

An Assessment of an HRD Project: Lessons Learned

Mussie T. Tessema
Winona State University

Marzie Astani
Winona State University

Goitom Tesfom
Eastern Washington University at Bellevue

Sambhavi Lakshminarayanan
City University of New York

This study assesses one major Human Resource Development (HRD) project that was implemented in one of the Less Developed Countries (LDCs), Eritrea. This study argues that some HRD projects may not positively affect organizational performance mainly due to the inability of organizations to effectively retain, motivate, and utilize the trained workforce. It concludes that HRD investments tend to be made relatively easily but what is difficult is retaining and effectively utilizing trained personnel. That is, HRD is necessary but not sufficient for enhancing organizational performance. Implications of these findings and future research directions are also discussed.

INTRODUCTION

In every country, people are the lifeblood of the public service. Every organization, whether it be a public, private, or NGO, must operate with or through people. This underscores the need to value people highly and to develop and manage human resources with great care (Decenzo & Robbins, 2010; World Bank, 1997). Especially service sector such as public organizations, being labor intensive, are judged on the basis of the performance of their human resources. Ingraham, Selden, and Moynihan (2000: 56) explain that “Members of the public service are...government’s most important resource. Failure to understand and value that resource will inevitably be linked to lack of capacity and performance.” Similarly, Hays, Kearney, and Cogburn (2009) are of the view that improving the way human resources are developed and managed is central to improving the quality of services offered by governments. Successful organizations attribute their past successes partly to the way they deal with their people (Decenzo & Robbins, 2010). Thus, public organizations need to effectively develop and manage their human resources if they are to realize their objectives (Hays et al., 2009; Kiggundu, 1989).

According to Kefela & Rena (2008), it is necessary for every country to give due attention to HRD to enhance the capability and productivity of its workforce. However, in spite of the expansion of HRD programs in many LDCs during the past four decades, public organizations in these countries still have

serious shortages of skilled public servants mainly due to their inability to effectively attract, motivate and retain them (Teferra & Altbachl, 2004; Bertram, Wedekind, & Muthukrishna; 2007; Manik, 2007). HRD programs have come under strong criticism in many LDCs with their effectiveness thrown in considerable doubt (e.g., Kiggundu, 1989; Tessema, 2010).

This study is about assessing a major HRD project implemented between 1998 and 2005 in one of the LDCs called Eritrea. Eritrea gained independence in 1991 and become a sovereign State in 1993 after 30 years liberation war with Ethiopia. Eritrea has embarked on a multifaceted nation-building and reconstruction process in which public service is one aspect. The Eritrean government inherited a very low human capital base at independence (Tessema et al., 2005; Wekita, 2002; World Bank, 1994). To reverse the situation, the Government took a number of HRD-related activities (MOE, 2003; Tessema et al., 2005; UNDP, 2002). One of the most important actions taken by the government was launching the Eritrean HRD Project (1998-2005), which is the focus of this study.

Before we proceed to the research questions, we provided the background of the Eritrean HRD project implemented between 1998 and 2005. In 1997, the Government of Eritrea, as part of its public sector management program, organized a training needs assessment study for public sector management (Eritrean HRD Project, 2003). The study identified a critical skills gap between the needs of the Eritrean government to implement its reconstruction and development programs and the ability of the existing Eritrean public employees to deliver social and economic development. The Eritrean HRD Project was initiated in 1997, following a soft loan provided by the World Bank after the identification of an acute shortage of skilled labor within the public sector. However, because of the war that flared up with Ethiopia between 1998 and 2000, the training project was not fully implemented until 2000. The Eritrean HRD project awarded [a] 674 Eritreans external scholarships to attend undergraduate, graduate and post-graduate degree programs at European, Indian and South African Universities, [b] 1037 public servants internal scholarships to attend Certificate (1 year), Diploma (2 years) and Degree (4 years) programs at the University of Asmara and [c] 889 Distance Education scholarships to public servants, to study with universities in South Africa (Eritrean HRD Project, 2003).

