational planning. These could be the subject of studies elaborated through distribution of questionnaires to the Member States or other means. Periodical seminars in which countries and organizations interested in those questions would participate could be the main form of dissemination of the results of the analyses and of the evaluations.

131. National experiences of the developing countries in the identification of the form and the contents of training programmes could be imparted to students at international fora. Further it will be particularly interesting to know the distribution of students for national training, regional training and training in the developed countries and the experience gathered in respect of the effectiveness and the adaptability of student groups in their subsequent assignments in the home countries. The developing countries being Member States of Unesco should be able to submit to Unesco the relative information.

Creation and improvement of statistical bases

132. In co-operation with the United Nations Office of Statistics and other United Nations Specialized Agencies (above all UNCTAD and ILO) and statistics departments of international organizations, the statistics of data relevant to brain drain should be expanded and deepened. Unesco could play a leading role in defining the concepts and in collecting and analysing requisite data and in disseminating the results thereof.

133. Analytical results and quantitative data, should to a greater extent, be utilized to build up in the future data banks taking also account of data resulting from the measuring of flows. In this task the closest co-ordination with other United Nations institutions and international and national statistical departments should be maintained. All those contributing to the creation of data banks should have free access to the data. Certain data services should be periodically published. The questionnaires to be sent to the Member States which will take special account of accepted definitions should constitute the basis for the data procurement.
Special measures to promote return of migrants

134. Practices applied so far to stimulate the return of highly qualified personnel should be reviewed with regard to their effectiveness and pursued after having been enriched by respective experience. Studies of the Sectt. based on consultations of countries and specific country studies could continue to be the basis for decisions.

135. Analyses of the experience gathered by individual countries in their actions to stimulate the return of persons studying abroad and surveys of measures taken and their effects should be prepared. Studies elaborated by the Sectt. could serve as a basis for regional seminars to impart experience among the interested countries.

Questions of general interest

135. Elaborations or the imparting of experience on such questions as the basis conditions for stay of students abroad, individual reasons for migration and return should be encouraged. The results on individual motivations, and socio-cultural factors affecting these issues as arising from studies such as those carried out by UNITAR should be further pursued and utilized in the formulation of policies and appropriate measures of action by national, regional and international agencies.

Benefit from economic action taken by the receiving countries

137. Case-studies on the effect and importance of technological aid, support and personnel training in developing countries, additional qualification acquired by participants from the receiving countries before the return of highly qualified personnel, etc. are to be prepared by the Sectt. and selected countries. Seminars should be organized for interested countries.

Schemes for research on and compensatory policies for brain drain

138. International organizations and particularly Unesco should provide moral, intellectual, administrative and possibly personnel support for such existing or planned funds as e.g. the International Labour Compensatory Facility, the International Fund for Vocational Training and the International Fund for Manpower Resources. Evaluations of their functioning and the benefits derived should be examined by the Sectt., set forth in studies and published.

ECDC in the field of brain drain

139. At regional or interregional seminars experiences on the results of joint programmes for the training of highly qualified personnel and of joint institutions for economic and scientific research, among others also in their attraction for re-migration should be exchanged, Unesco should support such projects by sending personnel and by publishing the results of relevant studies/experiences.

Bilateral agreements

140. Experience from bilateral agreements should be evaluated by Unesco and published. Experts should possibly prepare studies dealing with all questions associated with brain drain and being of mutual interest (such as compensation payments, technical aid, problems relating to the return of talent, work of the consultants in developing countries with the emigrants in the receiving countries, temporary activities of emigrants in their home countries and of returnees in the countries where they stayed before).
Support by enterprises receiving brain drain

141. By means of questionnaires the Sectt. has to find out how private enterprises in receiving countries and transnational corporations could support the efforts for mitigating the adverse effects of brain drain and for the return of emigrants with reintegration in the working process of the home countries. At the same time, it should be analysed how governments of the receiving countries urge their private enterprises to take such action.

Public information

142. Besides co-operation with organizations and agencies of the United Nations system and other international and national enterprises and institutions, Unesco should further develop its system of public information on the problem of brain drain. A broad international public should be addressed in order to gain moral and practical support for measures against brain drain. National authorities also should be involved in this public information campaign. In these activities such aspects of brain drain have to be tackled that have or could have adverse effects on the situation in developing countries and on the international coexistence of mankind.

