An analysis of the competitive performance of the Namibian date industry - 2001 to 2013

by

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Declaration

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December, 2015

Dedication

I dedicate my Master's degree to various individuals. My late mother, Perpetua 'Nakuti' Kosmas; my father, Ambrosius Shoopala, and my grandmother, Lucia Iipinge, for their advices, love and support since the earliest years of my life.

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Abstract

This study investigates the competitive performance of the Namibian date industry from 2001 to 2013. The analytical framework was adapted from recent work on agri-business competitiveness (refer to Ismea, 1999; Esterhuizen, 2006; Van Rooyen *et al*., 2011; Jafta, 2014 and Boonzaaier, 2014), and refined to consider the validity of the questions posed to respondents and the variation in their responses *vis-à-vis* current impacts and long-term relevance of factors impacting on competitive performance. Opinions within the date industry value chain were also considered in this analysis.

The concept of competitiveness firstly was defined to give effect to the importance of international trade to the Namibian date industry, as the ability to trade its products in both domestic and international markets on a sustainable basis; and, as such, it is able to continue to attract scarce resources such as land, labour, technology, management talents and capital while earning at least the opportunity costs of returns on resources employed (adapted from the work of Freebairn, 1986; Esterhuizen, 2006; Van Rooyen *et al*., 2011).

The second step in the study was to empirically measure the competitive performance of the date industry based on this trade orientation, using the relative trade advantage (RTA) method. Trade data from FAOSTAT and Trademap were used. Since 2001, the Namibian date industry has consistently recorded positive trends with RTA values ranging between 0.40 and 4.0. When compared to other international competitors, the results indicate that Tunisia is by far the most competitive country, with RTA values ranging between 278 and 391. Namibia's date industry leads competitors such as South Africa, the USA, Kenya, Australia and India.

In step 3, an industry-wide survey was conducted among executive-level industry role players, which identified 72 factors influencing competitive performance. The 72 factors were rated and analysed through chi-square and one-way analysis of variance (ANOVA) in terms of their current impact as enhancing or constraining and also in terms of their relevance to the industry. The results revealed that all factors were rated highly relevant (i.e. important) to the industry's competitive performance levels, with 47 percent playing an enhancing role, while 43 percent were constraining competitive performance in the Namibian date industry. Differences between views on the current impact and long-term relevance of factors provided a 'performance gap' that the industry had to attend to strategically in order to improve competitive performance.

The top three most enhancing factors are the substantial size of the international date market, the availability of unskilled labour, and the suitability of Namibian date production (project) locations. The highest rated constraining factors were identified as: the lack of privately funded scientific research

capacity, the slow growth and small size of local markets, and insufficient industry expenditure on research and development (R&D).

The fourth step applied Porter's theory of competitiveness (1990; 1998) to derive the industry determinants of competitive performance. The 72 factors were grouped into the six Porter diamond determinants. Principal component analysis (PCA) was undertaken to identify variations and consensus in the views of respondents with respect to the relevance and impact of factors identified for each determinant. The results revealed that there were variations in opinions with regard to 52 factors and consensus on 20 factors, influencing the industry's competitive performance.

In analysing opinions on the impacts and long-term relevance of the identified factors, two value chain clusters were identified, viz. those opinions or respondents directly involved in the production processes of dates (cluster 1); and those providing supporting functions to the production process (cluster 2). The results indicate that although there are similarities in the opinions within the date industry value chain, important differences do exist and must be noted in strategic planning process by the industry. Differences were recorded with regard to access to quality technology, obtaining long-term credit, diversification in the international market, cost of specialised technology services, the effect of legal and political factors on the industry's strategic position, the country's black economic empowerment (BEE) policy and health cost implications.

In step 5, the most important findings from steps 3 and 4, together with views gathered from a date industry information session (the DIS) and personal interviews, were included in a strategic decision matrix aimed to develop industry-level proposals to improve competitive performance. This matrix listed constraining factors for which a large degree of industry-level consensus was recorded, together with those actions that could improve performance immediately.

Proposals highlighted were: focusing on human resources and skills development; cost-sharing activities; public-private partnerships in the development of project-level socio-economic investment packages, investing in long-term research and development (R&D); upgrading export facilities; local market development and improved collaboration with national retailers; reduction of marketing costs; export-market diversification; developing representative industry-level institutions and an industry-level strategic plan; and mobilising government-level support more effectively in order to create a conducive environment for the industry to compete successfully.

Opsomming

Hierdie studie het die mededingende prestasie van die Namibiese dadelbedryf vanaf 2001 tot 2013 ondersoek. In die studie is die konvensionele raamwerk vir die mededingendheidsanalise van agribesigheid (verwys na Ismea, 1999; Esterhuizen, 2006; Van Rooyen *et al*., 2011; Boonzaaier, 2014; Jafta, 2014) verfyn om die geldigheid van die vrae wat die respondente geantwoord het en die verskille in hulle response teenoor huidige impakte en langtermyn relevansie te oorweeg. Opinies vanuit die waardeketting van die dadelbedryf is ook ingesluit in die ontledings.