The participants of the Eritrean HRD project came from 29 Eritrean public sector organizations (Eritrean HRD Project, 2003). This study, however, focuses on the 674 Eritreans who were given external scholarships to study undergraduate (#132), graduate (#534) and post graduate (#8) studies under the auspices of the Eritrean HRD Project. Although the project awarded 674 external scholarships to Eritreans to undergo long-term training, 64 percent of them absconded, or did not return home to work in the public service as expected, after graduating. This indicates a very high attrition rate. Prior studies indicate that, although the quality of Eritrean public servants showed a remarkable change during the first 10 years of independence (1993-2002) through HRD programs (Kefela & Rena, 2008; UNDP, 2002; MOE, 2003; Tessema et al., 2005), such change has been undermined by the brain drain. Hence, the critical challenge that has faced contemporary Eritrea is how to retain and motivate trained public servants.

There are two main reasons for conducting this study: First, in spite of the high expectations of the Eritrean HRD project (1998-2005) to fill the skills gap in the Eritrean public sector organizations, the vast majority of the project trainees (64%) did not return home after completing their studies overseas. So, we wanted to know why the project had high attrition rate (brain drain). Second, although many studies have identifies a number of factors that aggravate brain drain, they have not tried to assess the extent to which they are correlated with the brain drain or the extent to which they [the factors] explain the change in the brain drain. This article endeavours to deepen and broaden our knowledge of the factors that influence the brain drain and their correlation with brain drain by empirically testing the perceptions of the participants of the Eritrean HRD project. Previous studies have not used first hand information from LDCs' nationals who have studied overseas but have not returned home. These studies have tended to rely mainly on existing records (statistics). The current study tries to fill the gap by gathering and analyzing first hand information - the perceptions of Eritreans who were given external scholarships but did not return after completing their studies. Specifically, this paper attempt to answer the following research questions: [1] Which factors and to what extent explain the attrition rate of Eritrean HRD project? [2] What are the policy implications of the findings of the study?

LITERATURE REVIEW

The capacity of a nation for economic growth and development is determined by factors that can be categorized as human, financial, physical or material and technological. Of these all important factors, the human factor is universally regarded as the most valuable and most strategic (Decenzo & Robbins, 2010; Hays et al., 2009; World Bank, 1997). Effective and efficient use of limited resources calls for skilled manpower (Grindle, 1997). A review of the more successful development projects and programs from a variety of countries found that a common feature among the projects was the high priority placed by each of them on HRD (World Bank, 1997). Hence, one can argue that effective HRD programs more than ever before, are crucial ingredients in the development process of LDCs. The HRD effort emerged as an absolute necessity especially for countries with a critical shortage of qualified public servants (Bertram et al., 2007; Hilderbrand & Grindle, 1997; Kiggundu, 1989). HRD programs are, therefore, increasingly important for assuring that LDCs have an adequate and continuous supply of competent public servants.

Over the past four decades, governments in LDCs have been attempting to improve the skills and knowledge of their public servants by providing HRD programs (both local and overseas training programs). However, despite all the efforts made so far, the HRD programs have had limited impact on the capacity of the public sector organizations in most LDCs (Cohen & Wheeler, 1997; Clemens & Pettersson, 2007; Tessema, 2010). Many public servants trained with government expense defect to private sector, NGOs, and abroad where salaries and other privileges are often higher.

The question is: *how can we assess the effectiveness or success of HRD programs?* There are many approaches through which organizations can assess the effectiveness of HRD programs (e.g., Kirkpatrick & Kirkpatrick, 2006; Wick, Pollock, Jefferson, & Flanagan, 2010). However, the Kirkpatrick Model (2006) for evaluating HRD programs is the most widely used approach. It focuses on four key areas or four-levels of evaluation: reaction, learning, behavior, and results. *Reaction*, as level-one of evaluation, attempts to answer “how the learners react to the learning process- customer satisfaction?” This level is often measured with attitude questionnaires that are passed out after most training classes. This level measures one thing: the learner's perception (reaction) of the course. If the training program fails to satisfy their needs, a determination should be made as to whether it's the fault of the program design or delivery. However, assessing employee (ex-trainees) and manager opinions or reactions may not be necessarily valid measures. This is because opinions and reactions could be influenced by things like difficulty, entertainment value or personality of the instructor/trainer (Tessema et al., 2005). *Learning*, as level two of evaluation, attempts to answer “Did the participants learn anything- the extent to which participants change attitudes, improve knowledge, and increase skill as a result of participating in the learning process?” The learning evaluation requires some type of post-testing to ascertain what skills were learned during the training (Kirkpatrick & Kirkpatrick, 2006). In addition, the post-testing is only valid when combined with pre-testing, so that you can differentiate between what they already knew prior to training and what they actually learned during the training program (Wick et al., 2010). *Performance (behavior)*, as level-three of evaluation, attempts to answer “Do people use their newly acquired learning on the job- capability to perform the learned skills while on the job?” It involves testing the ex-trainees capabilities to perform learned skills while on the job, rather than in the classroom. Level three evaluations can be performed formally (testing) or informally (observation) (Kirkpatrick & Kirkpatrick, 2006). *Results*, as level four of evaluation, attempts to answer “What impact has the training achieved- outcomes that occurred as a consequence of program attendance?” These impacts can include such items as monetary, efficiency, employee productivity, accident rate, moral, teamwork, etc.

