

AN ANALYSIS OF THE IMPLEMENTATION OF THE SOUTH AFRICA-CHINA
BILATERAL AGREEMENT: A CASE STUDY OF THE SOUTH AFRICAN
AGRICULTURAL TECHNOLOGY DEMONSTRATION CENTRE

By

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DECLARATION

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I declare that “***An analysis of the implementation of the South Africa-China Bilateral Agreement: A case study of the South African Agricultural Technology Demonstration Centre***” is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Signature
Mr Thabo Tshetlo

Date

Acknowledgement

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Coming from the poor background I have come to an understanding that a domestic worker can give birth to a diplomat.

Dedication

To my mother, Johanna Tshetlho, I will like to thank you for investing in me. Your support and sacrifices from my childhood until now are much appreciated.

Executive Summary

This research was based on the implementation analysis of the South Africa-China bilateral agreements, specifically the case of the South African Agricultural Technology Demonstration Centre (SAATDC).

In this regard, the researcher was of the view that, with implementation analysis, it is possible to identify the particular circumstances that could affect implementation of a particular policy, both in advance of a policy's adoption or after it is implemented.

This research tracked the implementation of the SAATDC bilateral agreement to examine whether this bilateral agreement was effectively implemented or not. There is a need to translate political commitment into a practical programme for successful implementation. Implementation is one of the major problems confronting developing nations, of which South Africa is one.

Furthermore the researcher investigated whether the SAATDC bilateral agreement meets necessary pre-conditions of policy implementation, necessary for successful policy implementation, and examines whether these pre-conditions are adequately addressed in the bilateral policy document. Previous research has shown that once these preconditions are met, the potential for successful implementation of a policy increases.

There is a need in South Africa to fully exploit opportunities provided through similar Chinese aid projects for the benefit of local workers such as artisans, engineers and project managers by ensuring that bilateral agreements adequately address factors that could undermine South Africa's ASGISA and JIPSA objectives regarding skills and technology transfer. It is important to investigate whether the bilateral agreement here makes sufficient provision for adequate involvement of South African engineers, artisans and South African companies in the implementation of such Chinese aid

programmes or projects. There is a need to enhance the sophistication of local artisans and engineers as required by the ASGISA and JIPSA strategy and objectives.

Key terms

Some of the key concepts that will be analysed in this research are:

- Policy
- Bilateral agreement
- Policy analysis
- Public policy
- Policy impacts
- Foreign policy
- Skills transfer
- Technology transfer
- Aquaculture
- Policy monitoring and
- Policy evaluation

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Chapter one

Introduction and background to the study

1.1 Introduction

This introductory chapter will cover a number of aspects such as, the motivation for conducting the research, the research problem, the purpose of the study, demarcation of the field of study, and research methodology. The motivation for conducting this study is also provided. The chapter will also specify what this research intends to achieve. Towards the end of the Chapter, an overview of how the completed research looks like, will be presented.

1.2 Background

During a visit to South Africa in June 2006, by the Chinese Premier Wen Jiabao, the Republic of South Africa (RSA) and the People's Republic of China (PRC) signed an agreement called the "Programme for Deepening the Strategic Partnership" which covers both trade and political relations. The two countries agreed that it was necessary to expand and deepen the strategic partnership through enhanced political dialogue. In November 2006, the former state President, Mr Thabo Mbeki visited China to strengthen relations between South Africa and China.

In his visit to South Africa in February 2007, President Hu Jintao of China announced support for South Africa's Accelerated and Shared Growth Initiative for South Africa (ASGISA) and Joint Initiative for Priority Skills Acquisition (JIPSA) through the donation of 200 million Chinese Yuan (R233 Million) for the setting up of a Vocational Training Centre, and 30 million Chinese Yuan (R33 Million) for an Agricultural Technology Cooperation Centre (Pere and Shelton, 2007:161).

Development cooperation between South Africa and China is currently regulated by an agreement on Economic and Technical Cooperation, signed in February 2007. As part of the implementation of this agreement, the two governments signed a contract in 2009 for the construction of a South African Agricultural Technology Demonstration Centre.

The said agreement serves as the basis or the framework of the South African Agricultural Technology Demonstration Centre. In terms of the Economic and Technical Cooperation Agreement, the Chinese government has committed to work with South Africa on human resource projects which will focus on the priorities of the Republic of South Africa as set out in both the ASGISA and JIPSA.

There are concerns from developing countries about the Chinese presence in Africa. One of the major concerns regarding the Chinese aid programmes is the deployment of Chinese labour in Africa. According to Corkin (2008:118), where Chinese companies employ local people, they prefer to employ them on a casual basis to avoid inflexible local labour laws. The deployment of Chinese labourers reduces opportunities for the transfer of skills and technology. According to Idun-Arkurst and Laing (2007:19), 90 % of the workers in the Chinese construction projects in Angola, are Chinese. Corkin (2008:118) further writes that, most of the projects financed by the Chinese government require that at least 50% of the procured material must come from China. Corkin further argues that these practices reduce the potential positive spin-offs of private sector development that Chinese engagement could have contributed. The deployment of the Chinese labourers in Africa has the potential to reduce the positive effects of the Chinese investment on the house-hold income in Africa (Idun-Arkurst and Laing, 2007:19). Taking the above mentioned concerns into consideration, it is the intention of this research, to establish whether the same problem will occur in South Africa.

In 2006, the trade union, Solidarity Group, accused the South African government of undermining the goals and purposes of ASGISA and JIPSA, by allowing 270 project managers and technicians from China to participate at the Greenfields Cement Grinding station and Lichtenburg Clinker Line project. According to the Solidarity Report

(2006:2),the South African government allowed companies to import skills, without ensuring that skills transfer take place.

However, the government of China has committed to ensure win-win outcomes in South Africa and China bilateral relations. In November 2006, at the Forum for Africa-China Cooperation (FOCAC), China committed to properly handle issues and challenges that may arise in the course of cooperation through friendly consultation in keeping with China-Africa friendship and the long-term interests.

At the conclusion of the FOCAC Summit, China and Africa adopted the sector-specific Beijing Action Plan (2007-2009), based on the shared imperative to promote friendship, peace, cooperation and development, and to advance the new type of strategic partnership between China and Africa in keeping with the FOCAC Beijing Declaration (Pere and Shelton, 2007:223). The Chinese government also committed to establish 10 agricultural technology demonstration centres in Africa, of which South Africa was one of the selected countries.

1.3 Motivation for this research

South Africa lacks the highly skilled human resources that are required for economic growth. There is a growing shortage of high level skills in South Africa. According to the report by the former Deputy President of South Africa, Ms Phumzile Mlambo-Nquka, at the launch of the JIPSA initiative in March 2006, “firms, sectors and even the national economy are unable to implement planned growth strategies because of problems attributed to lack of skilled people” (Mlambo-Ngcuka, 2006:2).

JIPSA identified agriculture as the highest priority. Furthermore JIPSA highlighted the fact that the agricultural sector has not performed as well as it should, and yet it has great potential to contribute towards halving poverty, reducing unemployment and improving the lives of rural communities (ASGISA Annual Report, 2008:36). In order to support South Africa in addressing its skills and technology problems in the field of

aquaculture, the Chinese government committed to build an Agricultural Technology Demonstration Centre. The two governments entered into agreement on the establishment of the South African Agricultural Technology Demonstration Centre in the field of aquaculture in Gariep Dam in Xhariep District, Free State Province. The South Africa-China bilateral policy on the South African Agricultural Technology Demonstration Centre (SAATDC) was adopted in 2009 to support the agricultural sector in South Africa with Chinese advanced technology and skills. The bilateral policy seeks to contribute towards South Africa's skills base and technology transfer.

According to Cloete (2012:124), policy processes will always dominate in public administration. The focus of this research will be on the implementation of the South Africa – China bilateral policy implementation. This research was set out to use public policy implementation analysis, as one of the components of public administration. Policy implementation can be defined as the execution and steering of policy actions over time (Dunn, 1994:85). Anderson (2011:6) defines public policy as “whatever government chooses to do or not to do”. Anderson further defined public policy as “policies developed by governmental bodies and officials”.

It has been observed that policy implementation is one of the major problems confronting developing countries (Makinde, 2005: 63). This research is conducted in order to determine whether the bilateral agreement on the construction of the South African Agricultural Technology Demonstration Centre was implemented or is just symbolic. Taking into consideration challenges other African countries, like Angola and Zambia, have with regard to Chinese aid projects, it is therefore important to conduct an implementation analysis of the South African Agricultural Technology Demonstration Centre, in order to determine the extent to which these projects contribute towards South Africa's development. However for the purpose of this research, the focus will be limited to the construction of the Agricultural Technology Demonstration Centre in Gariep Dam in Free State Province in South Africa.

It is the objective of this research to investigate whether the SAATDC as a Chinese aid project was fully exploited for the benefits of the local workforce (artisans and engineers).

This study argues that, despite the lack of critical skills in South Africa, importing labour will merely provide a short-term solution, but will not address the long-term problems of unemployment and skills shortages. According to the Sector Education and Training Authority (SETA) for Finance, Accounting, Management Consulting and other Financial Services (FASSET), (2009:1), to ensure a healthy and thriving economy, shortage of skills should be addressed, as skills development is a catalyst for a productive and wealthy nation.

The focus of this research will be on examining the extent to which the bilateral agreement makes provision for the transfer of skills during and after the construction of the South African Agricultural Technology Demonstration Centre. The findings of this study may determine whether the South African government disregards both ASGISA and JIPSA objectives by simply allowing companies to import skills, without ensuring that skills transfer takes place, which would limit the long-term impact that such Chinese projects could have on Africa's development.

1.4 Problem statement

For the purpose of this research, the problem statement can be stated as follows:

The failure of the South African government to fully exploit opportunities provided through foreign aid programmes for the benefit of the local workforce, which undermines South Africa's objectives in relation to skills and technology transfer.

China's increased engagement with South Africa presents an opportunity for valuable contribution to the country's growth and development. China's engagement presents a challenge, in that, it could erode South Africa's growth benefits if the Chinese

government deploys its labour without ensuring that skills transfer takes place, as it was the case with other African countries.

The main focus of JIPSA is to develop skills that are most urgently needed for South Africa's growth. JIPSA is one of the most important parts of the Accelerated and Shared Growth Initiative for South Africa (ASGISA). The challenge is that Chinese aid programmes or projects are not fully exploited for the benefits of the local workforce including artisans, engineers and project managers. Policy-makers still fail to adequately address factors that undermine the ASGISA and JIPSA objectives of skills and technology transfer when formulating bilateral agreements.

1.5 Purpose of the study

The purpose of this research is to conduct an implementation analysis of South Africa-China bilateral policies. The governments of China and South Africa have committed to share best practices and cooperate in poverty alleviation, application of appropriate technology, skills transfer, rural development and jobs creation, and it is the intention of this research to conduct implementation analysis of these commitments.

1.6 Research objectives

The objectives of this research can be summarised as follows:

- a) To examine the extent to which the South Africa-China bilateral agreement regarding the South African Agricultural Technology Demonstration Centre was implemented.
- b) To investigate whether the SAATDC bilateral agreement meets necessary pre-conditions of policy implementation, and examine whether these factors were adequately addressed in the bilateral policy document.
- c) Examine whether the SAATDC, as a foreign aid programme, was adequately aligned to government priorities and further examine whether this programme will

make any significant contribution towards South Africa's aquaculture sector development.

- d) Determine whether this Chinese aid project was fully exploited for the benefits of the local workforce particularly the artisans and engineers.

The overall objective of this research is to conduct an analysis on whether the bilateral agreement makes a provision for adequate involvement of the South African engineers, artisans or South African companies in conducting a study of the project, formulation of the project design and construction.

1.7 Research questions

Building towards achieving the aforesaid objectives, the following research questions will be responded to:

- a) To what extent was the South Africa-China bilateral agreement on South African Agricultural Technology Demonstration Centre effectively implemented?
- b) To what extent did the SAATDC bilateral agreement meet necessary pre-conditions of policy implementation, and were these pre-conditions adequately addressed in the bilateral policy document?
- c) To what extent was the SAATDC as a foreign aid programme, properly aligned to the South African government priorities, and will this programme make any significant contribution towards South Africa's aquaculture sector development?
- d) To what extent was this Chinese aid project exploited for the benefits of the local workforce, particularly the artisans and engineers?

1.8 Significance of the research

It is expected that the study will contribute towards improving the literature on Chinese activities in South Africa. The study will contribute towards developing guidelines which

policy-makers can apply when assessing the advantages and disadvantages of various policy options before adoption.

By providing guidelines on how to assess the impact of foreign aid programmes, the study could help policy-makers to design better policies which can significantly contribute towards the country's growth needs and development, in particular, critical skills shortage.

The recommendations of this research can contribute towards improving the way aid is delivered and managed. This research recommendations will contribute towards ensuring that aid makes the maximum positive impact on the lives of those it is intended for, as well as ensuring that allocated budget is efficiently spent.

This research will provide a new synthesis of information shaped by the researcher's understanding of the challenges emanating from the implementation of the Chinese aid programmes in South Africa. It is expected that the recommendations from this study can assist policy-makers in ensuring that Chinese foreign aid programmes are properly aligned to government priorities which could make a significant contribution towards South Africa's development

1.9 Research methodologies

Various methods are applied in conducting research. There are two types of research which are qualitative and quantitative research. Quantitative research can be defined as a process that is systematic and objective in its ways of using numerical data from only a selected subgroup of a universe to generalise the findings to the universe that is being studied (Maree and Pietersen, 2008:145). Qualitative research refers to the research which produces descriptive data, generally people's own written or spoken words (Brynard and Hanekom, 1997:29).

This research is purely qualitative research. A literature review of the appropriate government legislation, books, articles, and reports was conducted to reach a conclusion.

1.10 Clarification of concepts

Clarification of the concepts refers to the explanation of the major concepts used in this research. Some of the major concepts used are policy, bilateral policy, policy analysis, policy impacts, foreign policy, skills transfer, technology transfer, policy monitoring, and policy evaluation.

- a) Policy.** Anderson (2011: 6) explained a policy as a relatively stable, purposive course of action followed by an actor or set of actors in dealing with a problem or matter of concern. Denhardt (1991:31) defined policy as a statement of goals and intentions with respect to a particular problem or set of plans, programmes or instructions for pursuing those goals.

- b) Public policy.** Like policy, different authors define public policy in many different ways. Anderson (2011:6) defined public policy as whatever government chooses to do or not to do. Anderson furthermore defined public policy as those policies developed by governmental bodies and officials. Henry (2004:305) defined public policy as what public administrators implement. Henry further defined public policy as a course of action adopted and pursued by the government. Public policies are formulated by the authorities in a political system particularly the executive, legislative and administrative authorities (Anderson, 2011:7). For a policy to be considered as a public policy, it must to some extent have been formulated or at least processed within the framework of governmental procedures, influences and organization (Denhardt, 1991:31).

- c) Public Administration.** Heady (2001:2) defined public administration as the sector of administration found in a political setting, mainly concerned with the

carrying out of public policy decisions made by the authoritative decision-makers in the political system.

d) Public Administration is also an academic discipline that studies the implementation of government policy and prepares civil servants for their work. Public Administration as an academic field is multidisciplinary in character, in the sense that it draws on theories and concepts from political science, economics, sociology, administrative law, behavioural science, management, and a range of related fields (Coetzee, 1988: 42). As an academic discipline, public administration consists of a number of sub-fields including, human resources management, organisational theory in public administration, ethics in public administration, policy analysis and public budgeting.

e) Policy analysis. There are a number of definitions that can be attached to the concept of policy analysis. According to Thornhill and Hanekom (1995:57), policy analysis refers to an attempt to measure the costs and benefits of a policy and to evaluate the efficiency of the existing policies. According to the definition given above, policies are analysed so that their effects on the common good can be measured. Policy analysis can also be defined as any type of analysis that generates and presents information in such a way as to improve the basis for policy-makers to exercise their judgments (Quade, 1975: 4). Dunn (1994: 60) defined policy analysis as any type of analysis that generates and presents information in such a way as to improve the basis for policy-makers in exercising their judgment. The role policy analysts can play in this regard is the one of producing information about values and preferable courses of action available to the policy makers. Chambers (2000: 65) views policy analysis as being more than a means to an end, because the most important reason for analysing a programme or the policy is to arrive at the judgment about them. In simple terms this means that the purpose of analysing policy is to determine whether it is good or bad. The primary purpose of undertaking policy analysis is to provide an internally consistent, solid basis for judging whether the policy or programme design system is a good one or not (Chambers, 2000: 75).

- f) Policy evaluation.** Dye (1995:320) referred to policy evaluation as a process of learning about the consequences of a public policy. Dye (1995:320) further referred to policy evaluation as the assessment of the overall effectiveness of a national programme in meeting its objectives, or assessment of the reactive effectiveness of two or more programmes in achieving their identified objectives.
- g) Foreign policy** refers to strategies chosen by the state to safeguard its national interests and to achieve its goals in international relations (Plano and Olton, 1988:6).
- h) Bilateral agreement** refers to any agreement involving two countries.
- i) Skills transfer** refers to an ability acquired for the performance of a task that may be used in the performance of a different task (Konik, O'Rorke, Shapiro, Choi, Nejati, and Langley, 2009:270). For the purpose of this research, skills transfer will be defined as skills acquired by South Africa from the construction of the South African Agricultural Technology Demonstration Centre at the Gariep Dam.
- j) Technology transfer** refers to the transfer of up-to-date technology and products from advanced, industrial nations to poorer countries, with a view to enable the poorer countries to take advantage of modern techniques for producing goods and services (Anderson, 2010:2). For the purpose of this research, technology transfer will be defined as agricultural technologies that China has transferred to South Africa, in support of JIPSA and ASGISA.
- k) Policy implementation** refers to the process of converting new laws and programmes into practice or reality (Gerston, 1997:96).
- l) Aquaculture** is defined as the farming of aquatic organisms such as fish, molluscs, crustaceans and plants in controlled environments, with some form of intervention in the rearing process to enhance production (Food and Agriculture Organisation of the United Nations, 2011: 2).

These are some of the concepts used often in this research. Major concepts that were used more often are skills and technology transfer which forms the basis of this research.

1.11 Preliminary framework of the dissertation

This is a summary of all the chapters that form this research. This research comprises six chapters.

1.11.1 Chapter one: Introduction and background to the study

This chapter reflects on the areas like the research problem, purpose of the study, and a clear demarcation of the field of study. This chapter covers areas such as the research methodology used in conducting this research.

1.11.2 Chapter two: Research methodology

Chapter two will discuss the research methodology applied in conducting this study. Other issues to be discussed in this chapter include, qualitative research design, the case study unit of analysis, document analysis as a data collection technique of this study and content analysis as an approach to analyse data applied when conducting this study.

1.11.3 Chapter three: Theoretical and empirical debates on Africa-China relations

This chapter will reflect on the theoretical and empirical debates on China-Africa relations. Furthermore, the chapter will cover issues related to how China conducts its activities in other African countries. The chapter will also focus on how Chinese businesses conduct their projects and also look at concerns African countries have about China's activities in Africa.

1.11.4 Chapter four: Theoretical framework of policy analysis

This chapter will be based on the overview of the theory of policy making process. This chapter will also reflect on the literature review of the theoretical framework that has informed the study.

1.11.5 Chapter five: Overview of the implementation of the South Africa-China bilateral agreement: The case of African Agricultural Technology Demonstration Centre

This chapter will be based on the South African Agricultural Technology Demonstration Centre implementation analysis. There is a particular interest in tracking the implementation of bilateral policies between South Africa and China. This chapter will identify factors that could affect the achievement of the policy objectives throughout the implementation process.

1.11.6 Chapter six: Conclusions and recommendations

This will be the last chapter of the research. A number of aspects will be covered including a conclusion on whether the South African government undermines its own JIPSA and ASGISA objectives or not. It will be indicated if the government has put in place measures to address any counter-productive aspects of Chinese aid practices in the bilateral policy regarding the construction of the South African Agricultural Technology Demonstration Centre. Recommendations will be made on possible measures that can be taken to address the identified weaknesses.

1.12 Conclusion

This chapter reflected on methodologies used when conducting this research. The research objectives were set out. The research problem was also explained.

Chapter Two

Research Methodology

2.1 Introduction

This chapter will provide the research methodology applied in conducting this study. Other issues to be discussed in this chapter include, qualitative research design, the case study unit of analysis, document analysis as a data collection technique of this study and content analysis as an approach to analyse data applied when conducting this study.

2.2 Qualitative Research design

A research design in this research encompasses the methodology and procedures employed when conducting this research. There are various forms of research designs such as conceptual studies, historical research, action research, case study research, ethnography research design and grounded theory design. The research design applied in this research is case study research.

A case study can be defined as an intensive analysis of an individual unit (e.g policy), stressing developmental factors in relation to the context (Tharenou, Donohue and Cooper, 2007:73). A case study is a strategy used by qualitative researchers to investigate and understand the case in depth in its natural setting, recognising its complexity and context (Verschuren and Doorewaard, 2010:179). A case study can also be defined as method of studying social phenomenon through analysis of an individual case (Tharenou, Donohue and Cooper, 2007:73). The case study research method provides a unitary character to the data being studied, by inter-relating a variety of facts to a single case.

This research project is informed by empirical research questions, which are descriptive in nature requiring a descriptive research design. The study is an empirical inquiry, as new and existing data was collected and analysed. This study focused on a contemporary phenomenon, which is the implementation of the South Africa-China bilateral agreement. The methodology is therefore suitable for conducting this study. A single case study has been drawn upon, with the unit of analysis being the establishment of the South African Agricultural Technology Demonstration Centre in field of Aquaculture at the Gariiep Dam in Xhariep District, Free State Province, South Africa.

There are two types of case study research, which are exploratory and descriptive research. According to Yin (2009:9), exploratory case study research is sometimes used as an introduction to a more in-depth research. Furthermore Yin (2009:9) is of the view that exploratory research allows researchers to gather more information before developing their research question and hypothesis. According to Yin (2009:9), descriptive case study research involves starting a research project with a descriptive theory. In this regard, subjects are then observed, and the information gathered is compared to the pre-existing theory.

As the researcher opted for a descriptive case study design when conducting this research, this necessitated that the researcher present a descriptive theory which provided the overall framework of this study. The descriptive theory followed in this study derived from Hogwood and Gunn's 1984 suggested pre-conditions of policy implementation. The content of the SAATDC was reviewed using Hogwood and Gunn's suggested pre-conditions of policy implementation which are as follows:

- I. Whether the implementation agencies, China National Agricultural Development Group Corporation (CNADC) and the Free State Provincial Government (FSPG) together with the Department of Agriculture Forestry and Fisheries (DAFF) were adequately prepared

to deal with external challenges that could have affected the implementation of the SAATDC bilateral agreement.

- II. Whether the implementation agencies (CNADC, DAFF and FSPG) have adequate political support from the country's respective cabinet members.
- III. Whether the CNADC, DAFF and FSPG have adequate financial resources to implement the SAATDC bilateral agreement.
- IV. Whether the CNADC had administrative capacity to implement the SAATDC bilateral agreement.
- V. Whether the objectives of the SAATDC were clearly defined.
- VI. Whether the tasks were clearly specified in the bilateral agreement.
- VII. Whether there was an understanding of the problems South Africa has in the aquaculture sector or problems that need to be resolved.
- VIII. The extent of dependency by the implementation agency on other agencies (government departments).

In conducting this case study research, the researcher was required to formulate and outline a practical theoretical framework before articulating the research questions.

2.3 Case study unit of analysis

A unit of analysis refers to a phenomenon under study (Tharenou, Donohue and Cooper, 2007:73). The unit of analysis refers to the major entity, that is being, analysed, in the study (Yin, 2009: 29). According to Nieuwenhuis (2008:74), the unit of analysis is a critical factor in case study research. For the purpose of this research, the unit of analysis will be the bilateral agreement South Africa and China entered into, on the establishment of the South African Agricultural Technology Demonstration Centre in field of Aquaculture at the Gariiep Dam in Xhariep District, Free State Province, South Africa. When conducting this case study research, the researcher used information-oriented sampling rather than random sampling as the researcher finds it more suitable for this research, due to the fact that the data analysis approach applied in this research was content analysis.

