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**Degree of Master's of International Studies
(International Area Studies)**

**A Case Study of South Korea's reversal of
Brain Drain: Lesson and Suggestions for
Ghana**

**With focus on Korean Development Institute (KDI) and the
Korean Institute for Science and Technology (KIST)**

August 2020

Graduate School of International Studies
Seoul National University

Ivy Eyram Sedzro

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**With focus on Korean Development Institute (KDI) and the
Korean Institute for Science and Technology (KIST)**

A thesis presented

By

Ivy Eyram Sedzro

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Master of International Studies

**Graduate School of International Studies
Seoul National University
Seoul, Korea**

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ABSTRACT

A Case Study of South Korea's reversal of Brain Drain: Lesson and Suggestions for Ghana

**With focus on Korean Development Institute (KDI) and the
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The study assesses policies adopted by South Korea in the reversal of brain drain through the establishment of the Korea Development Institute (KDI) and the Korea Institute of Science and Technology (KIST). The policies and strategies used further came as lessons and recommendations to Ghana 's flight of highly skilled human capital. A theoretical and empirical framework was assumed to review, analyze and discuss both primary and secondary data

The government of ex-president Park Chung-Hee during the second phase of his five-year economic plan implemented migration policies in a bid to attract highly skilled and talented Korean nationals abroad to sustain the economic growth of the country. The establishment of KDI and KIST as research and development institutes further acted as facilitating agencies in the repatriation of skilled Korean professionals within 1960-1980. This study, therefore, sought to examine the key strategies and policies employed by the Korean government in the formulation and implementation process.

Considering South Korea was once a developing country, Ghana can draw significant lessons from this study. Evidently, Ghana has lost its best academics, and other sought after professionals, through brain drain, into other countries making it impossible to compete globally; the impact of this problem has become very detrimental to national development.

In achieving this objective, the central question of this study was to, therefore, analyze the Korea Research Institute of Science and Technology and Korea Development Institution as facilitating institutions in retaining the benefits of brain gain.

Keywords: Brain Drain and Gain, Migration policies, Human Capital Development, Korea Development Institute, Korea Institute of Science and Technology, South Korea, Ghana

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초 록

이 연구는 한국개발연구원(KDI)과 한국과학기술연구원(KIST)의 설립을 통해 역
인력 유출에 대한 한국의 정책을 평가한다. 이에 사용된 정책과 전략은 가나
항공의 고도의 인적 기술 자본에 대한 교훈이 되었다. 1 차 데이터와 2 차 데이터를
모두 검토, 분석 및 논의하는 이론적이고 실증적인 분석틀이 가정되었다. 박정희
정부의 경제 개발 5 개년의 2 단계에서 국가 경제개발을 지속하고자 해외에 주재한
고도의 숙련된 한국인들을 유입하기 위해 본격적으로 이주 정책을 펼쳤다.
1960 년에서 1980 년까지 연구개발기관으로 설립된 KDI와 KIST 는 숙련된 한국
전문가들의 국내 유입을 촉진하는 기관으로 작용했다. 따라서 이 연구는 그 시행
과정에서 한국 정부가 채택한 주요 전략과 정책을 살펴보고 그것이 과연
성공적이었는지를 조사하고자 했다. 한국이 한때 개발도상국이었다는 점을
고려하여, 개발도상국인 가나는 이 연구에서 교훈을 얻을 수 있을 것으로 보인다.
가나는 지속적으로 최고의 학자들을 잃었고, 또한 그 외 전문직 종사자들의 인력
유출을 통해 세계 경쟁에서 밀려났다. 지속되는 인력 유출로, 이 문제는 국가
발전에 부정적인 영향을 미치고 있다. 그러므로 이 연구의 핵심은
한국과학기술원과 한국개발연구원이 인력을 유지하고자 한 제도를 분석하는 데
있다.

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LIST OF ABBREVIATIONS

BMI	Battelle Memorial Institute
CRIK	Civilian Relief in Korea
EPB	Economic Planning Board
ECA	Economic Cooperation Act
GPRS	Ghana Poverty Reduction Strategy
KDI	Korea Development Institute
KIST	Korea Institute of Science and Technology
MOE	Ministry of Education
MOR	Ministry of Reconstruction
OECD	The Organization for Economic Co-operation and Development
ROK	Republic of Korea
UNKRA	United Nations Korea Reconstruction Agency
USAID	The United States Agency for International Development

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1 CHAPTER ONE: STUDY BACKGROUND

1.1 Introduction

An insidious phenomenon that has persistently affected a significant number of developing economies particularly, in Sub-Saharan Africa is the issue of human capital flight, otherwise known as “Brain Drain”. Brain drain evokes a wide range of discussions, controversy and rhetoric, especially with regards to economic development in both political and academic arenas. The constant absence of the much-needed skills for economic development has long troubled policymakers considering human capital is currently regarded as a scarce and valuable resource, as shown in a report by the OECD on migration and developing countries,

“The area most affected by high emigration rates of the highly educated population is sub-Saharan Africa. The potential costs can be great: brain drain means loss of skills for the source country, loss of ideas and innovation, loss of the nation’s investment in education and loss of tax revenues, but most importantly, perhaps, the loss of critical services in the health and education sectors. “Brain overflow” in receiving countries can lead to misuse and subsequent downgrading of professional skills of migrants. There are other costs of emigration borne by sending countries: among them are social effects which can create regional inequalities, strains on families and gender roles, children and their schooling, and crime.” OECD (2008).

Thus, the magnitude of brain drain in West Africa, especially migrants of developing countries in search for better opportunities and living standards, has grown incessantly over the years. Conventional research by notable bodies such as the OECD and Pew Research Centre (PRC) have shown that this negatively impacts on development both socially and economically. In spite of the elusiveness of finding a lasting solution to this problem, some developed economies, which until the late 1980s were considered developing economies, have found the panacea to this challenge. A great example is South Korea.

From 1960 to 1980, the South Korean government adopted strategies and programs to facilitate the reversal of brain drain or return of highly skilled human capital by establishing the Korean Development Institute and Korean Institute of Science and Technology. This was considered as one of the important milestones in their course of development over the years. Government policies adopted during this period were carefully designed and implemented to increase the number of returnees back into the country, which eventually led to an exponential economic growth and expansion.

The above, is presently being considered as a solution to augment development in most emerging economies. As asserted by Uno & Kobayashi (2013), highly skilled emigrants often than not have specialized skills and honed talents considered crucial for national development of their home countries in the remote future. Thus, while these honed and specialized skills are applied elsewhere, a looming death in skilled human capital abounds in countries where these people originate.

Against this backdrop, this study was aimed at determining the strategies and policies adopted and executed by the South Korean government; using the Korean Development Institute and Korean Institute of Science and Technology as case studies. Primarily, this research assessed and discussed the extent to which these two institutions acted as facilitating institutions as established by the South Korean government to curtail the issue of “brain drain”. This study explored how such these measures contributed to South Korea’s ability to attain sustained economic development over the period. Additionally, a general review of the Ghanaian case and initiatives adopted by its government to reverse the phenomena was carried out in the literature of this study. Overall, the study was expected to highlight how developing countries can draw lessons from developed countries towards curbing the negative socio-economic impact of brain drain.

1.2 Background of research

The term brain drain has been captured by a wide number of researchers in implying the different forms of migration of skilled labour and its impact on both source and host countries. Docquier, Frédéric & Rapoport, Hillel. (2006) termed brain drain as “the international movement of national resources usually in the form of manpower resources, often pertaining to migration of relatively highly educated and skilled persons from third world to first world countries”. Put differently, brain drain can be explained as the transfer of skilled labour, particularly in developing countries to industrialized countries which in most cases leaves a menacing effect on developing countries.

Largely, the negative outcome of this phenomena on the country of departure was well documented through examples such as the loss of human capital on economic growth (Srivastava, B. (2018) and Krasulja, et al. (2016). This impact was even more pronounced in African countries such as Nigeria, Ethiopia and Kenya as documented by studies such as Raji, A et al. (2018).

Evidently, the migration of intellectuals abroad leads to a lack of experts which eventually led to poverty and inequality and tacitly resulted in unaffordable loss of substantial investment towards generating new skills. Brain drain therefore becomes a “negative externality imposed on the population remaining behind, shaped by slower economic progress and living standards in poor countries”. (Yifu Lin, 2005). Unfortunately, very little literature exists in support of any positive socio-economic impacts on the country of departure with the exception annual remittances sent back home. On the other hand, an indication of the disconnect between human capital and economic development is shown in studies such as Michael Funke, Holger Strulik (2000). Using a research model which incorporates forms of the classical and new theories on economic growth, the authors argue that there are very pronounced implications of human capital in stages of development of any country. Basically, human resource and capital which functions as a crucial factor in national development at all levels becomes significantly lacking. An observation equally made by (Ndulu, 2004), further enforced the traditional position that brain drain deprives skills from poor countries leading to an incessant loss in national revenue and development as a whole. Even more pronounced

is its effect on average income per capita in the home country of the emigrants involved. (Dodani & LaPorte, 2005)

Whereas this phenomenon is peculiar to certain countries, another distinct observation was that, this poses as a symbol of inequality between developed and developing countries. While developed countries get new brains through skilled labour at a lower cost, developing countries, on the other hand, often attempt to grow a new generation of professionals to meet their growing demand in terms of their increasing population, economic expansion and industrialization. Central to these dynamics is the lack of economic opportunities home countries of migrants. Coupled with this, was also deliberate attempts by advanced countries to lure trained professionals for human capital and economic development. (Saravia & Miranda, 2004).

For example, Africa has over the years, invested a significant amount of government revenue in developing its human capital particularly through higher education, yet this has not translated into the anticipated results. Statistics show that an estimated 50 % of the trained and educated labour leave at the expense of government subsidies albeit the promise to return. Consequently, several policy makers have in turn questioned the essence of such huge investments.

The reversal of brain drain on the other hand brings about an increase in national development of host countries as illustrated in the successful case study of countries such as South Korea. Accordingly, between 1960 to 1980, the republic of Korea pursued

technological sophistication and human capital development as a means of maintaining the momentum of its national progress. A group of scientists, engineers and economist were engaged to enhance the national capacity to create, innovate, produce and as well as transfer acquired knowledge to the existing labour. Central to this were research and development activities. A successful policy to repatriate personnel from advanced countries turned brain-drain into a brain gain as reported in studies such as Hahzoong, (2018). South Korea in present day has thus become an exemplary country, one that can best be described as an archetype for most developing countries. Considering the fact that Korea experienced devastating war between 1950-1953, and its monumental economic transformation, to becoming a member of the “Organization for Economic Cooperation and Development (OECD)”, several parallel lessons can be drawn from its case.

On the contrary, a developing country such as Ghana which was arguably at par with South Korea in terms of economic growth during the 1960s, have not seen the same monumental transformation. Coupled with political instability, Ghana’s brain drain phenomena consistently bears this persistent challenge. Evidence of this effect is documented in the works of (Akurang-parry, 2002). In the late 1970s, thousands of Ghanaian professionals left Ghana for Nigeria in search for improved living standards and available economic opportunities during the onset of Nigeria’s oil-boom economy. A few also flocked to Europe, North America, Asia, Europe and other parts of Africa. Scholars during this period have tried to identify several reasons for the endemic brain

drain that began in the mid-1980s. They outlined the emergence of the brutal military dictatorship which limited basic freedoms, an onset of an acute drought and consequent famine, and the implementation of some the World Bank's structural adjustment programs, in the mid-1980s to have evidently impelled a large number of Ghanaian professional in seeking better opportunities overseas.

In present day, the Ghanaian government is actively putting in place policies to tap specialized skills of expatriate Ghanaians. This has however not seen significant transformation as expected. Examples such as organized homecoming projects for expatriates have failed to gunner the required effect on the economic development as reported in most Ghanaian literature.

Ghana's official estimates indicate that there are more than 3 million Ghanaians living abroad including South Korea, representing about 15 per cent of the Ghanaian population. The 3 million expatriate include several professional groups and skilled workers. For example, the Ghana Medical Association's estimates that more than 600 Ghanaian-trained medical doctors work in the state of New York alone. Statistics from Ghana's Registered Nurses Association also show that, since 1999, more than 2,500 Ghanaian trained nurses have left for overseas, mainly to Europe and North America. (Akurang-parry, 2002). Accordingly, from the Ghanaian developmental point of view, the major causes of immigration of skilled professionals stemmed from the negative consequences of some socio-economic dynamics and low income levels.

1.3 Purpose of research

The rapid rate of migration of highly skilled labour from developing countries to developed countries has led to an extensive scholarly focus and tacit assumptions on "brain drain". This study aimed to contribute to the existing literature by

1. Critically exploring previous literature on brain drain with a keen focus on South Korea successful reversal of brain, and how that can be translated to the Ghanaian situation.
2. Establish important contributions to policies adopted in engaging the Ghanaian diaspora in line with developing a sustainable human capital in Ghana.

Overall, it was expected that the study would offer some important insights into mechanisms adopted and structures put in place in the reversal of brain drain in South Korea.

1.4 Scope of study

This study is based on South Korea's Human Capital development policies adopted between 1960 and 1980 to foster economic growth through science and technology through the reversal of brain drain. These policies were analyzed based on the institutional frameworks put in place to affect the successful implementation of brain gain within the identified period. The study also focused on the roles of two key developmental institutions namely the Korea Development Institute and the Korean

Institute of Science and Technology in acting as catalysts in attracting highly skilled labour back into the country. In addition to this, this research also undertook a brief review of Ghana's human capital development policies to curb brain drain.

1.5 Significance of the study

1. The research and its findings has the potential to contribute significantly to the existing literature by outlining the pivotal role played by highly skilled workers in national economic development.
2. The findings of the study also sought to highlight government policies adopted and enhance a better understanding of present factors influencing human resource development and its impact on economic development in both countries.
3. With the help of a theoretical foundation, it will also be possible to draw some conclusions that could be helpful in order to attract highly qualified individuals back home and thereby minimize the effects of brain drain through an increased return migration in Ghana.
4. The study further sought to reveal the crucial role of institutions in capacity building of human capital development.
5. Ultimately, the study would be relevant in demonstrating the need for a paradigm shift in developing countries in shifting focus from resource-based economies to knowledge-based economies.

1.6 Problem statement

The crucial role of skilled labour in economic development over the years, continues to cause an increase in high demand for trained professionals. On a global scale, the increase in continuous migration of skilled emigrants to developed countries is evident in the fast economic development of these countries. Skilled emigrates migrate in search of better living standards and are also equally influenced by good health care, educational opportunities and advanced technology in these developed countries. (Dodani & LarPorte, 2005). Consequently, skilled and talented labour such as doctors, engineers, and nurses leave their home countries in huge numbers in search of greener pastures. As a result, the effect of the foregoing is often an indictment to the economies of developing countries as reported by Mitra (2014).

Fundamentally, the importance of human capital in the economic and social development of a country cannot be overemphasized (Schultz (1971 and 1981). Thus the mass migration of skilled labour in recent and past immediate years has been identified as a constraint on the domestic growth of these developing countries. (Khan and Haque (1985) and Schineller (1994). Despite the recent increase research on the pertinent role of human capital as an explanatory factor in explicating the varying rate of economic growth of countries. Lucas (1988), the much-needed attention has not been given to this issue.