Die konsep van mededingendheid is eerstens gedefinieer, gebaseer op die belangrikheid van internasionale handel vir die Namibiese dadelbedryf, as die vermoë van die dadelbedryf om sy produkte op ’n volhoubare basis in beide binnelandse en internasionale markte te verhandel en, as sulks, te kan voortgaan om skaars hulpbronne soos grond, arbeid, tegnologie, bestuurstalente en kapitaal te lok en terselfdertyd ten minste die geleentheidskoste van opbrengste op hulpbronne verbruik, te verdien (aangepas uit die werk van Freebairn, 1986; Esterhuizen, 2006; Van Rooyen *et al*., 2011).

Die tweede stap in die studie was om die mededingende prestasie van die dadelbedryf empiries te meet op grond van hierdie handelsoriëntasie deur gebruik te maak van die relatiewe handelsvoordeel (*relative trade advantage (RTA)*) metode. Handelsdata afkomstig van FAOSTAT en Trademap is gebruik. Sedert 2001 het die Namibiese dadelbedryf konsekwent positiewe tendense vertoon, met RTA-waardes wat gewissel het tussen 0.40 en 4.0. In vergelyking met ander internasionale mededingers toon die resultate dat Tunisië verreweg die mees mededingende land is, met RTA-waardes van tussen 278 en 391. Namibië se dadelbedryf loop egter voor teen mededingers soos Suid-Afrika, die VSA, Kenia, Australië en Indië.

In stap 3 is ’n bedryfswye opname onder bestuursvlak- rolspelers onderneem. Hierin is 72 faktore geïdentifiseer wat mededingende prestasie beïnvloed. Die 72 faktore is geëvalueer en deur middel van chi-kwadraat en eenrigting analise van variansie (ANOVA) geanaliseer in terme van hulle huidige impak as óf versterkend óf stremmend, en ook in terme van hulle relevansie vir die bedryf. Die resultate het getoon dat al die faktore as hoogs relevant (m.a.w. belangrik) vir die bedryf se mededingende prestasievlakke geëvalueer is, met 47% wat ’n versterkende rol gespeel het, terwyl 43% mededingende prestasie in die Namibiese dadelbedryf gestrem het. Verskille tussen die sienings oor die huidige impak en die langtermyn relevansie van die faktore het ’n ‘prestasiegaping’ voorsien wat die bedryf strategies aan aandag moet skenk om die mededingende prestasie te verbeter.

Die drie top versterkende faktore was die grootte van die internasionale dadelmark, die beskikbaarheid van ongeskoolde arbeid en die gepastheid van die dadelproduksie (projek)-gebiede. Die stremmende faktore wat die belangrikste geag is, is geïdentifiseer as die gebrek aan privaatbefondsde wetenskaplike navorsing,

die baie stadige tempo van groei in plaaslike markte en onvoldoende bedryfsbesteding op navorsing en ontwikkeling (*R&D*).

In die vierde stap is Porter se mededingendheidsteorie (1990; 1998) toegepas om bedryfsdeterminante van mededingende prestasie af te lei. Die faktore vanaf stap 3 is in die ses Porter-diamant determinante gegroepeer. Hoofkomponent-ontleding (*principal component analysis (PCA)*) is onderneem om verskille en konsensus in die sienings van die respondente met betrekking tot die relevansie en impak van die faktore wat vir elke determinant geïdentifiseer is, te identifiseer. Die resultate het getoon dat daar groot verskille in opinies was met betrekking tot 52 faktore en konsensus oor 20 faktore wat die bedryf se mededingende prestasie beïnvloed.

Deur die opinies oor die impakte en langtermyn relevansie van die geïdentifiseerde faktore te analiseer, is twee waardeketting bondels geïdentifiseer, naamlik daardie opinies of respondente wat direk in die produksieprosesse van dadels betrokke is (bondel 1); en dié wat ondersteuningsfunksies verskaf (bondel 2). Die resultate dui aan dat hoewel daar ooreenkomste in opinies binne die waardeketting van die dadelbedryf is, is daar belangrike verskille wat bestaan en aangeteken is. Verskille, waarvan kennis geneem moet word in strategiese bedryfsbeplanning, is aangeteken met betrekking tot toegang tot hoë kwaliteit tegnologie, die verkryging van langtermyn krediet, diversifikasie in die internasionale mark, die koste van gespesialiseerde tegnologiese dienste, die effek van wetlike en politiese faktore op die bedryf se strategiese posisie, die land se beleid van swart ekonomiese bemagtiging (SEB), en gesondheidskoste-implikasies.

In stap 5 is die belangrikste bevindings in stappe 3 en 4, tesame met die sienings wat tydens ’n dadelbedryfinligtingsessie bekom is, in ’n strategiese besluitnemingsmatriks ingesluit. Klem is gele op faktore waaroor die bedryf grootliks saamstem. Die doel was om bedryfsvlakvoorstelle te ontwikkel om die mededingende prestasie van die bedryf te verhoog. Hierdie matriks het gefokus op die stremmende faktore waaroor ’n groot mate van bedryfsvlak-konsensus opgeteken is, tesame met daardie aksies wat die prestasie onmiddellik sou kon verbeter.

Die voorstelle wat vooruitstaan is: ’n fokus op die ontwikkeling van menslike hulpbronne en vaardighede; koste-delende aktiwiteite; openbare-private vennootskappe in die ontwikkeling van projekvlak sosio-ekonomiese beleggingspakkette, met ’n belegging in langtermyn navorsing en ontwikkeling (R&D); opgradering van uitvoerfasiliteite; plaaslike markontwikkeling en verbeterde samewerking met nasionale handelaars; vermindering van bemarkingskostes; diversifikasie van uitvoermarkte; ontwikkeling van verteenwoordigende bedryfsvlak- instellings en ’n bedryfsvlak- strategiese plan; en die meer doeltreffende mobilisering van regeringsvlak-ondersteuning om ’n omgewing te ontwikkel wat bevorderlik is vir die bedryf om suksesvol te kan kompeteer.