As mentioned in the previous section, the Agricultural Technology Demonstration Centre was built at Gariep Dam, in the Xhariep District in Free State Province. Gariep is the largest fresh water expanse in South Africa, situated in the Orange River, with a shoreline of 435 KM and a surface area of 360KM (Xhariep District Municipality Integrated Development Plan, 2010/2011: 4). Gariep Dam is the largest reservoir of water within the borders of South Africa and it is of vital importance to the region's supply of irrigation water. Xhariep is one of the five districts in the Free State. The Xhariep District covers the South Western parts of the Free State. Xhariep District consists of three local municipalities namely Kopanong, Letsemeng and Mohokare (Xhariep District Municipality Integrated Development Plan, 2010/2011: 4).

According to the Xhariep District Municipality Integrated Development Plan (2010/2011:4), the population of the District is approximately 135,245, of whom 50.8 % are women and 49.2 % men. Agriculture is one of the major sources of income in the municipality.

2.4 Document analysis as a data collection technique

The aim of this section is to discuss techniques used to collect data in this research. There are various data collection techniques applied when conducting a research, such as interviews, focus group discussions and document analysis.

In order to achieve the research objectives, the research applied document analysis as a method of data collection. According to Nieuwenhuis (2008:82), the use of documents as a data gathering technique focuses on all types of written communications that may shed light on the phenomenon that the researcher is investigating. In this research, the researcher applied both primary and secondary data.

Primary data was mainly used as a data collection technique. Nieuwenhuis (2008:82) defined primary sources as data that is unpublished and which the researcher has gathered from the participants or organisations directly. The primary sources applied by

the researcher when conducting this research include, reports and correspondence. For the purpose of this research, an agreement signed between South Africa and China on the implementation of the South African Agricultural Technology Demonstration Centre (SAATDC) was used as the main primary source document. This research mainly focused on the analysis of the said agreement.

The SAATDC bilateral agreement document analysis involved several steps: finding and gaining access to the document, extracting information from the agreement, and analysing the information. Secondary data analysis was also applied as the data collection technique. Secondary data refers to any material, books or articles that are based on previously published work (Nieuwenhuis, 2008:82). For the purpose of this research, secondary data was mainly published articles related to the study, particularly those published by the South African National Department of Agriculture, Forestry and Fisheries.

2.5 Data analysis

Content analysis approach best describes the data analysis process the researcher applied when conducting this study. When analysing the data, the researcher focused on describing facts and explanations from the bilateral agreement between South Africa and China on the construction of the South Africa Agricultural Technology Demonstration Centre.

The content of the said bilateral agreement was explored in a systematic way, which looked at patterns and themes related to the research questions. Content analysis was applied in a systematic way, which enabled the research to respond to all the research questions.

Through content analysis, the researcher was able to, firstly, examine the extent to which the South Africa-China bilateral agreement regarding the South African Agricultural Technology Demonstration Centre was implemented. Secondly, to

investigate whether the SAATDC bilateral agreement met necessary pre-conditions of policy implementation, and examine whether these factors were adequately addressed in the bilateral policy document. Thirdly, to examine whether the SAATDC, as a foreign aid programme, was adequately aligned to government priorities and further examined whether this programme will make any significant contribution towards South Africa's aquaculture sector development. And lastly, to determine whether this Chinese aid project was fully exploited for the benefits of the local workforce particularly the artisans and engineers.

2.6 Limitations of the study

This section provides an overview on the limitations that the researcher felt had an impact on the research findings, as well as the researcher's ability to effectively answer the research questions and achieve the research objectives. Such limitations are:

- a) Partial analysis and evaluation of the project.** The major limitation of this study is that at the time the study was completed, only the first phase of the bilateral agreement (which is the construction phase), was implemented. The study will be completed before the second phase (2013-2015) of the project is implemented. This will mean that the analysis of the second phase of the project would be forward looking.

- b) Lack of accurate estimation or projections of long term programme outcomes.** Due the fact that the research was completed before the project is fully completed, it was therefore impossible to provide an accurate estimation of any long-term outcomes of the programme. Conclusions, therefore, were based on predictions which may not be accurate. The outcome for objective three of the research, which focuses on the projected benefits of the SAATDC bilateral agreement, was therefore forward-looking. Based on these challenges, it was impossible for the researcher to provide accurate projections on the outcomes of the second phase of the SAATDC.

- c) Lack of precise sample frame.** This case study research would involve an in-depth analysis of a single event, which is the implementation of the South Africa China bilateral agreement, with specific reference to the South African Agricultural Technology Demonstration Centre, as the unit of analysis, rather than using large examples. The lack of reliable information has compelled the researcher to limit the scope of his analysis. In the communication issues by the Department of Agriculture Free State Province and the National Department of Agriculture Forestry and Fisheries, it is broadly stated that the SAATDC will serve as a supply station to rural aquaculture community projects in the Free State Province and outside the Province which made it impossible to measure the outcomes of the SAATDC second phase.
- d) Lack of available and reliable data.** This research will apply document analysis as a technique of information collection. The challenge is that documents or material may be incomplete or sometimes missing, which compromises the quality of the research. The other challenge is that some documents may be sensitive and not freely available to the researcher.

2.7 Conclusion

This chapter described the research methodology, including the case study unit of analysis, data collection instrument, as well as the limitations of the study. The chapter also provided the descriptive theory of the research.

Chapter three

Theoretical and empirical debates on Africa-China relations

3.1 Introduction

This chapter reflects on the theoretical and empirical debates on South Africa-China and Africa-China relations. It is important to examine how the Chinese government conducts its activities in other African countries. Furthermore, reflection will be made on the conceptual framework of the research which covers a number of areas, including the detailed explanation of both ASGISA and JIPSA and the broader explanation of the research case study. The outcomes of the 2006 Forum for Africa-China Cooperation (FOCAC) will be discussed.

The Forum on China-Africa Cooperation was initiated in October 2000, as the chief instrument of engagement between the China and Africa. South Africa-China bilateral relations and bilateral policies take place within the FOCAC framework. The construction of the South African Agricultural Technology Demonstration Centre in Gariiep Dam is one of the outcomes of the 2006 FOCAC summit which was adopted as a bilateral policy between South Africa and China.

3.2 Theoretical and empirical debates on China–Africa relations

There are mixed perceptions regarding China's relations with African countries, which necessitate the need to explore the commitment made by the Chinese government to support South Africa on JIPSA and ASGISA. There are perceptions that China has no commitment to, or merely a limited relationship with Africa, except a business relationship that favours it. There are views that China-Africa relations contribute towards Africa's development.

There have been a number of concerns regarding China's role in Africa. According to Gill and Reilly (2007:49), there are concerns in Africa as well as the international

community, regarding Chinese workers, product safety, fraudulent goods, unfair trading and investment practices and lax environmental standards. Gill and Reilly (2007:49) elaborated that in Ethiopia, some Chinese construction firms were instructed by their provincial government to make unprofitable bids to get a foot in the door for future undertakings.

Many African countries are concerned over how China operates in Africa. African countries like Angola and Zambia, have accused Chinese companies of underbidding local firms and not hiring Africans. The Chinese infrastructure deals often stipulate that up to 90% of the labour must be Chinese (Idun-Arkurst and Laing, 2007:19). China does business in Africa and is willing to pay bribes, as there are no attached conditions to aid money which undermines local efforts to increase effective governance and international efforts at macro-economic reform by institutions such as the World Bank and the International Monetary Fund (Ofodile,2009: 90).

Ofodile (2009:90) cited four concerns on China's relations with Africa including: firstly, Beijing's general indifference to human rights situation in Africa, secondly, Beijing support of brutal dictators, thirdly, Beijing's direct and indirect interference in unilateral and multilateral human rights initiatives and lastly, Beijing's perceived insensitivity to trade *versus* human rights linkages. China is not in Africa to develop Africa, but to develop itself. According to Guliwe (2009:24), there is a danger of Africa-China economic relations following colonial patterns. Most of African countries export mostly raw materials to China and import finished manufactured products (Marks; 2007:5).

Guchu (2009:1) is of the opinion that, while European countries were brutal, they had some commitment to the countries they colonised and established some relationships, which still exist, for example Britain, France and Portugal, in relation to Ghana, Angola and Côte d'Ivoire respectively.

One of the challenges faced by African countries is the dumping of cheap Chinese imports which have already eroded the industrial capacity of many African countries

(Ajakaiye, 2006:8). In Africa, trade unions have strongly protested against Chinese investments. In South Africa it is estimated that about 67,000 jobs have been lost in the textile industry (Konings, 2007:20). These job losses have been strongly criticised by trade unions like the Congress of South African Trade Unions (COSATU).

There are perceptions that the cheap Chinese imports may discourage diversification of the productive basis of the African economies, away from crude agricultural and mineral products, towards manufacturing and eventually service or knowledge intensive activities (Ajakaiye, 2006:8). This challenge emanates from the fact that new investors may either find it unattractive to compete with cheap Chinese imports, or find it unnecessary because Chinese imports are so-extensive, leaving no significant excess demand which new entrants can aspire to meet. Ajakaiye (2006:8) elaborates that the de-industrialization impact of cheap Chinese imports will reverse the gains of industrial development made during the first two decades of independence in Africa. According to Ofodile (2009:91) the structure and pattern of China-Africa trade is the same as the pattern of trade between African countries and their European colonial masters.

One of the negative aspects of Chinese businesses in Africa was noted in Zambia, where on April 20, 2006, an explosion at a Chinese-owned copper mine killed 51 Zambian workers (Gill and Reilly, 2007:46). There have been concerns about the environmental impact of Chinese mining corporations in Africa including copper mines in Congo and Zambia and titanium sands projects in ecologically sensitive parts of Kenya, Madagascar, Mozambique, and Tanzania (Gill and Reilly, 2007:46). According to Kennan (2009:98), the level of labour exploitation in Zambia shows the extent to which Chinese investment in Africa can undermine local working conditions. According Renard (2011:22) trade and FDI in the natural resource sector tend to impair governance and efficiency and can be harmful to the environment.

In response to the concerns raised about Chinese activities in Africa and the anti-Chinese protest in Zambia, President Hu Jintao of China emphasised the need for economic win-win cooperation (Gill and Reilly, 2007:47). In Namibia, President Hu

Jintao urged managers of Chinese companies on bearing social responsibility and promoting harmony with local people (Gill and Reilly, 2007:47). It appeared to be the first time President Hu Jintao addressed issues facing Chinese companies operating in Africa.

Namibia became the first country to suspend Chinese loans citing unfavourable terms and conditions described as tough and costly to the country. Guchu (2009:1) indicated how Chinese conditional loans, disregarded African countries labour laws and shipped in their own people to take up jobs. Africa is grappling with corruption, high levels of poverty, and under-development. The involvement of China makes the situation worse.

According to Guliwe (2009:25), Chinese investments on the continent give corrupt leaders a leeway to get away with corruption and bad governance since trade agreements or loans from the east do not come with conditions. Guliwe further argued that the Chinese government also sells arms to oppressive regimes in Africa.

According to Guliwe (2009:25), China exports ammunitions to Sudan in exchange for oil. Sudan is a country which for several decades has been experiencing civil strife. Furthermore, Guliwe stressed that China also supplies military hardware, including fighter aircraft and intelligence listening devices, and is interested in Zimbabwe's tobacco as well as platinum and other mineral reserves. According to Guliwe (2009:25), Beijing does not take into consideration the fact that corruption and political instability sabotage the long-term possibilities of sustained China-African economic links and also helps maintain the situation where Africa remains at the bottom of the global hierarchy, plagued by dictators and human rights abusers.

Other debates regarding China's involvement in Africa include perceptions that in most cases, China has used its United Nations Security Council vote in support of undemocratic African governments (Idun-Arkurst and Laing, 2007: 22). This act can be viewed as a way of bribing the leaders into welcoming China into their countries for

unfair trade practices. Sudan and Zimbabwe have benefited immensely from China's support at the UN.

There are beliefs that China's renewed interest in Africa is mainly driven by its persistent search for resource security, new markets and investment opportunities, and political support (Konings, 2007:18). According to Guliwe (2009:22), China's aid to Africa is driven largely by its objective of securing access to oil and minerals for its growing economy. African oil accounts for 80% of China's trade in the region and about one-third of its oil imports. Nearly 70% of PRC infrastructure financing on the continent reportedly is concentrated in Angola, Nigeria, Ethiopia, and Sudan, all of which have oil fields (Lum, 2009:9). According to Marks (2007:5), this pattern of relationship between Africa and China is not beneficial to Africa because Africa needs to preserve its natural resources to use them in the future for its own industrialisation.

According to Gill and Reilly (2007:40), in Sudan, 13 of the 15 largest foreign companies operating are Chinese, primarily in the oil industry. The China National Petroleum Corporation owns a 40% stake in the Greater Nile Petroleum Operating Company, pumping more than 300,000 barrels per day. The other Chinese firm, Sinopec, is constructing a 1,500-kilometer pipeline to Port Sudan on the Red Sea, where China's Petroleum Engineering Construction Group is building a tanker terminal (Gill and Reilly, 2007:40). As a result of the major Chinese investment, Sudan became the largest recipient of Chinese overseas investment in Africa. According to Lum (2009:4), Chinese oil diplomacy in Africa, has two main goals: firstly, in the short-term to secure oil supplies to help feed growing domestic demand in China; and secondly, in the long-term, to position China as a global player in the international oil market.

There are concerns that Chinese companies have an unfair advantage due to the extensive support offered by the Chinese government (Centre for Chinese Studies, 2006:17) According to Guliwe (2009:30), the competitiveness of Chinese construction companies may be attributed to a number of factors including: their access to cheap capital, low labour costs, hands-on management style, high degree of organisation, and

general aptitude for hard-working. China has gained an advantage in bidding for the projects in Africa because of lower costs attributed to the Chinese enterprises.

Having noted the concerns most of the African countries have about China, it is then important to explore how China conducts its activities in South Africa. Looking from the JIPSA and ASGISA perspective, it is important to examine the relevance of Chinese training programmes against the South African needs as stipulated in the JIPSA and ASGISA documents.

There are beliefs that Chinese exports provide cheaper access to more goods and services which is good for the well being of the people. However in the long-run the Chinese exports have the potential to destroy local manufacturing capabilities and competitiveness (Ajakaiye, 2006:8). A good example of the negative impact of Chinese exports in South Africa is the South African textile industries, which have suffered significantly due to Chinese exports. The South African textile environment is facing extremely difficult trading conditions. It has been estimated that employment in the South African textile industry declined from 70 500 in 2003 to just below 55 500 in 2006 (Vlok, 2006: 238). A number of textile mills have closed and have been forced to retrench employees. The Chinese export competitiveness in the manufacturing sector may continue to have a negative effect on local manufacturing and consequently job creation. Some African countries, taking into consideration their current capabilities, stand little chance against Chinese competition in reciprocal trade relations. Having discussed some of the perceptions other countries have towards China, it is therefore important to establish whether China is committed to transfer its skills and technology to South Africa, thereby fulfilling its commitment in relation to the Economic and Technical Cooperation Agreement.

According to Kaplinsky, McCormick and Morris (2008:14), Chinese infrastructure projects create more problems than they solve. Kaplinsky *et al* further pointed out that many infrastructure projects are linked to resource extraction. According to Carayannis and Olin (2012:11), many development projects have been criticised for producing

infrastructure without any corresponding increase in capacity as the expertise often departs with the Chinese companies.

The other broad concern regarding the presence of China in Africa is the deployment of Chinese labour in Africa. Such undertakings limit opportunities for the transfer of skills and technology. According to the report by Centre for Chinese Studies (2006:15), extractive industries including, diamonds and oil account for 95% of Angolan exports and 57 % of GDP, but employs only 1% of the Angolan work-force. The deployment of the Chinese labourers in Africa has the potential to reduce the positive effects of the Chinese investment on the house-hold income in Africa (Idun-Arkhurst and Laing, 2007: 19).

Although there are challenges Africa countries came across when implementing Chinese aid programmes, the researcher is still of the view that there are opportunities generated through the Africa-China relations which could significantly contribute towards the continent's growth and development. The researcher shares the concern that to some extent, the Chinese presence in Africa is part of a quest for key natural resources such as, rich oil, minerals, timber, steel and cotton. Furthermore the researcher shares the views that China benefits more from its relations with Africa.

Despite the challenges that emanates from Africa-China relations, the researcher is of the view that the infrastructure such as roads and railroads, dams, ports, and airports funded and built by the Chinese government are critically needed by African countries and significantly contribute towards Africa's growth and development. As for how these projects are implemented, it depends on individual governments to ensure that bilateral agreements are structured in such a way that benefits Africa.

During the formulation and implementation stages of the bilateral aid projects, African countries governments should introduce necessary measures to ensure that projects address Africa's growth needs. The researcher is of the view that individual African

countries have a choice and it is the responsibility of each African country to shape projects in such a way that addresses their respective growth needs.

3.3 An overview of China's engagements with Africa on training and technology transfer

From the 1980s, the Chinese government adopted a so-called, "*Going Global Strategy*", which encourages Chinese companies to invest in Africa (Idun-Arkhurst and Laing, 2007: 2). The strategy is aimed at ensuring China's access to advanced technology, foreign exchange, energy and raw material, and exports market. With this strategy, the Chinese government also seeks to encourage Chinese companies to invest in Africa. The Chinese Eximbank has encouraged and subsidised Chinese companies to expand their presence in Africa (Idun-Arkhurst and Laing, 2007: 12). China provided African countries with assistance, in the form of infrastructure projects, public works, technical and public health assistance, and scholarships to study in China. China's economic presence in Africa has risen dramatically over the last 10 years. According to Brautigam (2013:1), from 2000 to 2011, China's trade with Africa increased from \$10.6 billion to about \$166.3 billion.

China has trained African scientists and technical personnel in sectors including, agriculture, medical care, social development and education. Training programmes in technical areas such as, hydro-irrigation and small-scale agricultural production involving thousands of African farmers, have served to transfer China's experience to Africa (Brautigam and Xiaoyang, 2009:695). According to Lucien (2010:368), China has since 2007, provided training programmes to 10,916 people from 49 African countries. The Chinese government has committed that, by the end of 2009, China will send 100 advanced-level agro technicians to 35 African countries. China plans to establish 14 agricultural technology demonstration centres, all of which were due to begin construction in 2009 (Pere, 2008:28).

According to Wang and Lim (2007:2), health and medical cooperation is another highlight in China-Africa relations. Since the 1960s, China-Africa health and medical cooperation came in the form of exchanging medical teams and training for medical professionals. Chinese assistance to Africa has also included providing medicine and medical equipment and organising programs to help prevent and treat infectious diseases. Furthermore, China has sent doctors to treat Africans across the continent, and hosts thousands of African workers and students in Chinese universities and training centres (Adisu, Sharkey and Okoroafo, 2010:5).

According to Idun-Arkurst and Laing (2007:7), between 1963 and 2005, China deployed more than 15,000 medical personnel in medical teams to 47 African countries, offering 170 million treatments. Unfortunately there is no evidence about whether these transferred medical personnel transfer, or impart skills, to the medical personnel in the country of residence.

The Chinese training programmes also include education exchange programmes. China provided scholarships and education training programs to African students. According to Wang and Lim (2007:3), statistics from the Chinese Ministry of Education have shown that there were about 3,000 Chinese government-sponsored and self-funded African students studying in China in 2005. According to Wang and Lim (2007:2), the Chinese government provided training to African scientists and technical personnel in sectors including agriculture, medical care, social development and education.

To advance the above mentioned goals, the Chinese government announced an extensive programme of support for Africa, which includes amongst others, doubling of development assistance, debt relief, assistance in the training of professionals, assistance in the development of health infrastructure, and the opening of the Chinese market to African products (Gill, Huang and Morrison, 2007: 5). As indicated in the previous sections that South Africa-China relations take place within the FOCAC framework, the commitment by the Chinese government to support ASGISA and JIPSA also relates to the outcomes of the 2006 FOCAC summit. During the 2006 FOCAC

summit, a number of commitments were made between Chinese and African governments which also relate to this research. Some of the FOCAC outcomes that related to this study include cooperation on agriculture and food security, cooperation on human resources development and cooperation in science and technology discussed below.

a) Agriculture and food security: The summit noted that food security is a major challenge facing the international community and it is particularly serious for African countries. Agricultural development holds the key to food security in Africa, and is essential for Africa's efforts to eradicate poverty, ensure people's livelihood and develop the economy. During the 2006 FOCAC summit (FOCAC's Action Plan, 2006:2), the two sides resolved to maintain and strengthen such cooperation and expand, in particular, cooperation in agricultural infrastructure, grain production, the breeding industry, exchanges and transfer of practical agricultural technologies, and in processing, storage and transportation of agricultural products. The Chinese government made a number of commitments to enhance agricultural development in Africa. Firstly, China will send 100 senior experts on agricultural technologies to Africa and set-up in Africa 10 demonstration centres of agricultural technology with special features. Secondly, China will encourage and support Chinese enterprises to expand their investment in agriculture in Africa and get more involved in agricultural infrastructure development, production of agricultural machinery and processing of agricultural produce in Africa, thirdly, China will increase cooperation with Africa in extending applicable technologies and human resources training in agriculture and lastly, China will strengthen cooperation with African countries within the framework of the Special Program for Food Security and Agriculture of the United Nations (FOCAC Action Plan, 2006:2).

b) Human Resources Development. During the 2006 FOCAC summit the Chinese government promised to continue providing training to people from different sectors in Africa as the need arises, and pay special attention to raising the

quality of such training. It pledged to increase input, based on African Human Resources Development Fund (AHRDF), to train 15,000 African professionals between 2007 and 2009 (FOCAC's Action Plan, 2006:6). The African governments undertook to provide the necessary support and assistance in terms of selecting trainees and providing logistical services.

c) Cooperation in Science and Technology. Taking into consideration the important role of technology transfer in enhancing African countries capacity-building, the Chinese government committed to encourage and promote technology transfer to Africa in various of areas of cooperation, in particular, the transfer of advanced applicable technologies with a major impact on Africa's economic and social development, such as technologies for drinking water, agriculture, clean energy and health. In terms of FOCAC's Action Plan (2006:4) China pledged to continue providing training courses on practical technologies and carry out demonstration projects on technical assistance in order to extend China's scientific and technological achievements and applicable technologies to Africa.

The researcher is of the view that technical skills provided by the Chinese government are valuable and needed for Africa's growth and development. The training programmes provided are required in order to address critical skills needed by African countries.

African countries need to learn from China's rapid economic development. Africa could grow as well, if it could acquire skills required to drive these developments.

Africa needs skills and technology which China is providing. In this regard, the researcher is of the view that African countries need to take advantage provided by the Chinese presence and interests in the continent to develop its skills and build its technology. The researcher is of the view that African countries can benefit from China in fields such as higher education, vocational education, computer science, analytical chemistry, food preservation and processing, horticulture and civil engineering.

3.4 Overview on Africa-China trade

According to Idun-Arkhurst and Laing (2007:12), China is currently ranked as the continent's second-highest trading partner, behind the United States, and ahead of France and Britain. From 2002 to 2003, trade between China and Africa doubled to \$18.5 billion, by 2007 it had reached \$73 billion (Percival, Valk and van Geuns, 2009:5). Much of the growth was due to increased Chinese imports of oil from Sudan and other African countries, but Chinese firms also import a significant amount of non-oil commodities such as timber, copper, and diamonds. China has begun to import some African-manufactured value-added goods, such as processed foods and household consumer goods. Most of the Chinese companies view Africa as both an excellent market for their low-cost consumer goods, and a burgeoning economic opportunity as more countries privatize their industries and open their economies to foreign investment (Konings, 2007:18).

The Chinese government has increased its leverage on borrowing countries and it has also forgiven the debts of some borrowers that develop strong political and economic relations with China (Davies, Edinger, Tay and Naidu, 2008:13). The Chinese government has pledged to ensure mutual benefits in its bilateral relations with Africa. The mutual benefit is reflected in areas like debt reduction. The Chinese government has committed to open its market to African countries by lifting tariffs on the number of items exported by African countries (Anshan, 2007:79). According to Pere and Shelton (2007:211), historically China had good relations with Africa and has at various stages had an active involvement on the continent. In its international engagements China, emphasises its status as a developing country.