However, in this paper, we decided to assess the effectiveness of this specific Eritrean HRD program (overseas long-term training) implemented between 1998 and 2005 based on the number of trainees who successfully completed the program and return home to join their respective organization or based on the number of trainees who failed to return home (absconded after completing the program or the so called “brain drain”).

The question is: *How large is the brain drain from LDCs?* According to the International Organization for Migration (2010), the number of international migrants was estimated at 214 million in

2010. If this number continues to grow at the same pace as during the last 20 years, it could reach 405 million by 2050. Docquier and Marfouk (2006) report that the number of migrants residing in OECD countries increased by 50 percent between 1990 and 2000, with the increase of skilled migrants 2.5 times that of unskilled ones (70% versus 28%). For example, that 79.8 percent of emigrants from India have a tertiary education while only 2.5 percent of the overall Indian population has a tertiary education (Sriskandarajah, 2005). At least one-third of science and technology professionals from LDCs are currently working in the industrialized nations (Selassie, 2002). In some countries, the brain drain is acute. Grenada (Jamaica) has had to train twenty two (five) doctors in order to retain one (Stalker, 1994), which implies that a brain drain of 95.5% for Grenada and 80% for Jamaica. Haddow (quoted in Cohen & Wheeler, 1997: 125) notes that government of Kenya must train four officers to retain one for a long period of time. By the end of the 1990s, Indians working in the US on working visas accounted for 30 percent of the Indian software labor force (Commander et al. 2003 quoted in Sriskandarajah, 2005).

When it comes to Africa, Onyango-Obbo (2005) points out that since 1990 every year, 20,000 professionals leave Africa as part of the brain drain, bringing the number in Europe and North America to more than 300,000. Of these, about 30,000 are PhD-holders. About 40 percent of all African professionals have left the continent's shores in the postcolonial period (Africa Recruit, 2003). 10 out of the 53 African countries have lost more than 35 percent of their tertiary educated labor force and countries such as Cape Verde (68%), Gambia (63%), Seychelles (56%), Mauritania (56%) and Sierra Leone (53%) suffered from a massive brain drain (Marfouk, 2008). In addition, fraction of health professionals abroad varies enormously across African countries, from 1 percent to over 70percent according to the according to the occupation and country (Clemens & Pettersson, 2007).

The above brief discussion suggests that, although the brain drain is not a new phenomenon, it has risen sharply in recent years, especially in LDCs. It must be noted that the brain drain is not uniquely LDCs problem; rather it is global in scope in that it exists in both developing and developed countries (e.g., from Canada and Great Britain to the US). Specially, the public sector in many LDCs has experienced acute shortages of high-level technical and managerial skills in many areas. The shortage of skilled public servants that LDCs experience is mainly a result of a high rate of brain drain (Marfouk, 2008; Onyango-Obbo, 2005).

The question is: *why individuals from LDCs who were trained overseas failed to return home and join their respective organizations or the so called "brain drain"?* After reviewing the relevant literature on why trainees who are the products of HRD programs fail to return to their organizations LDCs (brain drain), we identified five factors: unfavorable economic, political, and working conditions, as well as lack of peace, stability and attractive HRM practices (Belay, 2004; Tansel & Güngör, 2003; Teferra & Altbachl, 2004; Physicians for Human Right, 2004; 199; Prah, 2004; Grindle, 1997; Tessema, 2010; Manik, 2007; Martin, 2005; Sriskandarajah, 2005). Put it differently, a review of the literature on the brain drain in the LDCs yields five critical factors that account for this syndrome. The above five factors are assumed to be the 'determinant factors of the brain drain' in that they affect the rate at which this syndrome occurs, particularly in LDCs. These factors will lead to greater incidence of the brain drain.