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DES	Date Executive Survey
DIS	Date Information Session
DISP	Date Industry Strategic Plan
EU	European Union
FAO	Food and Agriculture Organisation
FoA	Framework of Analysis
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
ITC	International Trade Centre
MAWF	Ministry of Agriculture, Water and Forestry
NAB	Namibian Agronomic Board
NAP	National Agriculture Policy
NDC	Namibia Development Corporation
NDPs	National Development Plans
NHDI	National Horticulture Development Initiative
NPC	National Planning Commission
NSA	Namibia Statistic Agency
ORIP	Orange River Irrigation Project
PCA	Principal Component Analysis
PPP	Public Private Partnership
RCA	Revealed Comparative Advantage
R&D	Research & Development
RMP	Relative Import Penetration
RTA	Relative Trade Advantage
RXA	Relative Export Advantage
SACU	Southern African Customs Union
SADC	Southern African Development Community
SPSS	Statistical Package of Social Science
WTO	World Trade Organization

CHAPTER 1: INTRODUCTION

1.1 Background

The agriculture sector is the third largest primary industry in Namibia after mining and fishing, contributing about 3.2% to GDP. Of this, 1.6% is contributed by horticultural produce (Namibia Statistics Agency [NSA], 2013). Horticultural produce (particularly table grapes and dates, but also watermelon) play an increasingly important role in Namibian exports (Thomas, 2007). Over the past ten years (2003 to 2013), Namibia exported goods valued at N$ 614.8 billion, of which grapes and dates contributed a total of N$ 4.3 billion (International Trade Centre [ITC], 2014).

Despite the fact that agriculture is an important sector in the Namibian economy, the country remains a net importer of most horticultural produce. Domestic producers supply 32% of the country's total fruit and vegetables demand, while the remaining 68% are supplied by imports, mostly from South Africa (Namibia Agronomic Board [NAB], 2013). Due to the global trade orientation of the Namibian horticultural industry, the industry, together with the government, has and will continue to developed policies and strategies geared towards the improvement of the competitiveness of the horticultural industry.

Horticultural production and marketing initiatives that currently are being implemented include the 2008 Green Scheme Policy, the 2002 National Horticulture Development Initiative (NHDI) and the 2011 Namibia Agriculture Marketing and Trade Policy and Strategy. All these policies and strategies are aimed at increasing agricultural production and sector contribution to GDP; promote research and adaptation of technology to increase productivity; and diversify agricultural production and products for competing in the domestic and international markets (Ministry of Agriculture, Water and Forestry [MAWF], 2008).

Some of the horticultural projects that have being supported under the Green Scheme Policy include the three date plantations, namely the Naute, Eersbegin and Hardap irrigation projects. This is due to the fact that dates are one of Namibia's important economic crops, as they play a major role in foreign exchange earnings, income and employment generation (Botes & Zaid, 2002). The fruit's tolerance to harsh environmental desert conditions makes it a crucial asset for Namibia's economic development.

During the 1994/1995 financial year, the government allocated about N$15.2 million to the establishment of the three plantations (Zaid & De Wet, 1997). Since then, the government has continued to provide funds for the development of these projects and an amount of N$ 45 million has been invested in date production to date (De Wet, 2015). This is a manifestation of the government's commitment and support to enhance the development of the date industry.

Since then, the date industry has increased in terms of the number of projects and production volumes. Currently there are nine large- and small-scale date projects that produce a total of 925 tons (Namibia Development Cooperation [NDC], 2015). Even though Namibia's production volumes are relatively small,

the country's location in the Southern Hemisphere enables it to produce and supply fresh dates to international markets during particular periods. Namibia's total date production may not be notable in relation to world production, but might be significant in the export market (Zaid and De Wet, 1997). The domestic market of dates is limited and small quantities of dates are being imported. South Africa is Namibia's main export market for date palm fruits, accounting for 38.6%, followed by the United Arab Emirates, France and Spain, which take 31.6%, 23% and 6.8% respectively. The biggest competitors for Namibia in those international markets are Saudi Arabia, the United Arab Emirates, Tunisia, Algeria and Israel (ITC, 2014).

Namibia, however, has an advantage because its dates enter the global market when the major competitors, which are mainly on the Northern Hemisphere, would be off-season (Dada *et al*., 2012). This also means that the few fruit that remain in the competing countries during the off season are rather sold to their domestic markets due to the large demand. Therefore, Namibia remains one of the main suppliers of dates to international markets in the off-season (i.e. February to July). Date palm fruits are marketed all over the world as a high-value confectionery fruit and remain an extremely important crop, especially in most of the desert regions. Between 2001 and 2013, the single largest producer of dates was Egypt (35%) (FAOSTAT, 2014), the largest exporter was Tunisia (25%), and the largest importer was India (15%) (ITC, 2014).