Africa registered 5.8% economic growth in 2007, its highest level ever, in part because of Chinese investment (Konings, 2007:18). It is claimed in that the roads, bridges, and dams built by Chinese firms are low cost, good quality, and completed in a short period of time (Haroz, 2011:73).

China provides development assistance and government backed Foreign Direct Investment (FDI) to African countries. According to Davies, Edinger, Tay and Naidu (2008:13), by 2006, China had provided over US\$5.5 Billion in aid to African countries. Most of the Chinese aid to Africa has focused on two aspects: infrastructure and human development.

3.5 Overview on the Accelerated and Shared Growth Initiative for South Africa

The Accelerated and Shared Growth Initiative for South Africa (ASGISA) was initiated in 2005 and launched in February 2006. As stated in the ASGISA Annual Report (2008:4), the objectives of ASGISA were to introduce policies, programmes and interventions that would allow the South African economy to grow enough to halve poverty and unemployment between 2004 and 2014. For the goals to be achieved, the South African government was expected to have a 6% growth per year by 2010 which was not achieved. The shortages of skills have been identified as one of the challenges facing the country. South Africa has a shortage of skills like: engineers and scientists, managers (financial, personnel and project managers); and skilled technical employees (artisans and IT technicians).

ASGISA's mandate was to reduce unemployment and poverty, while increasing the country's gross domestic product growth rate to a sustainable level of 6% by 2010. The mandate was set to be achieved through marshalling government and private resources to eliminate the following constraints:

- a) Infrastructure backlogs;
- b) Shortage of skills and cost impact on low-skilled labour of the apartheid spatial system;
- c) Poor international competitiveness of much of South Africa's manufacturing and tradable services sectors;
- d) The relative volatility of the currency;

- e) The regulatory environment for small and medium-sized business and the weakness of the second economy, and
- f) The inadequate capacity of government organs to support economic development (ASGISA Annual Report, 2008:2).

There are a number of programmes identified by ASGISA to eliminate the above mentioned constraints. Such programmes include the following:

- a) Infrastructure investment.** In terms of infrastructure investment, ASGISA aimed to accelerate the achievement of national targets for the eradication of the remaining backlogs in sanitation, universal access to electricity and all other backlogs, including housing.

- b) Second-economy initiatives.** South Africa has a highly unequal economy in which people with access to wealth experience the country as a developed modern economy, while the poorest still struggle to access services. A strategy for the second economy is intended to achieve the following goals: firstly, to create employment, widely recognised as South Africa's single biggest priority for addressing poverty, inequality and economic marginalisation, secondly, to improve the terms on which people participate in the economy, whether they are working for themselves or someone else, so that such participation lifts them out of poverty, thirdly, to increase poor people's ability to gain and secure assets, fourthly, to ensure basic needs are accessible and affordable and lastly, to improve the distribution of returns from economic activity more equitably across society.

- c) Skills and education.** The Joint Initiative for Priority Skills Acquisition (JIPSA) is one of the recommended programmes which are aimed at addressing skills shortage in the country.

d) Industrial policies and sector strategies. ASGISA proposed that the government initiates a more active industrial policy to move the economy towards increasingly inclusive growth. Industrial policy refers to measures targeted at ensuring a more efficient economy. The industrial policy is aimed at addressing the constraints to growth in sectors that can diversify the economy and provide sustainable employment on a large scale. Industrial policy in this sense relates not to manufacturing industry alone, but to the economy as a whole, including agriculture, mining and services.

e) Governance interventions. In this regard, ASGISA identified the need for the organisation and capacity of the State in relation to the challenge of accelerated and shared economic growth (ASGISA Annual Report, 2008:70).

Skills shortages have long been identified as one of the constraints or challenges that South Africa faces. ASGISA was aimed at addressing the skills shortages by isolating and prioritising scarce skills and finding solutions to skills shortages.

3.6. The Joint Initiative for Priority Skills Acquisition

The Joint Initiative on Priority Skills Acquisition (JIPSA), is a component of ASGISA. ASGISA established a joint council in government in 2006, which included private sectors to strengthen and coordinate activities, aimed at addressing skills shortages in the country. JIPSA serves as a platform for dialogue between stakeholders (including key social actors and role players) and facilitating their practical engagement on skills priorities (JIPSA Annual Report, 2008:5). According to the HSRC (2007:40), JIPSA sets skills priorities in support of ASGISA's economic growth objectives and advises on aligning the training and skills development efforts of the public and private sectors with the objectives of ASGISA.

According to JIPSA, there is a need to produce 7500 additional artisans (Annual Report, 2006: 15). In implementing strategies to achieve the annual target of 7500 trained

artisans, a number of employer-led initiatives have been launched to support the process. Such initiatives include those under the auspices of the Steel and Engineering Industries Federation of South Africa which aims to train 6000 metal engineering artisans for the labour market by 2010 (JIPSA Annual Report, 2006: 15).

The JIPSA strategy was based on broadening the training pipeline, retaining people in skilled employment and training them more effectively and to higher standards. As a result, the following high profile skills areas were identified:

- a) High-class, world class engineering and planning skills for network industries, transport, communications, water and energy;
- b) City, urban and regional planning and engineering skills;
- c) Artisanal and technical skills, with priority attention to infrastructure development, housing and energy;
- d) Management and planning skills in education and health; and
- e) Mathematics, science and language competence in public schooling (JIPSA Annual Report, 2006: 15).

Some of the factors that contribute to unemployed graduates are that, graduates do not have skills demanded by the economy and in some cases, the graduates do have formal qualifications, but their training falls short of industry expectations.

3.7 Contextualization of the South African Agricultural Technology Demonstration Centre within ASGISA and JIPSA

The Economic and Technical Cooperation Agreement between South Africa and China serves as the basis of the bilateral policy on South African Agricultural Technology Demonstration Centre. In terms of the Economic and Technical Cooperation Agreement, the Chinese government committed to work with South Africa on human resource projects which will focus on the priorities of the Republic of South Africa as set

out in the ASGISA and the JIPSA, (Economic and Technical Cooperation Agreement, 2007: 3).

According to the Economic and Technical Cooperation Agreement, these Human Resource projects will include engagements in the fields of:

- a) Education;
- b) Arts and culture;
- c) Foreign affairs;
- d) Tourism and environmental affairs;
- e) Social development policies;
- f) Science and technology; and
- g) Any other fields of cooperation as agreed on between South Africa and China to further the objectives of this agreement (Economic and Technical Cooperation Agreement, 2007: 3).

In support of South Africa's initiative of ASGISA and JIPSA, the Chinese government has committed to build the South African Agricultural Technology Demonstration Centre in the field of Aquaculture at Gariep Dam in the Free State. The two governments agreed that the Chinese government will also build an Agricultural Technology Demonstration Centre (ATDC) in the aquaculture sector, as an aid project.

ASGISA identified agriculture and agro-processing as high-priority industries which are less advanced (Mlambo-Ngcuka, 2006:6). According to the HSRC report (2007:2), agro-processing refers to the subset of manufacturing that adds value to raw materials and intermediate products derived from the agriculture sector, which includes agriculture, forestry and fisheries. Agro-processing includes processes that follow harvesting, including those activities that do not necessarily change the form of the product, but improves its value (HSRC, 2007:2). Agro-processing has a number of sub-sectors being, food, beverages, tobacco, leather and leather related products, paper and paper related products.

The South African Agricultural Technology Demonstration Centre in the aquaculture sector falls within the food sub-sector of agro-processing. According to the HSRC (2007:28), the meat and fish industries are the second largest employer in the food sub-sector and the vast majority of its employees can be found in the lowest skills band.

This project is an upgrading or a revitalisation of the Gariep Dam Fish Breeding Station of South Africa, at an investment of 30 million Chinese Yuan (about R33 million), (Pere and Shelton, 2007:161). The complete structure of the SAATDC will include:

- a) Training building;
- b) Apartment building for experts;
- c) Fish fry (offspring) breeding workshop; and
- d) Accessory facilities.

According to the plan, the training building will stand to the east of the aquaculture centre. The centre will be a multi-function building with offices, labs, conference rooms and a technology demonstration hall (to showcase the Chinese aquaculture technology). The fish fry breeding workshop will be a single-storey building which is designed mainly under the principle of practicality, and will focus on the core technologies of African catfish and tilapias farming and fish fry (offspring) breeding.

As part of the implementation of the above mentioned agreement, the two Ministries agreed that the Chinese government will build a South African Agricultural Technology Demonstration Center (SAATDC) in the field of Aquaculture at Gariep Dam, Xhariep District in Free State Province as an aid project. This agreement was solidified by the signing of an Exchange Letters by the then Minister of Agriculture and Land Affairs of South Africa and the Ambassador Extraordinary and Plenipotentiary of the People's Republic of China on October the 7th 2008.

The Ministry of Commerce (MOFCOM), through the Economic Commercial Counsellor's Office of the Embassy of China in South Africa, and the Minister of Agriculture, Forestry

and Fisheries signed an exchange letter as part of agreement on March 2009, (Department of Agricultural Forestry and Fisheries General Submission, 2009:1).

ASGISA has identified agriculture as the highest priority. Furthermore ASGISA highlighted the fact that the agricultural sector has not performed as well as it should and yet it has great potential to contribute towards halving poverty, reducing unemployment and improving the lives of rural communities (ASGISA Annual Report, 2008:36). The ASGISA Annual Report (2008:36) highlighted eight areas for intervention; which include:

- a) Improving the effectiveness and efficiency of government agricultural extension services;
- b) Improving the access of emerging farmers to professional mentoring services;
- c) Rolling out adult basic education and training and HIV and AIDS awareness programmes to farm workers;
- d) Transforming agricultural colleges into centres of excellence;
- e) Increasing the supply of high-level technical skills to the sector;
- f) Developing linkages between FET colleges and the broader agricultural sector;
- g) Improving the AgriSeta funding model; and
- h) Promoting the agricultural sector as a career opportunity to the youth (ASGISA Annual Report: 2008:36).

Aquaculture production facilitates improvements in the agricultural sector which links it to the ASGISA objectives. Aquaculture is an important component of the agro-processing sub-sector on food, which seeks to add value to South African fisheries products. There are views that agro-processing could play an important role in supporting economic development, and thus contribute to poverty reduction and economic growth. Based on the expectations raised when South Africa and China entered into an agreement on the SAATDC, there is a need to investigate how well this important bilateral agreement has been implemented.

3.8 The historical background of the South Africa- China bilateral relations

In April 1998, the then South African Deputy President Thabo Mbeki visited China to strengthen South Africa-China bilateral relations (Pere and Shelton, 2007:164). In February 1999, his counterpart, the then Chinese Vice President Hu Jintao visited South Africa to strengthen South Africa-China bilateral political and trade relations. South Africa's former President Nelson Mandela paid a State Visit to China in May 1999. During April 2000, the then Chinese President Jiang Zemin paid a State Visit to South Africa (Pere and Shelton, 2007:161). During this visit, the two heads of state signed the Pretoria Declaration on the Partnership between China and South Africa, emphasising the strategic importance of the diplomatic relationship.

South Africa adopted a strategy to leverage China's influential role to advance the cause of the South and in particular of Africa in key multilateral agencies, including within the context of the UN Security Council (Pere and Shelton, 2007:211). A commitment to enhance cooperation in multilateral agencies was enshrined in the Programme for Deepening the Strategic Partnership signed in June 2006.

Exports from China to South Africa consist mostly of portable automatic data processing machines, telephones for cellular networks, parts and accessories of machines, tricycles, and transmission equipment. Bilateral trade is, therefore, clearly dominated by commodity exports from South Africa and value-added imports from China (Van der Merwe, 2008). According to Naidu, 2008, some of the Chinese firms that have invested in South Africa's manufacturing sector are:

- a) Hisense – the electronic goods producer (TVs, DVD players, hi-fi home theatres) entered the South African market in 1997, expanded its facilities in 2004 and completed another US\$19-million expansion in 2009, introducing washing machines and refrigerators to its product range;
- b) Sinoprima Investment and Manufacturing South Africa, a subsidiary of Xiamen Overseas Chinese Electronic Co, has been manufacturing and

- distributing consumer electronics (CRT TV, Plasma and LCDTV) in South Africa since 1998;
- c) FAW Vehicle Manufacturer which manufactures heavy vehicles;
 - d) Hence Trade 88 spins yard and distributes cotton to companies;
 - e) Zhongxing Communications (ZTE); and
 - f) Huawei Technologies (Naidu, 2008:178).

With regard to the construction industry, the Chinese company Covec has entered the South African market (Burke, Naidu and Nepgen, 2008:10). Burke *et al* elaborated that in mining, China's biggest gold producer, Zijin Mining Group Company acquired a 20% share in the South African platinum producer Ridge Mining. Similarly, Sinosteel bought a 50% stake in Samancor Chrome's Tubatse smelter and the Tweekfontein chrome mine (Burke, *et al*, 2008:10).

South Africa is one of the African countries that have successfully penetrated the Chinese market. According to Naidu (2008:180) some of the South African companies operating in China include the following:

- a) SABMiller, which entered the Chinese market in 1994 and, through its joint venture partner CRE, with ownership currently of 55 breweries, became the largest brewer by volume in China in 2007;
- b) Sasol, the world's largest producer of oil from coal, is involved in two coal-to-liquids (CTL) projects in Shaanxi and Ningxia Hui provinces with Chinese coal company Shenhua Group;
- c) South African boat builder Robertson and Crane has established a joint venture with Chinese company Flying Eagle to produce sail and power catamarans in China in Fuyang City near Hang Zhou, one of the largest cities in China;
- d) MIH, part of Naspers, is a leading foreign player in China's media sector with investments in a number of newspapers, such as Beijing Youth Daily, Titan Weekly and Anhui Daily;
- e) Property group LRPS has investment in hotel development;

- f) Mining companies Anglo American, Anglo Coal, Exxaro, Kumba Iron Ore, Anglo Gold Ashanti and Goldfields;
- g) Financial firms like Hollard Insurance, Old Mutual, FirstRand and Standard Bank; and
- h) Bateman, Metspan, African Explosives Limited, Spur, Freeplay, Landpac and consultants Beijing Axis (Naidu, 2008:180).

In 2010, China overtook the United States to become South Africa's largest export destination, mainly consisting of imports raw materials such as iron ore, as well as refined iron and steel, from SA in order to fuel its booming economy. Trade between the two countries in 2011, totalled about R188 billion (DIRCO, 2012). But the relationship was uneven, with South Africa posting a trade deficit of R18billion with China (DIRCO, 2012).

Although the relations between South Africa and China comes with challenges which have the potential to undermine South Africa's growth and development, the researcher is of the view that there are still opportunities which the policy-makers in South Africa can take advantage of. There are job opportunities which can be created when implementing Chinese aid projects. The researcher is of the view that China's growing presence in South Africa is part of a rapidly changing reality that presents enormous opportunity.

3.9 Conclusion

This chapter reflected on number of aspects, including the theoretical and policy framework for South Africa-China and Africa-China relations. Furthermore, the chapter covered issues related to how the Chinese government conducted its activities in other African countries. The chapter highlighted how Chinese businesses conducted their projects and the concerns African countries may have about Chinese activities in Africa. Furthermore, this chapter reflected on the conceptual framework which covers a number of areas including explanations of both ASGISA and JIPSA. Having seen how

China conducts its activities in other African countries like Zambia, Angola and Ghana, it is important to examine whether these concerns will also take place in South Africa. It is also important to examine how the Economic and Technical Cooperation Agreement in the case of SAATDC, is being implemented which forms the basis of the next chapters.

Chapter four

Theoretical framework of policy analysis

4.1 Introduction

This chapter provides an overview of the theoretical framework of policy analysis in the field of Public Administration. It is important to examine the relationship between public policy, public administration and foreign policy. The source of both public policy and foreign policy will be reflected on. A number of aspects including the process and the forms of policy analysis and factors influencing policy analysis will be discussed. The role players in policy formulation and implementation will also be discussed. In terms of the latter, the discussion will be on the major role players in the formulation and implementation of South African foreign policy.

4.2 The relationship between foreign policy, public policy and public administration

There is a clear linkage between foreign policy, public policy and public administration. According to Terchek and Piper (1983:1), public policy is divided into a domestic component and a foreign component. Domestic policies are those implemented within the state, and foreign policy is implemented outside the country, and is directed towards the governing authorities of other states (Terchek and Piper, 1983:1).

Both foreign policy and public policy constitute public policy, since they both involve the authoritative allocation of resources and promotion or protection of values through governmental institutions and processes (Terchek and Piper, 1983:1). According to Lentner (1974:3), foreign policy lies at the intersection of the domestic and international aspects of a country's life. It is important to note that South Africa's foreign policy is informed by domestic priorities. According to Holsti (1995:252), governments operate in complex external and domestic environments and these contexts offer both opportunities and constraints and policy-makers should respond to them by making

policy choices. In this regard, policy-makers must try to protect and advance their national interests. National interests include self-preservation, independence, territorial integrity, military security and economic wellbeing (Plano and Olton, 1988:10). South African foreign policy should be viewed in line with South Africa's domestic priorities, it is therefore subjected to public policy analysis.

There is a need demonstrate how both foreign and domestic policy relates to public administration. To show the link the following factors were identified.

- a) Public administration is the work of government. Public administration is also concerned with the implementation of government policies including both domestic and foreign policies. According to Denhardt (1991:1), public administration is concerned with the management of public programs, which interact with the residents of the community or region. Public administration is carried out by public servants, who work in public departments and agencies, at all levels of government and abroad, and perform a wide range of tasks (Denhardt, 1991:3). Such tasks include, planning, budgeting and implementation of government programmes.
- b) Public administration is also concerned with carrying out foreign policy decisions made by authoritative decision-makers in the political system. Foreign policy decisions are usually made by the executive branch of government. Common governmental actors or institutions which make foreign policy decisions include the head of state such as a president, cabinet or minister. According to Hill (2003:53), the nominal chief of foreign policy operations in most states is the foreign minister, by virtue of specialising in foreign policy.
- c) Foreign policy refers to strategies or planned courses of action adopted by decision-makers or policy-makers of a state to achieve particular goals defined in terms of national interests (Plano and Olton, 1988:6). Foreign policy can also be called international relations policy. Hill (2003:3) defined foreign policy as the

sum of official external relations conducted by an independent actor in the international relations. Foreign policy is primarily generated from within. Hudson (2008:12) defines foreign policy as the strategy or approach chosen by the national government to achieve its goals in its relations with external entities, such strategies include decisions not to take action. The influence of domestic interests forms the basis of foreign policy strategy. According to Plano and Olton, (1988:6), foreign policy is the key element in the process by which a state translates its goals and interests into a concrete course of action to achieve these objectives and maintain interests. The formulation and implementation of a foreign policy is based on a country's desire or obligation to advance and defend its national interests. These include national security, sovereignty, ideological goals and economic prosperity which makes it a component of public administration (Webber, Smith, Allen, Collins, Morgan and Ehteshami, 2002: 42).

- d) According to Webber *et al* (2002:9), foreign policy is composed of goals sought, values set, decisions made and actions taken by states and national governments acting on their behalf in the context of the external relations of national societies. Foreign policy constitutes an attempt to design, manage and control the foreign relations of a country (Webber *et al*, 2002:9). In relation to foreign policy, the government acts on behalf of the country, thus foreign policy is a component of public administration.
- e) Foreign policy can be seen as the outcome of bargaining processes among governments. According to Webber *et al* (2002:56), bargaining occurs because foreign policy-makers have interests they should pursue and they may hold different views on the issues discussed. The policy makers are faced with a challenge to cope with their domestic needs while simultaneously dealing with international developments. The attempt to satisfy domestic needs may constrain policy makers (Webber *et al*, 2002:56). Foreign policy cannot be separated from the domestic context out of which it originates (Hill, 2003:37). It is important to

note that without domestic society and the state, there would be no foreign policy.

- f) According to Plano and Olton (1988: 6), the stages of foreign policy making include, firstly, translating national interests considerations into specific goals and objectives, secondly, determining the international and domestic situational factors related to the policy goals, thirdly, analysing the state's capacities for achieving the desired results, fourthly, developing a plan or strategy for utilising the state's capabilities to deal with the variables in pursuit of the goals, fifthly, undertaking the necessary actions and lastly, periodically reviewing and evaluating progress made towards the achievement of the desired results. These stages are similar to the stages of domestic policy-making. The policy-making process involves a number of fundamental stages including, identification of a problem, development or formulation of a programme to deal with the problem, analysis of possible options, selection of the best options, and implementation of the programme, policy evaluation, and policy termination or alteration of the programme.
- g) The players and processes in policy-making are similar in both domestic and foreign policy. According to Lentner (2006:170), there are connections between components of society dealing with foreign policy, just as there are among those involved in domestic policy areas.
- h) According to Fearon (1998:289), domestic politics is typically a crucial part of the explanation for states' foreign policies. According to Kent-Brown (2002: 57), the policy *milieu* in which domestic policies come into being is similar to the policy *milieu* in which foreign policy comes into existence. Kent-Brown (2002:67) further elaborated that the major difference between domestic and foreign policy is that foreign policy does not rely as much on the legislative and judicial branches of the government and it takes place as a result of deliberations and implementation by the executive branch of the government. The judiciary plays an advisory role in the process of foreign policy making.

Taking into consideration the relationship between domestic and foreign policy, it is concluded that South Africa-China bilateral agreements forms an integral part of public administration. The South Africa-China bilateral agreements are public policies. Bilateral policies between South Africa and China depend on what the South African government wishes to achieve. The South Africa-China bilateral agreements are formulated by the authorities in a political system, particularly the executives and administrative authorities and therefore are subjected to public policy analysis.

President Hu Jintao visited South Africa in February 2007. The South African and Chinese governments signed the bilateral policy on the South African Agricultural Technology Demonstration Centre, which stipulates what the two governments, intend to do with regard to the implementation of this policy or agreement. As indicated in the previous sections that public policies are formulated by the authorities in a political system, particularly the executive, legislative and administrative authorities, the South African Agricultural Technology Demonstration Centre was formulated by government structures, which therefore makes it a public policy.

4.3 The overview of the policy-making process

Policy-making is not just an event, but it is the process, which takes place over the period of time. There are several stages in the development of a policy by the government which will be discussed in detail in this section. These stages include: identification of a problem, development or formulation of a programme to deal with the problem, analysis of possible options, selection of the best options, and implementation of the programme, policy evaluation, and policy termination or alteration of the programme.

4.3.1 Problem identification

Problem identification is the first stage of policy analysis after the problem has reached the agenda setting stage (Guess and Farnham, 2000:23). In this stage, those who are

affected by a problem become aware of it. Dunn (1994: 139) defines a policy problem as unrealised needs, values, or opportunities for improvement that may be pursued through public policy action. The first stage of the policy making process may also be referred to as setting a “policy agenda stage”. According to Cloete and Meyer (2011:87), policy agenda setting refers to a deliberate planning process through which policy issues are identified, problems are defined and prioritised, support is mobilised and decision makers are lobbied to take appropriate actions.

After the problems have been identified and placed on the policy agenda, policy makers would then clarify their policy goals and objectives (Edwards and Sharkansky, 1978:109). According to Edwards and Sharkansky (1978:109), it is only after they have clarified and ranked policy goals and objectives that policy makers can effectively propose and evaluate available options for meeting the set goals and objectives. The clarification of goals and objectives may follow directly from the statement of the identified problem.

The policy agenda setting is an important stage in the policy making process due to three reasons. Firstly, the policy agenda setting stage determines and prioritises what policy issues are addressed. Secondly, it determines who influences or controls the policy making process. Lastly, the stage determines how stakeholders influence the policy agenda (Cloete and Meyer, 2011:87).

There are a number of aspects that need to be given considerable attention when identifying a problem. Firstly, the causal structure of the problem must be understood. The fundamental cause of a problem, not a symptom of the problem, must be understood. If the causal structure of the problem is not understood, the policy maker might solve the wrong problem (Peters and Pierre, 2003:208). Secondly, the implications of the problem must be specified and even quantified. The reason for these is that if the implications of the problem are less costly than the cost of the programme, the policy will need to be reviewed (Peters and Pierre, 2003:208). Lastly, there must be

an understanding of what really caused the problem. If there is no agreement on a problem, a false problem may be solved (Hogwood and Gunn, 1984: 196). Failure to understand the fundamental cause of the problem is the primary cause of most policy failures (Hogwood and Gunn, 1984: 196).