RESEARCH METHODOLOGY

Sampling procedure

This paper is mainly based on a survey of the perceptions of Eritreans who have not returned home after completing their higher education overseas. These Eritreans are currently living in three different countries: England (31%), USA (32%), and South Africa (37%). The sample consists of 134 respondents of which 24 percent were female. In addition to the survey, we conducted in-depth interviews with 28 respondents and analyzed relevant reports on the Eritrean HRD project.

Measures

A questionnaire was used to collect data on six variables: *economic conditions* (with four items), *political conditions* (with six items), *peace and stability* (with two items), *working conditions* (with three

items), *HR practices* (with six items) and *brain drain* with (two items). The equation, therefore, consists of the aforementioned five factors as *predictor* variables and brain drain as *dependent* variable. All the items were measured on a five-point scale ranging from 1, “Strongly disagree,” to 5, “Strongly agree” (see Table 1 for their explanation and scale reliability). The analysis also includes three ‘control variables’, namely country of residence, age, and sex of the respondents. Except for the variables ‘country’ and ‘age’, which are simply entered in the equation as continuous variables, ‘gender’ is measured as a dummy variable. The respondents were also presented with items that could be answered by a simple yes or no. They were also given two open-ended questions to provide any other explanations they may have had for the causes and challenges of the brain drain.

Results

Table 1 presents a statistical summary of the respondents’ responses. According to the analysis in Table 1, the overwhelming majority of the variables were rated low (mean values ranging between 1.4 and 2.3 on a 5-point scale), which in turn suggests the magnitude of the problems associated with the brain drain. Table 1 also contains the results of the calculations of the alpha coefficients made to check the reliability of the variables. All the alphas range from .65 to .92, which are generally satisfactory (Nunnally, 1978).

TABLE 1
DESCRIPTIVE STATISTICS AND CRONBACH’S ALPHAS

Variable in model	High value means	Mean*	SD.	Alpha
Economic conditions	Strongly agree that conducive economic conditions exist in Eritrea	1.4	.30	(.65)
Political conditions	Strongly agree that conducive political conditions exist in Eritrea	1.3	.38	(.92)
Working conditions	Strongly agree that conducive working conditions exist in Eritrea	1.8	.26	(.71)
Peace and stability	Strongly agree that peace and stability exist in Eritrea	1.2	.38	(.67)
HR practices	Strongly agree that HR practices are conducive in Eritrea	1.7	.35	(.70)
Brain drain	Strongly agree that low rate of brain drain exists	1.3	.36	(.82)
Gender	M/F		.43	
Country	The country they are residing		.79	
Age	Age of the respondent	28	.54	

Note: * 1 refers to ‘Strongly disagree’, 2 to ‘Disagree’, 3 to ‘Indifferent’, 4 to ‘Agree’ and 5 to ‘Strongly agree’. n=134

Table 2 presents the correlations between the variables included in the analysis. As shown in Table 2, the five factors were significantly correlated with the brain drain and r ranges between .21 and .70. The findings indicate that the five factors had a moderate to high correlation with the brain drain.

In Table 3, we conducted regression analysis to test the extent to which the five factors explain the change in the brain drain. Before we performed the regression analysis, we examined the variables for outliers, multicollinearity, and fit between their distributions and the assumptions of regression. No potentially problematic outliers were found, as Cook’s distance was well below 1.0 for all cases (Tabachnick & Fidell, 2007). Inspection of the correlation matrix indicates no problems with multicollinearity, as all correlations are well below .90 (Tabachnick & Fidell, 2007). In addition, residuals were distributed normally and did not display heteroscedasticity when plotted against the predicted values.

**TABLE 2
CORRELATION MATRIX**

<i>N</i>	<i>Variables</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
1	Gender									
2	Age	.21*								
3	Country	.06	.088							
4	Economic conditions	.13	.246**	.17						
5	Political conditions	.30**	.27**	.23**	.51**					
6	Working conditions	.03	.13	.02	.51**	.18*				
7	Peace and stability	.28**	.20*	.17*	.55**	.76**	.24**			
8	HR practices	.006	.21*	.19*	.52**	.32**	.09	.29**		
9	Brain drain	.29**	.28**	.11	.69**	.69**	.21*	.70**	.38**	

Notes: ** Correlation is significant at the 0.01 level; *Correlation is significant at the 0.05 level (2-tailed); n=134.