Given the economic relevancy of the date industry to Namibia and the importance to improve competitive performance, it is imperative that an analysis of its competitive performance in the global market is done. This is because, in today's globally interdependent world of trade, only an increasingly competitive industry will survive and continue to deliver economic, social and financial benefits i.e. to be sustainable. According to Warr (1994), competitive advantage indicates whether a firm or sector could successfully compete in trade of the commodity in the international market, given existing policies and economic structures. The World Economic Forum (2013) defines competitiveness as the set of institutions, policies and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the level of prosperity that can be earned by an economy. The productivity level also determines the rates of return obtained by investments in a particular economy, which in turn are the fundamental drivers of its growth rates. This means that a more competitive economy is one that is likely to sustain growth. From this, it follows that policy and strategy changes, aimed at increased competitive performance will be important at firm, industry and government levels. Such an investigation of the Namibian date industry forms the core objective of this study.

Freebairn (1986) states that an industry or firm is considered competitive when it is able to deliver products to both domestic and international markets at a price that is as good as or better than other suppliers while earning at least the opportunity costs of returns on resources employed and, as such, is able to attract scarce resources such as land, human capital, labour and capital from other economic activities. Competitiveness

therefore is an indicator of the ability to supply goods and services at the location and form, price and at the time they are sought by buyers. Porter (1990) furthermore argues that it is not production factors alone that influence an industry's competitive performance, but that a range of factors influencing the business and policy environment are critical to their success.

Recently, competitive analysis has become an evolving area of interest and inquiry for agricultural economic research, also in South Africa. This is evident from the increasing number of studies that have been undertaken on both the micro- and macro-level. These analyses include works by Pitts and Lagnevic (1997), Van Rooyen and Van Rooyen (1998), Esterhuizen and Van Rooyen (1999; 2006), Van Rooyen, Esterhuizen and Doyer (2000), Esterhuizen (2006), Thomas (2007), Mashabela and Vink (2008), Boonzaaier (2014) and Jafta (2014).

This study aims at measuring and analysing the competitive performance of the Namibian date industry in a comprehensive and operational manner and proposes policy and industry level strategies that can assist the date industry to increase its competitive performance in international markets while contributing to the country's economy.

1.2 Problem Statement

The Namibian government has implemented a number of policies and strategies geared toward the improvement of the competitive performance of Namibian agricultural sector, both in the domestic and the international markets. These policies and strategies are aimed at taking full advantage of the open global market on the basis of the country's perceived competitive advantage. In addition, some important investments have been made in terms of technical skills and infrastructure development for agricultural purposes both by government and private entities.

Despite the policies, capital investments and a number of horticultural projects that were implemented, little research has been conducted to date, to assess and investigate the status of the competitive performance of the Namibian horticultural industry. A survey was conducted in 2001 to prepare a plan of action for the implementation of the basic food standards for horticultural produce in Namibia (Foster, 2001), and the plan of action was only aimed at ensuring that the Namibian horticultural industry produced commodities, including dates, which can conform to international quality standards. Thomas (2007) also conducted a qualitative study of the determinants of the global market competitiveness of table grapes in Namibia. This study concluded that the Namibian table grape supply chain was associated with high transaction costs resulting from contractual and exchange arrangements, particularly due to the perishability of fresh grapes with a short shelf-life. Another study conducted especially on date palm fruits in Namibia concentrated more on technical production aspects (Zaid & De Wet, 1997). This included climatological adaptation, fruit quality and quantity survey, optimal water requirements of date palms

during different development stages, and mitigation measures to protect dates from rain damage experienced during the harvesting period (Zaid & De Wet, 1997). All these studies focused mainly on transaction costs analysis and production performance, and took a relative narrow view of competitiveness. However, no study has yet been conducted in a comprehensive manner of the Namibian date industry's global competitiveness performance.

The current trends relating to the globalisation of markets, trade liberalisation and advances in information technology, consumer preferences and improved logistics are placing pressure on industries worldwide to become more competitive. The fact that Namibia produces date fruits that are traded successfully internationally means that the country do compete in terms of profits, quality, prices and offerings (packaging, consistency and convenience). In order to grow the industry, it must grow in its competitive performance - both locally and internationally. This entails that there is a need to analyse, strategize, execute and monitor the performance at country, industry and firm level in order to provide strategic intelligence to enable the industry to sustain and grow its performance levels over time.

This also means that there is a need for low-income countries to explore available opportunities and to promote the export of products, such as dates, in which they appear to have a comparative advantage. According to Lipsey *et al*., (1993) comparative advantage refers to the ability of one nation to produce a commodity at a lesser opportunity cost of other products forgone than another nation. Comparative advantage explains how trade could benefit nations by more efficient use of the world's resource base (i.e. land, labour and capital inputs) when that trade is totally unrestricted, i.e. a free market environment or at least when 'an equal playing field exists. In other words, comparative advantage indicates whether it is economically advantageous to expand the production and trade of a specific commodity. While competitive advantage indicates whether an industry or firm could compete successfully in the trade of a commodity in the international markets, given existing policies and economic structure (Warr, 1994). Competitive advantage therefore describes a more operational business orientated concept. However, competitive advantage not rooted in comparative advantages could result in sub optimal resource allocations hence economic inefficiencies which is a concern for policy analysis.

Good collaboration with both public and private entities is also critical to achieving sustained growth, and the industry needs to specify the benefits that it can offer to government in order to attract a long-term strategic partnership. This all will require date producers to develop industry- and firm-level strategies in order to increase their competitive performance and position themselves as capable competitors in the local and global free-market environment.