Policy problem definition is one of the critical stages of the policy making process. Policy definition stage is important since it is the stage where the government of South Africa has to clearly define what problems it intends to address with the introduction of the South African Agricultural Technology Demonstration Centre. Should the government fail to define a correct policy problem, the adopted policy will fail. The failure to define the problems faced in the South African Aquaculture Sector will mean that the government will be wasting resources provided by the Chinese government.

4.3.2 Policy formulation

Policy formulation refers to the development of policy alternatives for dealing with problems on the public agenda (Dye, 1995:305). Roux and Cloete (2011:99), referred to the policy formulation stage as policy design. The policy design stage involves developing a plan of action, which means planning and development of a policy content. Developing policy content includes goals and objectives setting, prioritization, options generation and assessment (Roux and Cloete, 2011:104). Once the policy makers set policy goals and objectives, the next step in the policy cycle is to identify alternative policy programmes and strategies to attempt to achieve the set goals and objectives (Roux and Cloete, 2011:104).

When evaluating policy alternatives, policy makers should predict and analyse the consequences of each identified alternative to determine how completely they will accomplish the goals they are designed to meet (Edwards and Sharkansky, 1978:170). This will involve an assessment of the state's capacity to implement policy options and an assessment of the possible outcomes and outputs of each policy alternative.

According to Roux and Cloete (2011: 115), it is only through policy option generation that the cost-benefits and cost-effectiveness of policy alternatives can be determined in order to find the best policy option available under particular circumstances. According to Quade (1975:117), in most cases, the generation of alternatives directly relates to organisational goals and objectives. States have multiple foreign policy goals, therefore policy makers must determine which goal is affected by the international and domestic political environment at any given time.

It is important when analysing or examining alternatives to take into consideration both the political and economic feasibility of the alternative. An alternative becomes realistic if it squares with reality (Quade, 1975:121). Policy makers will decide among the identified alternatives. Policy makers usually consider many alternatives for a given problem situation, but only a viable course of action that is feasible, realistic and sufficient is selected (Roux and Cloete, 2011: 115). An alternative becomes feasible if an action is not just possible, but also has a reasonable chance of success.

There are a number of techniques or methods that enable the policy-makers to decide on the best policy options or alternatives. These are cost-benefit analysis, cost-effectiveness analysis and the costs-feasibility analysis. Firstly, the cost-benefit analysis should be conducted. Cost-benefit analysis refers to the tools and procedures applied to determine whether a proposed public investment is worthwhile to be implemented (Kingston, 2001:478). Dunn (1994: 294) defines cost-benefit analysis as an approach to policy recommendation that permits analysts to compare and advocate policies by quantifying their total monetary costs and total monetary benefits. The costs-benefit analysis involves comparing options in terms of all their costs and benefits, both direct and indirect, both financial and social (Hogwood and Gunn, 1984: 185). Costs-benefit measures both intangible as well as tangible costs and benefits of the programme (Dunn, 1994: 294). "Tangibles" are costs and benefits that are directly measurable in terms of known market prices for goods and services. "Intangibles" refer to those costs and benefits that are indirectly measurable in terms of estimates, such as the market price (Dunn, 1994: 294).

According to Brzozowska (2007:78) a comprehensive cost-benefit analysis consists of three main steps including:

- a) Identification of all the factors (favourable and unfavourable), which flow into community because of the proposed project.
- b) Financial valuation of costs and benefits.
- c) Choice of the best alternative with net social benefit, which means a surplus of total benefits in relation to total costs.

The process of conducting the costs-benefit analysis is also important in the foreign policy. Costs-benefit analysis can assist policy makers in ensuring that best policy options are adopted.

Secondly, a cost-effectiveness analysis can be conducted. Cost-effectiveness analysis in simple terms refers to the evaluation of alternatives according to their costs and their effects based on producing some outcomes or set of outcomes (Roux and Cloete, 2011:114). Furthermore, Roux and Cloete defined cost-effectiveness analysis as a technique used to measure benefits in some physical units. Cost-effective analysis may also be referred to benefit-cost analysis without monetary valuation of program output (Report by the Treasury Board of Canada Secretariat, 2007:28). According to the report by the Treasury Board of Canada Secretariat (2007:28), in the event whereby benefits cannot be expressed in monetary values in a meaningful way, a cost-effectiveness analysis should be carried out to assist in making effective decision. The costs-effectiveness analysis calculates ratios of different alternative policy options and then compares the resulting ratios so that the most efficient option can be chosen.

According to Thompson (1980:226), cost-effectiveness analysis is based on evaluating decision alternatives, firstly, by making all effects commensurable in terms of money or of one unvalued output unit, and secondly, by comparing these dimensions of impact.

Lastly, a cost-feasibility analysis can be applied. According to Roux and Cloete (2011:114),“cost feasibility analysis, only determines the costs of alternatives without

doing any further analysis to ascertain whether or not a particular alternative option can be considered”.

After the possible options or alternatives have been identified, the best option or alternative will be selected. The option that would be selected is the one that will best meet the interests of the policy-makers.

Policy-makers have the responsibility to find better the ways to develop and select goals that are in the public interest. They must find better ways to design and choose alternatives to achieve their goals. Policy-makers must also find a better ways to ensure that selected alternatives are implemented properly. Policy alternative analysis is followed by a policy design. Roux and Cloete (2011:99), defined policy design as what the government decides to do, or not to do, in order to counter a perceived policy problem. Policy design process includes the planning and development of policy content. According to Roux and Cloete (2011:99), the policy design process comprises the conversion of mainly intellectual and financial resources into a plan of action, including goals and objective setting. Foreign policy is made and implemented within an international and domestic political context, which must be understood by policy-makers in order to determine the best foreign policy options which are in line in domestic needs, as well as addressing domestic priorities.

The adopted policy should be able to address problems identified in the South African aquaculture sector. In the policy formulation stage, the governments of South Africa and China have to clearly define goals and objectives of the SAATDC bilateral agreement.

4.3.3 Policy implementation

Policy implementation will be the core emphasis of this research. Once the policy-makers have identified the best options amongst all the available options or alternatives, the next stage will be to implement the identified option. Policy implementation can be

defined as the execution and steering of policy actions over time (Dunn, 1994:85). Policy implementation comprises all the steps needed for a policy to be implemented.

Gerston (1997: 96) defines policy implementation as the process of converting new laws and programmes into practice or reality. According to Fesler and Kettl (2007:30), the role of public administration is to translate the print of statute books into changed behaviour by individual members of society, to convert words into action, form into substance. It is important to note the fact that there is often the existence of a substantial gap between the passage of new law or policies and their application (Gerston, 1997:96). Gerston (1997:96), further states that this gap can cause havoc in the policy making process particularly in the implementation stage. Policy implementation focuses on what happens to a policy or programme after it has been formulated (Birkland, 2001:177). In this regard, policy implementation is concerned with the operationalisation of a bilateral agreement or policy after it has been formulated and agreed on. Furthermore policy implementation involves a number of decisions or actions. Policy implementation requires positive cooperation from all persons and requires others to refrain from opposing its enactment or implementation (Steiss and Daneke, 1980: 193).

Furthermore, policy implementation involves a number of decisions or actions. For the policy to be implemented, there are number of important aspects that need to be taken into account by the policy makers. Brynard, Cloete and de Coning (2011:145) have identified the so-called 5-C protocol which will be discussed in detail in the subsequent sections. The 5-C protocol refers to *content, context, commitment, capacity, and client and coalitions*.

“*Content* is based on the description of the policy. It describes whether the policy is distributive, regulatory or redistributive. *Context* is based on the programme theory. *Commitment* in this regard refers to the willingness by those responsible for policy implementation to do what it expected from them willingly and accordingly. *Capacity* is two-dimensional. Firstly, there is capacity in terms of material resources to implement the policy. Secondly, there is capacity in terms

of man power, which means skills and knowledge from the policy implementers. *Client and Coalition* are based on cooperation between interest groups, opinion leaders, and outside actors who actively support a particular implementation process” (Brynard *et al*, 2011:147).

For the purpose of this research, policy implementation can be defined as the process of translating a bilateral agreement into reality. Policy implementation forms the core of this research and will be discussed in detail in chapter five.

4.3.4 Policy monitoring

Dunn (1994:18) refers to monitoring as the policy analytic procedure used to produce information about the causes and consequences of public policies. Monitoring has a number of functions that it has to serve, being compliance, auditing, accounting and explanation:

- a) Compliance:** Policy monitoring assists in determining whether the actions of programme administrators, staff, and other stakeholders are in line with the standards and procedures as required by the policy makers.
- b) Auditing:** The function of monitoring with regard to auditing is based on providing information about whether services have reached the targeted population.
- c) Explanation:** With regard to explanation, the main function of monitoring is to provide information about why the policy outcomes are different from what was expected (Dunn, 1994:18).

Monitoring is important since through it, one can ensure that policies are properly implemented. Monitoring can serve as a control measure.

4.3.5 The policy evaluation

Policy evaluation is the stage of a policy-making process, whereby the policy-makers gather information to determine the effectiveness of their decision (Kraft and Furlong, 2007:84). If an implemented policy fails to resolve the identified problems, the policy makers will have to ask why the policy has failed. The policy makers have to ask themselves the following questions:

- a) Is it the wrong option or alternative that was selected?
- b) Did the policy failed because it was a wrong policy or was the policy implemented improperly?
- c) Was the fundamental cause of the problem known?
- d) Was the original problem identified incorrectly?
- e) Was there enough time to allow the implementation process (Hogwood and Gunn, 1984:196)?

Through evaluation, the performance of the policy can be known (Gatewood, Taylor, and Ferrell, 1995:309). Policy evaluation shows the extent to which policy achieved its desired goals and objectives.

4.3.6 Termination or alteration of the programme

Zhang (2009:98) defines policy termination as a kind of action taken to bring the outdated, redundant, unnecessary or inefficient policy to close. According to Hogwood and Gunn (1984:196) policies are generated approaches or strategies for solving a particular problem that have been identified, and once the problems have been solved, it becomes necessary for the policy to be terminated, or make some alterations to it.

According to Geva-May (2004:309), policies and programmes should be terminated once they have outlived their usefulness or become hopelessly inefficient or ineffective. This takes place because problems are not static but change with the situations. There would be a time where policy becomes irrelevant to newly arising problems. The

changes in the nature of problems make policies more vulnerable to termination, particularly if their underlying theory or approach is no longer considered legitimate or fashionable (Hogwood and Gunn, 1984:196). For the purpose of this research, the policy termination stage will not be reflected on, as these programmes are ongoing.

4.4 Forms of policy analysis

Policy analysis has three forms. They are *prospective*, *retrospective* and *integrated* forms of policy analysis. All these forms of policy analysis are equally important. For the purpose of this research, *integrated* policy analysis will be applied (discussed below). The *integrated* implementation analysis will be applied due to the fact that the implementation of the South African Agricultural Technology Demonstration Centre is ongoing and research for this study will be completed before the actual project is completed. Policy analysis is a helpful and essential part of policy-making. It can improve the effectiveness and efficiency of the policy by providing policy-makers with the policy relevant information (Quade, 1975: 4).

4.4.1 Prospective policy analysis

Prospective policy analysis refers to the production and transformation of information before policy actions are implemented (Dunn, 1994:76). Prospective policy analysis is important since it can serve as the guideline regarding decision making on alternatives available to the policy makers. A prospective policy analysis takes place before policies are implemented which means information about best policy alternatives can be generated in advance so that the best option can be selected and implemented.

4.4.2 Retrospective policy analysis

A *retrospective* policy analysis refers to the production and transformation of information after policy actions have been implemented (Dunn, 1994:77). Retrospective policy analysis is more on the study of causes and consequences of public policies. A

retrospective policy analysis mainly focuses on the impact and understanding of public policies, and not solutions for specific political problems. With the retrospective policy analysis all information about the impact of the policy on the target population can be generated.

4.4.3 Integrated policy analysis

Integrated policy analysis is the combination of both prospective and retrospective policy analysis. An integrated policy analysis consists of all the methodological advantages of prospective and retrospective analysis but does not include their weakness (Dunn, 1994: 79). Integrated policy analysis furthermore provides for the continuous monitoring and evaluation of policies in the process of implementation. For the purpose of this research, the integrated policy analysis would be applied due to the fact that the implementation of the South African Agricultural Technology Demonstration Centre bilateral agreement is ongoing and the research will be completed before the project is completed.

4.5 The reasons for undertaking a public policy analysis

There are a number of reasons why public policy analysis is undertaken. These reasons are scientific, professional, and political reasons.

- a) **Scientific reasons.** The aim of undertaking public policy analysis for scientific reasons is to determine the causes and results of particular policy decisions in order to extend knowledge to society (Dye, 1995: 4).

- b) **Professional reasons.** Public policy analysis can be undertaken for professional reasons with the intention of having a better understanding of social issues (Roux *et al*, 1997: 149). This research will be conducted mainly for professional reasons. The implementation analysis of the Economic and Technical Cooperation Agreement in the case of the construction of the South African Agricultural

Technology Demonstration Centre to which South Africa is signatory, will be conducted for *professional* reasons.

c) Political reasons. In this regard, policy analysis is conducted to ensure that political objectives are achieved. Policy analysis, in this context is based on ensuring that policies are directed at ensuring that the ruling party is following relevant or meaningful policy initiatives in order to realise its desired objectives (Roux *et al*, 1997: 149).

For the purpose of this research, an analysis will be conducted for the *professional* reasons. It is expected that the research will firstly, provide implementation analysis of the South African Agricultural Technology Demonstration Centre by examining variables that are likely to affect the implementation. Secondly, the research is conducted for the purpose of conducting implementation analysis of the South African Agricultural Technology Demonstration Centre.

4.6 The role players in the policy making process

The role players refer to those who are involved in the policy-making process. There are two types of role players, namely: official and unofficial policy makers. The official policy makers refer to those persons who have the legal authority to formulate public policy, and unofficial policy-makers are those that have no legal authority to make public policies (Roux *et al*, 1997:146).

4.6.1 Official policy makers

The official policy-makers refer to those that possess legal authority to engage in the formulation of a public policy (Roux *et al*, 1997:146). These official policy-makers include amongst others legislators, executives and administrators. Anderson (2011:48) furthermore elaborated that there are primary and supplementary policy makers. The

primary policy makers are those that have direct constitutional authority to act, for example via legislative authority.

The supplementary policy-makers are those that do not have any legal authority to act. For them to act, they must firstly obtain authority to act from others particularly primary policy makers (Anderson, 2011: 59). A good example of supplementary policy-makers in South Africa is administrative authorities. They do not have any legal authority without prior authorisation by the executive authority, which derives its authority from the legislative authority. The detailed role players in the process of policy making will be discussed below.

4.6.1.1 The executive as the role player in policy-making

The government is the main source of the South African foreign policy. Policy-making is the work of the government. According to Landsberg (2013:243), the presidency is the epicenter of foreign policy formulation. The major responsibility in policy-making lies on the president, cabinet and the legislature. The executive's work seems to be prominent with regard to taking of policy decisions. The executive authority serves as a link between the legislature and the administrative executive institutions (Cloete, 2012:62). The major responsibility of the executive authority is to pass on to the legislative authority firstly, the values, views, and objectives of the political party, or party responsible for administrative executive institutions. Secondly, they have the responsibility to implement views, proposals, strategies, plans, and programmes (Cloete, 2012: 62).

The head of government always plays a prominent role in policy-making. His/her cabinet consists of office-bearers who are in daily contact with the officials of their departments, who formulate overall policy of the country (Landsberg, 2013:243). Ministers as heads of departments gauge the feelings of the citizens and then take these into consideration when formulating their policies. It is very important for the

executive authority to approve the budgetary proposals before they are introduced in parliament or provincial legislature (Cloete, 2012: 64).

According to the Constitution of the Republic of South Africa, 1996, Section 83, the executive authority of the Republic is vested in the president. The president exercises the executive authority, together with the other members of the Cabinet, by:

- a) Implementing national legislation except where the Constitution or an Act of Parliament provides otherwise;
- b) Developing and implementing national policy;
- c) Coordinating the functions of state departments and administrations;
- d) Preparing and initiating legislation; and performing any other executive functions and
- e) Performing any other executive functions (Constitution of the Republic of South Africa, 1996: Section 84).

In South Africa, the major responsibility in policy-making lies with the President, and his/her cabinet. The President is responsible for the international relations policy and international relations of South Africa. It is important to note that it is the prerogative of the President to appoint Heads of Mission, to receive International Relations Heads of Mission, to conduct state-to-state relations and to negotiate and sign all international agreements (Constitution of the Republic of South Africa, 1996: Section 84).

According to the Department of International Relations and Cooperation (DIRCO), Strategic Plan (2007-2010:3), international agreements which are not of a technical, administrative or executive nature will only bind the Republic after being approved by Parliament. Furthermore, parliament approves ratification or accession of the Republic to multilateral agreements.

According to DIRCO's Strategic Plan (2007-2010:3), all international agreements must be tabled in Parliament for information purposes. The Minister of International Relations

and Cooperation, in accordance with his/her Cabinet portfolio responsibilities, has been mandated with the responsibility of formulation, promotion and execution of South Africa's international relations and cooperation policy in consultation with the President. The Minister of International Relations and Cooperation also advises the Presidency and Ministers on international matters in which they should be involved. Other Cabinet Ministers are obliged to consult with Minister of International Relations and Cooperation on their international role. In order to enhance interaction and collaboration, government has implemented the system of Clusters at both Ministerial and Departmental levels.

According to the DIRCO's Strategic Plan (2007-2010:3), the Department of International Relations and Cooperation's mandate is to work for the realisation of South Africa's International Relations policy objectives. Furthermore DIRCO has a mandate to assist the Minister in carrying out her cabinet and Ministerial responsibilities. The Department conducts its mandate by:

- a) Monitoring developments in the international environment;
- b) Communicating government's policy positions;
- c) Developing and advising government on policy options;
- d) Providing mechanisms and avenues for achieving South African government foreign policy objectives;
- e) Protecting South Africa's sovereignty and territorial integrity; and
- f) Assisting South African citizens abroad; and by assisting partner Departments in navigating complex international dynamics (DIRCO Strategic Plan, 2007-2010:3).

The Economic and Technical Cooperation Agreement serves as the basis or the framework of the South African Agricultural Technology Demonstration Centre. In February 2007, the government of South Africa and China signed the bilateral agreement on Economic Technological Cooperation.

As part of the implementation of the above mentioned bilateral agreement action plan, the two governments through Ministries of Agriculture of both countries agreed that the

Chinese Government will build an Agricultural Technology Demonstration Centre (ADC) in the field of Aquaculture at Gariep Dam, Xhariep District in Free State Province as an aid project. With regard this bilateral agreement, the DIRCO played a facilitating role. The key players the formulation of the bilateral agreement were the respective Ministries of Agriculture of South Africa and China.

4.6.1.2 The legislature as a role player in policy-making

The major role of the legislative authority is to legitimise policies (Cloete, 2012:16). The legislative authority is made up of representatives elected by the voters (Cloete, 2012:16). In South Africa, the legislature plays a limited role in the foreign policy development. The role of legislature in South Africa is limited to ratification of international agreements and oversight of the executive (Landsberg, 2013:243). Despite its limited role, the legislature plays in the process of foreign policy making, the legislature plays a very important role as it is directly accountable to the people of South Africa. The legislature has the power to question policy decisions taken by the executive authority.

4.6.1.3 South African Government Clusters

The clusters of government departments have been expanded from five to seven. The clusters were established to foster an integrated approach to governance that is aimed at improving government planning, decision making and service delivery. The main objective of the clusters was to ensure proper coordination of all government programmes at national and provincial levels.

The main functions of clusters were to ensure alignment of government-wide priorities, facilitate and monitor implementation of priority programmes, and provide a consultative platform on cross-cutting priorities and matters being taken to Cabinet. According to the GCIS, (2012) the main relevant South African government clusters are as follows:

- a) **The Infrastructure Development Cluster.** Ministries falling in this cluster include, among others, Communications, Cooperative Governance and Traditional Affairs, Economic Development, Energy, Finance, Human Settlements and Public Enterprises.

- b) **The Economic Sectors and Employment Cluster** which include Agriculture, Forestry and Fisheries, Communications, Economic Development, Finance, Higher Education and Training, Labour, Mineral Resources, Public Enterprises, Rural Development and Land Reform, Science and Technology, Tourism and Trade and Industry.

- c) **The International Cooperation, Trade and Security Cluster** which include ministries such as Defense and Military Veterans, International Relations and Cooperation, Finance, State Security, Tourism, Trade and Industry and Water and Environmental Affairs. The International Cooperation, Trade and security Cluster is one of the government cluster that plays an important role in the South African foreign policy.

The key performance areas of the The International Cooperation, Trade and Security Cluster include the following:

- a) Facilitating integrated policy development by the International Cooperation, Trade and Security Cluster departments. Overall, it is also responsible for policy co-ordination and alignment of policy and budgetary processes;
- b) Monitoring and evaluating the implementation of Government policies and programmes pertaining to international relations, trade and peace and security;
- c) Providing research, analytical and advisory services to the Political Principals in the Presidency; and
- d) Facilitating inter-departmental co-operation and co-ordination in international relations and trade (GCIS, 2012).

The International Cooperation, Trade and Security Cluster has the responsibility to advise the government on issues related to South African foreign policy.

4.6.2 Unofficial policy-makers

Unofficial policy-makers have no legal authority to make binding policy decisions. The unofficial policy-makers include amongst others, interest groups, political parties and individual citizens (Roux, *et al*, 1997:146). It is important for the officials to take into consideration the influence of interest groups in the process of policy-making. In a democratic country like South Africa, interest groups play a significant role in the process of policy-making and implementation. Interest groups are the most commonly known unofficial participants in the process of policy-making.

4.6.2.1 Interest groups

Individuals must be motivated to collaborate with others before they can be effective in influencing the government decisions. Diverse interest groups articulate different points of views and present alternatives for policy action (Birkland, 2001:83). Interest groups play a very important role with regard to supplying public officials with policy related information, often of a technical sort, concerning the nature and possible consequences of policy proposals. The interests group's main function is to unify people with similar policy goals into a single group and then to make their goals known to public agencies making decisions in the area of concern (Klingner, 1983:44). The effectiveness of the interest group is measured according to their success in terms of getting favourable government decisions (Birkland, 2001:83). There are a number of factors which determine the effectiveness and the influence interest groups can have in the process of policy-making.

4.7 The factors influencing policy-making

A policy cannot be static but must be dynamic in nature. There will always be some continual changes to government policies. The policies must at all times be perceptive to the environment within which they operate. A policy needs to be reconsidered, and if necessary, changed on a continuous basis. These factors have to be taken into account when making a policy changes. The main factors that influence policies are described below.

4.7.1 Circumstances

Aspects like international relations, technological development, population increase and urbanisation of population, crises, natural disasters, war and depression, economic and industrial development have an influence on policies (Cloete, 2012:132). According to Cloete (2012:132) international relations has an influence on national policy of each state, because states are mutually dependent on each other. The government has to make policy changes on a continuous basis so that they can adapt to the changing world (Cloete, 2012:132).

4.7.2 The needs and expectations of the population

According to Cloete (2012:146), public institutions are established to serve the needs and expectations of the people. Public policies are formulated to satisfy needs of the people (Cloete, 2012: 146). The needs of the people are not static. It is important to note that all public institutions exist to serve the needs and expectations of the people. This indicates that, the needs of the people play a significant role in relation to policy making.

4.8 Conclusion

This chapter has proved that both foreign policy and public policy constitute public policy since they both involve the authoritative allocation of resources and promotion or protection of values through governmental institutions and processes. Therefore because foreign policy is what public administrators implement, it cannot be separated from public policy itself.

Chapter five

Overview of the implementation of the South African Agricultural Technology Demonstration Centre bilateral agreement

5.1. Introduction

This chapter is based on the implementation analysis of the South African Agricultural Technology Demonstration Centre bilateral agreement between South Africa and China. The South African government has entered into numerous bilateral policy agreements with the government of China. In this chapter, the researcher provides a detailed discussion on the research objectives. The chapter also looks at the significance of the SAATDC bilateral agreement. The benefits of the SAATDC bilateral agreement were two dimensional. Firstly, there are the skills transfers during the construction and secondly, there are the post-construction skills and technology transfer.