143. The above enumeration refers basically to the components of a possible Unesco programme of action to prevent brain drain or to mitigate its adverse effects. These components and necessary measures need to be further elaborated through careful preparation. Unesco should play a leading role in being a clearing house of information for actions to combat the tendency towards brain drain and mitigate the adverse effects of large scale migration of highly qualified resources from developing countries.

144. The authorization by the General Conference of the Director-General to assist Member States to prepare and implement within Unesco's fields of competence, programmes for further training abroad, in conformity with the priorities adopted by these States, and programmes designed to avoid the emigration of highly qualified personnel should be pursued.
Part 8 - GENERAL CONCLUSIONS

145. Several of the major programmes of UNESCO are concerned with the issue of brain drain. All programmes for development of education particularly at higher levels for reorienting their curricular offerings and for enhancing opportunities for upgradation of skills and further education. Unesco can also contribute to the solution of this problem through its efforts to reduce the current disparities in development and particularly in science and technology through means at its disposal in its spheres of competence. Again Unesco has a special responsibility in promoting, discussion and debate and better understanding of relevant concepts, ideas and policies arising from studies and from world-wide experiences. The more specific recommendations made in parts 6 and 7 of the report for restricting and discouraging brain drain, for studies abroad, for more relevant studies within the country for creating conditions for retention of expert personnel within the country, for attracting the return of qualified immigrants as well as for various regulatory measures and measures for financial compensation, all need to be pursued by Unesco through its normal programmes. It is hoped that this study would make a humble contribution in creating the requisite awareness and building up the necessary support for comprehensive and steady action to tackle the vital problem of brain drain and thus help the developing countries to move faster towards their cherished goals.

146. The forthcoming preparation of the Medium-Term Plan of Unesco for 1990-1995 might be an appropriate occasion for thorough reflection and with the aim to give adequate consideration to the possibilities of Unesco to contribute in this regard.

147. Brain drain is quite obviously a rather complex problem constituting a very important obstacle to development. It has apart from political and economic aspects social, cultural and educational aspects which are of direct concern to Unesco. The problem has to be tackled through the several measures listed above and also by promoting bilateral agreements which should be encouraged by Unesco and through technical co-operation among developing countries in this area.

148. An appeal should be made with a good sense of responsibility of the countries and individuals concerned. The moral factor can never be underestimated.
The Executive Board,

1. Having examined the report contained in document 127 EX/SP/RAP.2 entitled 'The Brain Drain Problem: Its Causes, Consequences and Remedies and the Role of Unesco in this Regard',

2. Recalling the studies and other activities undertaken earlier by Unesco in view of the problem of brain drain which affects directly development, in the fields of competence of the Organization,

3. Takes note of the contents and conclusions of the report;

4. Draws the attention of Member States to the importance of this problem and decides to submit the report to the twenty-fourth session of the General Conference for information;

5. Stresses the interdisciplinary character of the problem;

6. Invites the Director-General to give appropriate consideration to the conclusions of the report when preparing the draft of the Organization's Medium-Term Plan for 1990-1994 as a base for corresponding concrete activities to be included in future biennial programmes of Unesco.
FOOTNOTES IN PART 1


5. Cf., S. Bharvava, Medical brain drain:... ibid., p.1--.

6. Meeting of Governmental Experts..., Statement made by S. Patel... ibid., pp.5-6.

7. D.N. Misra, Brain Drain: Consequences and some related issue, p.8, Seminar at the India International Centre... ibid.


Cf., also UNESCO, Scientists Abroad, Paris 1971.

Cf., also, The reverse transfer of technology, its dimensions, economic effects and policy implications, UNCTAD, TD/B/C. 6/7, Geneva 1973, pp.7-8.

11. This is sufficient reason even though Unesco has taken steps to support the efforts of many developing countries to expand or develop their statistical service.

Cf., The reverse transfer of technology: a survey of its main features, causes... ibid.; J.N. Bhagwati, The brain drain and taxation... ibid.; G. Henderson, Emigration of highly-skilled manpower from the developing countries, UNITAR, New York, 1970; Brain Drain: A study..., US House of Representatives... ibid.