This study focuses largely on the industry level in order to provide strategic intelligence for the industry to improve by inter alia lobbying for favourable government policy support, by improving its external positioning and by creating an operational strategic framework to assist firm-level strategies. These action

can, however, not be done without setting and understanding where Namibia currently stands i.e. setting the baseline. There is furthermore no proper measurement of competitiveness of the horticulture industry in Namibia yet; and all that has been done so far is largely informed by subjective ratings (see for example Optimal Agricultural Business Systems [OABS], Development of sector growth strategy for the Namibia agro-processing industry, 2015).

Thus, there is a need to determine the date industry's competitiveness in a comprehensive manner and to use such a determination as baseline and intelligence for strategic action, i.e. by defining, measuring and analyzing the factors influencing competitive performance of dates over a relevant time period. In this study, such an in-depth analysis of all factors that influence the competitive performance of date palm fruits beyond production costs will be carried out. The study forms the basis on which the competitive performance of the horticultural industry in Namibia could be measured. This will also consider trends i.e. give effect to the realization that being competitive in the particular year is not highly relevant if such performance cannot be sustained; competitive performance is a dynamic and ever-changing state of affairs. Measuring the relative competitiveness trends of the industry since its formal inception in 2001, (i.e. after the industry received technical assistance from the FAO and started to be revamped) will provide a good indication of the success of this industry.

1.3 Significance of and rationale for the study

There is a need for Namibia as a middle income country to explore available opportunities and promote the export of products, such as date palm fruits, in which it appears to have a comparative advantage. However, this critical move requires an understanding of the competitive advantage present in this industry. Given that the Namibian date palm fruits are highly tradable products in global markets, it is crucial to measure and analyse the industry's competitive performance in this environment, i.e. to understand the factors that influence its competitiveness based on trade performance, for the long-term survival of the industry. Business activities are generally based on expectations and, by implication, most, if not all, business activities are concerned with the future (Porter, 1998). This study therefore is justified in order to develop an analytical framework to deliver improved business intelligence that will inform policy and strategy at government, industry and firm level to enable the sector to perform competitively. In addition, this study also will contribute to improved competitive research in Namibian agriculture and could act as a framework of reference and baseline information for such future research.

1.4 Objectives of the study

The broad objective of this study was to determine the competitiveness of the Namibian date industry globally. The specific objectives of this study were:

1. To define competitiveness in the context of the Namibian date industry in a comprehensive and operational manner.
2. To measure the competitive performance of the Namibian date industry between its formal inception in 2001 up to more recently (2013, the most recent available information).
3. To analyse and describe the industry's competitiveness trend between 2001 and 2013.
4. To identify and establish factors affecting the competitive performance of the Namibian date industry.
5. To group these factors into major determinants and strategically analyse these.
6. To propose industry-level strategies that can improve the competitive performance of the Namibian date industry.

1.5 Research questions

The main question to be answered by this study is: Is the Namibian date industry competitive in the global environment?

The sub-questions posed for this research are the following:

1. How should competitiveness in the context of the Namibian date industry be defined to meet the stated research objectives?
2. How can such competitive performance of the Namibian date industry be measured over time (2001 to 2013)?
3. How should such performance be analysed i.e. what framework of analysis will apply?
4. What are the factors and determinants enhancing and constraining the competitiveness of the Namibian date industry? How can this be verified statistically?
5. What strategies can be proposed to enhance the competitiveness of the Namibian date industry?

1.6 Hypotheses

The study will explore two related hypotheses:

H_1: The Namibian date industry has performed competitively in the international market over time, mainly due to location (Southern Hemisphere) and climate (these are production factor determinants); but

H_2: There is not only one factor or set of factors that has determined the competitive performance of the industry, but rather various factors, including productivity levels, market strategy, exports and local sales, firm strategy, the strength of the institutional support system, rivalry, government support and the exchange rate and the ability to exploit certain ad hoc or chance occurrences.

1.7 Framework of analyses (FoA)

1.7.1 Five step analytical framework

This study adapted and refined a five-step process from Esterhuizen (2006), Van Rooyen and Esterhuizen (2012) and Jafta (2014) to measure and analyse the competitive performance of the Namibian date industry. These steps are chronologically depicted as define, measure, identify, analyse and conclude.

Step 1: Define competitiveness in the context of the Namibian date industry.
Step 2: Measure the competitive performance of the Namibian date industry;
Step 3: Identify and establish, through interviews with industry experts and knowledgeable stakeholders (the date executive survey (DES)), major factors affecting competitive performance;
Step 4: Identify and analyse the determinants of competitiveness (DC), through the application of Porter's new competitiveness theory (Porter, 1990); and
Step 5: Use the findings gained, together with information from industry work sessions, to identify and propose industry-level strategies and make recommendations that can improve the competitive performance of the Namibian date industry.

This analytical framework has been used by many scholars, including in the work of ISMEA (1999), Van Rooyen, Esterhuizen and Doyer (2000), Esterhuizen (2006), Van Rooyen *et al*., (2011), Van Rooyen and Esterhuizen (2012), Jafta (2014) and Boonzaaier (2014). However, certain innovations will be introduced, viz. refinements in the data gathering and analytical processes and the drawing of conclusions.