As shown in Table 3, three out of the five factors identified in this model show a statistically significant positive impact in explaining the change in the brain drain and are greater than or equal to $\beta = .28$. The three factors are lack of economic and political conditions as well as peace and stability. In addition, the five factors altogether explain about 81 percent of the change in the brain drain ($R^2 = .81$). In Model 2, summarized in Table 3, when gender, country, and age are added, the R^2 change that was found was only .01; this is not statistically significant. The result suggests that gender, country, and age did not significantly affect the brain drain. The findings further suggest that the more the five factors are in place, the higher will be the rate of the brain drain.

**TABLE 3
RESULTS OF REGRESSION ANALYSIS ON “BRAIN DRAIN”**

<i>Variables</i>	<i>Model 1</i>	<i>Model 2</i>
Economic conditions	.38***	.38***
Political conditions	.28***	.27***
Working conditions	.04	.04
HR practices	.02	.02
Peace and stability	.28***	.24***
Gender		.09
Country		.07
Age		.04
F	47.9***	30.9***
R ²	.81	.82
R ² change		.01

Notes: ^a Standardized Regression Coefficients are reported; *** $p < .001$; $N = 134$

DISCUSSION

The current study attempts to examine the extent to which the proposed five factors included in our model are correlated with brain drain as well as the extent to which they explain the change in brain drain. To that purpose, we performed a correlation analysis (Table 2) and regression analysis (see Table 3). The findings of this study suggest that the more the five factors are in place, the higher is the rate of the brain drain, i.e., the more the five factors are favorable or conducive, the less the rate of the brain drain will be (Bertram et al., 2007; Gubert, 2005; Manik, 2007; Teferra & Altbachl, 2004; Tessema, 2010). Hence, these findings are consistent with the predicted relationships. Reasonably good support for the propositions of the model was found.

In the first seven years of Eritrea's independence, the five factors included in our model were favorable in that Eritrea's economy was growing well, the political conditions were relatively conducive, peace and stable prevailed, HR practices and working conditions were relatively attractive (Kefela & Rena, 2008; UNDP, 2002; MOE, 2003; Tessema et al., 2005). As a result, many scholars and government leaders like President Bill Clinton cited Eritrea as a beacon of Africa (Tseggai, 1999). Studies show that between 1991 and 1998, there was almost no brain drain involving public servants who were sent abroad for short or long-term training (Tessema et al. 2005). Rather, the reverse (i.e., brain gain) is what was true; during that time, many Eritreans, who had lived in the developed world, began to return home to work in the public service or in the private sector or simply as consultants. For instance, Tseggai (1999: 232) finds that "about twenty-eight per cent of the organizations surveyed were able to recruit skilled employees among Eritreans in the diaspora, mostly from Ethiopia with some success." After the war broke out between Eritrea and Ethiopia in 1998, however, most of the Eritreans who had returned home fled their country. The brain drain, which was uncommon to Eritreans (1991-1998), suddenly began to increase.

Table 3 reveals the extent to which economic conditions explain the change in brain drain ($\beta = .38, p < 0.001$). Eritrean economy had been deteriorating since 1998 mainly due to the border war with Ethiopia. As a consequence the government's ability to offer attractive compensation to the public servants was adversely affected. For instance, the public servants salary has not been adjusted since 1997, in spite of the high inflation rate (Tessema, 2010). Thus, it can reasonably be argued that the deteriorating Eritrean economy was one of the main factors that discouraged most of the Eritrean HRD trainees (64%) not to return to their home country after completing their overseas training.