A vast number of discussions have been held in both academic and government milieus on the negative impact of brain drain, particularly in “source countries”. As such, strategies as well as mechanisms have been employed by these developing countries over the period to either reduce the movement of highly skilled labour or completely curb these incidences. Primarily, the immigration of highly skilled labour from developing countries often translate into slow economic growth and national development.

Africa is no exception. Over the years, the number of skilled migrants from the continent has increased exponentially (Dodani & LarPorte, 2005); a significant chunk of which to include mostly doctors, engineers, and graduates. It estimated that about 20, 000 leave continent annually. (Facts & Figures, 2011). These observation is however not peculiar to the professionals alone. As reported by Meyer and Brown, (1999) African students who travel abroad to seek higher education and also are unwilling to return. Source countries such as Ghana, Ethiopia, and Nigeria have been cited as significant culprits in this regard.

As this continues to be a dominant issue on the national landscape for developing countries such as Ghana, the case of South Korea’s “brain drain to brain gain “provides a strong impetus for research. The establishment of the “Korea Institute of Science and Technology (KIST)” and the “Korean Development Institute” (KDI) which have shown to be the touch bearers of this shift and reversal, can offer significant lessons for

countries such as Ghana, that are looking to explore and emulate a similar path, by adopting key policies, strategies and expertise.

1.7 Research outline

The overall structure of the study takes the form of six chapters.

Chapter one, involves this introductory chapter which includes the background of the research topic, the purpose of the study, the scope of research, definition of key terms, problem statement and the significance of the study.

In chapter two, the theoretical and empirical dimensions of the research are laid out and with a focus on existing literature on the topic.

The third chapter outlines the methodology which entails the analytical framework, research questions and data collection process.

The fourth chapter critically analyze the two key institutions that aided in South Korea's reversal of brain drain between 1960 to 1980 and initiatives adopted by the Ghanaian government to attract its highly skilled labour.

Chapter five presents the findings of the research, focusing on the data interpretations, analysis and finally a discussion of the findings.

The final chapter draws upon the entire thesis to include the concluding remark of the study, lessons drawn and recommendations derived from findings, some policy implications.

1.8 Definition of Terms

i. Brain Drain and gain

While a variety of definitions of brain drain have been suggested, this paper employed the definition of Frédéric Docquier to mean the international transfer of human capital resources with focus on immigration of highly educated persons from developing to developed countries. In a narrower or specific sense, Brain drain was referred to as the migration of teachers, doctors, scientists, and other high skilled professionals with university training. Brain gain in this study was used to refer to the effective utilization of highly skilled educated and skilled migrants for the economic development of a country.

ii. Source Countries

The use of source countries in the study would referred to countries of departure of highly skilled labour after they have received advanced education and training.

iii. Host Countries.

The usage of the term host country in this study would be referred to as the country of destination of emigrants where skills and talent are often considered as a strategic source in increasing the national output of these countries, despite the existence of skilled labour.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

A considerable amount of literature has been published on the issue of brain drain over the years past. This chapter focused on reviewing existing literature covering theories related to the subject matter. Thus, a closer look at both classical and modern theories was carried out to provide a much broader understanding of the study. Finally, empirical literature was further reviewed by highlighting existing research equally done by other researchers on issues of brain drain through direct or indirect observations.

2.2 Brain Drain -Historical Perspective

The term brain drain, became popular after it was subsequently used in describing the emigration of skilled professionals and scholars from developing to developed countries. Due to the excessive migration of skilled labour where trained nationals of developing countries continually moved to 1st world countries, developed countries became more technologically advanced and poorer countries more impoverished. Carolina, Brandi. (2004). Preliminarily, work on brain drain took place subsequently after the second world war. Then, after the cold war, a large number of skilled labour migrated from the west of Europe to the United States of America. By 1963, the royal society in United Kingdom published reports on the emigration of skilled scientist after it widely gained public attention. Carolina, Brandi. (2004). According to Walter Adams et al., 1996, the

coinage of the term was promulgated by the United Nations with the purpose of tackling increasing relocation of highly skilled professionals from developing countries as it only stood to benefit industrialized countries. (Adams, 1968).

Post the above, the second wave of brain drain entailed discourses centered on benefits source countries gained from the immigration of highly skilled nationals. Ongoing arguments within the periods of the late 1970s to 1990s contented that remittances sent home by expatriates could arguably make up for the income lost and intend boosted economic growth. (National Interest, 2012). However, central to the issue was whether the gains accrued from remittances was actually enough to make up for the lost, source countries tended to suffer over the years from the absence of highly skilled professionals or scholars. (Newland, 2003). That being said, developing countries eventually began to see an increase in remittances. (Ghosh, 2006; World Bank, 2006). For some political scientists like Devesh Kapur (Kapur, 2004), remittances became synonymous with economic development. Grubel and Scotts further pointed out that, remittances accrued from trained and skilled emigrants could supplement the loss of human capital through brain drain in developing countries (Grubel and Scott, 1966). Concurrently, these skilled migrants could equally transfer their acquired “skills and attitudes” which was otherwise known as “social remittances” to source countries. (Kapur, 2004). Basically, skilled labour could convey resources and ideas that can promote both economic and social development. What's more, the presupposition was that human capital development will increase the cases of re-migration and simultaneously promote huge foreign direct

investment or investment opportunities in source countries. (Hunger, 2002). Skilled expatriates could therefore eventually become intermediaries between their countries and host nations thereby creating an enabling environment for which acquired knowledge and expertise could be integrated into development policies of their home countries. (Borta, 2007).

Opposing views to the aforementioned assertion was however disregarded as unrealistic. Thus, most educated and trained professionals are often hesitant in leaving their higher and comfortable standard of living for otherwise. (Hunger, 2002).

Finally, the last and current discourse on brain drain centered on the return of highly skilled professionals in rebuilding and promoting science and technology in their home countries. (Gaillard & Gaillard, 1998). Rhetoric on brain drain had now shifted focus to policy formulation in developing countries in attracting highly skilled nationals from abroad and furthermore creating programs to explore diaspora knowledge (Gaillard & Gaillard, 2015). It follows that the continuous and frequent interaction created a platform for diaspora engagement or diaspora networks with special focus on areas such as policy consultancy, technology and knowledge transfer, training courses, research and Foreign Direct Investment (FDI). Eventually, the networks created through knowledge and skills sharing led to significant contributions in national development strategies (Borta, 2007). On the whole, arguments on brain drain in the third wave highlighted mutual benefits both source and host countries gained from engaging each other. Basing their argument

on the endogenous growth theory, supporters of this theory thus emphasized the positive aspect of brain drain (Borta, 2007)

2.3 Push and Pull Factors of Brain Drain

Researchers have also identified a number of factors influencing the outflow of highly skilled labour into host countries from time to time. These factors in most cases occurred at the micro-level. Accordingly, scholars such as Hentges, H. A. (1975) identified the push and pull model as a basis in explaining individual incentives for migration. The “push factors” of migration were termed as events or circumstances propelling highly skilled labour in relocating to developed countries for better economic opportunities or proper utilization of acquired skills. “Pull factors” on the other hand, were considered as incentive or circumstances attracting highly skilled labour in the receiving countries. (Hentges, H. A. 1975). An Additional study conducted by the United Nations Institute for Training and Research (UNITAR) further identified some political, social and economic factors as underlying influences in most decision-making process or intentions of migrant. The table 1.0 below gives elaborations on these factors as identified by UNITAR

Table 1: Factors that influence an individual's decision making process to migrate

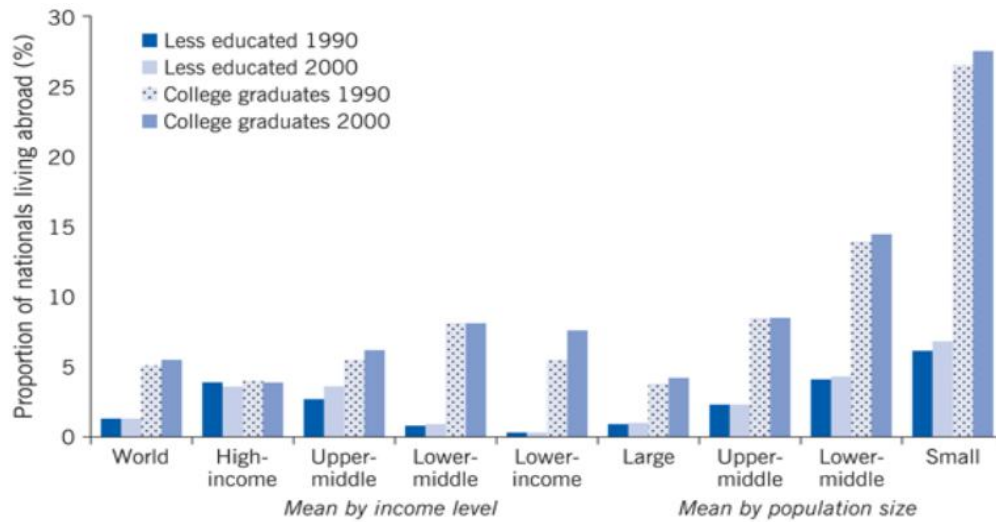
Economic Factors	Social Factors	Political Factors
1. Income and salary structures	1. Personal influences eg.	1. Government Controls
2. Employment opportunities	<ul style="list-style-type: none">• Spouse	2. Nationalistic sentiments
3. Living standard	<ul style="list-style-type: none">• children	3. Participation in political process
4. Working conditions eg	<ul style="list-style-type: none">• Extended family	
<ul style="list-style-type: none">• Facilities	<ul style="list-style-type: none">• Friends and colleagues	
<ul style="list-style-type: none">• Autonomy	2. Living conditions in the society	
<ul style="list-style-type: none">• Career prospect and Promotion	<ul style="list-style-type: none">• Social Stratification and or mobility	
<ul style="list-style-type: none">• Relations with Supervisors	<ul style="list-style-type: none">• Existence of minorities and discrimination	
<ul style="list-style-type: none">• Professional networks		

2.4 The Nexus between Brain Drain, Gain and Growing Economies

Continuous discussion of the effects of brain drain or gain on the development of an economy was brought to the attention of especially policymakers in least advanced countries in recent years. Empirical evidence of negative effects of the gradual loss of talented working force has proven time and again to cause a decline in economic growth. Grubel and Scott (1996) postulated that viewing brain drain from a neoclassical perspective outlines the marginal product of each individual as consumed by him or herself. The migration of highly skilled labour, though increasing world income, may,

however, lessen the welfare and total income of their source countries. Considering that human capital is currently regarded as valuable assets in both first and third world countries (Hadir and Lahrech (2015), its therefore becomes relevant that human capital is effectively managed and efficiently used. For example, studies by Ajadi and Adebakin, 2014) demonstrated that economic growth is usually a function of an individual's earnings. Their research having employed a multi-stage sampling technique and using the Pearson's Product Moment Correlation Coefficient proved that investing in human capital had a predictive impact on individual personal income which in turn influenced economic growth and thus creating the need for more government investment. Tripling since 1960, the emigration of high-skilled people from developing countries accelerated as a results of efforts employed by host countries which includes intensifying strategies so as to lure talented foreign nationals and tacitly increasing the rate of brain drain in source countries. Nonetheless, while the transfer of skills affects labour force and other fiscal policies, its ability to generate remittances and additional benefits from returnees cannot be ignored (Docquier et al., 2009). Curbing this phenomenon however lies in the country's policy objectives considering the fact that brain drain rates decrease with economic expansion and population, see figure 1.0.

Figure 1: Brain drain, economic expansion and population growth



Source: (Docquier et al., 2009)

In line with remittances, there are a number of country case-studies using micro (household or individual) data, which demonstrate that very high levels of migration of skilled persons can be of benefit to source countries. Examples relating to countries such as, Fiji and Nepal are well documented see Chand and Clemens (2008), (Shreshta, 2016). Consistently, such studies show the home countries of the emigrants still experience a net gain, as if there was a “special regime for them” Rapoport, 2017.

Nevertheless, the upsurge of professionally and academically qualified workers that still migrate from country to country, continues to be shaped by the increasing globalization of economic relationships. According to Körner, 1998, this is in the sense of the global interdependence of production, consumption and knowledge creation. Thus, it can be argued that such migration is no longer solely to optimizing decisions by individuals

seeking employment but increasingly also to the decisions of multinational corporations, which recruit experts in one country and combine them with other production factors elsewhere (Körner, 1998) Africa appears to be one of the most hit in such instances as a substantial proportion of its indigenes migrate from poorer countries within the continent to more prosperous ones. This phenomenon is particularly pronounced in countries such as Ghana, where around one-third of all qualified workers have emigrated, and in Sudan, where between one-third and one-half of all academically trained engineers have left for elsewhere. Körner, 1998.

2.5 The Impact of Brain Drain on Ghana's Economic Growth

Government of Ghana over the years initiated extensive policies to develop its human capital in order to meet the growing economy. In spite of these strategies and policies, Ghana failed to achieve its sustainable human capital goal under the United Nations Development Programme (Ayerley et al, 2018).

According to the World Bank 2010, Ghana continues to lose its potential in becoming a thriving economy due to the gradual decrease in quality human capital. Fundamental to the issue of Ghana's staggering human capital development it's the country's inability to retain it's already educated and trained labour. This incidence is not only limited to Ghana but unfortunately cuts across the African continent. In 2000, Docquier and Marfouk (2005) reported that the professional manpower in the continent had been at a steady decline based on the fraction of educated and trained nationals from African

countries currently living abroad. The statistics indicated that countries such as Cape Verde, Ghana, Kenya with relatively smaller population experienced migration rate of 45% to 67% in comparison to other emergent economies such as China and India with 3% to 4% immigration rates (Docquier and Marfouk (2005). In view of the above human capital has become both a “necessary and sufficient condition” in Ghana’s emerging economic development in both short and long terms. Unfortunately, the government of Ghana has not done much to invest in its human resource development such as reducing the level of brain drain in the country. Ultimately, the negative spillover effects of this phenomenon on other sectors of the economy became inevitable. (Ayertey et al, 2018).

2.6 Initiatives by the Government of Ghana to Combat the Brain Drain

By 2005, a research article indicated that Ghanaians for a considerable time now have led the emigration of professionals, especially in West Africa. A huge number of Ghanaian professionals who originally migrated to Nigeria in the early 1980s during the oil boom eventually moved to South Africa, Swaziland and Lesotho following the downward spiral of Nigeria’s oil-led economy. (Adepoju, 2005).

Against this backdrop, the government of Ghana in collaboration with the International Organization of Migration (IOM) employed a repatriation program in cognizance of the menacing effect of brain drain on the national development of the country. “The Return of Qualified African Nationals intervention (RQAN)” otherwise known as “Return and Reintegration of Qualified African Nationals program” was designed to promote brain

gain by “removing barriers and navigating the challenges of an international move” as outlined by the program’s objective set by the IOM. This was done based on the assumption that most repatriates lacked knowledge about the economic opportunities of their home countries. The program was carried out in 3 phases; 1983 to 1987 for the first phase, 1988 and 1991 for the second phase and 1995-1999 for the last and final phase. In the eventual assessment, major stakeholders identified that the program was marred with huge challenges such as inadequate funds, an uncoordinated information strategy and inadequate sustainable plan. (Amponsah, Y. O. 2012)

In subsequent years, historical accounts of the negative impact of brain drain on Ghana’s health service had become worrisome. Hence, by 2001, the government made efforts to employ new policies to prevent the direct recruitment of health professional by the “United Kingdom National Health Service (NHS)”, without contractual agreement between both countries. OECD (2008).

