By the end of this chapter the students should be able to:

- Give a working definition of what brain drain entails
- Identify six factors that cause brain drain.
- Identify six possible solutions that developing countries should employ in order to reverse brain drain.

Brain drain is a new phenomenon of the 20th century. It can be defined as the migration of highly skilled individuals who are trained in one country and take up residence and work in another. In this circumstance, professionals, in whom a nation has invested a considerable amount of educational resources, leave their native land and seek employment opportunities elsewhere. Secondly, it can be defined as the migration of “human capital” across international borders in form of migrant. The migrants move to countries, which they are not nationals for the purpose of employment. These migrants are persons not possessing the citizenship of their country of employment. More over brain drain or human capital flight is an emigration of trained and talented individuals (human capital) to other nations or jurisdiction, due to conflicts, lack of opportunity, health hazards where they are living or other reasons. It parallels the term capital flight, which refers to financial capital that is no longer invested in the country where its owners lived and earned it. Investment in higher education is lost when a trained individual leaves and does not return. Also, whatever social
capital the individual has been a part of is reduced by his or her departure. Scientist, engineers, academics and physicians who have been trained with scarcely available resources at social cost in their homes countries for the benefits and growth of their nations. However this has simply left helplessness to the concerned institutions and countries of the south that have been loosing thousands of their highly educated workers for the benefit of the rich countries and individuals themselves. This phenomenon can occur either when individuals who study abroad and complete their education do not return to their home country, or when individuals educated in their home country emigrate for higher wages or better opportunities. The second form is arguably worse, because it drains more resources from the home country. The phenomenon is perhaps most problematic for developing nations, where it is widespread. In these countries, higher education and professional certification are often viewed as the surest path to escape from a troubled economy or difficult political situation.

The history of massive brain drain started in USA in 1960s, when scientists were encouraged to go there in order to challenge the launching of sputnik (1957) by the former Soviet Union. They provided increased expenditure for highly skilled personnel that were met by immigration. During this period both the developed and less developed were launching efforts to industrialize and wanted to catch up with the technical and scientific standards of the United States. The loss of manpower was believed to affect developing countries efforts to industrialize.

**CAUSES OF BRAIN DRAIN**

The major causes of brain drain can be looked into as pull and push factors. The push factors are those aspects, which force people to think about leaving his normal place of abode or move from their native country to neighbouring countries or for more distant places like United Kingdom or USA. While the pull factors are the attractions those that draw people to particular destinations, which lure the immigrants to the country of destination. This phenomenon can occur in countries where education has not been commensurate with national needs and where talents and abilities to perform have gone unrecognized or unrewarded. It emergences when people have been terminated for professions
where jobs don’t exist and where advancement has more often been based on family income or social status than on professional ability.

It can take place when people are discriminated on the basis of sex, social class, race or entrenched economic and political interest. This can be attributed to weaknesses of the school system in training people for science and mathematics based occupations and the dominance of secondary and higher education system by foreign-based curricula, which locks countries into occupational arrays not well, suited to their particular needs. In some cases those who train in foreign countries could not return since they had no places to practice their professions. For example, until a few years ago, Gambia did not have a university and had to spend a significant portion of state funds to train and educate its professionals abroad. Those who became professors could not return, as they had nowhere to ply their trade. Poorly funded and resourced institutions further affect this while there are few private sector jobs.

The migrants compare those conditions between the native land and foreign countries. Personal taste and circumstances as well as costs of transactions and time affect the individual decisions as migrants. Some are after real income and professional opportunities, which were not available in their county for example the wages of civil servants in Brazil, has been very low. It has remained around $40 to $60 per month. If the monthly wages equals $50, 42% of Brazilians makes up to just $1,800 per year and only 20% make more than $4,200 per year. These figures are not encouraging given that civil servants include schoolteachers, police force, and doctoral and health care personnel.

The political instability in the home countries may force the migrant to lose confidence with their governments and future prospects for a better life. These are individuals who may have difficulties because of their ethnic, cultural, and religious belonging or being a member of opposition grouping in their home countries. Migration takes place in response to wars and political and social turmoil.

Students from less developed countries are expected to go back and provide manpower in such areas as medicine, education, engineering and military. Most of them do not return home but are left behind. Those who sought to remain behind site prestige of degrees obtained abroad and the good academic facilities as reasons for staying behind.
Others study abroad because their countries have small but selected universities and they were not admitted because government scholarships are not available, for example, in Kenya, Uganda, Israel and Iranians.