Cf., also, The reverse transfer of technology: a survey of its main features, causes and policy implications, UNCTAD, TD/B/C.6/47, New York, 1979, p.4.

12. Towards an integrated approach to international skill exchange: ibid.


16. Emigration authorities in various countries adopt different professional classification systems of highly qualified persons, hence the definition of an engineer may not necessarily be the same in each country.

17. Cf., The reverse transfer of technology: a survey of its main features... ibid., p.6.; cf. also. 

The reverse transfer of technology: its dimensions, economic effects... ibid., p.15.

18. Cf., The reverse transfer of technology: a survey of its main features... ibid., p.6.


20. Cf., The reverse transfer of technology: its dimensions, economic effects... ibid., p.11; cf., also.

The reverse transfer of technology: a survey of its main features... ibid., p.7.

FOOTNOTES IN PART 2


2. It is difficult to ascertain what grounds tip the balance as they vary from case to case.

3. 'Many earlier studies of the causes of the brain drain have cited economic motivation as a major factor in emigrant's decision-making. Towards an integrated approach to international skill exchange: proposals for policy and action on reverse transfer of technology, UNCTAD, TD/D/AC. 35/2, Geneva, 29 August 1983, p.12.

4. Or send for them after a short time.

5. G. Henderson, Emigration of highly-skilled manpower... ibid., p.87.

6. The push factors are generally poor employment prospects, low wages, poor prospects of finding the right employment, political instability, a low standard of living generally.

7. These are, amongst others, high wages, better professional prospects, high standard of living generally. For a full account of the push and pull factors of, Usha Nayar, Brain Drain: The phenomenon and its causes, p.2 ff., Seminar at the India International Centre... ibid. Cf., also the facts supplied by member countries of Unesco as stated in 'Report of the Director-General on the answers of Member States concerning the anxiety caused them by the migration of talent', Unesco, document 17 C/58, Paris, October 1974 as well as 'Report of the Director-General to the ninety-fifth Session of the Executive Board' (1974).


11. Cf., H. Khanna, Brain Drain: the communications approach, p.3, Seminar at the India International Centre... ibid.

12. Cf., G. Henderson, Emigration... ibid., p.38.


20. 'Scientists, technologists and other highly specialized groups continue to meet problems of inadequate equipment and materials and of insufficient contact with developments in their particular field, Unesco, Notes on the Problems of Brain Drain for the Expert Group Meeting on Migration, Population Distribution and Development, International Population Conference, 1984, p.3.

21. Cf., Scientists Abroad, ibid., p.68.

A different view expresses S.K. Chopra: 'Indian scientists and engineers who have emigrated to the U.S.A were often motivated by the desire for a higher standard of living, better opportunities for their children, and curiosity about the Western way of life. The desire to improve their professional skills seems to be very low in their set of priorities', Bringing them home - The problem of brain drain, p.4, Seminar at the India International Centre... ibid.

22. P.28 from the paper on 'Brain Drain' by A.B. Zahlan, Trieste Third World Academy of Sciences (September 1985).


FOOTNOTES IN PART 3

1. Protagonists of this model are inter alia, N. Johnson, H.G. Grubel and A. Scott.

2. Cf., F. Bueno do Prado, R. Lohrman, Trend in the Migration of Trained Personnel; the Brain Drain among the Developed Countries, Study commissioned by Unesco, Paris; Brain Drain: a study... US House of Representatives... ibid.

3. Protagonists of this are, inter alia, B. Thomas, J. Shearer and Patnikin.

4. Cf., G. Henderson, Emigration of Highly-skilled... ibid., p.123; cf. also H. Khanna, Brain Drain: the Communications approach, p.2, Seminar at the India International Centre... ibid.

5. Cf., G. Henderson, Emigration of Highly-skilled... ibid., p.123.

   Cf., also Brain Drain: A study..., US House of Representatives... ibid., p.215.

7. G. Henderson, Emigration of Highly-skilled... ibid., p.123.


9. Cited in, Scientist Abroad... ibid., p.63.

10. Cf., G. Henderson, Emigration of Highly-skilled... ibid., p.31.

   Cf., also, The feasibility of measuring international flows of human resources... ibid., p.