In the same year, IOM launched a second repatriation initiative to combat brain drain which was themed Migration for Development in Africa (MIDA) in collaboration with the government of Ghana. The focus of MIDA was to promote “temporary and/or virtual rather than permanent repatriation”. Specifically, the project was focused on the agricultural and health sectors and was once again carried out in three phases. Thus, between 2005 to 2008, the first stage of the program was implemented, followed by a second implementation phase between 2008 to 2010. The concluding phase of the project was between 2010 to 2012.

By the same token, the Ghanaian government in its own “Growth and Poverty Reduction Strategy (GPRS II)” of 2007-2009 took a firm stance on the importance of human capital development in the economic development of the country. However, Asiedu, A. (2010) further asserted that “there is lack of clarity as to the real stance of the Ghanaian authorities on this issue. And while the government has made some attempts in the past to highlight and address the migration-related problems of Ghana, these efforts have lacked detailed and holistic prescriptions for the benefits of skilled labour migration and minimizing the costs”. (Asiedu, A. 2010).

By all empirical accounts, repatriation programs by Ghana have often been hampered by a number of major factors. Thus the lack of reliable data on the number of highly skilled and educated Ghanaian professionals abroad and the absence of a proper extensive assessment of these programs has always been prevalent. Secondly, the absence of policy initiative to curb existing “pull factors” that has continually bedeviled Ghana also contributed to the shortcomings of the country’s effort to mitigate brain drain. Finally, with inadequate resources, the government of Ghana has not been able to achieve a successful repatriation program throughout all the years of its implementation. (Amponsah, Y. O. 2012).

2.7 Theoretical and Conceptual Framework

2.7.1 Classical Theories - (Adam Smith on the concept of Labour) `

Paul J. McNulty in his review of Adam Smith's *Wealth of nations* identifies labour as a binding element of all three factors of production. Here, labour as a factor of production is considered as a primary factor in the process of economic growth. Labour is therefore ultimately the force and basis for a nation's economic prosperity and social reforms. (McNulty, P. 1973). As shown in the extensive literature, the term 'human capital' was not widely used until the end of the 1950s. The significance of investing in human capital had however been highlighted in the earlier work of Adam Smith's as already cited.

Skilled labour was undoubtedly more productive than unskilled labour, thus clarifying the unexplained differences in the productivity and quality of produced goods and services. (Smith, Adam, 1723-1790.). Moreover, knowledge and skills as factors of production contributed to higher economic growth and should, be considered as a national investment. "The annual labour of every nation," as described by Smith, "is the fund which originally supplies it with all the necessities and conveniences of life." It follows, then, that a country's wealth would be determined by "the skill, dexterity and judgment with which its labour is generally applied, " and "the proportion between the number of those who are employed in useful labour". Primarily it is the quality rather than the quantity of labour employed which is the real key to a country's well-being. The above assertion on labour serves as the crux of economic prosperity for nations and

subsequently a unit of measurement of economic growth. Fundamentally it remains a major contribution to the myriad discourse on economic development, policy formulation and implementation.

2.7.2 Neoclassical theory (Endogenous Growth Theory)

The gains from the repatriation of highly skilled labour into a developing country in order to boost economic growth is best explained by the endogenous growth theory. This theory otherwise known as the New Growth Theory is basically used to elaborate and shed more light on the impact of brain gain in human capital growth - a linchpin to national development.

The theory emphasizes on the benefits a country is likely to accrue as it invests in human capital innovation and knowledge. It further focuses on the spillover effects of a knowledge-based economy on the economic development of a country. Increasing Returns and Long-Run Growth' through investment in knowledge tends to create positive externalities. Accordingly, a nation's decision to promote a knowledge-based economy creates a sustainable industry and social development. (Romer .1987).

The endogenous growth theory as advanced by Temple (2009), is a growth theory worth considering in human capital development. It brings to bear, the main level relationship between human capital development and economic growth. Following this, Temple further posits that "given that physical capital is often characterized by diminishing returns, the required assumption for the model to exhibit a positive growth rate of output per worker in the steady-state is that, technology for generating human capital has

constant returns; meaning that the growth of human capital is assumed to be the same for a given effort, whatever the level of human capital attained”

The theory also asserts that a continued migration of highly skilled labour in the country especially in developing states often leads to a decrease in the overall domestic income. That is to mean, the tax base of the country such as income and property tax is reduced, inherently derailing national development. (Kim and Hague, 1995). Kim and Hague (2005) likewise emphasize that the absence of modern educational and working environment fostered an increased migration of highly skilled and talented labour especially in the case of developing countries. The relationship between human capital accumulation, technological progress, and long-term economic growth is the focal point of the endogenous growth literature.

Specifically, the crucial role of highly skilled human capital development is reiterated as central to economic growth considering its function as one of the main factors of production. Cortright (2001) additionally mentioned the emerging role of technology in aiding in human capital development in increasing productivity generally. With this in mind, the gradual role of advanced technology and highly trained labour in the economic growth of a country became more defined. (Cortright, 2001). Hence, the current shift from resource developing markets of most developed countries to knowledge-based economies. Resource-based economies as explained by some economists tended to diminish in the course of the years, while highly skilled labour (Knowledge-based economies) was often unaffected by diminishing returns.

2.7.3 Solow - Swan growth model

Solow (1957) and Swan (1956) are among the number of economists who have extensively conducted research on the nexus between human capital development and economic growth under the neoclassical theories. The neoclassical model placed more emphasis on exogenous demographic as influential factors for economic development and overall growth rate in, especially developing countries. The theory identified labour force, the rate of population growth and technological change as determinants of sustainable economic growth. The discourse on the role of the aforementioned theory was further advanced by Todaro, M. P., & Smith, S. C. (2011). Here, the neoclassical growth theory emphasized on the determinants of economic growth through factor inputs which included capital and labour. As a revised form of the Harrod-Domar (or AK) growth model, the Solow model postulated a constant return to scale on capital and labour as factors of production or assumed that the use of these inputs are unaffected by diminishing returns. When the aggregate production function assumedly characterized by constant returns to scale, was augmented, human capital became pivotal to economic growth. For example, the introduction of the Cobb-Douglas case in Equation $y = Ak^\alpha$ presents a substitute in the production function where everything is measured in quantities per worker or labour and the accumulation of these labour and capital led to economic growth

2.7.4 Behavioural theories

In addition to economic theories, explicating the pertinent role of human resource development which was often absent in most developing countries as a result of brain drain, a number of scholars have also sought to postulate theories in explaining the behavioural intentions of migrants. That is, there were quite a lot of contributing factors that influenced the decisions of highly trained or educated professionals in choosing to either to stay or leave their home countries. The study therefore identified some social science theories in exploring international migration between developed and developing countries. The first of these theories identified was the Reasoned Action theory by Fishbein and Ajzen (1975) which explained the rationality of migrants in assessing their existing environment as either favourable or unfavourable. The theory posits that the intentions of migrants are underpinned or caused by two factors namely: "attitudes" and "subjective norms" in societies. Basically, the theory highlights the relationship between the behaviours of migrants and existing variables in their social environment.

Reasoned Action Theory is further elaborated by Kurt Lewin 's theory on social factors. The Change theory here, was used to explain the existing circumstances of highly educated or trained professionals and how they choose to perceive the home or source countries as either "satisfying" or "threatening" in comparison to their host countries. The theory was of significance in identifying "push" and "pull" factors in international migration. Thus, the theory as a framework has been used by a number of scholars to investigate the internal forces of both host and source countries in influencing brain drain.

Fundamentally, a country has either push factors propelling the migration of professionals out of their home countries or pull factors most often acting as incentives in attracting professionals. Taking this into account, the theory can also serve as a framework by which governments of source countries could use in reversing brain drain by addressing the push factors, which is further highlighted in this study.

2.7.5 Nationalist theory on migration

The impact of brain drain, when viewed through the lens of source countries in most cases, led to discourses on the negative effects often hampering the human capital development of these countries. Propounders of the Nationalist theory or model stipulates that the impact of brain drain was often detrimental to the growth of countries, in particular developing countries. Hence it became crucial for countries or states to develop mechanisms to protect or safeguard their human capital. Followers of this theory have also criticized developed countries in deliberately perpetuating the inflow of highly skilled and educated migrant through some of their migration policies. In the long run, source countries are left impoverished and disadvantaged based on the assumption that the government in these countries invested heavily in producing highly educated and skilled labour. Neo-Marxist nationalists in advancing this theory further adopted a macro-level approach that sought to examine the structural factors involved in the international immigration of skilled personnel. Here, the model outlines the dichotomy in world systems and structures that tended to favour a group of countries

over the other, that is developed or core countries as opposed to developing or peripheral countries. Ansah, Esi. (2002).

2.7.6 Network Theory

Equally, other factors such as the availability of social networks, institutional structures, historical and cultural factors have tended to influence the flow of skilled and educated persons into or out of host and source countries respectively. De Haas (2010) therefore posited that these factors must be considered in the discussion of the variant forms of brain drain or gain and their impacts. Thus, networks created as results of migration of professionals have identifiable ways, influenced migration trends, especially in the decision-making processes of migrants. Migration network is defined by Arango (2000) as a “set of interpersonal ties that connects migrants with relatives, friends or compatriots who convey information, provide financial backups, and facilitate employment opportunities and accommodation in various supportive ways “. Additionally, Massey et al. (1993). posited that, “these networks reduce the costs and risks of movement of people, and increase the expected net returns of migration”. The essential role of these nascent networks eventually influences the migrant’s future decisions. Van Naerssen et al. (2008) further recognized these “transnational communities as mechanisms which reproduce their sociocultural practices abroad, forming an extended national market; penetrating the development of migrant businesses in both origin and host countries”. Conclusively, Prakash, (2009) advanced that, “these multinational or transnational” networks in recent times have created a wide range of “commodities, capital, ideas and

skills contributing to the fostering of social, political, and cultural ties in addition to economic ones”

3 CHAPTER THREE: RESEARCH APPROACH AND METHODOLOGY

3.1 Introduction

The third chapter of this study elaborated on the research approach adopted. It outlined various methodologies employed and further summarized the analytical framework used in this study, research strategy, data collection and method of analysis.

3.2 Qualitative Research Approach

Qualitative research as asserted by Shank (2002) involves “a form of systematic empirical enquiry into meaning”. Thus the inductive nature of qualitative methodology generally explores meanings and insights in a given situation [Strauss & Corbin, 2008; Levitt et al., 2017]. Primarily, “Qualitative research comprises of the following methods: logic, ethnography, discourse analysis, case study, open-ended interview, participant observation, counseling, therapy, grounded theory, biography, comparative method, introspection, casuistry, focus group, literary criticism, meditation practice and historical research. [Cibangu, 2012]. Qualitative research is often differentiated from the quantitative research as outlined in table 2.0 below.

Table 2: Difference between qualitative and quantitative research

Qualitative research	Quantitative research
Aimed at focusing on how people or groups of people can have (somewhat) different ways of looking at reality (usually social or psychological reality).	Tended to focus on ways of describing and understanding reality by the discovery of general “laws”
Took into account the complexity of incorporating real-world context which involved taking different perspectives on board.	Took into account of complexity by the precise definition of the focus of interest and techniques.
Analyzed behaviour in natural settings or used people’s accounts as data and usually involved no manipulation of variables.	Manipulation of number variables while other variables (extraneous and confounding variables”) are held constant.
Placed emphasis on reports of experience or on data which cannot be adequately expressed numerically	Employed statistical techniques which often indicated “true” for a given sample in a measurable sense
Focused on explanation and interpretation leading to development of new concepts or theory, or an assessment of an organisational procedure.	Focused on cause & effect such as using experiment to test (try to disprove) a hypothesis

Employed flexible and emergent methods but systematic research process	Required that, the research procedure was defined in advance
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Source: Hancock, B., Ockleford, E., & Windridge, K. (2001).

3.3 Historical Qualitative Method

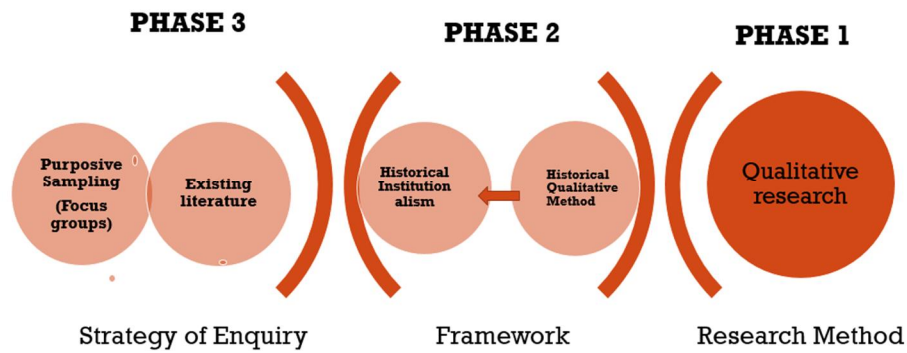
Specifically, the study made use of historical research so as to verify and explain the research in a historical context. Historical qualitative method is an effective model used in exploring, justifying and elaborating any area of human activities, subjects or events by means of scientific processes. (Špiláčková, 2012). Additionally, it provided a model that could be used to search and identify the relationship of past happenings and their links with the present, record and assess past activities and achievements of individuals, agencies and institutions and finally assist in the understanding of human culture. (Berg, 2001)

3.4 Historical Institutionalism

Historical institutionalism as an approach involved examining empirical accounts on how history in the institutional context shaped people's preferences, beliefs and choices (Steinmo, Sven, 2014). Furthermore, it provides the premise for which institutional rules, constraints, and responses shape the behaviour of political actors during a policy-making process

Figure 2.0 below provides a visualized research framework for the study.

Figure 2: Research framework for study



3.5 Analytical Framework

The focus of this study was to conduct an in-depth exploratory analysis in order to identify key strategies used as migration policies within the stipulated period of study. The Korea development institute (KDI) and Korea institute of science and technology (KIST) as case studies were analyzed with a critical focus on institutional frameworks or policy formulation and implementation in the mitigation of brain drain within the Korean context.

3.6 Definition of Constructs

3.6.1 Migration Policy

International Migration, in general, referred to the movement of nationals across the political boundaries of countries. It often took the form of either emigration or immigration. In this context, migration policies were strategies or prospective actions adopted by a government in facilitating the to and fro of people into or out of a country. These policies were tailored to meet the economic and social development of countries. Hence for contextual assessment purposes, the research considered repatriation incentives as a form of migration policy put in place by the government in attracting highly skilled nationals back into the country. Alluding to South Korea's peculiar reversal of brain drain, this study will refer to the policies adopted and implemented within this case study in its analysis.