Each step takes full cognisance of the information gathered in previous steps, i.e. an interactive process is followed during the data gathering and analysis. The framework of analysis (FoA) entails the use of the relative trade advantage (RTA) index method combined with Porter's diamond to measure, analyse and describe the competitiveness of the Namibian date industry. In this study, this conventional framework of analysis will be expanded and four new analytical processes will be added to contain information on the validity of the questions in the survey; the relevance and impacts of the various factors influencing the competitive performance; the consensus and variations in opinions; as well as similarities or differences in the respondents' views as per their position in the date industry value chain. (The analytical framework is comprehensively discussed in Chapter 3).

1.7.2 Data collection

This research was conducted in Namibia, mainly in the Karas, Hardap and Kunene regions, where date palm fruits are produced. The study made use of both primary and secondary data. Primary data were collected by means of an opinion questionnaire making use of structured questions to simplify accurate coding and analyses. At the time of this study, there were nine (9)[1] date palm plantations in Namibia and, given the size of the industry, most of the date producers and role players were interviewed. The respondents were requested to give their opinions on factors influencing the competitiveness of the date industry in Namibia. These executive opinions were essential in order to bring to light competitiveness issues that are important for the country and the sector in which this industry operates.

The use of this method has proven to be especially useful in the past, when the historical data available appeared to be incapable of rendering reliable estimates. Strategic recommendations and further actions were formulated by exposing key industry stakeholders to the study results in a focus group session.

To measure how competitive the date industry is, it was necessary to determine how consistently the industry traded its products over time in the international market relative to its competitors. For this purpose, import and export data were used to measure the industry's competitive performance and to compare the Namibian performance against global competition. Trade data from secondary sources, from 2001 to 2013 were used to calculate trends in the competitiveness status of the date industry in Namibia. The reason for the choice of study period is due to the fact that the Namibian date industry started to be revamped from 2001, when the industry received technical assistance from the FAO. Export and import data were extracted from the agricultural databases of the Food and Agriculture Organization of the United Nation (FAO, 2014) and the International Trade Centre (2014). Information regarding the history of the date industry was obtained from reports, articles and research publications, among other sources (refer to Chapter 3 on the data used).

1.7.3 Data analysis

Based on the research questions and objectives stated earlier, this research used both quantitative and qualitative methods to measure and analyse the competitive performance of the Namibian date industry. The RTA formula was used to empirically measure the competitive status of the date industry. To comprehensively analyse the factors constraining and enhancing the industry's competitiveness, this study used Microsoft Excel 2007 and the Statistical Package of Social Science (SPSS) (for statistically verification) (refer to Chapter 3 for the detailed data analyses).

[1] Naute, Aussenkehr, Eersbegin, Al-Dahra, Hardap, Komsberg (desert fruits), Haakiesdorn, Dr. Burger and Kleinbegin date irrigation projects

1.8 Delimitation of the study

This research aimed to assess the competitiveness of the Namibian date industry. The study was limited to identifying the main forces that make the Namibian date-growing industry favourable in international markets. Given that the date industry is highly integrated at industry and firm/farm level decision making, comparisons were made of the competitive performance of the date industry with other fruits produced and traded. However, an in-depth analysis was done on the date industry only. Based on the fact the Namibian date industry started to be revamped around 2001 and due to data availability, the time period for the analysis of this study was 2001 to 2013. This study will not predict the future of the industry, as the future is uncertain; rather, it will suggest certain industry-level strategies (based on the findings) that may assist in improving the competitive performance of the industry. This study will only propose a number of industry-wide strategies. No direct firm-level strategies will be proposed, as this will require much more detailed analysis and scenario development related to the particular firms.

1.9 Outline

Chapter 1 has given the context of this study, and has provided the problem statement, study objectives, research questions, hypotheses, delimitations and a broad framework of analysis. In Chapter 2 a literature study is provided, including the theoretical foundation of competitiveness, defining competitiveness in the agricultural environment in a comprehensive manner and measurement approaches thereto. Chapter 3 discusses the analytical framework of this study comprising of the selected methodologies and data requirements that were used to analyse the competitive performance of the Namibian date industry. Chapter 4 reviews the Namibian date industry. Analyses, results, the main findings and a discussion of this research are provided in Chapter 5. Industry-level strategic proposals that could enhance the competitive performance of the date industry are proposed in Chapter 6. A summary of the main findings of the study and recommendations for further research within the Namibian date industry are also provided in this chapter.

CHAPTER 2: LITERATURE REVIEW: A THEORETICAL FRAMEWORK OF COMPETITIVENESS

2.1 Introduction

Competitiveness as a field of economic study and knowledge has only been researched and taught since the beginning of the 1980s. As stated by Esterhuizen (2006), the concept of competitiveness is built on numerous economic concepts, which can be traced all the way back to the classical economists such as Adam Smith and David Ricardo, amongst others. Society has long been influenced by neo-classical trade theorists such as Heckscher (1919), Ohlin (1933) and Stolper and Sameulson (1941) to define competition in terms of comparative advantage. This idea lends itself well especially to the agriculture sector, which is based on factor endowments such as land, labour and capital; however, it may also trap the analysis of the competitive performance of the agricultural industry (ISMEA, 1999; Esterhuizen, 2006).

Analysing competitive performance of agricultural industries has become relevant over the past decades due to inter alia the increasing importance of global trade and competitiveness in that fast evolving environment. This is reflected by a variety of research carried out starting with the ISMEA report (1999) and with particular application in South Africa, which includes work by Van Rooyen (1998), Esterhuizen (2006), Mashabela (2007), Van Rooyen *et al*., (2011) and recent studies by Jafta (2014) and Boonzaaier (2014).