This chapter further provides an overview of whether the SAATDC programme was in line with South Africa's domestic priorities. In this regard the researcher will provide an overview on whether this bilateral programme will make any significant contribution towards South Africa's aquaculture sector development. This chapter also provides an overview on whether the SAATDC bilateral agreement was fully exploited for the benefits of the local specialised workforce such as artisans, engineers and project managers in line with South Africa's skills shortage and demands.

5.2 Overview of the implementation of the South Africa-China bilateral agreement on the South African Agricultural Technology Demonstration Centre

In this section, the researcher provides an overview on the implementation of the SAATDC. The implementation stage is the most important stage in the policy process. It is this stage that determines whether the policy will succeed or not. According to the

Free State Provincial Government Media Statement (27 October 2009), the ground-breaking ceremony of the South African Agricultural Technology Demonstration Centre took place on 27 October 2009 at Gariiep fish hatchery Dam.

To mark the implementation of the bilateral agreement on SAATDC, the sod-turning ceremony of the centre was attended by His Excellency Ambassador of China, Mr Zhong Jianhua, and General Manager of China National Agricultural Development Corporation (referred to as "CNADC") Mr Liu Lianjun. From the South African government, the ceremony was attended by the Minister of Agriculture, Forestry and Fishery Ms Tina Joemat-Pettersson, and Free State Premier ES Magashule (Free State Provincial Government Media Release, October 23 2010).

The implementation of the bilateral agreement on SAATDC was intended to take place in two phases. The first phase was the construction. During this phase China was responsible for conducting a professional study, developing a project design and construction of the project. The Chinese government also carried all the costs thereof. The South African government mainly provided formal documents and assistance with customs clearance and duty exemption.

The second phase is expected to take place over a period of three years, from 2013 to 2015. During this phase, it is expected that the Chinese government will appoint a management team to manage the operation of the project as well as aquaculture experts to train the local farmers. The South African government will appoint an assistant to manage the project and technicians involved in the project. The second phase of the project will also be financed by the Chinese government.

5.3 Implementation analysis of the South African Agricultural Technology Demonstration Centre bilateral agreement

In responding to this research question, the researcher followed a descriptive theory and applied Hogwood and Gunn's suggested pre-conditions of policy implementation. The content of the SAATDC bilateral agreement was analysed applying the said pre-conditions of policy implementation.

In order to simplify the content analysis of the SAATDC bilateral agreement, the researcher developed themes as the sub-objectives of the research in line with the Hogwood and Gunn's suggested pre-conditions of policy implementation. These themes enabled the researcher to investigate how best the SAATDC bilateral agreement met necessary pre-conditions of policy implementation. The themes or sub-objectives developed to analyse the content of the SAADTC include:

- a) To examine whether the implementing agencies, China National Agricultural Development Group Corporation (CNADC) and the Free State Provincial Government (FSPG) together with the Department of Agriculture Forestry and Fisheries (DAFF) were adequately prepared to deal with external challenges that could have influenced the implementation of the SAATDC bilateral agreement.
- b) To assess whether the implementation agency (CNADC, FSPG and DAFF) have adequate political support (cabinet).
- c) To investigate whether the CNADC, FSPG and DAFF have adequate financial resources to implement the SAATDC bilateral agreement.
- d) To explore whether the CNADC have administrative capacity to implement the SAATDC bilateral agreement.
- e) To explore whether the objectives of the SAATDC bilateral agreement were clearly defined.
- f) To examine whether the tasks were clearly specified in the bilateral agreement.
- g) To investigate whether there was an understanding on the problems South Africa has in the aquaculture sector or problems that need to be resolved.

- h) To investigate what was the extent of dependency of the implementation agency on other agencies (government departments).

According to Hogwood and Gunn (1984: 199), these identified factors are important in the implementation of the policy. Once these preconditions are met, the chances of having successful implementation of a policy are high. These themes of sub-objectives are discussed in detail below.

5.3.1 Overview of the extent to which the CNADC, FSPG and DAFF were prepared to deal with external challenges that could have affected the implementation of the SAATDC

According Hogwood and Gunn (1984:199), some obstacles to the implementation of policies are beyond the control of the administrating agencies. Hogwood and Gunn also cited that such factors may be physical or political. In this regard two aspects would be looked at firstly, the level of political support to the implementation of the policy, and secondly, external circumstances or environmental factors that could have influenced the implementation of the SAATDC bilateral agreement.

5.3.1.1 Did the implementation agency have adequate political support (cabinet)

Beyond the material and structural aspect of policy implementation, a policy needs a periodic political boost to maintain its visibility and relevance in a changing socio-economic climate. A policy may establish the basic structure under which the politics of implementation take place. However there will always be a need for constant or periodic infusion of political support to override competing agendas. Kraft and Furlong (2007:7), further notes “that politics exerts influence on the policy making process in part because elected officials must try to anticipate how their policy statements and actions might affect their chances for re-election”.

The CNADC was mandated by the Chinese government and the South African government to construct the South African Agricultural Technology Demonstration

Centre, in Gariiep Dam which is used as an Aquaculture Demonstration Centre, implemented in terms of the bilateral policy on Economic and Technical Cooperation signed by the two Governments in February 2007.

The level of political support for the establishment of the SAATDC was reflected by the maintenance of frequent exchanges of high level visits and the strengthening of the high level dialogues and consultation between the two governments. Since the signing of the agreement, there have been a number of high level engagements which kept the SAATDC on the agenda. Some of the high level engagements related to the implementation of the SAATDC bilateral agreement include:

- a) According to the Department of Agricultural Forestry and Fisheries General Submission (2009:1), from 1st – 8th June 2007, the Chinese Government sent a team, including the officials from Ministry of Commerce and Ministry of Agriculture, experts from the China Aquaculture Institution and China Agriculture Academy, to conduct a feasibility study of the project. In June 2008, the South African team and CNADC signed the agreement of the project implementation plan.
- b) The Minister of DAFF Ms Tina Joemat-Pettersson and the Chinese-Vice-Minister Mr Wei Chao'an met in South Africa, on 24 October 2010 to assess the progress made on the implementation of the SAATDC.

In short, the above mentioned commitments and the level of engagements reflect the extent of political support the SAATDC agreement had from South Africa and China. Beyond the material and structural aspect of policy implementation, the SAATDC also received periodic political boosts to maintain its visibility and relevance in a changing socio-economic climate.

The Economic and Technical Cooperation Agreement was signed during President Hu Jintao of China's state visit to South Africa from 6-8 February 2007 (Naidu, 2008:173). The level at which the Economic and Technical Cooperation Agreement was signed indicates the extent of political support infused in the implementation of the agreement.

To further highlight the extent of political support on the implementation of the South African Agricultural Technology Demonstration Centre, during the FOCAC ministerial summit, the African countries and the Chinese government reaffirmed their commitment to the policy. Africa and China commended Africa's efforts in embracing a growth-oriented agricultural agenda through the Comprehensive African Agricultural Development Program (CAADP) aimed at increasing agricultural growth rates. Africa and China pledged to maintain and strengthen cooperation in agricultural infrastructure, grain production, breeding industry, exchanges and transfer of practical agricultural technologies, and in processing, storage and transportation of agricultural products.

During the 2009 FOCAC Ministerial Summit, the Chinese government reiterated its support for the SAATDC when it committed to provide the following (FOCAC Action Plan, 2009:3):

- a) In the course of the three years (between 2010 and 2012), to send 50 agricultural technology teams to Africa to train 2,000 agricultural technicians.
- b) The Chinese government also committed to increase the total number of agricultural technology demonstration centres built for African countries to 20.
- c) The pledge was made to continue managing the agricultural technology demonstration centres already built to run effectively. The centres would carry out experiments, demonstration projects, and training programs in crop seed selection, farming, fish breeding and animal raising.

The progress made on the implementation of the South African Agricultural Technology Demonstration Centre was constantly reviewed and re-prioritised both at the multilateral level as well as bilateral level. The South Africa-China Bi-National Commission was one of the political structures where progress made in terms of bilateral project was reviewed, at the deputy president level.

5.3.1.2 What measures were put in place to deal with external circumstances?

The external circumstances to the implementing agency needed to be carefully attended to during the implementation of the policy. Circumstances like technological development, population increase and urbanization of population, crises, natural disaster, war and depression, economic and industrial development have an influence on policies (Cloete, 2012:132). The government has to make policy changes on a continuous basis to be on equal footing with the changing world (Cloete, 2012:132).

This section seeks to examine whether the two governments introduced measures to deal with external circumstances beyond the implementing agency, which is the China National Agricultural Development Group Corporation. Bates and Eldredge (1980:45), refer to the considerations of external forces as "environmental analysis". They further view the environment as critical in identifying the challenges and opportunities that will shape policy and strategy over the long-term due to the fact that they destroy and create opportunities. External factors play a significant role towards the success or failure of a policy or programme (Hogwood and Gunn, 1984: 199). According to Rossi and Freeman (1989:233), social programmes operate in environments in which ordinary or natural sequences of events influence outcomes. Environmental analysis is important in the sense that it increases the reaction time which will enhance intelligent planning that will increase the probability of avoiding errors of panic (Bates and Eldredge, 1980: 45). The implementation of the SAATDC bilateral agreement was not immune from the pressure emanating from the above mentioned external circumstances, therefore the governments of South Africa and China had to take these circumstances into account when formulating the SAATDC bilateral agreement.

With regard to the implementation of the bilateral policy or agreement on SAATDC, the two governments introduced measures mentioned below, to deal with the environmental factors that could have emerged during the implementation process. When implementing a policy, there was a need to consider the availability of space, facilities, and support services that may be difficult to obtain, which also falls within the external

factors that could have affected, or influenced the implementation of the bilateral policy or agreement on SAATDC.

To ensure successful implementation of the SAATDC bilateral agreement, the implementing agencies introduced a number of measures to deal with environmental factors that could have affected or influenced the implementation of this bilateral policy. Measures agreed on included the following:

- a) The South African government appointed a South African assistant to assist the CNADC technical team with project construction.
- b) South Africa was tasked to handle problems that arise during the construction period.
- c) South Africa handled employment and dismissal of local workers.
- d) South Africa settled conflicts among the workers and assisted in case of accidents.
- e) South Africa was tasked with assisting the Chinese with matters related local authorities, organisations and individuals.
- f) South Africa was tasked to ensure health and safety and property protection of the CNADC staff dispatched during their work in South Africa. In this regard the South African government had to provide enough armed guards at the project site when necessary. In case of injury or death of the Chinese staff in the construction site, caused by violence, the South African government handled cases according to the local laws and regulations (SAATDC Agreement, 2009:4).

The Chinese government appointed the CNADC to implement the SAATDC bilateral agreement on its behalf. All the allocated funds to run the project were issued to the CNADC for construction. According to a report by the African Agricultural Technology Foundation (2009:27), China pursues technical cooperation with Africa in agriculture and rural development through quasi-government agencies (which was also the case in South Africa).

5.3.2 Did the implementation agency have adequate financial resources to implement the SAATDC?

This section examines whether the implementing agency had sufficient financial resources to allow the successful implementation of the policy. According to and Kettl (2007:291), resources, both in terms of funds and skilled personnel, are often inadequate for the implementation of government programmes. Human capacities are crucial in ensuring successful policy or programme implementation. In most cases, policies that have been developed without taking into account institutional and human-resource constraints are more likely to encounter difficulties during their implementation.

Financial resources were critical to the implementation of the South Africa–China bilateral programme on the SAATDC. Without funds, staff cannot be hired, and implementation cannot take place. Inadequate funding can doom a policy programme before it gets implemented. According to Gerston (1997:104), only adequate financial resources or funding allows for making long-term plans, staff appointments, policy operationalisation, and completion of policy objectives. Kraft and Furlong (2007:83), state that all government agencies and programmes depend on a continuing supply of funds to operate and carry out the various activities of policy implementation.

Before a policy or programme is implemented, there must be adequate resources, otherwise the policy will fail. There must be adequate funds to ensure effective implementation of the policy or programme (Hogwood and Gunn, 1984: 200). Programmes or policies that require a long period of implementation are costly, and it is therefore, necessary to have contingency measures to address shortage of funds. The Chinese government has offered an amount of 30 Million Chinese Yuan (equivalent to R33 Million) for the construction of the Agriculture Demonstration Centre in Xhariep District, Free State Province.

The implementation contract clearly stipulates contingency measures to ensure availability of additional resources if required. This simply considers whether additional

funds will be available if required. The following measures were clearly stated in the contract:

- a) According to the implementation contract, the two countries agreed that if there was delay of the construction caused by the Chinese side, the newly added construction costs thereof would be borne by the Chinese side and the construction period would have been extended accordingly.
- b) Furthermore the two countries have agreed that in case of construction delay caused by the South African side, the South African government will be responsible for the costs and the project would be extended accordingly (SAATDC Agreement, 2009:9).

The above-mentioned contingency measures were agreed on when formulating the SAATDC bilateral agreement to ensure that the implementing agencies have adequate resources at their disposal. The shortage of resources could have affected or impacted negatively on the implementation of the South Africa-China bilateral policy on the SAATDC.

Financial resources were critical to the implementation of the SAATDC bilateral agreement. Financial resources were one of the important aspects that could have influenced the implementation of the SAATDC bilateral agreement, however since this aspect was addressed, the implementing agencies did not face any shortage of funds in the implementation of the first phase of the bilateral agreement. The absence of adequate funds could have undermined the objectives set by the two governments. It is important to take into consideration the fact that inadequate funding is a virtual guarantee of policy disaster at the implementation stage (Gerston, 1997:113).

5.3.3 Did the CNADC have administrative capacity to implement the SAATDC?

Capacity to implement policies or programmes is the most critical resource in the implementation of policies. One problem that is frequently encountered in policy implementation is the lack of adequate staff to the task, in terms of both numbers and skills (Edwards and Sharkansky, 1978:303). The policy or programme implementation orders can be clear, but if the personnel responsible for carrying out policy are insufficient or lack training or lack resources to effectively implement the programme or policy, the results will be disappointing (Winter, 2003 :205).

For the South African and Chinese governments to effectively implement the bilateral policy on the SAATDC there was a need for those who implemented the policy to have relevant skills. This section seeks to examine whether there were skilled and experienced people available in the South African Agricultural Technology Demonstration Centre implementation team.

Policy implementation cannot be successful, unless there is a good combination of resources. For the policy to be successfully implemented, management must develop or acquire and allocate the financial, physical, and human resources (Bates and Eldredge, 1980:3). It is important for the implementing agencies (particularly the implementing agency), to have skills on how the policy would be implemented. Capacity is important when coming to policy implementation. According to Brynard *et al* (2011: 148), capacity includes the intangible requirements of leadership, motivation, commitment, willingness, courage, and endurance to convert plans into actions.

The CNADC was mandated by the Chinese and the South African governments to construct the South African Agricultural Technology Demonstration Centre in the Gariep Dam. The CNADC, as a key the implementation agency, was a centrally controlled agricultural enterprise, under direct governance of the State-owned Assets Supervision and Administration Commission of the State Council (SASAC). The CNADC was founded in October 2004 upon the restructuring and merging of China National

Fisheries (Group) Corporation with China Animal Husbandry (Group) Corporation (www.cnadc.com.cn, 2010).

The CNADC employs 80,000 staff members, and it is estimated that 10,000 of its employees were working overseas. The CNADC holds 15 wholly owned or share-controlled subsidiaries, 3 publicly listed companies. Furthermore the business of CNADC is spread over to every province (autonomous region or municipality directly under the central government) of China (www.cnadc.com.cn, 2010).

The CNADC had established branches or bases in more than 40 countries around the world, and keeps economic and trade ties with over 80 countries (www.cnadc.com.cn, 2010). The CNADC had intangible requirements of leadership, motivation, commitment, willingness, courage, and endurance to change plans into actions which allowed it to effectively implement the SAATDC bilateral agreement. The CNADC had the mandate and support of the Chinese and South African governments. Looking at the background and experience of the CNADC, the researcher formed an opinion that the key actors or implementing agencies had the requisite knowledge and skills needed to fulfil the roles that they were supposed to play in the policy implementation process.

5.3.4 Was there, an understanding of the problems South Africa has in the aquaculture sector or problems that needed to be resolved?

According to Hogwood and Gunn (1984:201), policies sometimes fail, not because they are badly implemented, but because they are bad policies. Bad policies are those that are based on inadequate understanding of a problem to be solved. The failure to identify the real cause of the problem could lead to policy failure. The premise of both policy and theory must be compatible. According to Younis (1990:6), successful implementation is dependent upon the existence of valid causal theories about the problem that the policy intends to address. Policies which are not solidly based on scientific knowledge or experimental data will be likely to be called into question when they are given practical effect.

It is important for the policy makers as well as implementing agencies to have a good understanding of the fundamental cause of the problems that need to be addressed (Hogwood and Gunn, 1984: 196). Understanding the fundamental cause of the problem means that the policy makers will have an accurate theory of causation (Birkland, 2001: 189). Usually policies that are not based on accurate theory of causation are more likely to fail.

The SAATDC bilateral agreement sought to address challenges (skills and technology) faced by South Africa in the agricultural sectors specifically in the aquaculture sector. As indicated in Chapter three, across Africa there has been a phenomenal growth in aquaculture. Despite this phenomenal growth in global aquaculture, South Africa's contribution has remained disconcertingly low, accounting for less than 1% of the African aquaculture production (Department of Environment and Tourism, 2010: 1). The South African-China bilateral policy on the SAATDC was intended to support South Africa in addressing factors that contribute to South Africa's low production in aquaculture.

5.3.5 What was the extent of dependency of the implementation agency on other agencies (government departments)?

In order to have a successful policy implementation, there was a need for a minimal dependency relationship between the implementing agencies (CNADC, FSPG and DAFF), and other agencies (other government departments like the Department of Home Affairs (DHA) and South African Revenue Services (SARS)). According to Hogwood and Gunn (1984:202), once the number of influential agencies in the implementation process increases, the chances of having a successful implementation is reduced. If the implementing agencies are to depend on other agencies for the success of the policy implementation, this could reduce the effectiveness of the policy or programme.

It was therefore, important to examine the extent of dependency relationship, between the implementing agencies and other government departments in the implementation process of the bilateral agreement on SAATDC. Some of the government departments that played a significant role in the implementation of the South African Agricultural Technology Demonstration Centre included, the Department of Home Affairs (DHA), the Department of Agriculture Forestry and Fisheries (DAFF), Department of International Relations and Cooperation (DIRCO), Department of Trade and Industry (DTI), the South African Revenue Services (SARS), and the Free State Province.

a) Department of Home Affairs. In regard to the implementation of the SAATDC bilateral agreement, the DHA was responsible for the issuing of working permits to the Chinese nationals. In this regard, it means that if the DHA failed to issue work permits, the project would have been delayed. The mandate of the DHA is two-fold: Firstly, the DHA is custodian, protector and verifier of the identity and status of citizens and other persons resident in South Africa. Secondly, the DHA controls, regulates and facilitates immigration and the movement of persons through ports of entry (www.dha.gov.za, 2010).

b) Department of Agriculture Forestry and Fisheries. The South African Agricultural Technology Demonstration Centre contract was signed by the Department of Agriculture, Forestry and Fisheries under the umbrella of the Economic and Technical Cooperation Agreement. The Department of Agriculture, Forestry and Fisheries was responsible for facilitating exemption from all the import taxes and other levies on construction equipment material, machinery, traffic vehicles, oil, and fuel which were necessary for the project construction and on CNADC staff's daily necessities, medicines, office supplies and labour. It is the vision of DAFF to maintain a united and prosperous agricultural sector. In terms of its legislative mandate, DAFF is responsible for ensuring access to sufficient safe and nutritious food, maximising growth, employment and income in the agricultural sector, and enhancing the sustainable

management of natural agricultural resources and ecological systems (Department of Agriculture Forestry and Fisheries, 2010).

- c) **Department of International Relations and Cooperation** was responsible for overseeing the South African foreign policy and provided advice on the legal status of the agreement. According to the Department of International Relations and Cooperation Strategic Plan (2007-2010:3), all international agreements must be tabled in Parliament for information purposes.

- d) **Free State Province.** The Free State Province is the host of the South African Agricultural Technology Demonstration Centre. The agreement signed by the two governments also stipulated that the South African Government (which means the Free State Province), was responsible for removing and clearing all the existing structures within the boundary line of the project, including all the obstacles from the construction foot-print area. The South African government was obliged to level the ground at the construction site. Furthermore the South African government was expected to provide the sites for earth supply and dumping and provide organic substances used in soil improvement in the centre.

- e) **The South African Revenue Services (SARS).** The South African Revenue Services was responsible for waiving of import duties on all the Chinese consignments required for the construction of the South African Agricultural Technology Demonstration Centre. In this regard, it meant that if SARS failed to waive import duties on the Chinese consignments, implementation could have been affected. This would have meant that the South African government would have carried the costs of all Chinese consignments. In terms of its mandate, SARS is responsible for collecting revenue due, ensuring maximum compliance with tax and customs regulations and provide customs service that will maximise revenue collection, protect South African borders and facilitate trade (SARS Strategic Plan, 2011-2012: 10).

- f) The Department of Trade and Industry (DTI).** In terms of its legislative mandate, the DTI is responsible for providing leadership to the South African economy through its knowledge of economic opportunities and potential, and its contribution to ASGISA. Secondly, to respond to the challenges and opportunities in the economy and society. Lastly, to provide a predictable, competitive, equitable and socially responsible environment for investment, enterprise and trade. Furthermore, the DTI services include economic policy, legislation and regulation, finance and incentives, information and advice, and partnerships and investment strategies (www.thedti.gov.za, 2010).
- g) Chinese government.** The Chinese government was the project funder. The Chinese government appointed the China National Agricultural Development Group Corporation to implement the SAATDC bilateral agreement on its behalf. All the allocated funds to run the project were issued to the CNADC.

The above-mentioned departments were important for the success of the project which means the dependency relations were excessive, which could have affected the effective implementation of this bilateral policy between South Africa and China. These departments will still continue to play a role in the remaining phase of the project.

5.3.6 Were the objectives of the SAATDC clearly defined?

Firstly, it is important to examine whether the policy contained clear and consistent objectives and secondly, to examine whether there was an agreement on the objectives that needed to be achieved with the South African Agricultural Technology Demonstration Centre.

Bilateral policies between South Africa and China are often pieced together as coalition products, the result of intense negotiating and compromise between the two governments. According to Gerston (1997:114), based on the complex negotiations involved in the path to adoption of a new policy or agreement, the policy makers may

stress several goals simultaneously. The South African Agricultural Technology Demonstration Centre had two main goals firstly, the transfer of skills and secondly, technology transfer.

When implementing the bilateral agreement on SAATDC, there was a need to have clear and concise definition of policy objectives in the early stage which is important for policy implementation to be successful. Clear objectives help in ensuring that all policy stakeholders develop a common understanding of what the policy is intend to achieve and be committed to the same objectives.

It is important for the policy implementers to have an agreement on the objectives that are to be achieved with the implementation of the policy. There must also be a clear understanding of the objectives that are to be achieved (Hogwood and Gunn, 1984: 204). Policy objectives should not be too vague or too specific because they can hinder or adversely affect implementation.

The objectives of the South African Agricultural Technology Demonstration Centre were clear. This project was an upgrading or a revitalisation of the Xhariep Dam Fish Breeding Station of South Africa at an investment of about R33 million. South Africa and China hope to further strengthen cooperation in agricultural fields and promote bilateral economic development. The agricultural technology project by the Chinese government-funded construction intended to help local aquaculture sector in freshwater experimental aquaculture research and technology demonstration to carry out promotion and personnel training.