3.6.2 Institutional Adaptability

Institutional adaptability was operationalised in this study to refer to the transformational capacity of institutions in meeting the demand for effective utilization of human capital. Institutions are considered machinery for planning, integration, proactivity, and implementation of policies for the evolving society. The UNDP (United Nations Development Programme) affirms the need for institutions to evolve, by investing in innovative strategies and employing a cross- range of policies that will lead to better performance and sustainability. The evolving nature of the institution should be central

to effective performance. Hence it becomes necessary for institutions to develop systems, internal structures, programs and processes to meet the growing society (UNDP, 2010)

3.6.3 Resources for Human Capital Development (Aid)

Implementation of effective policies for human capital development has often been hinged on available resources. A considerable number of scholars have over the years identified the crucial function of both capital and information in institutional performance. Furthermore, these resources are also considered essential to sustaining performance by other traditional theorists. Resources in this study was therefore denoted as financial and technical assistance in terms of aid, institutional operations, information and knowledge. Fundamentally, there is an established correlation between resources and institutional performance for economic development. (Thompson, 1967) and (Simon, 1947).

3.6.4 Effective Utilisation of skilled returnees - Performance of Institutions

Effective utilisation of human capital is most often determined by economic development. Subsequently, labour output has become a necessary condition for institutional performance and economic development. Obviously, Human capital positively impacts economic growth and is also central to productivity as attested by Alataş, Sedat & Çakir, Mesut. (2016). That is, effective development and utilisation of human capital would evidently create growth of output. As well, trained human capital could be used for technological advancement in increasing economic productivity. The

usage of human capital was employed in this study to assess the effective utilisation of skilled returnees as a measure of the performance of the identified institutions.

3.6.5 Institutional sustainability for Human Capital

Sustainable institutions are often cited as key drivers for national development in most economies. For that reason, it was vital for institutions to maintain sustainable performance through human capital development. An institution's sustainability guaranteed continual economic growth. Alternatively stated, sustainable development is determined by the evolving nature of human capital. It, therefore, follows that sustainability can be achieved by giving primacy to the development of human capacity in the form of human capital development through institutions. (Slaus, IvoI & Jacobs, Garry. (2011). The case study, focusing on KDI and KIST assessed, the institutional sustainability framework adopted in ensuring economic development.

3.7 Research Questions

This study ultimately sought to explore key policies and strategies on the effective repatriation and utilization of returnees by answering the identified research questions. The central focus of this research was to uncover the nexus between migration policies on repatriation and human capital development in the case of South Korea's reversal of brain drain. By critically assessing the policies and dynamics involved in the process, the study thus employed a case study approach and an in-depth interview on two key institutions namely the Korean Research Institute of Science and Technology (KIST)

and Korean Development Institution(KDI). This was carried out to analyse the aforementioned institution as facilitating agencies in retaining the benefits of brain gain. Specifically, the research, assessed KDI and KIST by critically examining four sub-research questions.

1. Was KIST and KDI as migration policy, successful in the repatriation of scientists, engineers and economists?
2. What was the role of the repatriated professional in KIST's and KDI's operation and in the economic development of Korea?
3. What were the measures put in place to integrate, adapt and sustain repatriated skilled labour?
4. What was the role of aid in the establishment of KDI and KIST as repatriation agencies in South Korea?

3.8 Research Hypothesis

The study primarily hypothesized that Korea Research Institute of Science and Technology and Korea Development Institution acted as facilitating institutions in attracting back capable high-level manpower by effectively utilizing the scarce resources in carrying out the stated objectives for which they were established.

3.9 Methodology and Data Collection

3.9.1 Case study approach

A qualitative case study as an approach to research as employed by this study, enabled the examination of South Korea's brain gain using a varied number of data sources. A case study served as a model for which situations could be analyzed in order to identify different perspective to a phenomenon for which they can be understood. (Baxter, P., & Jack, S. (2008). Accordingly, Yin inferred, that a case study approach also enabled a contextual discovery of conditions believed to be relevant to a study and further focused on "why" and "how" questions for comprehensive analysis of a phenomenon. (Yin 2003).

This research accordingly employed a case-study design, by analyzing the Korean Development Institute (KDI) and the Korean Institute for Science and Technology (KIST) as central institutions in reversing brain drain within the stipulated period of study.

3.9.2 Primary and Secondary sources of data

In conducting this study, the research drew on both primary and secondary sources for its analysis. Thence, the selection of resources was based on the available data and actors relevant to the study. The primary and secondary sources of data were further selected based on credible information they sought to provide. The adoption of primary resources here entailed the usage of semi-structured interview questions as this was considered as an unfiltered and authentic source of information. Primary data as used was essential to

this research because it enabled the collection of a wide range of results and close compatibility with the study providing an in-depth and stronger percipience.

Semi-structured interviews as an instrument of enquiry first and foremost tended to create a rapport between the interviewer and interviewee - a requirement for this study. Most Semi-structured interviews use a blend of open and close-ended questions which often led to follow up questions. In these instances, answers to interview questions led to new insights on the topic. (A. William, 2015). Conversely, A. William (2015) argues that semi-structured interviews can be tedious as it involves lots of time and labour and ultimately requires “interviewer sophistication”.

The research adopted a face - to face interview methodology which further enabled comprehensive and thorough navigation of respondent's predisposition, background and ideological stance on the topic. That is to say, semi-structured interviews provided a platform for which the interviewer could as well appreciate the cultural setting and its possible influences on the study being conducted. (Bryman, 2008). The interviews were conducted on a targeted group of three categories, entailing participants with:

- i. Participants with direct experience on the study topic.
- ii. Participants with affiliations with the institutions as identified under study.
- iii. Participants that have already conducted research on the topic.

The study also employed some existing research conducted with regards to the study, policy reports, scientific reviewed journals, available government documents and

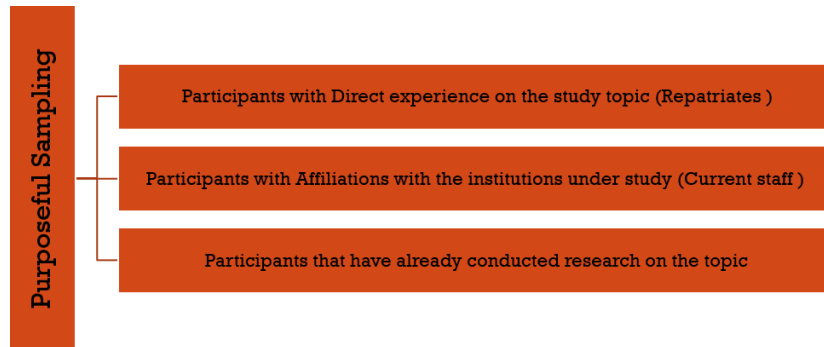
internet sources for analysis as they provided factual and additional evidence on the research. As demonstrated, the use of two or more sources of data collection in a case study approach has been argued by Yin (2003) as an effective and reliable methodology for conducting research. Basically, the essence of using a triangulation model for research provided a wide perspective on issues from a historical and behavioural context.

3.10 Sampling Approach

The adopted approach for sampling was purposive for primary sources of data collected. Purposive or subjective sampling as used for this research provided a deeper insight into the topic under study. Bryman (2012) in his book, "Social Research Methods" observed that purposive sampling as a technique offered an extensive outlook into the selected key units or elements of a research process. (Bryman, A. (2012). The use of purposive sampling in this study sort to target respondents with an appreciable level of knowledge and experience on the research topic. The selection of sample size was also done based on the accessibility and availability of interviewees.

Shown below is the visualised framework for sampling.

Figure 3: Visualised framework for sampling



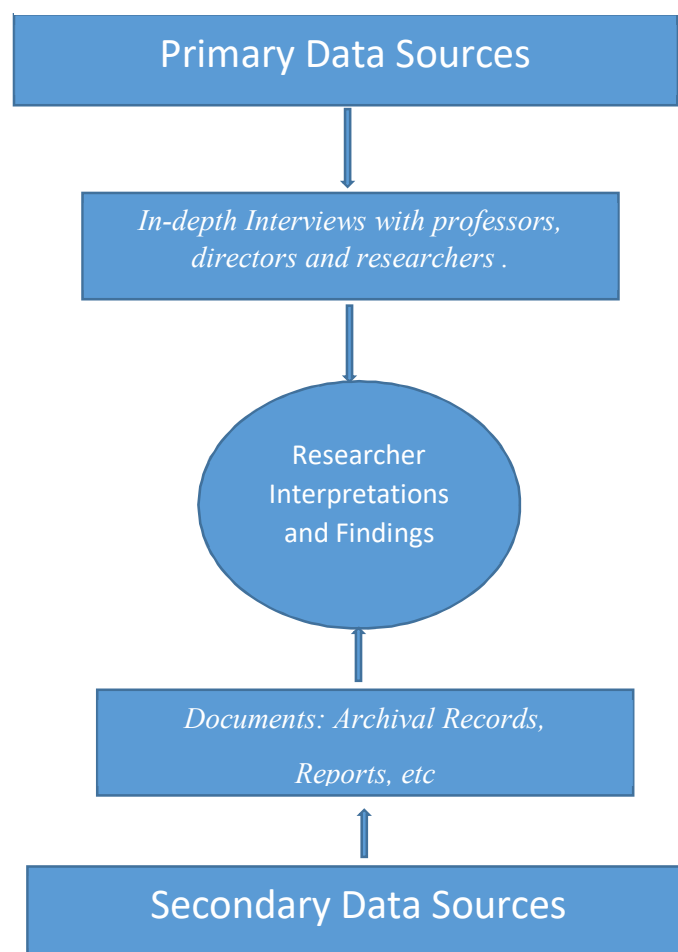
In conducting, purposive sampling, the sample size of a well-researched study is crucial. A smaller sample tended to produce an “open” and “frank” flow of information (Crouch & McKenzie, 2006.). Hence, the targeted number for this study was a purposeful sample of 10 interviewees but the study could only access 7 of the 10 respondents.

3.11 Data and Methodological Triangulation

Overall, the research was conducted using a methodological triangulation. Patton (1999) describes Methodological Triangulation as adopting more than one data source or methodology in analysing a study in order to reach a thorough and comprehensive understanding. This model of research enables the researcher to test validity and reliability through the combination and convergence of information from a wide variety of sources. Denzin (1978) and Patton (1999) further outlined four types of triangulation to include method triangulation, investigator triangulation, theory triangulation, and data

source triangulation. The diagram below gives a visualised data source triangulation as adopted by this research.

Figure 4: Data source triangulation



4 CHAPTER FOUR: CASE STUDY

4.1 Introduction

This chapter discussed the focal points of South Korea's brain drain and gain through the lens of policies adopted by the government. The research explored the country's repatriation strategy and its ability to utilize this measure in promoting economic development. Primarily, the chapter focused on the Korea Development Institute (KDI) and the Korea Institute for Science and Technology (KIST) through a case study by specifically addressing techniques by which these two key institutions served as facilitating agencies in promoting brain gain. The study was further divided into thematic areas to help assess critically, strategic policies formulated and implemented.

4.2 Overview of migration of highly skilled labour

Effects of migration of highly skilled labour usually have a relatively different outcome in each country. In the case of developing countries, the movement of highly skilled labour has been argued to have both direct and indirect menacing impacts. Essentially, the continuous loss of trained talents became commonly referred to as brain drain in these regions. Additionally, recent and past causes of migration in the least developed countries (LDC) have often varied from time to time. This often included the domestic conditions of source countries, existing bonds between the source and host countries

such as colonial ties, and economic and technological prospects available in host countries.

Subsequent, research conducted by The United Nations Institute for Training and Research (UNITAR) revealed that, the migration of highly skilled professionals in the least developed countries in Asia after the second world war increased exponentially. The United States as a host country tended to attract migrants that were likely to migrate temporarily in most cases and permanently in few cases. (Hentges, H. A. 1975).

4.3 Overview of South Korea's reversal of Brain Drain.

Introduction

South Korea's rise into the international scene through its economic success piqued the curiosity of many researchers who sought to analyse, explain and extol the strategies behind this success. Scholars such as Kim, J. (2002) maintained that in unravelling the model for successful economic growth, many analysts are often tempted to generate a universal model. The economic trajectory of South Korea has often been linked to many factors such as trade and industry policies implemented, the effective use of aid and the strong leadership. (Kim, J.2002) and eventually repatriation policies.

South Korea's migration was mainly characterized by the huge migration of professionals and talented nationals to the United States after the second world war and the Korean war. Consequently, in the course of the country's economic development, South Korea benefited from the return of these highly skilled labour who were specially

trained in the fields of economics, science and engineering. The effective utilization of this highly skilled manpower led to the establishment of two key institutions which became the central machinery for the development of science and technology and evidently economic growth. Song, Changzoo. (2014).

4.4 Evolution of South Korea's economic success (from brain drain to gain perspective)

4.4.1 Phase 1- Japanese Colonization and after

South Korea, up onto 1945 was regarded as an underdeveloped country with a desolate economy. Furthermore, the country's main source of production was chiefly subsistence farming with about 30% of arable land. The peninsula first made contact with the west during the 19th century. Before then, the Korean society was characterized by Confucianism and traditional monarchy. Like most African countries, South Korea equally suffered colonial imperialism under Japanese ruler ship which took place between 1910 to 1945. The colonial rule of Korea was remarked by several scholars as both harsh and exploitative. (Kim, K. S.1991)

Evidently, migration of labour of the first twenty-five years during Japanese imperialism on the Korean peninsula increased. Thus, the absence of higher educational institutions led to the relocation of Korean students to Japan. Concurrently, the existing advanced institutions on the peninsula were further transformed into technical

colleges for training technical staff only. Based on these circumstances, most Korean students had to further their education in Japan. (Kim, S. 2010).

4.4.2 Phase 2 (1948- 1960)- Economic development of South Korea under Syngman Rhee's administration through Aid, Migration (Brain Drain) and the Korean War.

Scholarly views began to document the peculiar paradigm in South Korea's emigrational trend over the years. That is, most empirical evidence began to point out that, the migration destination of most Koreans dramatically shifted from Japan to the United States of America. The first phase of labour migration to the United States took place from 1903 to 1949 with the arrival of more than 7,226 Koreans in Hawaii in a bid to escape the turbulent political climate and growing famine in the country. Later migration to the United States, however, became geared towards seeking educational opportunities. Min, P. G. (2011). Ultimately, half of the Korean migrant's population made headway to the mainland of the United States to pursue education and as well as establish self-employed businesses while the other half returned home.

By 1948, South Korea had attained a relatively stable political system which eventually ushered it into a republic led by its first democratically elected president Syngman Rhee. Under his regime, foreign aid became an integral part of South Korea's survival and economic reconstruction. The role of the United States as a major donor also became established with the United Nations as a minor donor. America's first aid assistance in 1945 which came from its military budget was disbursed through (GARIOA)

Government and Relief in Occupied Areas as emergency aid - provided both military and humanitarian assistance. 70% of GARIOA, composed of food staples, fertilizer, and clothing was disbursed through US Army Military Government in Korea (USAMGIK). (Pil Ho Kim ,2017).

Subsequently, the Economic Cooperation Act (ECA) of 1948, a follow up on GARIOA, established to contribute to the development of South Korea became short-lived but and was quickly replaced by the United Nations Korea Reconstruction Agency (UNKRA) and Civilian Relief in Korea (CRIK). UNKRA was centrally focused on ensuring South Korea's self-sustaining economic reconstruction. Fundamentally, the assistance of these agencies essentially contributed to economic development and eventually human capital through brain gain.

See table 3.0 below.