The economic conditions of many LDCs have been deteriorating over the past four decades. As a consequence, wages in the public sectors of the LDCs have been declined sharply (Clemens & Pettersson, 2007; Marfouk, 2008; Martin, 2005). Economic differences between rich and poor countries are widening, encouraging migration for higher incomes and jobs. The world's GDP was \$30 trillion in 2000, making average per capita income \$5,000 a year, but there was significant variation—the range was from \$100 per person per year in Ethiopia to \$38,000 in Switzerland, a 380 to 1 gap (Martin, 2005). Moreover, in 1975, per capita GDPs in the high-income countries were 41 times greater than those in low-income countries. A quarter century later, high-income countries' had per capita GDPs that were 66 times those in low-income countries (Martin, 2005). Rising per capita income differences help to explain why so many migrants from low-income countries take big risks to enter high-income countries, sometimes turning to smugglers or buying false documents. As previously indicated, highly skilled personnel (e.g., professionals, researchers, scientists, professors, etc.) have migrated to the developed world, lured mainly by higher salaries. Public servants, once they have obtained better qualifications through training, tend to move over to the private sector or simply leave for developed countries (Tessema, 2010; Belay, 2004).

The extent to which political conditions were correlated with the brain drain ($r = 0.69, p = 0.000 < 0.01$) was shown in Table 2. Eritrean political conditions were not found to be conducive, as illustrated by the low mean value of 1.3 (see Table 1). This is because after the border war with Ethiopia broke out in 1998, the government shifted its priorities to national defense, thereby neglecting other equally pressing political issues, such as the rule of law, a fair and efficient justice system, respect for human rights, and accountability and transparency in the management of public affairs (Abraha, 2010; ICER, 2011; Amnesty International, 2005). The above studies highlighted Eritrea's deteriorating political conditions in general and human rights violations in particular. Most of the interviewees argued that having stayed in a developed country that respects human rights and allows freedom of the press, speech and worship, your mind does accept to go to a country like Eritrea that grossly violates human rights and does not provide freedom of press, speech and worship. According to the World Bank, UNDP and other bilateral donors, the political conditions of most LDCs are not as effective as they should be (Das, 1998; Manik, 2007; World Bank, 1994, 1997). Many LDCs are characterized by single-party, military or authoritarian rule (Chapal & Daloz, 1999; Heady, 1996; Johnson, 2000). Heady (1996: 217), after analyzing the management of civil servants in LDCs, notes that: "in single or dominant party political systems, party claims to a monopoly on policy making and executive make it imperative that civil servants pass whatever test of party loyalty may be imposed and that they suffer not only loss of status or position for falling

short, but suffer in other ways as well, including imprisonment, banishment to the countryside, or death...". What Heady underlines has great relevance to the actual situation of many LDCs like Eritrea where the *administrative crisis* is most critical and the enforcement of personnel rules and procedures has been broken down (e.g., Chapal and Daloz, 1999; Prah, 2004).

Table 3 also reports the extent to which peace and stability explain the change in the brain drain ($\beta = .28$, $p < 0.001$). The Eritrean case illustrates that the years between 1991 (year of independence) and 1998 (beginning of the border war), the people of Eritrea enjoyed peace, social stability and relatively sound economic progress. Unfortunately, Eritrea's initial promise of growth, peace and stability were disrupted by the border conflict with Ethiopia. Although, the two countries signed a peace agreement, mediated by the OAU and the UN in December 2000, the situation has actually been of 'no war - no peace'. This ongoing conflict has accelerated the rate of the brain drain in the country.

From this specific Eritrean HRD project, it could be argued that human beings tend to make a rational decision in that they make decision as to whether to migrate or not after *comparing* both the minuses (things they don't get in their home country) and the pluses (things that they get in the destination country) in both home and destination country. For example, in our case, the 64 percent of the Eritrean HRD project trainees probably compared different economic issues (e.g., pay and benefits), political issues (e.g., freedom of speech, warship, and respects of basic human rights), peace and stability, HR practices and working conditions of Eritrea and the destination country (where they are currently residing such as England, USA, and South of Africa). Put simply, migration is often motivated by relative disparities in the economic, political, peace and stability of sending and receiving countries (Clemens & Pettersson, 2007; Martin, 2005).