Those students who were educated abroad do acquire international marketable skills and information concerning job opportunities abroad. This would help them to decide and search for better paying jobs than what is in their home country. The low pay and lack of moral will force them to leave their jobs and home and search for international jobs.

If the home government has an excess of professionals, a limited job hierarchy with prospects for improvement, professionals will consider permanent residence in their new countries’ of destination, for example, in Spain there is a problem with promotion process in that often ten to fifteen years of service, every member of a high corps has reached the highest grade of his or her professional career. This erodes motivation and distorts the organizational chart. Consequently there can be lack of political will, where by employment procedures are full of corruption and anomalies. These can force the professionals to seek employment elsewhere, for example, in Brazil 2.3 millions civil servants were employed under the private laws. These private employees may be fired without cause and are not covered by civil service pension scheme. Thus when they retire, do not burden local government budgets.

In Bolivia the ineffective macroeconomics measures and political instability lead to hyperinflation in the mid 1985. The measures, which were instituted, included leasing of restraints on labour force mobility that allowed people to migrate to other countries and offer their expertise. Political turmoil is linked to the failure of economic development. As pressure of poverty, rapid population growth, diseases and illiteracy and environmental degradation mounts they produce a volatile cocktail of insecurity. Resulting wars, civil strife, state sponsored terrorism, riots and other forms of political violence can lead to the displacement of large numbers of people as migrants, refugees or asylees. In the twentieth century, more wars are taking place and they are longer and causing more devastation. Both internal and regional conflicts based on religion and ethnicity is precipitating unprecedented high levels of international migration. It can be pointed that over the last 40 years nearly 20 African countries have experienced at least one period of civil war. It is estimated that 20% of Sub-Saharan population
now live in countries, which are formally at war, and low intensity conflict has become endemic to many other states. Deep political and economic development failures are the root causes of African problems.

As some statistics indicate concerning the current intellectual migration, it is Africa that suffers most from this unfortunate phenomenon. In 1998 an estimated 700 Ghanaian physicians are said to have been practicing in the USA alone, which makes a considerable percentage of the population of doctors in that country. It is estimated that 20,000 Nigerian academics are now employed in USA alone and more than 300 Ethiopian physicians are working in Chicago, USA alone. According to research reports presented on an international conference concerning the issue of Brain drain, Africa generally looses over 20,000 intellectuals yearly. A new report by the British Broadcasting Corporation (BBC) says Africa has lost a third of its professionals in recent decades and it is costing the continent $4 billion a year to replace them with expatriates from the west. Where as rich countries like the United States of America have saved a total sum of $26 billions dollars which otherwise should have spent to train 130,000 highly qualified physicians. The consequences are worse for poor countries like Ethiopia. This already poor and unfortunate country has been loosing its meager professionals continuously since the previous regime. The country has a long history of external provocations and internal conflicts that has been driving out its limited medical doctors in particular and other professionals in general. Thousands of them have been trained in home institutions with considerable social cost and debt from the richest nations. In the past decade between 1980-1990, a total of less than 6000 students have returned from studies abroad out of nearly 23000 students who left for Europe and the United states in that same period of time. These are either tempted by significantly higher wages and better future prospects or give the blame to the political situation, which they say is a threat even for their lives. In most cases the later is likely to be the main reason that makes Ethiopians on their way from the country. South Africa and Nigeria seem to have the biggest portion in loosing their professionals from Africa, which consumes professionals from other African states on their part. This is undoubtfully one of the main constrains of underdevelopment in the continent.
The second factors are the pull factors. They are factors that entice a person to leave their home or cause them to be pulled towards another place. These include the following in case of brain drain. Some of the rich powerful countries that have not yet trained enough citizens with essential skills often import talents by offering higher pay and better working conditions. Many professionals from Western Europe have moved to "countries of opportunity" particularly the United States, Canada and Australia. There are circumstances within Europe where France attracted some professional from Latin Europe, Spain, Greece, Sweden and Norway.

There were Europeans professionals who migrated to North America due to newer facilities, higher pay and more flexible opportunities compared to the home country. In most former colonies, professionals moved to their former colonial masters countries. Those from British Commonwealth went to the United Kingdom and those from francophone countries went to France.

The booming economy and expanding universities of USA have been attracting everyone. Increasing numbers of Indians, Chinese and Koreans migrated there rather than to Europe. The USA relaxation of immigration Act in 1965 eased professional restriction, which gave entry of professionals from non-European countries. Most doctors however arrived after completing their education entirely at home. The flexible structure of organizations and the vigorous leadership of the USA, which attracted most professionals, further expanded the above scenario.