Table 3: American aid program to south Korea that started before 1961

Agency	Program/Law	Period	Amount (million USD)
US Military	GARIOA	1945-1949	502.1
Economic Cooperation Administration	ECA	1949-1951	110.9
United Nations Korea Reconstruction Agency	UNKRA	1950-1955	111.6
UN Command	CRIK	1950-1956	457.2
US Military	MDAA	1950-1951	10.8

Source: (Ahn, Yeonmi. 1992). USAID

Correspondingly, the Korean conflict also became another turning point in South Korea's economic growth. The civil war which occurred as a result of the two conflicting ideologies within the international community instigated the Korean war of June 1950 to 1953. (Baqi, Malak. 2018). As expected, the aftermath of the war also brought about huge economic downturn, coupled with political instability. Furthermore, the country additionally suffered frequent coup d'états, assassinations of political leaders, and labour strikes, (Ko, Jae-Young. 2007). South Korea's per capita income became lower than most least developed countries such as Yemen, Haiti, Ghana and Ethiopia. (Kim, K. S. 1991).

Published statistics on the impacts of the war on the transportation system for example in the first four-month of the conflict revealed that about 600 000 housing units, 46.9% of the railroad, 1,656 roads of a total of 500km, and 1,453 bridges totaling 49 km had been destroyed. Particularly, the mining industry received the worst damages. The industrial damage in total was estimated to have been US\$549 million forming a percentage of about 23.3%. Collectively, the overall damage was brought to 41.23 billion won, equivalent to US\$6.9 billion, formed 86% of the Gross National Product (GNP) by 1953. This eventually distorted the economy and made South Korea more aid-dependent. (Lee, J. W. 2001). Ultimately, empirical evidence by scholars such as Lee, J. W. (2001) described the devastating effects of the three - long years of war to have distorted promising national economic reforms, intensified the country's aid dependency, caused disruption on industries, hyperinflation and ultimately led to an abrupt decline in economic activities.

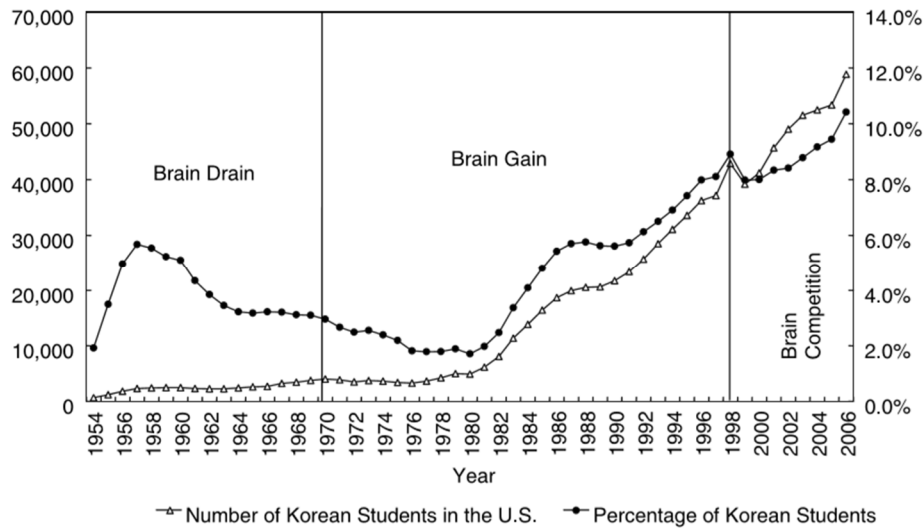
As a consequence, of the country's growing aid dependency, a number of economic strategies and reforms were employed to revitalize the economy. The first, which was the establishment of the Ministry of Reconstruction (MOR) in February 1955, sought to implement economic policies and manage "foreign economic assistance". From this point, MOR played a significant role by setting up an Industrial Development Committee leading to the creation of a Three Year Economic Development Plan, which eventually became an enabler for the country's growth in later years. (ibid). During that period, there was also a push for universal primary education which led to the enrollment of "4.94 million by 1965" (McGinn 1980)

Concurrently, the reconstruction of South Korea's economy was further marked by intensified migration of educated and skilled Korean professionals. This was characterized by a deepened political and military alliance between South Korea and the United States of America. In particular, an approximate of 15,000 Koreans moved to the United States within this stipulated period. Migrants during this period consisted of three major groups; "war brides" who were native Korean women married to American soldiers, adopted war orphans by American families and a significant number of Korean students who sought to further their education, (Yuh, Ji-Yeon, 2005). Migration of students were predominantly men enrolled in graduate schools in the United States. Kim, Warren. (1971) postulated that an estimate of 6000 students who were admitted into American schools within 1950 and 1964, mostly became professors in their discipline. (Kim, Warren. 1971)

Henceforth, the search for advanced educational opportunities in the United States indisputably became the conduit for which Koreans nationals migrated. The presence of Korean scholars from then on became large in the United States 's educational system which evidently caused a significant impact on Korean students. Accordingly, information provided by the U.S. Institute of International Education outlined two streams of migration to the States by Korean Students. The first stream was after the Korean war and the second through government scholarship which was managed by the Ministry of Education after relative economic stabilization. The Rhee government - sponsored talented Korean students especially in the field of science, technology and engineering. The government's intention was to use the acquired knowledge and skills from advanced countries in rebuilding Korea's economy after the war. (Kim, S. 2010)

However, the efforts of the Korean government proved futile, considering many Korean students who had become trained professionals chose to stay in the United States due to better living conditions and the lack of employment opportunities to suit their acquired expertise back home. Figure 5 below illustrates the trend in the migration of Korean students after the Korean war.

Figure 5: Migration of Korean students after the Korean war between 1954 to 1964



Source: IIE Open Doors (various years).

Hentges, H. A. (1975) in her research on the migration of Korean students further noted that, within 1953 and 1972, 11,897 students from Korea had received government scholarship through the ministry of education. Of this, 90% had specifically requested to study in the United States and 5,376, directly in science and engineering disciplines. Basically, the non- return of the majority of these students indicated the magnitude of brain drain in the country. (Hentges, H. A. 1975)

Table 4 below also shows the number of Koreans students enrolled in graduate programmes in the United States and students to have earned a doctorate degree.

Table 4: Number of Korean students enrolled in graduate programmes in the United states.

Years	Korean students in America	Korean PhD recipients in nat sci and engineering for the year*
1960	2,310	28
1965	2,666	66
1970	3,857	107
1975	3,260	105
1980	6,150	87
1981	8,070	104
1982	11,360	123
1983	13,860	183
1984	16,430	204
1985	18,660	251
1986	19,940	309
1987	20,520	450

* For years prior to 1980, the number shown is the average for the five years following the years in

Source: Institute of International Education, New York, Open Doors, 1960-88, National Science Foundation

For the most part of Korea's development in the late '50s, the sitting government began to face a backlash with growing accusations of corruption and increasing incidents of patron-client networks. Additionally, political interference and growing bureaucracy were beginning to take a toll on economic decisions in the country. The subsequent resignation of Syngman Rhee's and the short-lived government by Chang Myo once again brought about an unstable political environment. Kim, B., & Moon, C. (1991)

Conclusively, in spite of the substantive foreign aid given by the American to South Korea. The Rhee administration was unable to reach an appreciable level of development but was however hailed for the education structure implemented. The pivotal role of aid in acting as an enabler of South Korea's economic growth also caused a rippling effect in facilitating the successful repatriation of skilled Korean emigrants.

4.4.3 Phase 3 - Economic development of South the Park Chung-Hee's administration through Aid and Migration (Brain gain)

By the year 1961, South Korea experienced its first military coup d'état, amidst political instability and growing economic decline. The start of the new military government led by General Park Chung-Hee arguably led to the country's exponential economic advancement and recognition in the international system. (Kim, B., & Moon, C. (1991). This period also created an enabling environment for the repatriation of highly skilled Korean migrants and the foundation of this study.

Major General Park Chung-Hee having been a trained junior officer in the Japanese army, was fairly indoctrinated with Japanese ideologies. He was often described as a nationalist with tacit inclination towards Marxist beliefs and allegedly regarded by the Kennedy administration (35th President of the United States) as a "closet communist". (Graham, E. M. 2003). His training with the Japanese army would later turn out to influence his economic strategies.

The utilisation of aid for economic development during the presidency of Park Chung - Hee has been remarked by a wide number of scholars as undeniably effective. The first and foremost part of the Park's administration was marked by modifications of short term or emergency aid to long-term development assistance as the United States began reducing its aid assistance, as a measure of creating a self-sustainable Korean economy. Essentially, development aid was either on the decline or channelled into concessionary loans and military assistance. Given this, president Park Chung -Hee passed the law on

“Inducement of Foreign Capital ” to attract more overseas investment so as to augment existing funds. Thereafter, South Korea's foreign capital inflow and aid donors expanded from the US to the World Bank, International Financial institutions (IFI’s) and the Asian Development Bank (ibid)

In later events of his presidency, Park Chung-Hee also normalized diplomatic relations with Japan, an act deemed as betrayal by most Korean citizens in view of the colonial history between the two countries. The normalization was majorly influenced by the American government as a strategy to wean off American aid as viewed by some Korean nationalist. By 1965, the Korean government received a total of US\$ 800 million; US\$ 300 million in the form of grants, concessionary loans (US\$ 200 million) and commercial loans (US\$ 300 million) from the Japanese government. (Kim, Jun-Kyung and Kim, KS. 2012.) In essence, South Korea’s rapid development was financed largely by foreign savings through foreign aid, loans and grants. See table 5.0.

Table 5: South Korea's aid and donors

Period	Objective of Aid	Scale and Type of Aid	Major Donors
1945-1949 U.S. Military & newly established Korean governments	<ul style="list-style-type: none"> Emergency relief from the effects of World War II and Japanese colonization 	<ul style="list-style-type: none"> All grants \$0.7 billion 	<ul style="list-style-type: none"> US/AMGIK/ECA
1950-1959 The Korean War and rehabilitation	<ul style="list-style-type: none"> Emergency relief from the effects of the Korean War Rehabilitation and reconstruction after the Korean War 	<ul style="list-style-type: none"> Mostly grants \$2.3 billion 	<ul style="list-style-type: none"> US/ECA/FOA/ ICA UN/CRIK/ UNKRA
1960-1979 Industrialization and growth	<ul style="list-style-type: none"> Economic growth based on industrialization 	<ul style="list-style-type: none"> Grants and loans mixed \$6 billion (1962-78) 	<ul style="list-style-type: none"> Japan and US Multilateral development banks

Source: (Kim, Jun-Kyung and Kim, KS. 2012.)

Domestically, President Park Chung- Hee began implementing imports and export - oriented policies as a strategy to continually drive economic growth. These strategies also included intensive human capital development, which sooner or later led to the successful implementation of all of President Park's economic development approaches. On the other hand, in spite of the budding economic growth, the issue of migration was as well prevalent during the beginning of the Park Chung - Hee administration owing to the substantial differences in living standards between Americans and South Koreans. Thus, many trained and highly educated South Koreans were reluctant to return home after earning advanced degrees. This was predominant in the science and engineering fields where scholarship for further education and employment opportunities were prevalent. (Kim, S.2010)

President Park Chung Hee's five -year economic plan eventually became the linchpin of South Korea's export-led industrialization. By 1961, an Economic Planning Board (EPB) had been established and filled with the finest existing technocrats as opposed to military officials as done by most military governments after a coup d'état. In the following years of its operation, the EPB developed the first of what will become a series of five - years economic plan. (Kim, Jun-Kyung and Kim, KS. 2012.)

The first and second phase of the comprehensive economic plan was focused on the construction of steel mill, heavy and chemical industries, which later became the center of Korea's export-led industrialization. The third and fourth economic plan occurred between 1972-1976 and 1977-1981 respectively and were overall geared towards

sustainable economic development. (Kim, Jun-Kyung and Kim, KS. 2012.). By the take-off of the second economic plan, South Korea had achieved a remarkable development especially in the trade of exports and imports of goods manufactured by the steel and chemical industries. On the other hand, the agriculture industry began to decline as with many developing economies depicted by Walt Rostow 's modernization theory.

Table 7 and 8 elaborates some significant portion of Korea's economic growth in terms of trade exports and imports and productive sectors within the period. The revenue made from importation and exportation of industrial goods began to account for major parts of the country's Gross National Product (GNP), while the agricultural, fisheries and forestry sector declined.

Table 6: GNP and Ratios of exports and Imports

Year	GNP (1970 constant billion won)	Exports as % of GNP ^a	Imports as % of GNP ^a
1963	1,328	3.5	13.5
1964	1,442	4.0	9.2
1965	1,530	5.2	9.8
1966	1,719	7.1	13.8
1967	1,853	8.9	17.3
1968	2,087	11.3	22.4
1969	2,400	12.9	24.3
1970	2,589	14.7	24.8
1971	2,827	16.3	27.4
1972	3,024	21.3	26.5

Source : Bank of Korea, Economic Statistics , 1973.

Table 7: Annual growth of GNP and Major Sectors , 1963-1972

Year	GNP	Agriculture, Forestry and Fisheries	Mining and Manufacturing	Social Overhead and Services
1963	8.8	8.1	15.7	7.4
1964	8.6	15.5	6.9	3.0
1965	6.1	-1.9	18.7	9.9
1966	12.4	10.8	15.6	12.6
1967	7.8	-5.0	21.6	13.8
1968	12.6	2.4	24.8	15.4
1969	15.0	12.5	19.9	14.6
1970	7.9	-0.9	18.2	8.9
1971	9.2	3.3	16.9	8.9
1972	7.0	1.7	15.0	5.8

Source: Bank of Korea, Economic Statistics, 1973.

Overall, a number of factors have been attributed to South Korea's economic miracle since the 1960s. For most contemporary economist, the implementation of a high domestic saving rate, export-led industrialization, a relatively stable political environment, investment in social infrastructure, the use of Confucian work culture and timely policy implementation have often been identified as the driving force for Korea's exponential economic growth. (Amsden 1989, Song 1997)

4.5 The Korea Institution of Science and Technology

Midway through half of the second economic development plan, Korea's economy grew rapidly with a strong demand for highly educated and specialized labour for strategic

positions in the country. (Kim, S. 2010). In other words, the sustained growth in ROK's industrialization necessitated highly skilled labour for a continuous drive towards an advanced economy and international recognition. The birth of the Korea Institute of Science and Technology (KIST) came as an essential factor in promoting the chemical and steel industry and other industries as well. Thus, the establishment of a research institution to conduct industrial research had become critical to industrial development in South Korea. KIST was created at the early stages of industrialization to provide a platform for advanced research considering Korean industries gradually became limited in production capacity in order to meet international demand or replicate the existing advanced technology. Furthermore, the existing institutions for research and development had gradually become substandard. In view of this, the Korean government took the initiative to implement a state-funded research institution to curb this problem. (Mahlich, J., & Pascha, W. (Eds.). 2012). KIST was conceived at the early stages of industrial growth by the chairman of the Supreme Council for National Reconstruction - President Park Chung Hee. However, prior to the establishment of KIST, the Ministry of Education (MoE) was tasked to conduct a feasibility study towards the establishment of this institution. Accordingly, the MoE and the EPB conducted a number of research and policy reforms, which proved ineffective due to the lack of substantive funding.