5.3.7 Were the tasks clearly specified?

It is important to examine whether tasks were clearly specified in the SAATDC bilateral agreement. For SAATDC bilateral agreement to be successfully implemented, tasks must be clearly defined. It is important to note that, if the roles were not carried out in the correct sequence the policy could fail. The SAATDC bilateral agreement clearly

indicated roles of all the role players in the implementation of the project or a policy. Roles were divided into the responsibilities of the Chinese and the South African governments which are specified below:

5.3.7.1 Responsibilities of the Chinese Government

When examining the content of the SAATDC bilateral agreement, the researcher found that there were a number of responsibilities allocated to the Chinese government. Although the roles of the Chinese government were briefly mentioned in the previous sections, the researcher felt that it was important to discuss these responsibilities in detail in this section in order to adequately address this research sub-objective. Amongst the responsibilities allocated to the Chinese government were:

- a) To conduct a professional study of the project, and undertake the project design and construction.
- b) To conduct professional and engineering investigation which covered areas like, the selection of the project location and determination of the boundary line of the South African Agriculture Technology Demonstration Centre. Further to that, the Chinese side was responsible for the collection of the required technical information for project design and also investigated the construction material and special construction requirements in local areas in South Africa.
- c) The Chinese Government was also responsible for the project design covering the following areas:
 - I. Design work of all the building, ancillary works and outdoor construction works within the boundary line on the basis of the investigation,
 - II. The scope and scale of project design, building and construction area,
 - III. Content of design: offices, training buildings, reproduction building and apartments, necessary equipment and agriculture machinery (SAATDC Agreement, 2009:5).

The Chinese side provided the South African side with the construction drawings in quadruplicate prior to the commencement of construction work. The Chinese side was responsible for all construction work.

5.3.7.2 The South African government's responsibilities

In terms of the agreement signed between the two countries, the South African government had the responsibility to provide the construction license and the land use license (SAATDC Agreement, 2009:3). The agreement signed by the two governments also stipulated that the South African government would remove and clear all the existing architectures within the boundary line of the project, including all the obstacles from the construction foot-print area. The South African government was tasked to level the ground at the construction site (SAATDC Agreement, 2009:3).

In terms of the implementation of the bilateral agreement, the South African government was responsible for the connecting the pipelines for water and power supply, communication lines, sewage systems and road to the construction site. The South African government also provided the safety barriers inside the construction site and levels the ground in accordance with the engineering design drawings and ensures smooth traffic roads from outside to the construction site (SAATDC Agreement, 2009:3).

As part of the agreement, the South African government was responsible for providing exemption from all the import taxes and other levies on construction equipment material, machinery, traffic vehicles, oil, and fuel which are necessary for the project construction. The South African government was also responsible for providing CNADC staff's daily necessities, medicines, and offices (SAATDC Agreement, 2009:3).

Furthermore the South African government was entrusted with the responsibility to provide assistance with customs clearance, taking delivery of cargo and cargo custody upon the arrival of the construction equipments, material and machinery provided by

CNADC. In line with the implementation contract, the South African government was responsible for the following:

- a) Assisting with the application of necessary number plates for the motor vehicles of CNADC engineers, technicians, agricultural experts, and managerial staff.
- b) Assisting CNADC with the procurement of necessary local bricks, tiles, sands, stones, timber, oil, fuel and other local construction materials.
- c) Providing assistance for the Chinese side to handle the injuries, illness or death of their employees.
- d) Providing security to the property and the CNADC staff dispatched by the Chinese side during their work in South Africa. In this regard the South African government had to provide adequate armed guards at the project site when necessary.
- e) In case of injury or death of the Chinese staff in the construction site, the South African government would have handled the cases according to the local laws and regulations (SAATDC Agreement, 2009:4).

After carefully examining the contract on the implementation of the SAATDC, it can be concluded that the tasks were clearly specified in the South African Agricultural Technology Demonstration Centre bilateral agreement. In this regard it can be said that tasks or responsibilities were fully specified or allocated as one of the pre-conditions for the successful implementation of the SAATDC bilateral policy.

5.4 Overview of the extent to which the SAATDC as a foreign aid programme was aligned to government priorities, and will this programme make any significant contribution towards South Africa's aquaculture sector development?

This section focuses on two aspects. Firstly, it provides an overview on whether the SAATDC programme is in line with South Africa's domestic priorities mainly on skills and technology transfer. Secondly, this section provides an overview on whether this

bilateral programme will make any significant contribution towards South Africa's aquaculture sector development.

The benefits of the SAATDC bilateral agreement were two-dimensional. Firstly, there were skills transfers during the construction and, secondly, there were post-construction skills and technology transfer. In this section the researcher specifically focused on the post-construction skills transfer in the aquaculture sector. Skills transfer during the construction phase was necessary and should have been taken into consideration.

There is a need to ensure that foreign aid programmes are adequately aligned to South Africa's development and growth needs. This is based on the view that, if foreign aid is adequately aligned to national priorities, it could make a significant contribution towards addressing South Africa's priority skills shortage and provide the necessary technology required by the country.

The SAATDC bilateral agreement was project-based aid. According to Goody (2009:7), project-based aid, whereby funds target a stand-alone projects are more effective. With the SAATDC bilateral agreement, the two governments target funds at a specific project.

According to Goody (2009:1), if foreign aid projects are aligned to domestic priorities, they could improve aid effectiveness. By improving aid effectiveness, the impact of the project could be enhanced. The SAATDC bilateral agreement was aligned to domestic priorities. The SAATDC, due to its proper alignment to the South African government priorities, will continue to make a significant contribution in regard to poverty reduction, expanding the country's productive capacity as well as raising the standard of living for the aquaculture sector employees. Foreign aid alignment with national priorities could enhance the effectiveness of the SAATDC bilateral programme in addressing South Africa's development goals, such as skills development and technology transfer. Foreign aid programmes or projects can never be effective unless they are aligned to South Africa's domestic needs. By aligning foreign aid programmes with domestic

priorities, the government has ensured effectiveness and sustainability of the SAATDC bilateral programme.

5.4.1 Skills transfer

The shortage of technical skills contributes towards the poor performance of the South African aquaculture sector. According to the report by the Department of Agriculture Forestry and Fisheries (2007:2), the greatest part of aquaculture training in South Africa was academically based, with very little practical skills training in aspects such as basic husbandry (management especially of a farm or animals). Without addressing the lack of technical skills needed in the aquaculture sector, the South African government would not be able to bridge the gap between theoretical planning and implementation (Department of Agriculture Forestry and Fisheries, 2007:2).

The Department of Agriculture Forestry and Fisheries had identified a number of factors constraining the aquaculture sector growth in South Africa. Such challenges included:

- a) Limited capacities (expertise and aquaculture professionals).
- b) Lack of technical skills and support.
- c) High feed, equipment and technology costs.
- d) Limited government support, veterinary services and disease management
- e) Lack of species choice and good seed stock.
- f) Complex resource-based legislation.
- g) Lack of marketing services and access to finance (Department of Agriculture Forestry and Fisheries, 2007:2).

Various technical skills will currently and in the future be provided through the South African Agricultural Technology Demonstration Centre including:

- a) Research skills on freshwater aquaculture technology to advanced freshwater aquaculture technology.

- b) The centre also serves as a research station and provides training to agricultural scientists, technicians and farmers.
- c) Farmers or people living and working in aquaculture sector will be given an opportunity for training and to gain understanding on the best management practices necessary for sustaining a long-term benefits of this project on the rural economy during the second phase of the project.
- d) Officials and scientists will gain insights on a wide range of innovative best-practices, as well as the latest research issues in the field of aquaculture technology during the second phase of the project (Department of Agriculture Forestry and Fisheries, 2007:2).

In the communications issued by the Department of Agriculture Free State Province and the National Department of Agriculture Forestry and Fisheries, it is broadly stated that the SAATDC will serve as a supply station to rural aquaculture community projects in the Free State Province and outside the Province.

The National Industrial Policy Framework identified a number of necessary conditions for South Africa's industrialisation which relates to the objectives of the South African Agricultural Technology Demonstration Centre. These necessary conditions include skills and education for industrialisation, and modern infrastructure, and innovation and technology.

- a) South Africa needs much stronger alignment between industrial policies and skills institution.
- b) Innovation and technology. For the South African government to achieve its industrialisation objectives, it needs a shift from learning to use existing technologies to increasing innovation and development. According to the National Industrial Policy Framework (2007:15), this technology should be imported from abroad and adapted to local conditions (NIPF Report, 2007:15).

The SAATDC integrates with the necessary conditions for South Africa's industrialisation as identified in the National Industrial Policy Framework. After examining the content of the SAATDC, the researcher learned that the bilateral policy on the SAATDC addressed critical skills required for South Africa's development. South Africa was facing a fundamental and critical skills shortage which will be gained through the implementation of the second phase of the SAATDC bilateral agreement. Based on this observation, it can be concluded that the SAATDC bilateral agreement was adequately aligned to the country's domestic priorities.

Projections are that a year after the completion of the demonstration centre for freshwater aquaculture in South Africa, China would train 500 technical staff. There will be 10 training courses per year, each training 50 technicians per session. The SAATDC bilateral agreement was clearly aligned to the Skills Development Act (Act 97 of 2008). The Skills Development Act seeks to transform education and training in South Africa by improving both the quality and quantity in training, to support increased competitiveness of the industries and improve quality of the life of South Africans.

To further highlight the significance of the SAATDC, Karaan (2005:2), states that human resource development is critical at the small scale and emerging business level. Karaan (2005:2) further states that, many fisheries in South Africa lack formal education which impedes their ability to participate in the economic mainstream.

According to the report by the DAFF on Policy for the Development of Sustainable Inland Aquaculture Sector in South Africa (2011:6), there was a need for South Africa to increase its technical capacity in aquaculture at all levels. The report further states that small scale farmers need access to trained aquaculture extension officers. This further highlights that there was a need for SAATDC. At the provincial level, South Africa needs qualified aquaculture managers who would coordinate and promote the aquaculture sector (DAFF report on Policy for the development of Sustainable Inland Aquaculture Sector in South Africa, 2011:6).

5.4.2 Technology Transfer

Key challenges facing the South African aquaculture sector were high feed, equipment and technology costs (Department of Agriculture Forestry and Fisheries Report, 2007:2). Lack of fresh water aquaculture technology was identified as one of the major constraining factors towards poor performance of the South African aquaculture sector. One of the objectives of the bilateral agreement on SAATDC between South Africa and China was to share appropriate technology in the aquaculture sector.

When examining the content of the SAATDC bilateral agreement, the researcher found that, through the implementation of the SAATDC, the Chinese government would contribute towards technology transfer to South Africa, thereby supporting South Africa's objective on ASGISA. The researcher further learned that China would share its advanced technology towards development of agriculture in the Xhariep District. China would also train local farmers and promote Chinese advanced freshwater aquaculture technology to South Africa which perfectly aligns this foreign aid programme to South African government priorities. The South African Agricultural Technology Demonstration Centre would therefore serve as an innovative approach towards developing Xhariep as a more sustainable environment for fish hatchery.

The SAATDC serve as a training centre and breeding station for aquaculture development in South Africa. As a result of transferred technology, a variety of fish like Tilapia and Catfish will be canned and packaged to ensure the admission of Xhariep Fish Hatchery to external markets, and financing, especially South Africa's emerging farmers and small rural businesses.

The technology provided through the implementation of the SAATDC was in line with South Africa's initiative on the promotion of increased value addition of the South African fisheries products. The second phase of the SAATDC will contribute towards diversification of the Gariep Dam fisheries industry beyond current reliance on traditional commodities and non-tradable services. As mentioned in the previous

sections that fish from Gariep Dam was utilised primarily by subsistence and recreational anglers, the SAATDC will assist in the establishment of commercial fisheries. The SAATDC will contribute towards value-addition of Gariep Dam fisheries services that can compete in export markets as well as against imports.

The implementation of the SAATDC bilateral agreement contributes toward intensification of South Africa's industrialisation process and movement towards a knowledge economy. The technology brought through implementation of the SAATDC would contribute towards the promotion of a more labour-absorbing industrialisation path, with a particular focus on tradable labour-absorbing goods and services and economic linkages that catalyse employment creation which clearly align it to South Africa's domestic priorities.

5.4.3 Overview on the significance of aquaculture

This section provides an overview on the significance of the aquaculture sector. Aquaculture has a potential to contribute towards jobs creation and poverty alleviation, food security and women empowerment. To further highlight the significance of the aquaculture centre in South Africa, a number of secondary sources already existing were consulted. The researcher found that there are number of ways in which South Africa would gain from SAATDC implementation including:

5.4.3.1 Aquaculture sector development

When assessing how significant the SAATDC was, towards South Africa's growth and development, the researcher learned that South Africa lacks development of an inland fisheries sector using small, medium and large water bodies with a support infrastructure (hatcheries) to maintain viable populations of fish (Presentation by the Select Committee on Land and Environment of the Department of Agriculture Forestry and Fisheries Report, 2009:33).

The researcher further learned that new or small industry equipment and technology costs were relatively high. This was evident in the cost of fish feeds, and general fish farming equipment, much of which was still imported from abroad (Department of Agriculture Forestry and Fisheries Report (2007:7). These high costs made the cost of new aquaculture development high, which restricted market entry to only few large companies.

When conducting this research, the researcher learned that aquaculture offers a strategic entry point for short and long-term investment opportunities which contribute to food security, improved health, women's empowerment, and local enterprise development (Department of Science and Technology Report on Technology for Sustainable livelihood, 2010:6). The report further states that in South Africa, aquaculture provides an opportunity for the socio-economic development and beneficiation by rural communities through the sustainable non-consumptive utilisation of water. The establishment of the SAATDC would therefore contribute towards beneficiation and commercialisation of fishing activities at Gariep Dam.

The study further revealed that South Africa needed technology interventions in aquaculture, ranging from research and development of new candidate species for commercialisation, the development of artificial spawning, breeding and management technologies which would lead to the development of hatchery technologies for new species which was also the case in Gariep Dam (Department of Science and Technology Report on Technology for Sustainable Livelihood, 2010:6). The implementation of SAATDC would therefore increase aquaculture production, as most commercially viable species, can be commercially produced from small-scale commercial to large-scale industries and increased market share.

According to Machethe (2004:8), high transaction costs was one factor constraining the growth of agricultural sector in Africa and this can be attributed to poor infrastructure. Infrastructure is one of the prerequisites for achieving a higher level of agricultural productivity which also applies to the aquaculture sector in South Africa. Machethe

(2004:8) was also of the view that inadequate physical infrastructure remains a major obstacle to smallholder agricultural growth in South Africa. Through the implementation of the SAATDC bilateral agreement, South Africa also benefitted in terms of dissemination of modern technology on aquaculture, fisheries management, and hatchery operation with the costs carried by the Chinese government.

One of the factors demonstrating the significance of the SAATDC was that although South Africa possesses suitable environmental conditions for aquaculture, the local aquaculture sector has performed below its potential and remains a minor contributor to national fishery production (Shipton and Britz, 2007:5). There was therefore an opportunity to develop South Africa's aquaculture sector. According to Shipton and Britz (2007:5), there was an increasing short supply of traditional fish products in the local market which resulted in a sharp rise in prices, making aquaculture an increasingly viable production option.

To further highlight the significance of the SAATDC, Shipton and Britz (2007:4), report that, if the aquaculture sector was to grow to its potential, an urgent investment in human resources was required. The lack of aquaculture skills both within the private and public sector has significantly hampered the growth of the South African aquaculture sector. This clearly shows the significance of the SAATDC and its relevance to the South Africa's domestic priorities.

The Department of Agriculture Forestry and Fisheries stated in its report (A prolife of the South African Aquaculture Market Value Chain, 2011: 30) that the Department of Science and Technology (DST) and DAFF plan provincial grow-out pilot projects to establish one grow-out pilot per province to ascertain the technical, environmental and commercial factors of the production of indigenous fresh-water species including tilapia, catfish, trout and carp using cage-net technology in State-owned irrigation. The target provinces were Eastern Cape, Kwazulu-Natal, Limpopo, Mpumalanga, North West, Northern Cape and Free State. This further highlighted the SAATDC alignment with the South African government priorities as well as its significance towards South Africa's

aquaculture sector development. According to the said report, these provinces have a fledgling aquaculture industry, and a potential for growth. However they require technology support and capacity development, which would be provided by the Chinese government through the SAATDC bilateral agreement implementation.

The other factor demonstrating how significant the SAATDC was, in South Africa was that the technology used by emerging, small and subsistence fishermen lags considerably behind the commercial and recreational sectors (Karaan, 2005:4). These result in inefficiencies in fishing efforts to their detriment. Karaan concluded that there was a need for advanced and appropriate technology which shows how important was the Chinese aquaculture technology to the South Africa's fisheries industry. It is expected that through the construction of this hatchery, unemployed communities would gain employment and develop their skills by learning more about aquaculture.

5.4.3.1 Jobs creation and poverty alleviation

When examining the research by the Food and Agriculture Organization of the United Nations, the researcher found that, in the past three decades, employment in the primary fisheries sector increased faster than the world's population and employment in traditional agriculture. The FAO 2009 report further revealed that worldwide, there have been considerable increases in the total number of people engaged in fisheries, arising from the development of aquaculture activities (FAO, 2009:24).

According to the report by the FAO (2009:24), aquaculture has the potential to provide an important source of livelihood for the rural poor, generating income through direct sales of aquatic products, in processing and by providing ancillary services. Apart from the people who directly benefit or directly employed by the fisheries sector, there are people who can indirectly benefit from the fisheries sector, including those in the following sectors:

- a) Processing industries;

- b) Net and gear making;
- c) Ice production and supply;
- d) Boat construction and maintenance;
- e) Manufacturing of fish processing equipment;
- f) Packaging sector;
- g) Marketing and distribution sector; and
- h) Others are involved in research, development and administration connected with the fishery sector (FAO, 2009:24).

When studying the report by the FAO(2009:33) the researcher learned that woman can significantly benefit from the fisheries sector. According to the report by the Select Committee on Agriculture Report (2009:33), taking into consideration the current market trends, South Africa's environmental potential for aquaculture and state of development of its industry, production could grow from current level of 3712 tons (worth R371 Million) to above 90,000 tons worth R2,4 Billion over the period of 10-20 years.

When investigating how significant the SAATDC was to South Africa's growth and development needs, the researcher learned that in 2008, direct employment on farms was 2000 and 3600 including services sector-feeds, processing, security, transport, packaging, manufacturing of equipments and research (Select Committee on Agriculture Report, 2009:11). Projections are that if production grows to a projected level of 90,000 tons per annum, the aquaculture sector would have an employment potential of above 44, 000 people (Select Committee on Agriculture Report; 2009:11). To support the findings on the SAATDC significance to South Africa's growth and development needs, Botes (2010:4), argued that, the South African aquaculture sector could contribute to the local, provincial and National Growth and Development Strategies.

It is also expected that the SAATDC could contribute towards addressing economic, social and environmental conditions of Xhariep District rural communities. Furthermore the projections are that the centre will contribute towards rural poverty reduction. With

China training 500 technical staff at the SAATDC per year, it means 500 people would be ready to be absorbed in the aquaculture sector during the first year of the project.

Aid could play an important role in reducing poverty, increasing growth, building capacity, and achieving human development as required by the South African government. By aligning foreign aid with government priorities, aid effectiveness could be enhanced which could further increase the impact of the aid. According to Goody (2009:7), effective aid creates conditions for success. Goody further added that aid effectiveness is critical, to maximise the impact of aid and achieve the necessary changes for long-term, sustainable development.

Based on these arguments, the establishment of the SAATDC would contribute towards establishing a viable aquaculture sector, which could contribute towards sustainable jobs creation and poverty alleviation for the people within the vicinity of the Gariep Dam and beyond. Ellender, Weyl, Winker and Booth (2010:50), reported that there are 450 regular anglers (anglers refer to fishing with a rod, line and hook), at Gariep Dam. These anglers lack formal training which hinders their effective participation in the fisheries industry. Any form of training provided to them would be beneficial.

5.4.3.2 Food security

When investigating how significant the SAATDC was towards South Africa's growth and developments needs, the researcher discovered that fisheries and aquaculture have a significant role, directly or indirectly in the livelihoods of millions of people around the world (FAO, 2009:23). Apart from fish production's contribution to economic activity, fish production plays an important role in improving food security and contributes to fish products, meeting nutritional needs of the people. According to the report by the FAO (2009:23), fish and fishery products are highly traded with the total production entering international trade as various foods and feed food. The export of fish for human consumption has increased worldwide.

Through the use of secondary sources on the significance of the SAATDC, the researcher learned that the African inland fisheries are generally important contributors to the livelihoods and food security of populations living within their vicinity (Ellender *et al* (2010: 45). Ellender *et al* further established that the South African situation differs from this because formal inland fisheries are poorly developed despite the existence of 3000 km of inland reservoirs. Fish from these reservoirs are utilised primarily by subsistence and recreational anglers, which makes the SAATDC important.

The researcher further found that aquaculture significantly contributes towards the human food basket. Adding to this researcher's finding was the argument by De Silva and Davy (2010:6) that there was universal acceptance that aquaculture has matured to be an important contributor to meet human food fish demands, and was often mooted as the fastest growing primary production sector. The investigation of the significance of the SAATDC in South Africa further revealed that, currently the daily catch for the anglers in Gariep Dam is between 2.2 and 6.4 kg which is more than sufficient to meet household requirements (Ellender *et al*, 2010:45). Ellender *et al* (2010:45) further revealed due to the fact that most subsistence anglers were unemployed and that the 52% of the economically active population in the area have an income of R400, income generated through fishing was important. This study has further discovered that, fish provides a cheap source of protein to the angling households as well as those who purchase fish in the areas within the vicinity of Gariep Dam (Ellender *et al*, 2010:45). Due to the rising food prices, the importance of fish to the lakeshore community will most likely increase. Based on the abovementioned arguments, it can be concluded that fishery will remain a vital contributor to the food security of the areas within the vicinity of Gariep Dam, Free State Province as well as South Africa at large.

The SAATDC will enhance productive capacity of the Gariep dam. Furthermore the SAATDC will provide employment to communities around Gariep dam. According to Karaan (2005:9), many fish companies have begun to supplement their product offerings with aquaculture, and consider the aquaculture sector as an industry that will supplement future supplies. The SAATDC will boost fish production at the Gariep Dam.

The current low production in Gariiep Dam would therefore be supplemented with the SAATDC.

5.5 Overview of the extent to which SAATDC Chinese aid project was exploited for the benefits of the local workforce artisans and engineers

This section provides an overview of whether the SAATDC bilateral agreement was fully exploited for the benefits of the local specialised workforce like artisans, engineers and project managers in line with the country's skills shortage and demands. This section also provides an overview on whether this bilateral agreement adequately addressed factors that could undermine the ASGISA and JIPSA objectives on skills and technology transfer.

There was a need for the bilateral agreement to make a provision for involvement of South African engineers, artisans and South African companies when conducting a project study, formulation of the project design, and its construction. It was important to ensure that skills transfer takes place during the construction phase. Skills transfer in the construction phase or processes would ensure sustainability of the SAATDC. The transfer of skills during the construction was important, firstly, to ensure that local staff remains competent enough to maintain and sustain activities of the SAATDC. Secondly, the transfer of technical skills during the construction phase could ensure that the South Africa gains technical skills (artisans and engineering) which could enable it to construct or upgrade other aquaculture projects or fish hatcheries in future, without depending on external or imported skills.

Should the government fail to put in place measures to ensure that skills were transferred to the people of Xhariep District and the Free State Province, it means the government would be undermining the goals and objectives of ASGISA and JIPSA which are the basis of the South Africa-China bilateral policy on SAATDC. When examining the South African Agricultural Technology Demonstration Centre bilateral

agreement, the researcher learned that there bilateral agreement made no provision for technical skills transfer during the construction phase.

During the construction phase of the South African Agricultural Technology Demonstration Centre, the bilateral agreement made provision for the involvement of the local people. However the provision provided for general labourers, support services and not technical skills. In terms of the agreement signed between the two countries, South Africa's responsibility was limited to the administrative functions or support services (refer to Section 5.3.7.2 of this Chapter).

As stated in Section 5.3.7.1 of this Chapter, the Chinese engineers were responsible for all technical work including conducting a professional study of the project, undertaking the project design and its construction. The agreement made no provision for the involvement of the South African engineers which limited the extent of skills transfer during the construction phase of the project.

The failure to include a section providing for the South African engineers in the construction meant that South Africa missed an opportunity to address its technical skills shortage as required by the JIPSA. Based on these findings, the government failed to use the opportunity to increase its artisan's and engineers' skills basket.