Having discussed the extent to which the proposed five factors are correlated with the brain drain (Table 2), the question is: *Is brain drain beneficial or harmful?* A number of studies have identified the advantages and disadvantages of brain drain. On the negative side, Ndiaye, Deputy Director-General of IOM, as quoted by Mutume (2003: 2), notes that brain drain is putting a huge strain on LDCs. Brain drain transfers human capital, a key to faster economic growth, from developing to developed countries. Brain drain does not only cost LDCs billions of dollars but also create a huge personnel power deficit. For instance, according to Redo (2002), Africa is losing as much as US \$4 billion a year through the brain drain. Patinkin (1968: 93) argued that "developing countries require a critical mass of talent and that too much emigration can prevent their economic take off." According to Sriskandarajah (2005: 5), "where these flows lead to a drain of highly skilled people from developing countries, the ability of those countries to develop may be compromised. The absence of these key workers hampers the ability ('brain strain') of these countries to come up with homegrown solutions to their problems." For some LDCs that have high rates of permanent emigration, especially of highly skilled people, migration can be a significant threat (Lien & Wang, 2005). As a result, in December 1998, UN General Assembly Resolution 2417 noted "with concern that high skilled personnel from the LDCs continue to emigrate at an increasing rate to certain developed countries, which in some cases may hinder the process of economic and social development in the LDCs" (Physicians for Human Rights, 2004:16).

On the positive side of brain drain, many researchers have also identified the advantages of brain drain such as immigrants' remittances, transfer of knowledge and technology, and investment in country of origin (bring venture capital) (Straubhaar & Vadean, 2005; Gubert, 2005; Lien & Wang, 2005; Meyer & Brown, 1999). The international conference in 2004 in Marrakech placed particular emphasis on the above three factors (Straubhaar & Vadean, 2005). For example, in 2004, remittances exceeded official development aid or income from the export of goods and services in several emigration countries: they totalled USD 126 billion according to IMF estimates (OECD, 2005). The issue of remittances and the growth registered during the last decade have attracted increasing interest in several international organisations (IMF, World Bank, OECD), at a time when the volume of official development aid is tending to diminish slightly. According to certain analysts, remittances which can be considered as structured financial flows, could contribute to a reduction in poverty, constitute an important supply of foreign hard currency for economic development, or accompany the growing flows of foreign direct investment, which are sources of development and employment creation (Ibid.). A recent survey by the

Public Policy Institute of California revealed that foreign-born Chinese and Indian highly skilled immigrants in Silicon Valley have successfully adopted the technology capability and venture-financed high growth business models that distinguish many USA firms in the high technology sectors. Many have set up subsidiaries, joint ventures and sub-contracting arrangements in Asia (Oduba, 2003). The above brief discussion suggests that immigrants not only be the source of financial remittance but also social remittance (transfer of ideas, behaviors, identities, and social capital), technological remittances (transfer of knowledge and skills) and political remittances (transfer of political identities and practices) (Gubert, 2005; Sriskandarajah, 2005; Straubhaar & Vadean, 2005).

A related question is: *Whether to promote or restrict mobility?* There are many views as to whether to promote or restrict mobility (Sriskandarajah, 2005; Lien & Wang, 2005; Schiff, 2005). When it comes to Eritrean case, the government of Eritrea issued a policy of banning long-term overseas training in 2003 and minimized short-term overseas training opportunities offered to the public servants after the rate of brain drain started to increase, mainly from the participants of the Eritrean HRD project (1998-2005). However, in spite of the government policies and actions, the number of Eritreans leaving the country has increased substantially (Abraha, 2010; RedekerHepner, 2008; ICER, 2011). It is reported that an estimated 2,000 Eritreans per month leave clandestinely to Ethiopia and Sudan (ICER, 2011) and then attempt to reach the developed world. According to Sriskandarajah (2005), restricting mobility is not the most effective responses to the causes or consequences of brain drain. In the case of Eritrea, however, Eritreans (between the ages of 18 and 40) are not allowed to leave the country. Moreover, Eritreans who have not left the country formally and legally are not allowed to come back to their home country.

IMPLICATIONS

One of the main challenges to effective HRD project in LDCs like, Eritrea is the brain drain. The question is: *How to maximize the benefits from HRD project investment by minimizing the adverse effects of brain drain?* Since the causal factors of the brain-drain are complex, the responses to the brain drain should be varied and should cover an array of economic, political and social areas. That is, context is vital in that one-size-fits-all solutions may actually be counterproductive. Instead, we need to be able to identify the scale, nature and impact of brain drain where and when it occurs. Only then can suitable and effective interventions be designed and implemented. However, the following general suggestions could help governments of LDCs to increase the number of their nationals (public servants) returning home after successfully completing their studies overseas (or minimize the rate of brain drain):