4.5.1 The role of American aid in the establishment of KIST and beyond

In the course of the impending challenges, President Park Chung-hee, embarked on an official trip to USA, where the idea of a research institute was pitched. Following this, a

joint program was created to start the establishment of an advanced research center. A publication on the history of KIST indicated that;

“The U.S support for the establishment of a research institute in Korea was an unexpected gift to President Park on his official visit to the U.S. Although the details associated with establishing an institution was well laid out by Dr Donald F. Horing, Presidential Science Advisor, the original idea came from President Johnson. This was not just a show of appreciation on the part of U.S for Korea's support in sending troops to Vietnam, but also in response to the complex geographical security issues in the region.”

Without delay, preparations towards the establishment of The Korea Institute of Science and Technology began through technical and financial assistance from the United States. Dr. Horing thereafter became the point person from the United States throughout the establishment of KIST. Fundamentally, two key principles were outlined to ensure successful implementation;

- i. “Establishing a research institute that could directly contribute to the industrial development of Korea through the provision of technology “
- ii. “Recruiting Korean scientist working overseas and supporting their research activities in Korea”

By February 1966, KIST was officially launched as a center for advanced research with well-equipped instruments and technical assistance. President Park Chung - Hee in his

inaugural speech emphasized the central role of the institution's contribution to the Korean economy:

“Through the establishment of KIST, Korea will be well equipped with excellent research and technology information center. By providing applicable scientific methods, the center will assist in resolving the difficulties arising from the expansion of our industrial center. KIST will provide services to both private and public enterprises by introducing and applying advanced technology and conducting activities relating to research, investigation, and analysis in various areas of Science and Technology and the industrial economy”

With the core purpose of KIST marked out, Dr. Choi Hyung Sup was appointed the first president and laboratory director with an 11-member board and auditor. Considering the envisaged role of KIST in the budding economy of South Korea, the board members were exclusively handpicked by President Park. The team comprised of “three ex-vice ministers from the economic planning board, Ministry of Trade and Industry, and the Ministry of Education (which will later become the Ministry of Science and Technology), a director from USAID and BMI (Battelle Memorial Institute) and the remaining six from the fields of science and technology, academia and the industry.

KIST as the first government-owned research organization, was given autonomy to conduct research based on the KIST Assistance Act (Act no. 1857) by December 1966. In later years, the KIST Assistance Act was amended into the KIST Assistance Act

(Act No. 1917) to strengthen the autonomy and take out the KIST business plan and financial auditing which were currently being performed by the government.

The KIST Assistance Act (Act No. 1917) was as follows:

1. The government shall provide an endowment for the construction, operation, and management of the institute.
2. The government shall transfer ownership or rent national properties, if necessary, to the institute for free of charge
3. The Korean and US governments shall provide the necessary financial support, without mandating additional financial audits or state approval.
4. The institute shall report its annual business plan to the head of the overseeing ministry and presents its annual balance sheet to the government assigned certified public accountant for audit.

Additionally, the government of Korea revised the section of the Tax reduction and Exemption Act, which exempted KIST from corporate tax, registration tax, business tax, property tax, acquisition tax, excise duties and tariffs. This was done based on the ongoing economic and political issues in the country. For the most part, the intensive preparations taken towards the establishment of KIST produced a strong foundation for its successful implementation and operations.

4.5.2 KIST as a facilitating institution for repatriation of highly skilled labour

The prime concern during the establishment of the Korea institute of science and technology was the recruitment of qualified staff. Given that, Korea, like many other developing countries was faced with a high level of brain drain, the prospects of employing seasoned persons with specialized skills were very narrow. That is to say, the existing pool of scientists were limited as compared to the “Korean brains” abroad. For instance, the total number of Korean PhD holders stood at 79 whereas Korean scientist specifically in the US were estimated at 869. (Yoon, B. S. L. 1992). Taking into account of the above mentioned, the crucial function of KIST as a facilitating agency in the repatriation of highly skilled labour deserved unparalleled attention as the study sought to highlight.

Table 8: Recipient of doctorate degrees in South Korea and America (1960-1991)

<i>Year</i>	<i>South Korean S&E PhD Recipients in the US</i>	<i>South Korean S&E PhD Recipients in Korea</i>
1960	28	N/A
1965	66	6
1970	107	76
1975	105	259
1980	131	168
1985	323	562
1991	1,107	1,355

Source: Ministry of Education, Republic of Korea US National Science Foundation.

Table 9. above shows the number of Korean students to have earned a doctorate in the United States, and South Korea in either engineering or science within 1960 - 1987.

a. Engaging the Diaspora (Skilled Korean Nationals)

In engaging the Korean diaspora, a number of initiatives were put in place to create a cadre of scientists and engineers. The Ministry of Science and Technology (formerly known as the Ministry of Education) set up an enquiry system of which sixty-nine of a total number of five hundred were considered eligible. The criteria for eligibility was based on scientists and engineers in academia who further extended their practice through working in renowned research institutions. The top management of KIST also appealed to the nationalistic and patriotic sentiments of Korean scientists and engineers. In the course of operations of KIST, some repatriate in hindsight recounted this approach as “visionary”. For instance, a former employee of the first generation of scientists recounted that,

“I, myself, as well as other members in our group (the first group of scientists/ engineers ever repatriated in Korea in the late 1960s to work at KIST) were adventurous, idealistic, and nationalistic too. We were not afraid to take chances, and we were real ‘chance(risk)-takers.’ (Yoon, B. S. L. 1992).

b. Incentives packages

The board of directors leveraged on a number of economic and social factors in enticing Korean scholars. Notably, the repatriated scientists and engineers were persuaded with higher salaries or remuneration higher than they originally received. Salaries were now

pegged three times more and in other cases, the management of KIST offered the exact salaries, these professionals received in the USA.

Yoon, B. S. L. (1992) affirmed that:

“The idea of the package of fringe benefits began when KIST recruited its first group of researchers from abroad in the late 1960s. These benefits include relocation expenses (i.e., airfares for the repatriates and immediate family members, and door-to-door moving expenses), free housing, overseas travel, subsidized educational costs for children, and subsidies for local transportation (i.e., free transportation, free or low-cost automobile maintenance). New Western-style housing on the KIST campus provided to repatriates was rather sensational to many local housewives, for such nuclear family-oriented, modern apartment housing was new to Korea in the 1960s “

Other incentives included a guaranteed career progression. Also, for many Korean professionals who had stayed for a relatively short period abroad, the opportunity to reunite with family was considered a major motivation.

c. The Recruitment of Skilled Scientist / Engineers

Through a state-led approach, KIST developed a structure of policies and incentives to attract highly skilled and educated Koreans back into the country. By 1969, the board members of KIST started with the recruitment of eighteen senior-level scientists of engineers through the Ministry of Science and Technology, the designated office

responsible for the repatriation program. The recruitment strategy involved attracting scientists and engineers with five or more years of experience and an advanced degree from Ivy League universities preferably. By early 1975, KIST recruited 68 permanent repatriates and 69 temporary staff which eventually increased to 104 between 1982 and 1989.

4.5.3 Effective Utilisation of repatriated labour

The prime focus of South Korea's reverse brain drain was to effectively utilize the skill-set of Korean migrants in the fields of Science and Technology. That being said, a number of Korean economists attested to the continuous rise in South Korea's GDP, after the implementation of the repatriation program. Additionally, a study conducted by Hentges, H. A. (1975) highlighted an assessment model which involved measuring job descriptions of repatriated staff with regards to the stated vision for KIST as an indicator in evaluating the effective use of repatriates. Specifically, the effective utilization and integration of skilled and educated Korean returnees was carried out as follows;

a. Special Project embarked on

The first and foremost project embarked on by KIST was critical in the rapid industrialization process of South Korea. In view of this, an assessment was carried out to specifically project the economic prospects of the South Korean economy by

conducting a thorough examination of the country's industrial conditions. Based on this a detailed research plan was developed with an overall scope for research projects. KIST additionally developed specific research units covering aspects on technical information, laboratory experiments, analysis and machining.

b. Integration of repatriated staff

The management of KIST during the process of recruitment gradually became concerned about the effective and easy integration of returnees. Considering, the fast growth and dynamic nature of both the Korean society and industries, there was a huge tendency that the repatriated scientist would have limited knowledge and understanding of the Korean economy. Taking this into account, KIST further recruited and honed domestic scientist who had acquired skills abroad but had returned for private research to provide a support team of integration. (This team formed 30% of the total recruitment of researchers).

c. Social factors - Confucianism

A number of social scientists also linked the effective utilization of repatriates to the unique Confucians work ethics. It is quite impossible to discuss political, economic and social conditions in South Korea without making reference to the ingrained Confucianism philosophy in the daily life of the people. This ideology has pervaded underpinning values and behavioral traits for more than five centuries and modern-day Korea. Confucianism was often translated in traditional familism or communitarianism

system of Koreans and further manifested in hierarchical work relationships. (Song, H. 1997).

4.5.4 Performance and success of KIST

The core purpose of KIST was to contribute to the growing demands of South Korea's industries and ultimately to the economy. It was therefore imperative that the South Korean government aligned economic development plans to industrial research. KIST in its subsequent years after its establishment was able to achieve its core vision of providing expert advice on appropriate technology for Korean industries. (M. Moon. 2011).

Moon, M. further maintains that,

“There were three types of contracts that KIST undertook: governmental projects, industrial projects, and endowment projects. Governmental projects were intended to solve problems as requested by governmental ministries or agencies. Typical examples were the development of defense-related products, such as weapons and patrol ships designed by KIST in the early 1970s, and survey projects related to government policies. Second, industrial projects were requests from industrialists to solve specific problems, mostly the adaptation of transferred technologies, developing new technologies, and market research. The third type was “package deal contract research,” which was a bundle of government-funded projects under the contract but self-determined by KIST staff.”

4.5.5 Sustainability

The sustainability of KIST was hinged on a number of factors. The government efforts to ensure legal protection through special legislation (The Assistance Act for the Korea Institute of Science & Technology of 1967), a well-defined organisation structure and tax exemptions cocooned it from political interference. The government of Korea further ensured financial stability through the “package -deal contract research “. The financial compensation of researchers was another major determinant for ensuring KIST's continuity. For instance, salaries of scientist were adjusted to reflect inflation rates. The elevated social status of scientist provided an enabling environment that allowed them to adapt easily and also increased their performance. On special occasions, scientists were invited to the Blue House (the presidential residence) or received extra bonuses from the private presidential coffers.

4.6 The Korea Development Institute

The Korea Development Institute (KDI) was established at the latter stage of President Park Chung - Hee's second economic development plan. Founded in 1971, KDI came into being through the Promulgation of Act establishing KDI (Law No.2247) as a research institute or think tank. Thus by 1966, the Second Five-Year Economic Development Plan included a paragraph (No. 215) that emphasized the need for an “establishment of an economic institution as soon as possible”. Specifically, its primary aim was to conduct “research and analysis on fundamental economic issues, national

economic surveys, and study the economic experiences of other countries, in order to formulate and implement development policies.” KDI was further tasked to become a “valuable training ground for economists, policymakers and practitioners” and a “critical conduit between the government, academia, and research institutions.” Most importantly, the plan emphasized that the institute would “have the autonomy required to produce high quality and objective outcome “Korea Development Institute (2015). Ultimately, KDI’s function was crucial to the economic development of South Korea, especially in the rapid growth of trade and industry.

4.6.1 Role of American Aid in the establishment of KDI

It was worth noting that in discussing the establishment of KDI, the central role of America’s assistance through technical and financial aid was key. At the early stages of its establishment, the government of South Korea made attempts to raise funds by securing financial assistance from private entities such as, Ford and Rockefeller Foundations which unfortunately proved futile. However, after the unsuccessful attempts of Dr. Kim Mahn Je, (first president of KDI) and Lee Hee Il (a representative from the government’s Economic Planning Board), the government of South Korea resorted to establishing a government-funded research institute. The close association with the government was to fetch a number of advantages in terms of policy analysis, formulation and execution. By 1970, KDI secured KRW 1.31 billion (USD 3.5 million) from the United States Agency for International Development/Korea (USAID/K) through the efforts of the incumbent prime minister Kim Hak Ryeol.

4.6.2 KDI as an instrument for brain gain

b. Recruitment and Utilisation of skilled labour

In the wake of South Korea's economic takeoff, the Korean government embarked on a number of strategies in creating a well-rounded economic team to analyze and assess the country's economic prospects. Thus, in order to continually pursue an export-led economic development strategy, president Park Chung - Hee implemented a migration policy which led to the repatriation of 11 highly skilled and talented economists. Specifically, in the course of development, Dr. Kim Mahn Je became the first president of KDI after earning his doctorate degree at the University of Missouri in 1964. Latter reports published by Korean development institute (2015) attested to Dr. Kim Mahn Je's active and personal involvement in the recruitment of the first generation of economist at KDI. Particularly, the president often embarked on trips overseas to personally recruit the best and brightest of Korean economist. In the long run, the Korea development institute became a hub for the most talented and skilled repatriates from the field of economics.

Dr. Koo Bon-ho, Fifth President of KDI, Former KDI Vice-President and Senior Researcher, recounted when he received a personal invitation to return home from the United States

“When I left Korea to study abroad in the late ‘50s, the per capita national income was very low, about USD60–70, and the country was one of the poorest countries in the

world. But speaking with KDI President Kim, I saw a poor country that was laying the groundwork for economic development and getting on track for rapid growth. I ended up making up my mind to go back and work there. So in December 1971, I returned to Korea as a senior researcher at KDI “. Korea Development Institute (2015).

c. KDI's contribution to South Korea's economic development

The remarkable role of KDI in the economic transformation of South Korea could not be overemphasized. The team of researchers in collaboration with EPB formulated the subsequent sets of five- year economic plans, three-year rolling plans and annual economic management plans. Other key contributions of KDI to the government of South Korea included:

- i. Periodic policy conferences and discussions in order to draw short term research projects for frequent evaluation of current economic policies.
- ii. Collaborative research with the Harvard Institute of International Development (HIID) on Korea's economic struggles before and after the Korean war and success (1946-mid 1970's). The research publication titled The Economic and Social Modernization of the Republic of Korea (a ten-volume series) became a reference tool for both local and international policymakers and economists in the formulation and implementation of policies.

- iii. Conducted a critical assessment and published the results of its Long-term Socio-economic Development during 1977 to 1991 and the economic prospects of South Korea as well
- iv. KDI over the period also conducted research and implemented policies in monetary and financial economics, industrial organisation, international trade, public finance and finally, macroeconomics.
- v. In relation to economic issues on social welfare, research was conducted in the area of pensions and retirement funds, health insurance, unemployment insurance, industrial accident insurance by analyzing valuable policy lessons and experiences of advanced economies. Additionally, experimental research conducted on income distribution and disparity and absolute poverty of advanced countries were modified to suit the Korean experience. Overall, these research reports were used in publication of Korea's Social Index by the Division of Survey and Statistics of the Economic Planning Board.

4.6.3 Sustainability

Ensuring sustainability of KDI was of paramount interest to President Park Chung - Hee and his government. In view of this, the Korean National Assembly legislated the Korea Development Institute Act to establish and protect the institution from unnecessary political interference. Furthermore, a committee was specifically set up to draft a charter and articles in order to create an organisational framework to ensure that the institution's internal structure functioned properly. In terms of ensuring financial stability, the late

Korean President Park Chung- Hee personally donated one million Korean won and other government support to ensure continuity.