Developing project management capacity was also one of the South African government priorities, which means there was a need for greater involvement of the South Africans in all phases of the construction of the Agricultural Technology Demonstration Centre including conducting a professional study of the project, undertaking the project design and construction.

Project management capacity is one of the factors that continue to cause service delivery failure and slow implementation of capital expenditure programmes in South Africa. These problems are believed to be caused by the lack of adequate technical skills to undertake feasibility studies, project costing and monitoring. As stated in

Section 5.3.7.1 of this Chapter, the Chinese engineers were responsible for all technical work including conducting a professional study of the project, and undertaking the project design and construction.

The South African government failed to put in place measures or to leverage the opportunities provided by the bilateral agreement on the establishment of the SAATDC. It failed to seize opportunity to increase its skills base, particularly the JIPSA objectives to increase artisans and engineering skills, during the construction phase of the project.

One can conclude that generally there was an absence of mechanisms that took advantage of construction of the SAATDC to ensure artisans and engineering skills transfer. The South African government was not aggressive enough in engaging China to maximise skills transfer during the construction of the SAATDC.

5.6. Conclusion

The implementation analysis of the South African Agricultural Technology Demonstration Centre bilateral agreement was conducted. After carefully examining the South African Agricultural Technology Demonstration Centre bilateral agreement, it can be concluded that it was a good bilateral policy. Firstly, the programme or policy theory was clearly defined. All parts of the bilateral policy on SAATDC were sufficiently specific, concrete, and clear to minimise ambiguity. Furthermore, this bilateral programme was reasonable, realistic and able to be implemented. The policy goals and objectives were well defined. The SAATDC bilateral agreement met the necessary pre-conditions of policy implementation necessary for successful policy implementation.

Chapter Six

Conclusions and recommendations

6.1 Introduction

This chapter provides the conclusions and recommendations of this research project. Most importantly, the chapter provides a conclusion on whether the implementation of the South Africa-China bilateral agreement, with specific reference to the South African Agricultural Technology Demonstration Centre, was effectively implemented. Effective implementations are those that achieve the desired results on time and within the budget.

Conclusions will be made on whether the four objectives of the research were achieved or not. Firstly, this research focuses on whether the first phase of the SAATDC bilateral agreement was effectively implemented or not.

Secondly, this chapter provides conclusion on whether the SAATDC bilateral agreement met necessary pre-conditions of policy implementation necessary for successful policy implementation. Furthermore, the chapter provides a conclusion as to whether these factors were adequately addressed in the bilateral policy document to allow effective implementation of the bilateral agreement. This chapter also provides an analysis on the significance and contribution of the SAATDC to South Africa's development. The researcher looks at the extent the Chinese government transferred aquaculture expertise and the extent to which China assisted South Africa to improve its economy through aquaculture in South Africa.

Thirdly, this chapter provides a conclusion on whether the SAATDC as a foreign aid programme was adequately aligned to government priorities and further examine whether the second phase of the project will make any significant contribution towards South Africa's aquaculture sector development.

Lastly, this chapter provides a conclusion as to whether the SAATDC bilateral agreement was fully exploited for the benefits of the local workforce (artisans and engineers). Conclusions will be made as to whether the implementation of SAATDC bilateral agreement contributed towards improving the country's competitiveness in the construction sector.

6.2 Research objectives

The main objective of the research was to conduct an implementation analysis of the South Africa-China bilateral agreement with specific reference to the SAATDC. The researcher investigated whether the SAATDC bilateral agreement met necessary pre-conditions of policy implementation necessary for successful policy implementation. The study was based on the view that it is possible to identify circumstances that could affect implementation of a particular policy, either in advance of a policy's adoption or after it has been implemented. This research is based on four objectives.

- a) Firstly, the researcher examined the extent to which the first phase of the SAATDC bilateral agreement was implemented.
- b) Secondly, the researcher investigated the extent to which the SAATDC bilateral agreement met necessary pre-conditions for effective policy implementation. Furthermore the researcher determined whether these pre-conditions were adequately addressed in the bilateral policy document to allow effective implementation of the bilateral agreement. The research :
 - i. Examined whether the implementation agencies, China National Agricultural Development Group Corporation (CNADC) and the Free State Provincial Government (FSPG) together with the Department of Agriculture Forestry and Fisheries (DAFF) were adequately prepared to deal with external challenges that could have affected the implementation of the SAATDC bilateral agreement.

- ii. Investigated whether the implementation agencies (CNADC, DAFF and FSPG) have adequate political support from the country's respective cabinet members.
 - iii. Investigated whether the CNADC, DAFF and FSPG have adequate financial resources to implement the SAATDC bilateral agreement.
 - iv. Explored whether the CNADC have administrative capacity to implement the SAATDC bilateral agreement.
 - v. Examined whether the objectives of the SAATDC were clearly defined.
 - vi. Examined whether the tasks were clearly specified in the bilateral agreement.
 - vii. Investigated whether there was an understanding on the problems South Africa had in the aquaculture sector or problems that needed to be resolved.
 - viii. Investigated the extent of dependency of the implementation agency on other agencies (government departments).
- c) Thirdly, the researcher examined the extent to which the SAATDC as a foreign aid programme was aligned to government priorities and further examined whether the second phase of the programme will make any significant contribution towards South Africa's aquaculture sector development.
- d) Lastly, the researcher examined the extent to which the SAATDC bilateral agreement was exploited for the benefits of the local workforce (artisans and engineers). The researcher further determined whether this bilateral agreement adequately addressed factors that could have undermine the ASGISA and JIPSA objectives on skills and technology transfer.

The primary focus of chapter one was on research matters. It clarified the research problem. The research problem was based on the belief that there was a failure by the South African government to fully exploit opportunities presented through

implementation of South Africa-China bilateral policies which undermines the ASGISA and JIPSA objectives in terms of skills and technology transfer.

Chapter two, was the research methodology. The chapter provided the research design and data analysis approach applied when conducting this research.

Chapter three reflected on the theoretical and empirical debates on South Africa-China and Africa-China relations. Chapter three broadly examined how the Chinese government conduct its activities in other African countries. Furthermore a discussion on the conceptual policy framework of this research with reference to both ASGISA and JIPSA was made.

Chapter four provided a theoretical framework of policy analysis. An overview of the policy making process was provided. The link between foreign policy, public policy and public administration was explained. It was revealed that foreign policy is a policy that emanates from the public institutions of government. It is important to note that the South Africa foreign policy is informed by domestic priorities. Chapter four concluded that foreign policy is motivated or influenced by public interest or national interests.

Chapter five provided an implementation analysis of the South African Agricultural Technology Demonstration Centre bilateral agreement. The South African government has repeatedly entered into bilateral policy agreements with the government of China. The objective of chapter five was to track the implementation of this bilateral policy between South Africa and China.

Chapter six provides a conclusion concerning the four research objectives. Recommendations of this research are also provided in this chapter.

6.3 Findings of the research objectives

This section focuses on key findings of the study in relation to the research objectives. Furthermore this section provides answers to the research questions being:

- a) To what extent was the first phase of South Africa-China bilateral agreement on South African Agricultural Technology Demonstration Centre implemented?
- b) To what extent did the SAATDC bilateral agreement met necessary pre-conditions of policy implementation necessary for successful policy implementation and were these factors adequately addressed in the bilateral policy document?
- c) To what extent was the SAATDC as a foreign aid programme aligned to government priorities and would this programme make any significant contribution towards South Africa's aquaculture sector development?
- d) To what extent was the bilateral agreement exploited for the benefits of the local workforce (artisans and engineers)?

All four research question were dealt with. The information was gathered through secondary sources of data. The research findings are presented below.

6.3.1 The SAATDC bilateral agreement was implemented

The first objective of the research was to examine the extent to which the first phase of SAATDC bilateral agreement was implemented. As stated in section 1.7 of the research, to arrive at the conclusion the question was asked "to what extent have the Chinese and South African governments implemented the SAATDC bilateral agreement".

The research question helped in exploring whether the SAATDC falls within any of these categories, policy implementation failure (unsuccessful implementation), policy success or policy non-implementation. A policy success is whereby the implemented

policy achieves all the goals and objectives that are stated in a policy document. Non-implementation refers to the condition whereby policy is not put into effect as intended, sometimes because those involved in the implementation were not cooperative or were inefficient (Hogwood and Gunn, 1984: 197). Unsuccessful implementation refers to the condition whereby the policy is fully implemented, but external circumstances are not favourable, as a result the policy fails to produce the intended outputs or outcome (Hogwood and Gunn, 1984: 197).

The CNADC on behalf of the Chinese government worked with the South African government to translate SAATDC bilateral agreement into practice. By the year 2011, good progress with regard to the implementation of the SAATDC bilateral agreement was recorded. According to the DAFF Progress Report on Aquaculture Cooperation, (2010: 9), the rock excavations for all the foundations (storage room, breeding room, apartment building and office building) were completed by mid-January 2010. The breeding room was mainly a steel frame structure, occupying an area of 10007.6m² was also completed by 2012. Also the main bodies (brick walls and reinforcement structures) of the storage room and apartment building were completed. The first phase of the SAATDC bilateral agreement was therefore successfully implemented.

6.3.2 Conclusion on the extent to which factors that were more likely to influence the implementation of the SAATDC bilateral agreement were adequately addressed in the bilateral agreement?

The second objective of the research was to investigate whether the SAATDC bilateral agreement met necessary pre-conditions of policy implementation necessary for successful policy implementation and examined whether these factors were adequately addressed in the bilateral policy document. In order to respond to the above-mentioned objective a question was asked: To what extent were the factors that were more likely to influence the implementation of the SAATDC bilateral agreement addressed, in the bilateral policy document.

Through implementation analysis, factors that could influence the implementation of the SAATDC bilateral agreement were identified and analysed and the following conclusions were made:

a) Examining whether the implementation agencies, the China National Agricultural Development Group Corporation (CNADC) and the (DAFF) together with the (FSPG) were adequately prepared to deal with external challenges that could have affected the implementation of the SAATDC bilateral agreement. The two governments introduced necessary measures to deal with external circumstances that could have arisen during the implementation of the SAATDC bilateral agreement (See Section 5.3.1.2). Circumstances beyond the control of the implementing agency did not impose any crippling constraints on implementation. It is therefore concluded that this pre-condition of policy implementation was met and clearly addressed in the bilateral agreement.

b) Did the implementation agency have adequate political support (cabinet)? The South Africa-China Bi-National Commission was one of the political structures that monitored the implementation of this bilateral agreement. The level of political support for the establishment of the SAATDC was reflected by the maintenance of frequent exchanges of high level visits and the strengthening of the high level dialogues and consultation between the two governments. Since the signing of the agreement, there have been a number of high level engagements which continue to keep the SAATDC on the agenda (See Section 5.3.1.1). It can therefore be concluded that beyond the material and structural aspect of policy implementation, the SAATDC bilateral agreement received a periodic political boost to maintain its visibility and relevance in promoting the socio-economic conditions of the people of South Africa.

c) Did the CNADC, DAFF and FSPG have adequate financial resources to implement the SAATDC? When investigating whether the CNADC, DAFF and

FSPG have sufficient financial resources available, it was found that adequate resources were made available to allow successful implementation of the SAATDC bilateral agreement. Contingency measures were put in place to ensure that additional funds were available should they be required. According to the bilateral agreement the two countries agreed that in case of any delay of the construction caused by the Chinese government or the CNADC, the newly added construction cost thereof would be borne by the Chinese side and the construction period would be extended accordingly. Furthermore the two countries agreed that should the construction be delayed by the South African government, the South African government would bear the costs and the project will be extended accordingly. During the implementation of the first phase of the project, there was a shortfall of R18 Million on the operational costs, for the years 2010 and 2011 (DAFF Progress Report on Aquaculture Cooperation, 2010: 9). To address the problem, a formal request was sent to the Chinese government for additional funds. The Chinese government responded positively and the shortfall was taken care of. It is therefore, concluded that this pre-condition for effective policy implementation was met and adequately addressed in the bilateral agreement.

d) Did the CNADC have the administrative capacity to implement the SAATDC bilateral agreement? The CNADC had administrative capacity to implement the SAATDC bilateral agreement in collaboration with FSPG. Key actors or implementing agencies had adequate knowledge and skills needed to fulfil the roles that they were supposed to play in the policy implementation process. Capacity to implement policies or programmes is the most critical resource in the implementation of policies. Taking into consideration the background of the China National Agricultural Development Group Corporation (CNADC) and its extensive experience, it can be concluded that there were adequate staff, both in numbers and training, to allow for the effective implementation of the SAATDC bilateral agreement.

- e) **Examining whether there was an understanding of the problems South Africa was experiencing in the aquaculture sector.** It was found that this bilateral agreement was based on a valid theory of cause and effect. The SAATDC bilateral agreement was based on the existence of valid causal theories about the problem that the policy intended to address. The SAATDC bilateral agreement was not a bad policy as it was based on adequate understanding of a problem that needed to be solved. The lack of technology and capacity in the aquaculture sector were identified as two factors that cause poor performance of the aquaculture sector. These are key problems that the bilateral agreement intended to address, therefore this pre-condition of effective policy implementation was met and adequately addressed in the bilateral agreement.
- f) **Examining the extent of dependency of the implementation agency on other agencies (government departments).** It can be concluded that the extent of dependency of the implementation agency on other agencies (government departments) was high. In order to have an effective policy implementation, there must be a minimal dependency relationship between the implementing agencies (CNADC, DAFF and FSPG) and other agencies (other government departments like DHA and SARS. According to Hogwood and Gunn (1984: 202), once the number of influential agencies in the implementation process increases, the chances of having a successful implementation is reduced. The first phase of the policy was effectively implemented. However there were a number of possible threads that threatened the effective implementation of this bilateral policy. The implementing agencies were excessively dependent on the other agencies such as DHA and SARS for the success of the policy implementation. Firstly, there was a dependence on SARS to waive the import duties. Failure to do so would have implied that, the DAFF would have carried the import duties costs. Secondly, there was a dependence on the DHA for the work permits of the Chinese imported workers. If the DHA failed to issue necessary documents, the project could have been delayed. These aspects will remain a thread in the remaining phase of the project.

g) Examining whether the objectives of the SAATDC were clearly defined and understood by the implementing agencies. There was an understanding of the bilateral agreement objectives between policy-makers and policy-implementers. The extent to which these goals and objectives were made clear, gave clarity as to what the Chinese and the South African governments wished to achieve with the bilateral agreement. The South African Agricultural Technology Demonstration Centre bilateral agreement had two main goals, firstly, the transfer of aquaculture skills and secondly, aquaculture technology transfer. The objectives of the South African Agricultural Technology Demonstration Centre were clear. This project was an upgrading or a revitalisation of the Gariiep Dam Fish Breeding Station of South Africa. After the analysis of the bilateral agreement as well as FOCAC 2006 Action Plan, one can conclude that the goals and objectives of the South African Agricultural Technology Demonstration Centre were clearly defined. The extent to which these goals and objectives were clearly defined, gave clarity as to what the Chinese and the South African governments wished to achieve with the South African Agricultural Technology Demonstration Centre. It is therefore concluded that this pre-condition of policy implementation was met and adequately addressed in the bilateral agreement.

h) Examining whether the tasks were clearly specified in the bilateral agreement. An extensive review of bilateral agreement was conducted in order to determine whether the tasks were clearly specified in the bilateral agreement. As one of the preconditions for the successful policy implementation of a policy, it was found that, tasks were fully specified in the bilateral agreement (See Section 5.3.7).

External circumstances did not negatively affect the bilateral agreement implementation. The possibilities of implementation failure were very limited. It is understood that policies are sometimes put to risk due to bad execution, or bad policy (Hogwood and Gunn, 1984: 197). Bad execution takes place in a situation whereby a policy is

ineffectively implemented. The bad policies are those that are on their own bad, they do not fail because they were wrongly implemented, but they were bad. Possibilities for bad execution were limited due to extensive experience the CNADC had. Finally, the bilateral agreement was formulated in such a way that external circumstances did not hamper its implementation.

There are a number of challenges that were reported during the construction period, which were effectively addressed by the implementing agencies. Such challenges included (DAFF Progress Report on Aquaculture Cooperation, 2010: 9):

- a) Delays with the tax returns.
- b) Delay of water connection.
- c) Challenges on compliance with local regulations and standards in terms of electrical installation and fire reticulation system.

To address these challenges, the Minister of DAFF Ms Tina Joemat-Pettersson and the Chinese-Vice-Minister Mr Wei Chao'an met on 24 October 2010. During this meeting the above mentioned challenges were discussed. The two Ministers agreed to strengthen the bilateral cooperation through prioritising the work of the Joint Working Group and the Action Plan following each JWG meeting to track progress on the implementation of joint projects which includes the SAATDC.

The SAATDC bilateral agreement has met the policy implementation pre-conditions as identified in chapter six (See Section 6.3.2). The implementation agency had adequate political support. CNADC, FSPG and DAFF have adequate financial resources to implement the SAATDC bilateral agreement. CNADC had administrative capacity to implement the SAATDC bilateral agreement, the objectives of the SAATDC were clear and tasks were clearly specified in the bilateral agreement. According to Hogwood and Gunn (1984:200), once these pre-conditions for effective policy implementation are met, the chances of having a successful policy implementation increase.

6.3.3 Conclusion on whether the SAATDC as a foreign aid programme was adequately aligned to government priorities and it could make significant contribution towards South Africa's aquaculture sector development

This section focuses on two aspects. Firstly, it provides a conclusion on whether the SAATDC programme was in line with South Africa's domestic priorities, mainly on skills and technology transfer. Secondly, this section provides conclusion on whether this bilateral programme will make any significant contribution towards South Africa's aquaculture sector development.

Aid could play an important role in reducing poverty, increasing growth, building capacity, and achieving human development as required by the South African government. By aligning foreign aid with government priorities, aid effectiveness has been enhanced which would further increase the impact of the SAATDC. Arguments presented below demonstrate that the SAATDC was adequately aligned to South Africa's domestic priorities. Aid effectiveness was critical, to maximise the impact of aid and achieve the necessary changes for long-term, sustainable development.

6.3.3.1 Aquaculture Skills transfer

The establishment of the SAATDC contributed towards the SA government gaining aquaculture expertise and technology. The implementation of the SAATDC bilateral agreement allowed the Chinese government to transfer aquaculture expertise to South Africa through training. Carrell and Kuzmits (1986:211), define training as a systematic process by which employees learn skills, information or attitudes to further organisational and personal goals.

It is anticipated that through the implementation of the second phase of the SAATDC bilateral agreement, the young professionals and new graduates who lack practical skills in the aquaculture sector will receive training. In order for skills transfer to take

place in the South African Aquaculture Sector, there was a need for a skills transfer plan and strategy which the SAATDC bilateral agreement serves.

With the implementation of the SAATDC bilateral agreement, the South African government will be enabled to overcome constraints facing aquaculture in South Africa including limited training, lack of research facilities, shortage of appropriate breeds due to absence of expertise and poor management practices. The South African government has repeatedly identified aquaculture skills as government priorities. Lack of capacity in the aquaculture sector has been identified as one of the factors that cause poor performance in the sector. The objectives of the SAATDC bilateral agreement highlighted its significance in relation to the South African government's priorities.

It is expected that a year after the completion of the demonstration centre for freshwater aquaculture in South Africa, China will train 500 technical staff as follows. There will be 10 training courses per year and each training 50 technicians per session. The SAATDC bilateral agreement was therefore clearly aligned to the Skills Development Act (Act 97 of 2008). The Skills Development Act seeks to transform education and training in South Africa by improving both the quality and quantity in training to support increased competitiveness of the industries and improve quality of the life of the South Africans.

According to Nehemia (2010:1086), growth of the South African economy is being hindered by the inadequately skilled workers. Insufficient skilled workers have a negative impact on industrial productivity. Poor production in the South African aquaculture sector shows that there was a need for skills transfer, which will significantly improve production in the aquaculture sector. Nehemia (2010:1085) is of the opinion that there is a direct relationship between skills transfer and individual performance. According to Nehemia (2010:1086), South Africa can overcome its skills shortage if companies improve their performance through skill enhancement and development. It can therefore be said that with the implementation of the SAATDC bilateral agreement, South Africa would be afforded an opportunity to improve its

production in the aquaculture sector through skills enhancement and development opportunities offered by the Chinese government.

Through this project, the South African aquaculture sector would gain in terms of, better management practices of the aquaculture sector. Insufficient technical skills have contributed towards poor performance of the South African Aquaculture Sector. According to the Department of Agriculture Forestry and Fisheries Report (2007:2), the greatest part of aquaculture training in South Africa had limited practical skills training in the area of basic husbandry (management especially of a farm or animals). If the South African government wants to improve production or performance of its aquaculture sector, it will have to prioritise its skills basket and fully utilise opportunities provided by the Chinese government.

There are a number of ways individuals will benefit from the SAATDC. Firstly, individuals will receive training on the application of the new Chinese aquaculture technology. Such skills are important with regard to boosting the morale of the workforce in the aquaculture sector. According Carrell and Kuzmits (1986:211), training helps in optimising the utilisation of human resources that further helps the employees to achieve the organisational goals as well as their individual goals. Training would also help employees in the aquaculture sector in attaining personal growth.

It can be concluded that South Africa has gained from this bilateral agreement implementation. South Africa has learnt to use new technologies in order to increase its innovation and development. The aquaculture sector has benefitted from training through improved profitability and production, and the improved corporate image of the South African Aquaculture Sector.

6.3.3.1.1 Improved profitability and production

By raising performance through the transfer of skills, the South Africa Aquaculture Sector will therefore see an improvement in its profitability and production. According to

Nehemia (2010:1086), business organisations can see an improved performance or production from their workforce when people are put through an effective training programme. It is believed that training leads to improved profitability and more positive attitude towards profit orientation.

6.3.3.1.2 Improved corporate image of the South African Aquaculture Sector

Training and development would provide an opportunity for SA to increase the productivity of the employees in the aquaculture sector which will in return help the aquaculture sector to further achieve its long term goals. Furthermore training will help in creating a better corporate image of the South African Aquaculture Sector. According to Carrell and Kuzmits (1986:211), the quality of employees and their development through training and education are major factors in determining long-term profitability of small businesses.

It can therefore be concluded that it is important to invest in the skills development of the employees in the aquaculture sector in South Africa by utilising opportunities offered by the Chinese government through the SAATDC bilateral agreement. Skills transferred through the SAATDC bilateral agreement implementation will therefore increase efficiency of the sector, resulting in financial gains in the aquaculture sector. Thus the implementation of the SAATDC bilateral agreement would also enhance the South Africa's aquaculture sector's ability to adopt and use Chinese advanced technology because of properly trained staff.

Furthermore aquaculture skills transferred will ensure adequate human resources for expansion into new aquaculture sectors around South Africa. These skills might also be transferred to other aquaculture sectors in South Africa. By training 500 technical staff, and organising 10 training courses each year, each training 50 technicians, the sector will be creating a pool of readily available and adequate replacements for technical staff that might leave the sector.

According to Vemic (2007:209), organisations which are constantly creating new knowledge, extending it through the entire organisation and implementing it quickly inside the new technologies, develop good products and service. Vemic (2007:206) further noted that such organizations realise that learning and new knowledge are the key to success and that education and training are vital. Therefore survival of the South African Aquaculture Sector depends on education and training.

According to Botes (2010:1), the importance of skills development and capacity building has been emphasised by the president, as well at provincial government and local government level in South Africa. Skills transfer is of the utmost important in the sense that it will contribute towards a sustainable aquaculture sector in South Africa.

The implementation of the SAATDC bilateral agreement provides South Africa with an opportunity to address its aquaculture skills shortage problem. Botes (2010:1) is of the opinion that South Africa needs to establish skills development and training with intensive focus on aquaculture farming skills, life skills and business skills. These are the skills that South Africa would continue to gain through the implementation of the SAATDC bilateral agreement.

6.3.3.2 Technology Transfer

Some of the major problems or challenges faced by the South African Aquaculture Sector were high feed, equipment and technology costs and lack of technical skills. Taking into consideration the SAATDC bilateral agreement objectives, one can conclude that, its implementation would make a significant contribution in terms of technology transfer to the aquaculture sector.