12. P. Mathur, R.C. Malhotra, N.M. Swani, Brain Drain, p.7, Seminar at the India International Centre... ibid.; pp.8-9, Seminar at the India International Centre... ibid.
   Cf., also, The feasibility of measuring international flows of human resources... ibid., p.36.

13. Cf., G. Henderson, Emigration of Highly-skilled... ibid., p.134.

FOOTNOTES IN PART 4


FOOTNOTES IN PART 6

1. A number of these measures are being implemented in various countries in one way or another. Cf., Unesco Report of the Director-General, Emigration of Talent, 95 EX/29, Paris, 20 September 1974, p.24 ff.

2. 'Persons trained in technological or other developmentally crucial areas who would appear in some cases to be less favoured than those holding positions of a political or quasi-political nature,' Unesco Notes on Migration... ibid., p.3.


4. Dr Chandreshekar claims that, 'The intolerance of older scientists in dealing with the younger generation is the main reason for brain drain', S.K. Chopra, Bringing them home... p.3, Seminar at the India International Centre... ibid.

5. Institutions, for example, for research in the areas of tropical medicine or tropical agriculture could even provide for service export by utilizing the given natural conditions. UNCTAD, TDMSBU/UNCTAD 7a, Chapter IV, Trade 27.1.1987, p.87.

6. UNCTAD sees the following factors as causes of emigration: 'Lack of suitable work available in the migrant's fields of specialization, lack of adequate facilities for the type of work/research pursued in sufficient opportunities for promotion and/or further training, isolation from international centres of excellence in particular fields, etc.; The developing countries could aim at strengthening their universities and their research and development institutions. UNCTAD, TD/B/AC.35/2, p.12.


8. UNCTAD, TD/B/AC.35/2./-9.

9. Cf., A study by Unesco: Notes on Migration Population ... ibid., p.4.


12. Such research and teaching institutions could achieve international attractiveness so that they are not only exporters of services but also become international centres for training work for scientists from developed countries.

14. Transfer of knowledge and capital through Expatriate Nationals under which UNDP assists the sponsoring of experts/scientists residing abroad for short consultancy visit to the country of origin.

The 1985 Conference of Ministers in Brasilia 'recommends to Member States... that they develop their own scientific and technological base and foster among the young generations of future scientists and technologists a sense of social responsibility towards their own country and the other developing countries'. Op. cit., Brasilia Declaration on Science and Technology for Development, CASTALAC II, Brasilia, Brasil, Final Report... ibid., p.38.
FOOTNOTES IN PART 7


3. Inquiries from these countries with a circular ref. CL/2322 dated 24 September 1973. Information has to be published by Unesco, appraised and implemented, 95 EX/29, p.27, Appendix I.


5. Unesco should continue its efforts started in 1971 with the preparation of 'Scientists Abroad' a study of the international movement of persons in Science and Technology, Paris 1971. Data collection on brain drain could become incorporated for instance into the first subprogramme under the Programme V.6, ibid., p.13.

6. Programme V.6 of the second Medium-Term Plan (1984-1989) defines as one of the objectives and principles of actions in better integrating training and research activities 'making it easy for specialists trained abroad to return to employment in their own countries and thus limiting the brain drain'.

7. Circular sent to the Member States ref. CL/2322, ibid.
**ANNEX I**

**TABLE 1**

Skilled migration from developing countries to the United States of America, Canada and the United Kingdom (Gross flows)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of skilled migrants from developing countries</th>
<th>Share of developing countries in total skilled immigration (percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961-1965</td>
<td>9 655</td>
<td>2 049</td>
</tr>
<tr>
<td>1966</td>
<td>13 941</td>
<td>5 930</td>
</tr>
<tr>
<td>1967</td>
<td>23 061</td>
<td>8 614</td>
</tr>
<tr>
<td>1968</td>
<td>28 263</td>
<td>7 489</td>
</tr>
<tr>
<td>1969</td>
<td>27 437</td>
<td>8 286</td>
</tr>
<tr>
<td>1970</td>
<td>23 684</td>
<td>6 867</td>
</tr>
<tr>
<td>1971</td>
<td>28 448</td>
<td>6 195</td>
</tr>
<tr>
<td>1972</td>
<td>28 963</td>
<td>7 070</td>
</tr>
<tr>
<td>1973</td>
<td>31 882</td>
<td>6 180</td>
</tr>
<tr>
<td>1974</td>
<td>37 719</td>
<td>7 631</td>
</tr>
<tr>
<td>1975</td>
<td>29 830</td>
<td>6 362</td>
</tr>
<tr>
<td>1976</td>
<td>31 588</td>
<td>4 842</td>
</tr>
<tr>
<td>1977</td>
<td>34 537</td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>37 737</td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>29 561</td>
<td>3 273</td>
</tr>
</tbody>
</table>