5 CHAPTER FIVE: FINDINGS, ANALYSIS AND DISCUSSION

5.1 Introduction

The primary purpose of this study was to identify and evaluate Korean immigration policies implemented to reverse brain drain, using the context of the Korean Development Institute and the Korean Institute of Science and Technology as repatriation agencies. Thus, the study through an analytical lens, basically examined institutional resources, existing literature and in-depth interviews conducted with stakeholders and experts on the subject by using the outlined research methods as highlighted in chapter 3 of this study.

5.2 Analysis of In-Depth Interviews

Interview questions were tailored around four thematic areas. The first of these focused on ‘KDI and KIST as migration policies on the reversal of brain drain’. The second and third thematic focus was on “utilization and performance of returned skilled labour” and “integration, adaptability and “sustainability of repatriated labour” respectively. The final thematic area probed on the “Role of development assistance in the establishment of repatriation institutions”. Essentially, interview questions were developed and designed to attain in-depth perspectives and understanding of the study at hand. However, data collected from the interview participant was anonymized in order to protect the confidentiality and anonymity of interviewees

5.3 Interviewee characteristics

The profile or characteristics of interviewees was briefly described providing an understanding of the backgrounds of the interviewed persons. For the most part, information collected on interviewees was done during the interview process. Participants were categorized into three major groups to include interviewees with:

- a. Direct experiences with the study,
- b. Affiliations with the institutions under study; and
- c. Experts on the subject or done prior research on the topic

The participants with affiliations with The Korean Development Institute and The Korea Development Institute of Science and Technology totaled three (3) while a total number of four (4) participants had expert knowledge or prior research on the topic. The research was, however, unable to access any participants with direct experience on the subject matter. In all, five out of the interviewees had attained professorship while the remaining two earned top-level management positions with significant years of experience.

5.4 Analysing perspectives on responses from interviewees

The study, specifically analysed how interviewees perceived and communicated their views on the function of the Korean Development Institute and The Korea Development Institute of Science and Technology as facilitating agencies in curbing brain drain. This was carried out under the identified thematic areas as follows.

5.4.1 KDI and KIST as migration policies on reversal of the brain drain

Responses on questions posed on KDI and KIST as agencies in facilitating brain gain received positive answers from all seven participants. The first question was, “*Did KDI or KIST indeed act as agencies for repatriation of highly skilled Korean scientist and economist*”? In general, respondents asserted that the role played by these institutions was central to the successful implementation of South Korea’s migration policies on brain drain. One of the respondents specifically stated that ‘*there was no way scientists, engineers and economists were going to leave their comfortable standard of living and job security if they were not sure that their skills would equally be put into good use*’ Another respondent who had conducted prior research on the subject indicated that “*once the idea of a scientific research institute was pitched, talented Korean emigrants were ecstatic considering they now had the opportunity to conduct advanced research for the development of their own country* .

A summary on follow- up discussions affirmed the pertinent role of KIST and KDI in the implementation of migration policies. Additionally, participant further maintained that the South Korean government’s decision to resort to these strategies were the most appropriate thing to do as science, technology, engineering were the exact elements needed for the continuous industrialization of the country. The repatriation of skilled economists to promote extensive economic research was also necessary and timely. When asked if there were any other means for which, policies on the reversal of brain

drain could have been formulated and implemented, interview participants maintained that, the establishment of KDI and KIST was considered the best policy option.

5.4.2 Utilization and performance of returned skilled labour

Responses to questions under this thematic focus were generally positive on the crucial role played by skilled repatriates. The main questions posed under this discussion were; *‘How were the skills -set of the repatriated persons put into use’* and *“did the utilisation of these skilled personnel translate to economic growth”*. Interviewees with direct affiliation to KDI and KIST here outlined how the experience and skills of returnees were used for specific projects towards advancing economic growth. A respondent from the KDI policy school revealed that *“repatriated economist employed into KDI were tasked with generating economic forecast for South Korea’s economic projection”*. In doing so, they had to rely on the training received from their respective universities and work experiences gained in the United States”. He further stated that *“their skill-set was so relevant that, the models they developed and certain economic indicators are currently being used in the institution.”* Specifically, *‘these economists developed models such as input and output models for each industry, tax revenue projections, and a forecast model using econometrics’*. Similarly, another participant, a professor additionally stated that *“reports on suggested industrial growth models generated from the research were too advanced for the existing industries signifying a potential for an advanced industrialization”*. Despite these positive reviews, two out of the sampled participants were however of the view that, the research reports or models generated

were not necessarily relevant to the course at hand. Generally, in viewing this from the grand scheme of things, the sustained economic growth of South Korea, especially after the implementation of the repatriation policy signified the effective use and performance of these persons.

5.4.3 Integration, adaptability and sustainability of repatriated labour

In assessing strategies adopted in ensuring effective integration, adaptability and sustainability of the repatriated labour, a number of questions were posed under this thematic area to ascertain a deeper understanding of how it was effected. Paramount among the questions posed was “*What were some of the policies adopted to aid or assist in sustaining the returned skilled labour at KIST or KDF*”? Another question asked was “*How easy was the integration of the returned skilled labour in terms of policy knowledge and policy transfer or translation at both institutions*”? Other supporting questions included “*Would you consider the peculiar Korean culture (Confucianism) to have played a role in ensuring the sustainability of both repatriated staff and the project as a whole*”? Answers to the first question highlighted the approaches such as a substantial increase in salaries, the purchase of cars and houses for returnees and the autonomy to conduct research as measures put in place to ensure the sustainability of returnees. A respondent reiterated that *President Park Chung - Hee would personally visit scientist or invite them to his house which in turn boosted the morale and confidence and created an overall effect of integration and sustainability*. A second interviewee also maintained that *incentives given to scientist elevated their status in the society and*

inherently their political influence. In answering the second question, two out of seven respondents described how challenging it was for the first generation of repatriated scientists to assimilate into the new culture setting considering the time spent away from home. The remaining respondents, on the other hand, gave answers that proved otherwise. The question on the possible influence of culture (in this case Confucianism) in the integration, adaptability and sustainability of repatriated staff received affirmative answers. In summing all responses received under this thematic area, it was indeed apparent that an adequate amount of effort was put in place to ensure that the aforementioned factors were successfully implemented.

5.4.4 Role of development assistance in the establishment of repatriation institutions

Questions posed under this final thematic area sort to identify the crucial role of development assistance in the implementation of the reversal of brain drain as a migration policy. Unfortunately, the issue of aid was often not identified in the discussion of the establishment of the two major institutions that acted as a catalyst in curbing this phenomenon by major stakeholders. The main research question posed here was “*was aid crucial in the establishment of KDI and KIST?*” Hence it was not surprising that responses received were divided in opinion. Unlike the unanimous or majority agreement on questions posed under previous thematic areas, responses received on this issue had a rather mixed perspective on the pivotal and relevant role of aid. The first group of interviewees admitted that development assistance from the United States

indeed aided in establishing the KDI and KIST projects. Thus, one of the interviewees specifically emphasized that “*contrary to popular opinion on aid as a non-determining factor, he personally regarded America’s financial aid as the backbone for the successful set up of these key institutions*”. On the other hand, the second group of interviewees maintained that aid assistance was not paramount. Specifically, a respondent restated that ‘*the growing economy meant South Korea, did not have to be dependent on both technical and financial aid*’. Essentially, the pertinent issues raised and discussed by respondents brought to the forefront, mixed views of aid assistance in contemporary discussion of aid in international development in general.

5.5 Discussion of interview findings and Source documents

Findings from the interview sessions were further analyzed and discussed in relation to the academic literature as reviewed in preceding chapters of this study. Thus, discussions were done in context of responses received from interviews and literature in previous chapters. This was carried out under the outlined constructs as highlighted in chapter 3 of this study.

5.5.1 Migration Policy –Migration policies on reversal of brain drain

In analysing findings from interviews sessions in connection to the case study as discussed in Chapter four of this research, it is quite evident that KDI and KIST were indeed the main migration policies implemented to reverse brain drain. As mentioned, the establishment of these institutions were set up in time to first ensure consecutive

growth in industrialization and further engage South Korean skilled labour in the diaspora. Essentially, this study sought to identify, if the establishment of these institutions indeed served to promote the reverse of brain drain in South Korea during the stipulated period of study.

Hence, by juxtaposing the information collected during the process of interview to the stated objectives and vision deduced from source documents for which these institutions were established, it became quite apparent that the push for brain gain was indeed successful in the Korean economic growth context. Furthermore, it was undeniably regarded as the best option in curbing this social menace. Equally important, were the challenges faced in the policy execution as identified by some respondents. Thus, the unnecessary competition posed by private corporations (chaebols) by offering extremely high salaries to skilled migrants evidently caused a decline in the repatriation process, mid-way through government implementation.

Generally, views of interviewees and information obtained from the literature assessed, clearly pointed out that, the establishment of KDI and KIST were the best policy option for a developing country. Additionally, responses from the interview further asserted that KDI and KIST's function as agents for controlling brain was of timely measure – as the gradual economic growth provided a conducive environment for the implementation of such policies. Both sources were of the certainty that, in a broader scheme of things, the execution of these policies played a significant role in human capital development in South Korea.

5.5.2 Effective Utilisation and performance of skilled returnees

The utilisation and eventual performance of skilled migrants were considered the crux of the repatriation project. In effect, the skill -set of returnees were therefore regarded as the missing link to further South Korea's industrial growth. Hence in analysing the relevance of repatriated labour to the economic development of South Korea, it was necessary to highlight the kind of skills, talent and experience returnees brought to the table. As earlier highlighted, prior research conducted revealed that migration policies were specifically directed at scientists, engineers and economists as the Korean government sought to venture into chemical industrialization and economic projections. For both categories of data resources employed for this study, there was a unanimous agreement on the effective utilisation of the skilled labour sorted for. Fundamentally, the presence of these researchers undeniably accelerated the economic growth and also provided, a platform for economic projections and evaluations.

5.5.3 Institutional Adaptability and integration

Reviewing information collected from both sources provided compelling evidence on the essential role of institutional integration and adaptability. As cited by most academic literature, the engineering of sustainable institutions was hinged on the aforementioned factors. That is, KIST, for instance, adopted an integration program by equally training local scientists to provide a support system for repatriated personnel to provide an understanding and easy assimilation of the Korean industrial setting. In addition to this,

a prior feasibility study also indicated that, the South Korean government through the support of Battelle Memorial Institute (BMI -USA) recommended strategies in ensuring effective integration of these institutions in the industrial progression of the country. Fundamentally, both sources of data collection for this study's analysis sort to highlight the underpinning function of institutional adaptability and integration.

5.5.4 Institutional sustainability for Human Capital

Ensuring sustainability from both angles of human capital and the institutional structure was deemed crucial to the subject under study according to both sources of information employed. Inherently, sustainability in this regard often translated into economic development. For this reason, South Korea employed a number of approaches or policies in sustaining both repatriates and the institution as a whole, as identified in the case study in chapter four of this research. Thus, having realized the critical need for sustainability, legislative acts, financial and social structures were implemented by the government. In other words, the unanimous and firm agreement further proved the essential function of this factor in the reversal of brain drain, especially in the context of a developing country. Sustainability also came highly recommended in the feasibility report conducted by the United States prior to the setup of these key institutions.

5.5.5 Resources for Human Capital Development - Aid

By juxtaposing data received from the outlined case study in chapter four of this study, responses from both sources highlighted the conflicted view of aid in the identified case

study. The conflicting view of development came as no surprise considering the extreme opposing views of aid effectiveness in existing discourses within the international development community. As identified in this research, the crucial role of aid from the United States which came in the form of technical and financial assistance enabled the materialization of these key institutions. Despite, the supporting claim of the crucial role of aid in the actualization of KDI and KIST as shown in source documents from historical archives, some interviewees held a different opinion. Conclusively, the conflicting views on the need for aid and its effectiveness in development as discussed in our specific case begs the question of aid as a source of economic development especially in current discourses.

5.6 Answers to the Research Questions

A research question with sub questions were generated to accomplish the purposes of this study. The central question in this study was to, therefore, analyse the Korea Research Institute of Science and Technology and Korea Development Institution as facilitating institutions in retaining the benefits of brain gain

In particular, the research examined four sub- research questions

1. Was KIST and KDI as migration policy, successful in the repatriation of scientists, engineers and economists?

As earlier stated, the initial objective of this study was to identify if indeed the Korean Development Institute and Korean Institute for Science and Technology as were

successful as migration policies. In answering this question, the research resorted to extensive literature from a wide range of resources. Both local and international sources unequivocally agreed to the pivotal role of these institutions in mitigating the issue of brain drain in the Korean context. Consequently, the results of the research were further affirmed by the specially sampled experts and officials through an in-depth interview taking into account possible biases. Additionally, in the literature reviewed, the establishment of these institutions created a bandwagon effect in the Korean community as private industries such as Samsung and Daewoo sort to create replica institutions in order to attract “Korean brains “from abroad and boost research and development in order to maximize profit. The issue of brain gain as a means for human capital development was once again brought to bear. Considering the elusive impact of brain drain on the economic development of most developing countries, South Korea’s successful attempts as a developing country to formulate policies or tie emigrational policies to its economic goals cannot be overemphasized. As argued by a number of scholars the issue of brain circulation at the international point of view stands to benefit developed countries in most cases. Thus in order to appreciate the impact of brain gain on economic development, the crucial role of government policies in building human capital must be assessed. The Park Chung Hee administration realized the pertinent role of a knowledge-based economy as the Korean economy took off and as a result sort to harness the power that a knowledge-based economy gave. That is, South Korea’s approach was commendable and worthy of emulation, but the factor that underpinned the successful implementation of this project was the perspective at which brain drain,

gain and economic development were perceived. Overall, the findings of this study resonated with the tenets of building an economy through human capital development and in this case reversing brain drain.

2. What was the role of the repatriated professional in KIST's and KDI's operation and in the economic development of South Korea?

The role of repatriated professionals is central to the argument on brain gain or reverse brain drain. That is, it is one thing to recruit talented professionals and another thing to effectively utilize their skills for economic development. The literature covered on the effective utilisation of skilled returnees in developing countries pointed out the absence, struggles, difficulties in creating an effective structure to ensure adequate use of trained professionals. As noted in the captured literature of the peculiar case of South Korea, there were enough evidence to prove the successful usage of “Korean Brains”. South Korea, engineered an effective system by developing specific programs and organizational structure to propelled high performance of returnees. Indeed, statistics gathered through source documents from both institutions and interviews outlined the impact made in economic and industrial sectors. Like wisely, in assessing from an economic stabilization point of view, the presence of these repatriated scientists and economists brought in a defined structure of economic stability and continuity through conducted research, which these industries previously lacked. Furthermore, by assessing the successful case of South Korean strategic use of talented repatriates brings to the forefront the importance of aligning investment in human capital to national development. The current trend of discourse held on the significance of a knowledge-

based economy goes to buttress this point. Basically, the research through a case study approach was able to identify and highlight key policies adopted by the Korean government to ensure talents were effectively eventually translated into economic development. In other arguments, the autonomy or leadership given to these personnel was said to play a crucial role in ensuring a successful project. Conclusively, the continuous growth in the Korean economy provided compelling evidence on the role of scientists, engineers and economists in the successful establishment of both KDI and KIST. The strategic decision by developing countries to adopt and implement policies promoting human capital based on industrial prospects of countries was tantamount to economic growth.