- LDCs need to make efforts to make their respective countries more politically and socially attractive to their citizens, if they are to turn brain drain into brain gain or minimize the flight of trained nationals (Selassie, 2002; Belay, 2004).
- LDCs need to introduce more progressive HRM policies and practices. The public sector in many LDCs has been politicized (Das, 1998; Heady, 1996), which also indicates the ineffectiveness of HRM. Thus, LDCs need to improve the way they manage (recruit, select, place, compensate, evaluate and supervise) the public servants who are the most important resource that they have to realize their goals (Grindle, 1997). Moreover, effective HRM can also enhance the perceptions of the three dimensions of organizational justice: distributive, procedural, and interactional, which play a crucial role in minimizing turnover intentions (Ponnu & Chuah, 2010). Especially, procedural and interactional justice don't require financial resources but rather willingness and commitment of policy makers and public managers to merit principles (Das, 1998).
- LDCs need to know that while economic related factors dictate that they cannot yet afford to pay Western-size wages, they must ensure that the *respect* of basic human rights and law prevails over all. This may not only help in retaining national experts but it is likely to engender confidence in all the citizens to give their best in the quest for national development. Any successful policy interventions to promote skills retention in LDCs must address these non-financial factors (Tessema, 2010).

- LDCs need to know that closing the door or clogging the drain or stopping sending public servants for overseas-training may not always be an effective way of preventing highly skilled workers from emigrating or plugging the drain. Attempts to restrict flows may result in some unpleasant consequences. Most obviously, denying would-be migrants the right to migrate on the basis of the anticipated impacts of their departure may be discriminatory and compromise human rights (See also Sriskandarajah, 2005).
- Developed countries should also avoid recruitment of highly skilled workers from particular sectors in particular LDCs with a shortage of skilled workers, which in turn requires the establishment of bilateral and multilateral agreements (Martin, 2005).

The related question is: *How to take advantage of those who have already migrated professionals?* The following general suggestions could help governments of LDCs to take advantage of those who have already left their home countries, the so called ‘diasporas’:

- LDCs need to mobilize diaspora communities to return temporarily to home country to work and train locals in health and other sectors (International Organization for Migration, 2010).
- LDCs need to promote *brain circulation*. The conventional mode of thinking ignores the growing realization that we are in a world marked by international mobility and “brain circulation”. The notion of brain drain is based on a mechanistic view that assumes that knowledge is a fixed resource that is embedded in individuals and therefore when they leave the community automatically loses (Tessema, 2010). The traditional brain drain literature has the above outlook in that it viewed the exodus of human capital as something of a curse for LDCs (Schiff, 2005). This outlook ignores the fact that we live in a world where the main currency of change is knowledge, which is now moved across international borders more easily.
- LDCs need to encourage the networks among the nationals working overseas and the local scientific and academic communities. The Internet could play an important role for these networks. There are many examples of diaspora engagement: Africa Diaspora Investment Forum, Jamaican Diaspora Canadian Foundation, Kenya Development Network Consortium, Tamil Eelam Economic Development Organization (Sriskandarajah, 2005). Scientific diaspora and immigrant entrepreneur networks can help sending countries capture benefits and know-how from emigrants overseas. With the right mix of policies and sustained international co-operation, several countries could see the “brain drain” be transformed into a “brain bank” (Oduba, 2003).

CONCLUSIONS AND LIMITATIONS OF THE STUDY

The paper concludes that while there is little doubt that highly skilled workers in many LDCs are scarce, it is also true that many highly trained professionals from LDCs like Eritrea have migrated to the developed countries, mainly due to the five factors, namely unfavorable economic, political, and working conditions, as well as lack of peace, stability and attractive HRM practices. These five factors are believed to be behind the high brain drain rate (64%) of the Eritrean HRD project’s trainees. This study concludes that, although the causal factors of the brain drain are complex and interrelated, the above five factors are found to be instrumental either in minimizing or aggravating the brain drain in LDCs like Eritrea. The current study extends previous research on HRD and brain drain by providing a qualitative and quantitative assessment of the much debated area- brain drain, although it leaves some questions open for future research. First, this study is conducted in only one LDC, Eritrea; second, the sample size may not be large enough to generalize the findings. Thus, in order to generalize and validate the findings of this study, we suggest that the same study be conducted with a larger sample size in other LDCs.

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