Competitiveness, however, remains a concept that is not well understood, for analytical purposes despite the widespread acceptance of its importance. Esterhuizen (2006) indicates that the multidimensional applications and interpretations of competitiveness make it hard to define and measure the concept. Van Rooyen *et al*., (2011) support this sentiment by indicating that competitiveness has always been a difficult and controversial concept, and there also is disagreement about its measurement and the appropriate indexes to be used. The concept has also been addressed from different perspectives in the literature and most definitions equate productivity with competitiveness. Porter (1990) highlights that the productivity of a nation is a most important factor of competitiveness; however, what underlies productivity is equally important to understand particularly how this is translated into trade, i.e. selling of products and attracting the scarce resources needed to make a nation globally competitive.

This chapter reviews the relevant literature on the concept of competitiveness to gain clarity on the approach to be followed in this study. Firstly, the theoretical foundation of competitiveness is discussed and two important concepts relevant for this analysis, viz. comparative advantage and competitiveness, are considered to form the basis of the analytical framework of this study. Various methods and techniques used to empirically and qualitatively measure competitive performance are reviewed in order to pave the way for the methodology of this study's analysis. The chapter concludes by looking at previous studies on the competitive performance of various agricultural industries.

2.2 Theoretical foundations of competitiveness analysis

Historically, a nation's competitiveness has been explained by trade theories originating from Adam Smith (1723-1790), David Ricardo (1772-1823), and John Stuart Mill (1806-1873). The central message of these authors' work is that, although there are exceptions, almost all countries can reach their highest possible levels of income and economic growth by maintaining open international trade (Masters, 1995). The theory of competitiveness is entrenched in the theory of comparative advantage. The principle of comparative advantage is tied to the work of Adam Smith (1776) who published his book *The Wealth of Nations*, in an attempt to understand the principles underlying free trade in goods and services (Brue, 2000; Pugel, 2004).

2.2.1 The classical school of thought

Production, which is the creation of a product for exchange, always requires the use of society's primary element of value, namely human labour. Smith noted that some countries, owing to the skills of their workers or the quality of their natural resources, could produce the same products as others with fewer labour hours. This means that each country should produce and export the products in which it has higher labour productivity. He termed this efficiency *absolute advantage*. According to Smith (1776), the division of labour, i.e. assigning stages of production to several individuals rather than each producing an entire good or service, increases the quantity of output produced (Cho & Moon, 2002). Smith stated that a country can enhance its prosperity if it specialises in producing goods and services in which it has an absolute cost advantage over other countries, and imports those goods and services in which it has an absolute cost disadvantage. This argument was in contrast to the mercantilists prevailing at a time. Mercantilists viewed exports as good and imports except of raw materials not produced at home, as bad. This view resulted in an inflow of gold and silver (which were the main commodities exchanged at that time) to make a country wealthy (Pugel, 2012). The major problem with mercantilism was that it viewed trade as a zero-sum game in which a trade surplus of one country was offset by the trade deficit of another country (Cho & Moon, 2002). Smith pointed out that the participants in the economy tend to pursue their own personal interests. The consumer, for instance, looks to find the lowest price for a good, given its quality. The worker tries to find the highest pay, given the non-wage aspects of the job. However, hidden within the apparent chaos of economic activity is a natural order. There is an invisible hand that channels self-interested behaviour in such a way that the social good emerges.

The concept of competition is the key to understanding Smith's invisible hand. The action of each producer or merchant trying to gather profit is restrained by other producers or merchants who are similarly attempting to make money. Competition drives down the prices of goods and, in so doing, reduces the profit received by each seller (Esterhuizen, 2006). Pugel (2012) states that Smith viewed trade as a positive sum game and therefore indicated that countries could increase their welfare by exchanging goods and services in international markets.

Although Smith was the founder of the Classical School and set its dominant tone, David Ricardo (1772 – 1823) was the leading figure who further developed the ideas of the school. In the process of analysing the concept of absolute advantage, Ricardo asked an important question "What if a country has no absolute advantage in the production of any good compared to its counterpart?" In other words, what if the foreigners are better at producing everything than we are? Ricardo (1817) demonstrated the possibilities of using abstract methods of reasoning to formulate economic theories.

According to Cho & Moon, (2002), Ricardo made a brilliant and lasting contribution to economic thought by showing that, even if a country is more efficient than another in producing all commodities, trade between the two nevertheless can be of mutual benefit. This was thorough explained in the theory of comparative costs, which is now known as the law of comparative advantage. In this theory, Ricardo introduced the concept of opportunity cost. The opportunity cost of producing more of a product in a country is the amount of production that must be given up. A country therefore will export the goods and services that it can produce at a lower opportunity cost and import the goods and services that it would otherwise produce at a higher opportunity cost (Pugel, 2012). If this situation exists, resources will be allocated efficiently and production will increase. One important implication of this theory is that, even if a country does not have an absolute advantage in any good, this country and other countries would still benefit from international trade (Salvatore, 2002).

Pugel (2012) illustrates Ricardo's point with an example:

> *In trade between US and the Rest of the World, if US could produce cloth with the labour of 70 men and wheat with the labour of 60 men, and the rest of the World could produce the same quantity of cloth with 80 men and the wheat with 100, it would be advantageous for these nations to exchange US cloth for Rest of the world wheat.*

By concentrating on what each nation can do best with the less effort, each country had a greater comparative advantage. In this case, each nation has more wheat and more cloth than it would have had by producing each commodity independently without the benefit of exchange. This means that beneficial trade can occur even if one country is worse (less productive) at producing all products.