There has been demand for professionals or skilled people of certain characteristics, for example Turkish authority's net loss of engineers with six or more years of experience jumped from six in 1977 to 54 in 1980. The number of engineers in the state Hydraulic Works Dam Design and construction similarly declined from more than one hundred to 55 in recent years and most qualified senior exploration and drilling staff of Turkish Petroleum Company left at an alarming rate in 1980 and 1981. Similar trends have been observed in Guyana's bauxite and electricity and in Egypt nationals' urban planning offices. Most of the above professionals have moved due to high remunerations and fringe benefits. This is the reason why most people have been targeting USA where certain professional are well paid compared to the home
government. For example a doctor can be paid ten times the amount he can be paid in less developing countries like Kenya.

The high salaries are further accompanied by high standards of living in industrialized countries compared with adventurism. Those from Kenya are able to drive within the shortest time possible in USA compared to when they were in their mother country. The post second world war expansion of the industrial economies of western Europe and North America has lead to immigration policies in these countries designed to meet a burgeoning demand for cheap labour. Globalization has made possible a massive transfer of resources like technology and capital; labour has become another form of large-scale resource transfer. The developed countries are a magnet for the world’s migrant is evident from statistics. In 1990, half of the worlds migrants were in industrial countries: 15-20 million were in western Europe, 15-20 million were in North America and 2-3 million were in industrial nations of Asia in countries such as Japan and Taiwan.

EFFECTS OF BRAIN DRAIN

Brain drain has effects to both the country of origin and that of destination. For parent country, the migration of professionals is more than a financial concern because such individuals are the elite without which a national development will suffer. Consequently, if the “human value” is used, the figures that are produced are large relative to the aid given. This factor has been used to show the problem of brain drain and to demand action on the country involved.

Secondly, when a country loses a highly skilled person through emigration there is likely to be short run adjustment cost arises from the fact that efficiency requires an optical mix of human capital with physical capital and unskilled labour. When an engineer leaves a plant, in the extreme case, machine and labour have to remain idle until a replacement is found. This temporary lose can be eliminated if the departure of the engineer is known in advance and a replacement has been trained. The replacement of skilled person requires time consuming education.

The population of a country taxes itself to finance the operation of institutions on study of citizen abroad. This collective investment in education is made in expectations of general returns to the society.
This can lead to increase in productivity and greater tax base in order to raise more revenue to be spent on further development and welfare projects and the country as a whole.

The competitive selection of education tends to provide education on the most gifted and dynamic young people who are sources of leadership. Therefore, their migration abroad represents serious loss of leadership because the investment has lost and involves a great inequality. The projects for the provision of the very basic technology and medical services in less developed countries suffer or have to be abandoned because of lack of skilled personnel while those emigrants contributes to the unnecessary mixing of technical and medical projects in industrialized countries. For example, the current mass exodus of nurses and doctors from Ghana to Britain leaves the country in problems because most of them are trained within the country. The UN Economic Commission for Africa and the International Organization for Migration estimates that since 1990 at least 20,000 people leave the continent annually.

In cases where the education was financed by the government the emigrants then owe the government, the obligation is payable through taxes which are used to provide public pensions, medical care and welfare for the elderly. Thus those left behind face an increased tax burden to take care of the above services. Developing countries express concern that emigration deprives these nations of their best human resources, represent a transfer of educational investment from the poor to rich countries and leads to abuses or exploitation of their workers. Out migration can also pose the risk of rather serious and sometimes dramatic economic problems and the need to make sudden adaptations when migrants return unexpectedly and in large numbers.

Those students who have studied abroad may bring home techniques suited to country of study but wasteful and too technical for Home County. Thus the home country losses its investment in it’s upbringing and education.

There are some positive effects, which can be attained by the home country. First to home country may benefit if it has excessive number of persons in a certain speciality. The immigration may relieve unemployment and increase the security to pay those who remained. Some professionals may remit money home and thereby the country
may gain exchange. The World Bank study of labour exporting countries recorded receipt of about $23 billion in remittance in 1978, which is equivalent to about 10% of the value of their exports of goods and service. Although professional and technical manpower constituted 4% of Pakistan emigrants to the Middle East in 1979, they earned about 17% of total migrant income and third per capital remittance averaged $4,500 per year more than twice that of unskilled workers.

If the professionals come back, they are always, equipped with technical and managerial skills essential for development. The highly skilled people may occasionally create negative externalities by providing the stimulus for civil unrest and revolutions, that turn out not to have been in the long-term interest of the country. The emigration of highly skilled potential revolutionaries may then have positive externalities for their home country.