3. What were the measures put in place to integrate, adapt and sustain repatriated skilled labour?

The important role in ensuring an effective integration, adaptability and sustainability of repatriates was essential to the successful implementation of South Korea's migration policy. Integration and adaptability as used to in this study referred to the structures adopted to incorporate repatriated labour into industrial and economic systems. In the case of South Korea, a support system was developed through the training of local scientists and economists to ensure easy assimilation into the environment. In terms of sustainability, both internal and external motivators were employed to secure the longevity of the program. The integration, adaptability and sustainability of human capital is currently the most challenging problem experienced by developing countries

in investing in human capital. As earlier identified in the literature, In specific cases such as Nigeria, Kenya and Ghana, governments are not able to draw policies to broadly engage the current youthful population at large and what's more in the diaspora in order to capitalize on the existing honed skills for economic development. Consequently, the absence of this or brain drain has translated into a relatively slow economic growth. The analysis of the literature and data collected also identified certain trends adopted by the Korean government that eventually led to the promotion and implementation of these factors in the country's repatriation program. In summary, the study concluded that a government's decision to recognize effective integration, adaptability and sustainability as crucial to human capital development, especially in terms of repatriation predictably translates into economic development.

4. What was the role of aid in the establishment of KDI and KIST as repatriation agencies in South Korea.

The use of aid as identified in both sources of data collected was considered as the most sensitive and contended issue in the research. Development assistance usually in the form of financial or/and technical support was highlighted as the linchpin for South Korea's policy on the reversal of brain drain. Considering no government policy can be implemented without either capital or technical know-how, the provision of aid by the American government to the Republic of Korea came as a necessity. Therefore, the study

after an extensive analysis came to the conclusion that aid was indeed a crucial factor in the establishment of and successful implementation of the repatriation program. However, in discussing aid it was equally important to identify the motive for which this aid was given. Throughout the literature reviewed in this study, South Korea received the majority of its aid from the United States which goes to question the main motivating factor for America's development assistance. A number of respondents who disagreed on the role of aid in the establishment of these institutions thus pointed out America's national interest to ensure geopolitical dominance in East Asia as an underlying factor underpinning their motives. On the other hand, the incessant argument on aid as a humanitarian effort to assist developing countries to equally achieve economic growth was also emphasized by another group of respondents and scholars in the international development milieu. In all, the usage and necessity of aid by developing countries for development was central to important policies such as this, and South Korea was no exception

5.7 Research Hypothesis

The research adopted a hypothesis to predict the expected results of the study - central to the purpose of this study.

KIST and KDI as acted as facilitating institutions in attracting back capable high-level manpower and effectively utilized the resources in carrying out the stated objectives for which they were established

Overall, the research identified that the Korean Development Institution and the Korean Institute of Science and technology indeed acted as facilitating institutions in the return and effective use of highly skilled Korean emigrants. KIST and KDI were established in 1966 and 1971 respectively and for each of these institutions, their fundamental mission was to augment the exponential economic growth of the country. Specifically, KIST was established to ‘improve the technology of the indigenous industries, increase the capabilities of the indigenous industries for competition in the international market, institutionalize research and development in order to facilitate the transfer and absorption of technology and finally promote technological innovation. (Hentges, H. A. 1975). KDI on the other hand was instituted in recognition of the need for a think tank that explored economic policy issues concerning Korea in both systematic and applicable ways, and assisted the government in formulating the "Five-year Economic Development Plans" and related policies.” KDI (2015). However, in order to achieve these goals, certain key measures had to be implemented and in this case, that included the repatriation of highly skilled Korean emigrants in the fields of science technology and economics. Eventually, from most historical accounts, the purpose for which these institutions were established was achieved. Outlined in chronological order, KIST went on to aid in the Pohang Iron and Steel Company (POSCO) technology planning, developed Korea's first desktop and pocket-sized computers, filed first the US patent registration, developed South Korea’s first technicolor TV and mini-computer and also developed copper-clad steel wire manufacturing technology. Additionally, it also developed a polyester film and pneumonia vaccination all within the period of 1966 and

1979. KDI in an equal measure carried out its stated objectives as already highlighted in the case study of chapter 4 of this research. Nonetheless, the attained accomplishment of these institutions through the effective utilisation of highly skilled repatriated Koreans, as realized through the research could not have been successful without certain pertinent policies and strategies adopted by the Korean government. These underlying factors were extensively discussed throughout the research in chapters four and five of the study. By reason of conducting an in-depth research, it was also therefore imperative to include a number of external factors that in a way or other contributed to the successful implementation of this project. The first among these was the leadership style of the late President Park Chun - Hee in the management style of these institutions during his administration. Thus, fundamentally, the seemingly authoritarian method of leadership prevented any form of negative political influence on the repatriated staff and operations of the agencies as a whole. As a developmental state, President Park also initiated protective measures to ensure the full function of KDI and KIST. Secondly, the support of civil society was one attribute that was most often than not factored into the success of these institutions. The role of the civil society in the development of a country has in most cases been crucial to economic and social growth. In one of the responses of an interviewee, he vividly narrated how the policeman had to stop traffic in order to allow a KIST scientist to get to work on time. Basically the role of the ordinary Koreans cannot be overemphasized in the successful performance of KDI and KIST. Additionally, the crucial role played by the American government in the domestic politics of South Korea was a factor also worth noting. The apparent role of the united states was not only limited

to financial aid and technical know-how. Though the motives for America's has most often been attributed to maintaining the liberal order and preventing the growth of communism in East Asia, its influence in the national development of South Korea was far from negligible. The involvement of the US in the South is further emphasized by Brazinsky, G. (2007); "The South Korean state would never have come into existence in 1948 without American intervention. Nor would it have survived the hardships brought on by national division and the horrific war that followed without vast U.S. military and economic assistance. For the United States, building and stabilizing South Korea came at an enormous cost in terms of both material resources and human lives".

In summary, the government of South Korea during the Park Chun - Hee administration effectively utilized the available resources which in this case, was America's development assistance in establishing two key institutions in building human capital which inevitably translated to economic growth. The study of KDI and KIST as a migration policy, therefore, comes as a recommendation to developing countries seeking to invest in their human capital and building a knowledge-based economy through engaging talented skilled emigrants.

6 CHAPTER SIX: LESSONS, RECOMMENDATIONS AND CONCLUSION

6.1 Lessons

The central aim of this study was to deduce key lessons from the successful case of South Korea's reversal of brain drain by establishing two key institutions namely the Korea Development Institute and the Korea Institution of Science and Technology. The major lessons inferred from the study painted a clear picture of the effective and efficient structures put in place by the Korean government which eventually led to successful repatriation policy.

The first of the lessons gathered from the research was the recognition of peculiar developmental needs by the South Korean government for the continued economic growth of the country. Through the development of consistent economic plans under the Park Chung Hee's administration, the government was able to assess and identify government policies of greater importance to national growth. The five -year economic plans provided a blueprint for which other equally important policies were developed and implemented to promote national growth. It therefore, becomes imperative for developing countries such as Ghana to critically assess the developmental needs or potentials of their countries in drawing national developmental plans

Following the aforementioned lesson is the effective utilisation of aid. It clearly evidenced that, aid was one of the major resources for development in the history of

Korean economic growth. The effective utilisation of aid by developing countries has come under contention by a wide number of international development analyst. Basically, South Korea proved critics of aid assistance wrong through the effective use of American aid for the establishment of KDI and KIST.

Thirdly, the study identified the far-reaching role of a constructive policy formulation and implementation process. The proper formulation and implementation of policies was considered the backbone of good governance and tantamount to economic growth. Through the in-depth analysis of this case study, the government of South Korea ensured a proper policy process by employing the economic recommendations from KDI and adopting efficient industrial policies through the submitted reports from KIST.

Without doubt, South Korea's ability to recognize the need for a knowledge-based economy at a relatively early stage of economic development was considered a key lesson in the research. That is to say, the need for extensive investment in human capital development was paramount to the development of any country. As noted in the literature review of chapter 2 of this research, the presence of a skilled and educated population often led to holistic national growth.

Finally, the need for ensuring sustainable economic growth as evidenced by the Korean government through this research was identified as one of the key lessons of this study. Economic sustainability was retained through the establishment of Research and

Development agencies (KDI and KIST), by ensuring institutional capacity and depoliticizing of key institutions.

The study suggests that it was therefore imperative that the identified lessons be assessed, analysed, and transferred or translated into developmental policies in Ghana

6.2 Recommendations

Throughout the study, a key focus was to bring to the fore, central policies employed by the South Korean government in reversing brain drain as recommendations for Ghana as a developing country. That is, to ensure a sustainable human capital development, a number of these recommendations can be evaluated and translated into the Ghanaian context for policy formulation. Following this, the study suggested that the identified recommendations could further be evaluated for easy integration into the peculiar Ghanaian environment

The first among these recommendations is ensuring a well-programmed national development plan that feeds into the economic potential of the country. Here, the study recommended that the government of Ghana should from time to time revise policy or conduct institutional reforms to capitalize on the economic strength of the country. Specifically, it further suggests that, the government engages the plethora of highly skilled Ghanaian migrants in the diaspora especially within disciplines required for economic growth.

Secondly, the political polarization of institutions is currently considered as one of the biggest challenges faced by most Ghanaian institutions. Hence, the study found it relevant in recommending, a policy framework that will protect key institutions from political influence as done in the case of KDI and KIST in South Korea. Basically, the study maintained that the depolarization of institutions responsible for engaging “Ghanaian brains” abroad will safeguard it from changes in political administrations.

In addition to the aforementioned recommendations, the study came to a realization that, in order for Ghana to ensure a sustainable and efficient pool of skilled and highly educated labour, there was a need for a structuralization of the country’s emigrational policies. That is a conscious awareness of the migration trend of highly trained and educated Ghanaian nationals living abroad.

Ghana must also endeavour to expand the development of the country’s human capital beyond traditional means of just providing local training. It was, therefore, the recommendation of this research that the government of Ghana employed new policies strategies such as developing a chain of networks with Ghanaians abroad to promote knowledge sharing or transfer. Though the government has currently implemented the "Year of return, Ghana" program, the institutionalization of a knowledge sharing or transfer network will ensure a sustainable flow of advanced economic know-how for development.

In addition to the above-stated recommendations, the study maintained that, there was a need to ensure a legislative mandate of key institutions or programs that currently engaged skilled and highly educated Ghanaians migrants abroad. Thus, there should be legal measures put in place to operationalize the roles and responsibilities of current institutions to further empower them to deliver and be accountable.

Last but not the least, the study stipulated that civil servants, citizens and all stakeholders must be sensitized and also made aware of the mutual benefits of reforms on the extensive involvement of skilled repatriated labour in the economic planning of the country. This should evolve into engendered ownership and the right attitudinal orientation required for change.

6.3 Policy Implications

As asserted by some scholars ‘Policy has become internationalized, with important policy-making arenas existing at levels beyond those of the nation-state. Thus, translation of policy can be considered as a dynamic framework to capture the fluidity of policy processes, with an emphasis on the constant (re)construction of issues, discourses and actor networks, as a part of real human agency. (Hodgson, S. M., & Irving, Z. M. (2007).

In furtherance to this, policymakers and specialist in Ghana must become cognizance of the changing paradigm in international migration and consequently address or capitalize on these changes. The emigration of highly skilled labour is now increasingly recognized

as a vital strategy in ensuring and supporting sustainable development. Fundamentally, the emerging emigration rate of highly skilled Ghanaians has necessitated the need for national policies and legislation accordingly.

1. Migration Policies

Policymakers within the framework of migration laws and policy should endeavor to identify existing gaps that have curtailed the effective implementation of repatriation programs. Thus, the “Ghanaian Immigration Act, 2000, (Act 273), Immigration (Amendment) Act, 2012 (Act 848) and Immigration Regulations, 2001 (L.I 1691)” should be revived to reflect the changing dynamics of immigration.

2. Migration Institutions

The government of Ghana should also adopt a comprehensive legislative and institutional framework for the implementation of migration-related programs. Considering, the current Ghanaian institutional framework lacks a coherent structure to fulfil the mandate for managing migration in Ghana.

3. Utilization of highly Skilled Ghanaians

The migration of highly skilled persons in Ghana have over the period necessitated unique policies in response to the effective utilization of skilled labour. Hence, this research advised that the government should employ effective strategies such as, reviewing conditions of key sectors that facilitate economic development, intensify

research and increase the “re-engagement” and “re-registration” of Ghanaian professionals.

4. Integration, Adaptability and Sustainability

The Ghanaian government should also develop incentive packages for skilled workers to, first of all, reduce the incidence of migration and further sustain links, create networks with repatriate to develop “sectorial reengagement practices” and additionally create training programs for returnees’ proper integration.

5. Effective Utilization of existing capital.

Finally, the study advised that, the government of Ghana should adopt stringent budget controls in managing funds allocated for implementation of repatriation programs. Fundamentally, it should develop capacity and increase mobilization of funds to efficiently engage and utilize diaspora networks.

6.4 Limitations of the Study

Throughout the course of this study, a number of challenges were encountered in conducting in-depth research.

- a. The study may possibly face subjective interpretation by reason that a relatively biased opinion was probably formed throughout the analysis of data collected on individual perceptions in arriving at results.

- b. Considering the scope of the study, it would have been ideal to have interviewed the first or second-generation of repatriated skilled Koreans to KDI and KIST in order to ascertain a wider and in-depth perspective of the study.
- c. The study also considers a certain level of vagueness and bias in the literature reviewed. This was because, authors of the literature developed materials based on their own perspectives and interests with no direct relation to this study. Essentially this could possibly affect the accuracy of some of contents employed.
- d. The research also generally encounters a lack of consistency in data collation and insufficient literature covering an in-depth focus of this study. Specifically, in the case of Ghana, the lack of extensive literature was likely to affect the quality of data produced. In the case of South Korea on the other hand, the issue of a language barrier posed a greater difficulty in assessing some official documents and existing literature.

6.5 Conclusion

The role of the Korea Development Institute (KDI) and the Korea Institute of Science and Technology (KIST) were analysed through a case study was essential to the migration policies adopted by the government of South Korea during the periods of 1960 -1980 in the reversal of brain drain. The utilisation of the repatriates went on to become very important to Korea's industrial and economic growth. The implementation of certain key policies and strategies ensured an easy integration, adaptability and

sustainability of the returned personnel. This was imperative considering that the number of highly skilled labour eventually increased and sustained the exponential growth of the Korean economy as well as lessened the issue of brain drain. Brain drain is considered as one of the biggest economic and social problems often plaguing developing countries. The loss of highly skilled human capital does not only decline the economic growth but also leaves a negative impact on the remaining human capital.

Currently, Ghana as a developing country has over the years suffered from the loss of its human capital. Hence it was relevant and crucial for the growing economy of Ghana in deducing lessons and recommendations from the successful case of South Korea in the reversal of brain drain. These lessons can further be translated into policies for the Ghanaian context. Fundamentally, there is a rising need for a paradigm shift in Ghana's economic trajectory. The move from a resource-based economy to a knowledge-based economy in the years to come will ensure sustainable economic growth.

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