Lack of fresh water aquaculture technology was identified in chapter five (See Section 5.4.2) as one of the constraining factors towards poor performance of the South African Aquaculture Sector. The governments of China and South Africa have committed to share best practices and cooperate in poverty alleviation, application of appropriate

technology, rural development and jobs creation. In this regard, it can be concluded that, South Africa will continue to benefit from the project, and would indeed receive technology it needs to improve its aquaculture sector.

It is in this regard, that SA government must ensure that scientific and technological developments from the projects are accessible to a wider range of users who can then further develop and exploit the technology into new products, processes, applications, materials or services. Through the South African Agricultural Technology Demonstration Centre, the Chinese government will continue to contribute towards technology transfer to South Africa, thereby supporting South Africa's objectives on ASGISA and JIPSA. China will ensure that its advanced technology is shared in the development of agriculture in the Xhariep District. China has trained and will continue to train local farmers and promote Chinese advanced freshwater aquaculture technology to South Africa, Xhariep District.

The SAATDC will serve as an innovative approach towards developing Xhariep as a more sustainable environment for fish hatchery. The centre would also improve the performance of business practice in the Free State and beyond. It can be concluded that the SAATDC would serve as a suitable training centre and breeding station for aquaculture development in South Africa. As a result of transferred technology, a variety of fish including tilapia and catfish will be canned and packaged to ensure the entry of Gariiep Dam Fish Hatchery to external markets.

The South African government would be relieved from its budgetary constraints. As stated in chapter five (See Section 5.4.2) the new or small industry equipment and technology costs are relatively high. In this regard it can be concluded that South Africa has benefitted from the implementation of the SAATC bilateral agreement as the costs were borne by the Chinese government.

The SAATDC bilateral agreement was in line with the South Africa's initiative on the promotion of increased value addition of South African fish products. The SAATDC will

contribute towards diversification of South Africa's agricultural sector. It will push South Africa beyond its current reliance on traditional commodities and non-tradable services. This is based on the promotion of increased value-added per capita characterised by movement into non-traditional tradable goods and services that compete in export markets as well as against imports.

The establishment of the SAATDC will significantly contribute towards South African government's agro-processing initiatives. According to the HSRC (2007:3) agro-processing could play an important role in supporting economic development and thus contribute to poverty reduction and economic inclusion. Agro-processing can increase the viability, profitability and sustainability of production systems in the fisheries sector. According to the Northern Cape Agriculture and agro-processing sector strategy (2011:4), agro-processing could increase incomes of primary producers, create employment and foreign exchange earnings and address the market risks associated with primary agricultural production.

Furthermore the SAATDC will contribute toward intensification of South Africa's industrialisation process and movement towards a knowledge economy. The SAATDC could contribute towards the promotion of a more labour-absorbing industrialisation path with a particular focus on tradable labour-absorbing goods and services and economic linkages that catalyse employment creation.

6.3.4 Was the bilateral agreement fully exploited for the benefits of the local workforce, both artisans and engineers?

The last objective of the research was to examine whether bilateral agreement was fully exploited for the benefit of the local workforce, both artisans and engineers. This simply meant examining whether the South African government adequately addressed factors that underpinned the ASGISA and JIPSA objectives on skills and technology transfer in the bilateral agreement. To arrive at the conclusion, a question was posed: was the

SAATDC bilateral agreement fully exploited for the benefits of the local workforce, artisans and engineers?

The problems the SAATDC bilateral agreement intended to address were very clear and in line with the South African government's priorities, which were skills and technology transfer. However there was a failure by the government to fully exploit the opportunities presented through the implementation of the SAATDC bilateral agreement. Although the implementation of this bilateral agreement would significantly contribute to South Africa's skills basket and the required technology in the agriculture sector, specifically aquaculture technology, the opportunities presented were not fully exploited.

Weaknesses of the SAATDC bilateral agreement can be attributed to the policy formulation stage rather than the policy implementation stage. The SAATDC bilateral policy or agreement was generally a good policy and the first phase was successfully implemented, however there were fundamental weaknesses that reduced the impact it has on South Africa's skills development.

During the SAATDC bilateral agreement formulation stage, the South African government failed to put in place measures or to leverage the opportunities presented by the bilateral agreement on the establishment of the aquaculture sector. It failed to seize opportunity to increase its skills base particularly the JIPSA objectives on increasing artisans and engineering skills during the construction phase of the project.

As stated in Section 5.3.7.2 of this research, the engineers for the project were all Chinese and they were responsible for all technical work including conducting a professional study, project design and construction. The agreement made no provision for the involvement of the South African engineers, which limited the extent of skills transfer during the construction phase of the project.

The bilateral agreement did not make any provision to encourage and facilitate ongoing learning and professional development for engineering professionals. Necessary avenues for the exchange of information and sharing of experiences regarding engineering practices were not adequately provided for, in the bilateral agreement. The SAATDC bilateral agreement was not tailored to in such a way that ensured transfer of engineering and artisans skills.

Despite failure by the government to fully exploit opportunities presented through the implementation of the SAATDC bilateral agreement, there were two major benefits from the implementation of this bilateral agreement firstly, aquaculture skills transfer and secondly, technology transfer which are also the pillars to JIPSA and ASGISA (See Section 5.4).

6.4 Recommendations

As stated in Sections (6.3.4) this bilateral agreement was not fully exploited for the benefits of the local workforce. There was a failure by the South African government to put in place guidelines and measures to address negative aspects of the Chinese aid which minimizes the positive impact of the Chinese aid programmes. That necessitates a need for policy guidelines which will ensure that such measures are put in place in the future.

There is a need for clear policy guidelines that would guide other government departments in the formulation and implementation of bilateral agreements. There is a need for the South African government to provide guidelines and recommendations as to how bilateral agreements for the implementation of foreign aid programmes should be formulated, developed and implemented.

According to the Department of International Relations and Cooperation Strategic Plan (2007-2010:3), the Minister of International Relations and Cooperation, in accordance with her Cabinet portfolio responsibilities, has a mandate to formulate, promote and

execute South Africa's international relations policy. The DIRCO is therefore in an excellent position to develop effective guidelines to assist in ensuring that future bilateral agreements based on implementing foreign aid programmes address government priorities and societal needs.

Such policy guidelines would serve to, firstly, provide a basis for formulating the content of bilateral agreements and should also provide general policy directions. Secondly, to assist in channeling actions, decisions and practices of various government departments in a direction that promotes government priorities and domestic needs (skills and technology transfer). Thirdly, the guidelines would provide guidance with regard to the implementation of bilateral agreements and provide officials negotiating bilateral agreements with a framework in which bilateral agreements should be formulated. Lastly, the guidelines would ensure compliance with the government's priorities and domestic needs.

6.4.1 Policy guidelines should provide a basis of formulating the content of bilateral agreements and should also provide general policy directions

The guidelines should provide a general direction on how foreign aid bilateral agreements should be formulated. Any aid programmes that seek to assist South Africa in addressing its skills shortage should be multi-pronged. The South African government should tailor bilateral agreements in such a way that they will address various skills shortages at the same time. The SAATDC was aimed at transferring aquaculture skills as well as aquaculture technology, however there was also an opportunity to address artisans and engineering skills as well.

According to Idun-Arkhurst and Laing (2007:3), there is a need for African governments to actively promote policies and rules of engagement in order to maximise the benefits of Africa-China cooperation. The SAATDC bilateral agreement was not well designed to facilitate technical skills (artisans and engineers) transfer during the construction phase of the SAATDC into the country.

According to Marechera (2009:40), in order to meaningfully gain from the technology transfer, African policy makers must ensure that Chinese funding or aid programmes are directed towards priority areas. Marechera (2009:40) further cited that African leaders should set skills transfer as a condition for future business deals with China. The policy guidelines should clearly set artisans and engineering skills transfer as a condition when formulating and implementing future bilateral agreements aimed at implementing foreign aid programmes.

6.4.2 Policy guidelines should assist in channeling actions, behaviour, decisions and practices of various government departments in a direction that ensures that foreign aid programmes are fully exploited.

Providing policy guidelines on the implementation of the foreign aid programmes will assist in channeling actions, decisions and practices of various government departments in a direction that ensures that foreign aid programmes are fully exploited. Such skills will allow it to effectively negotiate bilateral agreements. Effective negotiation skills will allow South Africa to ensure that donor countries have a full understanding and appreciation of the government priorities and domestic needs. Effective bilateral agreement negotiation skills will in future enable South African government officials to clearly articulate social realities within which the bilateral agreements, which encompass foreign aid, are to be applied.

As stated in Section 6.3.2 of the research, there was a clear understanding of the problems that needs to be addressed. However there was an opportunity to expand on the gains presented through the implementation of the SAATDC. Such failures need to be addressed to ensure that in future foreign aid programmes are fully exploited for the benefits of the local workforce.

According to Corkery, Land, and Bossuyt (1995:4), there are three fundamental policy action instruments which enhance the policy formulation processes within government administration, which are: information gathering, information analysis and consultation.

These instruments are very relevant to this research. It is important for policy-makers to be able to articulate the context in which the bilateral policy operates. The formulation of bilateral agreement requires a good understanding of domestic needs and government priorities.

6.4.2.1 Information gathering

According to Corkery *et al* (1995:39), there is a need to have information organised in such a way that makes it useful as a basis on which to assemble bilateral policy alternatives. Policy guidelines could significantly contribute towards enhancing capacity of the government officials when engaging on bilateral agreement matters.

The issuing of policy guidelines on how to engage foreign aid donors will provide information which will channel bilateral agreements in a direction that promote South African government priorities and domestic needs. These policy guidelines will in future ensure that the South African government has reliable information which serves as reference when formulating bilateral agreements.

6.4.2.2 Information analysis

With regard to information gathering, Corkery *et al* (1995:40) are of the opinion that enhancing the generation and utilisation of information in the policy process is an essential component in terms of enhancing capacity. Once policy guidelines have been fully developed, they could serve as an information database on how bilateral agreements on the implementation of foreign aid could be formulated.

The policy guidelines regarding foreign aid programmes implementation would enhance the South African government's capacity to define issues, generate policy alternatives and policy alternatives analysis. According to Edwards and Sharkansky (1978:170), after information on alternative policies, policy-makers should assess each option's potential for maximising their goals. Edwards and Sharkansky (1978:170), further stress

that policy-makers should be able to predict and analyse the consequences of each alternative to determine how it will accomplish the goals it is designed to accomplish.

The guidelines should ensure that bilateral agreements maximise the potential for attaining government priorities at the least possible costs. Providing policy guidelines on the implementation of the foreign aid programmes will assist in channeling bilateral agreements in a direction that promote government priorities and domestic needs at the least possible costs. Furthermore, policy guidelines could allow policy-makers to assess each policy option's potential for maximising their benefits. There is a need to enhance capacity to craft effective bilateral agreements.

Policy alternatives adopted should be able to address societal needs. Effective information analysis skills will allow policy-makers to measure the costs and benefits of various policy alternatives. The proposed policy guidelines will enable the policy-makers to evaluate the efficacy of existing policies. As a result of these policy guidelines, foreign aid programmes could be tailored in such a way that they address the problems South Africa faces in terms of skills shortages.

6.4.2.3 Improved inter-department and inter-institutional consultation

There is a need for inter-departmental and inter-institutional consultation when formulating bilateral agreements. According Corkery *et al* (1995:29), inter-departmental consultation serves to identify components of policies of other departments that could be relevant to the policy issue under consideration. Corkery *et-al* (1995:29) are also of the opinion that the inter-departmental consultations provide an opportunity to draw on existing relevant information and expertise in other departments.

The inter-institutional consultation in the context of South Africa should include government departments, Universities, University of Technologies and Further Education and Training Sectors (FETs), and government training institutions (SETAs).

Such consultations would help to improve the quality of the bilateral policy alternatives adopted.

Consultative forums could provide an opportunity for information gathering and also provide a framework for broader understanding of the government priorities and domestic needs particularly regarding artisans and engineering skills transfer. The inter-departmental consultation may take the form of inter-departmental notes and meetings. It is important to take into consideration the fact that skills transfer problems cut across various sectors of government which necessitate the need for inter-departmental coordination when formulating bilateral agreements aimed at implementing foreign aid programmes. An effective policy formulation would benefit from participation of various actors and stakeholders.

6.4.3 The guidelines should ensure compliance with government priorities and domestic needs.

The policy guidelines could ensure that foreign aid programmes are fully compliant with the government priorities and domestic needs. The bilateral agreement on the implementation of the SAATDC was not fully exploited for the benefit of the local artisans and engineers.

The South African government should have mandated a minimum number local engineers and artisans to be involved in the implementation of the Chinese aid programmes. Such undertakings would have enhanced development of local skills and expertise. There is a need for coordination and collaboration between educational institutions (Universities, University of Technologies and Further Education and Training sectors), and government training institutions (SETAs). Without this coordination, the South African government would not be able to optimally utilise opportunities provided through Chinese aid programmes to increase the number of qualified artisans and engineers.

The SAATDC bilateral agreement clearly stipulates that the Chinese would conduct a professional study of the project, and undertake the project design and construction. The agreement further states that Chinese would be responsible for the collection of the required technical information for project design and also investigate the construction material and special construction requirements in local areas in South Africa. The Chinese would also design all the buildings, ancillary works and outdoor construction works. In simple terms this means that, during the construction, engineers were imported from China.

The South African government should therefore introduce measures and legislation that enable, encourage and enforce transfer of technology and skills into the local industries as well as local engineers and artisans. There is a need for policy guidelines to ensure that ASGISA and JIPSA objectives are not undermined by allowing companies to import skills without also ensuring skills transfer.

6.4.4 The guidelines should provide guidance with regard to the implementation of bilateral agreements and provide officials negotiating bilateral agreements with a framework in the manner bilateral agreements should be formulated

The policy formulation guidelines should provide guidance with regard to the formulation and implementation of bilateral agreements. These guidelines should provide officials negotiating bilateral agreements with a framework in the manner which bilateral agreements should be formulated.

It is important to ensure that when formulating bilateral agreements which are based on implementing foreign aid, that the government ensures that such agreement provides an opportunity to assist with the empowerment of professional skills particularly engineering, increase qualified artisans to spearhead new projects, increase local construction companies' competitive advantage and improved workplace skills through apprenticeships.

The implementation of the SAATDC as Chinese aid projects was not fully exploited for the benefits of the local workforce and well as improving the country's competitiveness. It is understood that a number of South African locals were employed in the construction of the South African Agricultural Technology Demonstration Centre. However, failure to transfer construction or artisans' skills, limited the impact of SAATDC bilateral agreement on ASGISA and JIPSA objectives. Thus the positive impacts were limited, in the sense that no artisans' skills were transferred during the construction phase.

The construction of the SAATDC had positive effects on the house-hold income in the Xhariep District, however such positive effects are limited by the fact that no technical skills were transferred during the construction phase. There is a need to encourage collaboration between South African companies and foreign companies if the government is committed towards skills transfer, particularly with regard to addressing South Africa's artisans and engineers' shortages.

To maximise the benefits of future Chinese aid projects, it should be ensured that technical skills are not only imported, but also transferred. This can only be ensured if Chinese companies not just employ general workers in South Africa, but also technical workers as well. Partnerships with the South African companies should be encouraged to ensure that in future technical skills transfer take place.

It is important to note that if South Africa needs to develop its skills development to a high level of sophistication, there is a need to introduce guidelines which will allow it to secure key capabilities. When implementing the SAATDC bilateral agreement, there was a need to encourage a partnership between the CNADC and local companies. There is a need to enhance the sophistication of the local artisans. Forming a partnership with South African companies in the implementation of foreign aid projects will allow local companies to enhance their competence and sophistication. Partnerships will also allow local companies to enhance their competitive strength through a certain level of transfer of technology and capability. Some of the long term benefits of partnerships are:

- a) Empowerment of professional skills.** There is a need for more skilled individuals to enter into the construction industry. Involving the South African engineers, will contribute towards achieving the government's New Growth Path and ASGISA and JIPSA's target of producing at least 30,000 additional engineers by 2014. South African engineers could be empowered by involving them in conducting a professional study of the project including undertaking the project design, and construction of any future Chinese aid project.
- b) Increase qualified artisans to spearhead new projects.** The greater involvement of South African artisans will also make a significant contribution towards South Africa's target of producing at least 50,000 additional artisans by 2015. Skills acquired through Chinese aid projects could be used to improve the maintenance of municipal infrastructure which is currently lacking in the country.
- c) Increase local construction companies competitiveness.** The greater involvement of the South African construction companies in the implementation of Chinese aid projects will increase local construction companies' competitiveness. Involvement of local companies could empower them with necessary project management skills which will enable them to conduct similar infrastructure development projects, without necessarily depending on the foreign companies.
- d) Improved workplace skills through apprenticeship.** An apprenticeship is an occupational skills training that combines on-the-job experience with classroom instruction (Cantor, 1993:2). Apprenticeship trains workers to meet industrial needs for a given occupation. Pushing for the involvement of the middle-level skills particularly those training in the Further Education and Training (FET) in Chinese aid projects, could contribute towards addressing technical skills shortages in the country. These can be achieved provided that opportunities provided by through Chinese aid projects are used in an optimal way. Apprenticeships have been proven as a way to train people for careers that

demand a wide range of skills, and knowledge. Providing apprenticeships in the implementation of the Chinese aid project could provide students with skills that will enable them to adapt to new technologies. That could also afford South Africa an opportunity to ensure that construction companies have employees that fit the specific needs of the country. In simple terms, that means increasing a number of artisans which will enable South Africa to overcome its infrastructure backlog caused by skills shortages. Reliance on migrant labour could also be reduced. The South African government has resources to pay for these apprenticeships. Providing and funding apprenticeship in the implementation of the Chinese aid projects could provide an opportunity for the Department of Labour and SETAs to spend their budgets allocated for training. Such training will reduce high levels of skills shortage within the construction sector. In 2004, the SETAs failed to spend over R120m meant for skills development training (Staff Reporter, 2007).

Partnerships are mutually beneficial relationships where both parties learn about each other's expertise. The term 'partnerships' incorporates the sharing of knowledge, experience, and skills. South Africa has a shortage of skills including, heavy-current electricians, plumbers, fitters and turners, welders, carpenters, bricklayers and handymen. Artisan's skills are critical for the operation and maintenance of infrastructure projects in the country. South Africa would have an opportunity to increase its skills baskets if future Chinese aid projects are aligned to the domestic socio-economic priorities.

There was also a need for greater involvement of South African companies on the technical aspects of the aquaculture centre construction. These will serve to empower the South African companies to undertake such projects on their own in future.

Adequate skills transfer could take place once the South African companies are empowered not to depend on the Chinese companies for future construction or upgrading of other fish hatcheries. It is important that, when the SA government

formulates future bilateral agreements, ensures that local people are equipped with project management skills. This might take place if there is a greater involvement of South Africans in the major stages of project management including project initiation, project planning and development, project implementation, project monitoring and project closing.

The proposed policy guidelines should provide guidance with regard to the implementation of bilateral agreements. Policy guidelines should also provide officials negotiating bilateral agreements with a framework as to the manner in which bilateral agreements should be formulated. Policy guidelines should ensure that bilateral agreements take into consideration or address shortages of skills including, heavy-current electricians, plumbers, fitters and turners, welders, carpenters, bricklayers and handymen. These skills are critical for the operation and maintenance of infrastructure projects in the country and should be maintained as pre-conditions when formulating any future bilateral agreements that seek to implement foreign aid programmes.

6.5 Further research

As was stated in Chapter three (Section 3.2), one of the challenges faced by African countries, including South Africa is the challenge posed by cheap Chinese imports which have already eroded industrial capacity of many African countries. There are concerns that cheap Chinese imports discourage diversification of the productive base of the African economies away from crude agricultural and mineral products, towards manufacturing, and eventually service or knowledge intensive activities (Ajakaiye, 2006:8). This challenge emanates from the fact that new investors may either find it unattractive to compete with cheap Chinese imports, or find it unnecessary, because Chinese imports are so large scale, leaving no significant excess demand which new entrants can aspire to meet. Ajakaiye (2006:8) writes that the de-industrialization effects of cheap Chinese imports will indeed reverse the gains of industrial development made during the first two decades of independence in Africa.

Based on these concerns there is a need for further research on whether the aquaculture products from the Gariep Dam will be able to compete with Chinese products locally and internationally. China accounts for 47% of the world's aquaculture production. China remains the largest producer, with reported fisheries production of 51.5 million tonnes in 2006 (FAO, 2009:5). It would therefore be important to establish whether new investors in the South African aquaculture sector would find it attractive to compete with well established Chinese products in the international market, as well as locally.

6.6 Conclusion

As indicated in Chapter five, the benefits of the SAATDC bilateral agreement were two dimensional. Firstly, there were the skills transfers during the construction, which were not fully exploited in the implementation of the bilateral agreement. Secondly, there were post-construction skills and technology transfer, which were adequately addressed in the bilateral agreement. With regard to the post-construction skills transfer, the bilateral agreement was therefore adequately aligned to the domestic needs and priorities.

With regard to the skills transfer during the construction, it is concluded that the SAATDC bilateral agreement was not fully exploited for the benefits of the local workforce (artisans and engineers). There was a failure to involve South African engineers, artisans and South African companies in conducting a professional study of the project, formulation of the project design and construction plan which limited the impact of the Chinese development aid on ASGISA and JIPSA objectives. There is thus still a need to enhance the sophistication of local artisans and engineers as required by the ASGISA and JIPSA, but such opportunities were not provided by the SAATDC. Forming a partnership with South African companies in foreign aid projects could therefore better allow local companies to enhance their competence and sophistication.

With regard to the post-construction skills transfer, it is concluded that through the implementation of the SAATDC bilateral agreement, the governments of China and South Africa will subsequently share best aquaculture practices, which will contribute towards poverty alleviation and jobs creation. Analysis was made as to whether the implementation of the SAATDC bilateral agreement will allow the Chinese government to transfer aquaculture expertise to South Africa through training. By raising performance through transfer of skills, the South Africa Aquaculture Sector will eventually be able to improve its profitability and production. Furthermore skills transferred will ensure availability of adequate human resources for expansion into new aquaculture sectors around South Africa. These skills could also eventually be transferred to other aquaculture sectors in South Africa.

China will assist South Africa in overcoming its domestic aquaculture constraints including, poor storage facilities, lack of research facilities, shortage of appropriate breeds due to absence of expertise, and poor management practices. The South African aquaculture sector has gained from the SAATDC bilateral agreement between South Africa and China. South Africa has benefitted and will continue to benefit from the project in terms of infrastructure development, and dissemination of improved technology, improved extension and training facilities and increased provision of training for farming communities. Further to that, the newly upgraded aquaculture centre will enable South Africa to increase its fish production. The sector will generate employment and therefore help in terms of poverty alleviation.

The establishment of the SAATDC will significantly contribute towards the South African government's agro-processing initiatives. Agro-processing could play an important role in supporting economic development, and thus contribute to poverty reduction and economic inclusion. Agro-processing could increase the viability, profitability and sustainability of production systems in the fisheries sector in the Xhariep District. Agro-processing could increase incomes of primary producers, create employment and foreign exchange earnings, and address the market risks associated with primary agricultural production in Gariep Dam and the Xhariep District at large.

This bilateral agreement was based on a valid theory of cause and effect. However there are some fundamental limitations that need to be addressed. The SAATDC bilateral agreement was based on the existence of valid causal theories about the problem that the policy intends to address. It was based on an adequate understanding of problems that needed be solved in the aquaculture sector. However there is still a general disregard of a key challenge facing South Africa, which is, skills shortages in the engineering field.

The SAATDC bilateral agreement clearly stipulates that the Chinese would conduct a professional study of the project, and undertake the project design and construction. The agreement stated that the Chinese would be responsible for the collection of the required technical information for project design and also investigate the construction material and special construction requirements in local areas in South Africa. The Chinese would also design all the buildings, ancillary works and outdoor construction works. In simple terms, this means that, during the construction, engineers were imported from China. Such undertakings limited the opportunities for the transfer of artisans' skills like heavy-current electricians, plumbers, fitters and turners, welders, carpenters, bricklayers and handymen, as well as empowerment of local engineers. During the SAATDC bilateral agreement formulation, there was a failure to ensure that the bilateral agreement fully maximised the potential for attaining governmental priorities. Thus it can be concluded that, the bilateral agreement was not as fully exploited for the full benefit of the local work force as could have been the case if all the opportunities were utilised more optimally.

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