On the part of migrants receiving country, the labour force contributes a lot to the development of industries. For example, in Australia, 58% of the country’s post war growth is due to the inflow of foreigners. Also, Kuwait and united Arab Emirate stand out with, respectively, 69% and 85% of the non-national in their workforce proportion which are known to have risen. These countries have manpower without having to pay the cost of the emigrants' development and education. Some of them may be unusually innovative; have notable achievement in the sciences and humanities. This may increase the cultural and national status of the country and encourage foreign infusion. But the receiving country may receive some negative publicity through internal forums.

In other cases the emigrant may not be as well trained as local professionals and may not relate well to public services in quality. If the person is a genius, ethnic and racial tension may arise.

**SOLUTIONS TO BRAIN DRAIN**

In order to curb brain drain for the less developed countries a number of proposals need to be implemented. First the home government needs to raise the salaries and improve the working conditions in their countries. The government should offer higher wages for insiders according to their qualifications instead of estimating and hiring expatriates, which is more costly. The government should guarantee jobs for those who might return and recruiting abroad for important
public service positions for example the government of Korea successfully lured back Korean scientists trained abroad.

In cases where there was political turmoil, a change in political set up as it happened in Jamaica in 1975 and in Nigeria in 1997 may encourage migrants to return. But this is a very tricky position for any country. Good governance at the national and international level, especially maintenance of reasonable security for peoples lives and property is essential for economic progress. Transparency in leadership is essential and should be maintained. For the politically distressed countries the professionals may be relocated to places where they can be productive rather than confining them in refugee camps and then return home once the situation in their countries normalizes.

The government can encourage economic incentives on selective basis. For example the government of Sri Lanka launched a programme in 1979 to encourage professionals to stay or return home by revising its pension systems, easing exchange controls so that people could finance the education of their children abroad and by facilitating re-entry of senior staff to appropriate positions in the government.

Education plays a powerful role especially in the growing problems of international migration. Therefore, offering those individuals the necessary education qualifications in their homes countries and expanding a better educational infrastructure may definitely prevent emigrants who are seeking a higher education abroad. Furthermore seeking alternative measures for return of warranty from the beneficiaries, such as the withholding of academic degrees until the graduates return and are willing to serve the people may be another considerable alternative.

Another proposal, are imposing heavy emigrating taxes and passport fess on trained manpower in order to discourage them from leaving and introducing compulsory public services employment for certain categories of personnel akin to the military service as it being tried for medical doctors in Turkey. The restrictive policies should be aimed at delaying emigration such as adding extra years to medical students' training. Various tax proposals have been put forward as government realize that the large numbers of citizens living outside their borders are a potential economic resource. For example due to economic hard
ships, Zimbabwe has come up with a new proposal where graduates who received state assistance are now required to surrender a third of their salaries if they choose to work in a foreign countries on completion of their studies. The cash strapped government has set up a special cadet scheme whose stringent conditions it hopes will stem a crippling brain drain that has hit most of the countries economic sectors. The Ministry of Higher and Tertiary Education has come up with conditions and a memorandum of agreement for special cadets who access state funds to pay for their studies. Other proposals include one-time exit taxes to bilateral tax arrangement, which would require the receiving nations to tax citizens of another and remunerate the home country. Another strategy may include adoption of international agreements by industrialized and developing nations under which the wealthy countries should pledge not to recruit people from developing countries. Adopting a strategy that involves transferring skills through networks of professionals and intellectuals and the time-tested approach of repartiation can enhance this. Lastly, urban rules should be handed by the less developed countries for certain categories of temporary immigrants that require them to leave upon completion of their study or research mission.

There is a large and growing pool of African scientist living and working in the industrialized world. African countries should develop and adopt strategies to mobilize and utilize their Diaspora. The region can no longer afford to ignore this capital. Indeed it should tap the enormous scientific and technological talents of African abroad and use them for its own scientific and technological development. In conclusion, due to the impact urbanization and globalization, the less developed countries have to change their modes of education to suit the market. They also have to readjust their economics with the global trends and put policies, which can encourage their professionals to remain within the country. Those countries with political regime, which do not take care of professionals, and war ravaged countries will always face emigration and brain drain.

ACTIVITY
i. Define the word brain drain.
ii. Outline and discuss four causes of Brain drain.
iii. Discuss five effects of brain drain.

iv. What are the possible policy solutions to brain drain.

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