- b Average for 1963-1965 only.
- c Average for 1964-1965 only.
- d Canada and the United States only.
- e United States only.

### TABLE 2

Share of developing countries in total skilled migration into the United States of America, Canada and the United Kingdom. Total 1961-1976

<table>
<thead>
<tr>
<th>Occupation and country of destination</th>
<th>Number of skilled migrants&lt;sup&gt;a&lt;/sup&gt; from developing countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States of America&lt;sup&gt;b&lt;/sup&gt;</td>
<td>118,816</td>
</tr>
<tr>
<td>Physicians and surgeons</td>
<td>40,876</td>
</tr>
<tr>
<td>Engineers and scientists</td>
<td>77,279</td>
</tr>
<tr>
<td>All others&lt;sup&gt;c&lt;/sup&gt;</td>
<td>661</td>
</tr>
<tr>
<td>Canada&lt;sup&gt;d&lt;/sup&gt;</td>
<td>81,613</td>
</tr>
<tr>
<td>Physicians, surgeons and scientists</td>
<td>4,850</td>
</tr>
<tr>
<td>Engineers and scientists</td>
<td>13,601</td>
</tr>
<tr>
<td>All others</td>
<td>63,162</td>
</tr>
<tr>
<td>United Kingdom&lt;sup&gt;e&lt;/sup&gt;</td>
<td>84,040</td>
</tr>
<tr>
<td>Physicians, surgeons and dentists</td>
<td>15,655</td>
</tr>
<tr>
<td>Engineers and scientists</td>
<td>9,225</td>
</tr>
<tr>
<td>All others</td>
<td>59,160</td>
</tr>
<tr>
<td>Total</td>
<td>284,469</td>
</tr>
<tr>
<td>Physicians, surgeons and dentists</td>
<td>61,381</td>
</tr>
<tr>
<td>Engineers and scientists</td>
<td>100,105</td>
</tr>
<tr>
<td>All others</td>
<td>122,983</td>
</tr>
</tbody>
</table>

<sup>a</sup> The concept of skilled migration used is wider for Canada and the United Kingdom than for the United States.

<sup>b</sup> For years 1961-1972.

<sup>c</sup> Computer specialists.

<sup>d</sup> For years 1963-1972.

<sup>e</sup> For years 1964-1972.

### Table 3

**Share of developing countries in total skilled migration into the United States of America, Canada and the United Kingdom, Total 1961–1976**

<table>
<thead>
<tr>
<th>Occupation and country of destination</th>
<th>Number of skilled migrants&lt;sup&gt;a&lt;/sup&gt; from Developing countries (1)</th>
<th>Number of skilled migrants from All countries (2)</th>
<th>Column (1) as a percentage of column (2) (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>284,469</td>
<td>868,775</td>
<td>33</td>
</tr>
<tr>
<td>Physicians, surgeons and dentists</td>
<td>61,381</td>
<td>101,535</td>
<td>60</td>
</tr>
<tr>
<td>Engineers and scientists</td>
<td>100,105</td>
<td>230,894</td>
<td>43</td>
</tr>
<tr>
<td>All others</td>
<td>122,983</td>
<td>536,346</td>
<td>23</td>
</tr>
</tbody>
</table>

<sup>a</sup> The concept of skilled migration used is wider for Canada and the United Kingdom than for the United States.

<sup>b</sup> For years 1961–1972.

<sup>c</sup> Computer specialists.

<sup>d</sup> For years 1963–1972.

<sup>e</sup> For years 1964–1972.

1. Paragraph 52 to be omitted.

2. Paragraph 53 becomes paragraph 52 and the subsequent paragraphs to be re-numbered accordingly.