Another classical economist who made a great contribution to this theory was John Stuart Mill (1848). Cho & Moon (2002) highlighted that Mill endorsed Ricardo's advocacy of free international trade based on the law of comparative costs. Mill added to this a law of international values, which is one of his important original contributions to economic analysis. Ricardo's international trade theory failed to show how the gains from trade are divided among trading countries. Mill showed that the actual barter terms of trade depend not only on domestic costs, but also on the pattern of demand. More specifically, the terms of

international exchange depend on the strength and elasticity of demand for each product in the foreign country (Cho & Moon, 2002).

2.2.2 The Neoclassical school of thought

After the classical school of thought came the neoclassical economists, who developed the factor proportion theory. This theory was developed by Eli Hecksher (1919), and later expanded by his former graduate student, Bertil Ohlin (1933), hence it also is known as the Heckscher-Ohlin (H-O) theory. Whilst Smith and Ricardo emphasised a labour theory of value (the amount of labour involved in manufacturing a product gives it its value), the H-O theory is based on a modern concept of production that raises capital to the same level of importance as labour. The H-O model is referred to as the neoclassical theory of international trade because it builds upon and complements the classical theory of comparative advantage (Pugel, 2012). As indicated by Masters (1995), the neoclassical models wanted to identify the sources of comparative advantage and specialisation, as well as the reasons why a particular industry can expand profitably while others cannot. Although the Ricardian model strongly demonstrates the gains from trade, neoclassical thinkers wanted to look for additional explanations for why opportunity costs differ.

According to the H-O model there are two basic features of countries and products. Countries differ from each other according to the factors of production they possess, while goods differ from each other according to the factors required in their production. The H-O model therefore states that a country will have comparative advantage in goods that use the abundant factors intensively and therefore will export those goods (Lindert & Pugel, 1996). The H-O approach further indicates that opening to trade will result in expanding the export-oriented sector, the one using the country's abundant factor intensively in production, while there is contraction in the import-competing sector, the one using the country's scarce factor intensively (Pugel, 2012). It logically follows that the more abundant the factor, the lower the cost. Therefore, differences in the factor endowments of various countries explain the differences in factor costs, which result in different comparative advantages. For example, a wealthy country with relatively more capital would tend to specialise in capital-intensive goods and import more labour-intensive goods from poor countries.

The H-O model has been expanded by three important theorems, namely the Stolper-Samuelson theorem, the factor price equalisation theorem and the Rybczynski theorem. The H-O model contains several appealing elements. It is simple, logical, makes common sense, and appears to be virtually self-evident. However, an empirical test of this model produced a paradoxical result (Pugel, 2012).

2.2.3 The Leontief paradox

The famous empirical study of the H-O model was conducted by Leontief (1953) to analyse an input-output matrix for the United States of America (USA), and compared it to the rest of the world. At that time, the USA was considered the most capital-abundant nation in the world. Leontief's expectation was that the USA exported capital-intensive commodities and imported labour-intensive commodities in accordance with the H-O theory (Pugel, 2012). However, his finding was contrary to his expectation; the USA was found to be exporting labour-intensive goods to the rest of the world in exchange for relatively capital-intensive imports. This has become known as the Leontief Paradox. According to Reekie (1989), Leontief was puzzled and this result posed a paradox not only to him, but also to others. Since then, the theory of comparative advantage has been challenged by various scholars, including Krugman (1979), Lancaster (1979), Linder (1961) and Vernon (1966). Linder (1961) insisted that, although the supply-oriented Heckscher-Ohlin theory, which depended on factor endowments, was adequate to explain international trade in primary products, it was important to explain trade in manufactured goods. Linder (1961) developed a demand-oriented theory that stated that customers' tastes were strongly affected by income levels and therefore a nation's income per capita level determined the kinds of goods they would demand. Hitt, Ireland and Hoskisson (2001) concur with this thinking by stating that industry will produce goods to meet consumer demand, and the kind of products manufactured will reflect the country's income per capita. Eventually, goods produced for domestic consumption will be exported.

2.2.4 Recent competitiveness theories

Recently, Michael Porter (1990) of the Harvard Business School introduced a new competitiveness theory, called the diamond model. Porter (1990; 1998) differentiated his theory from the traditional trade theories by arguing that national prosperity is not inherited, but created by choices; in other words, national wealth is not set by factor endowments, but created by strategic choices. Porter (1990) conducted a study in ten developed nations to learn if a nation's prominence in an industry can be explained more adequately by variables other than the factors of production on which the theories of comparative advantage and H-O are based. Porter (1990) showed different choices for creating wealth, which had been limited in the world of traditional trade theories. According to Porter, an industry or nation is internationally competitive and can achieve success based on the six broad attributes of a nation. These attributes individually and as a system constitute the diamond of national advantage and shape the environment in which local firms can compete. These attributes are factor conditions, demand conditions, relating and supporting industries, firm strategy, structure and rivalry, the role of government and the role of chance (these attributes are discussed in detail in section 2.5).

Lately, Porter's diamond model has been extended by several scholars. Rugman and D'Cruz (1993) developed the double diamond framework that takes into account the Canadian background, and Moon,

Rugman and Verbeke (1995) adapted the Double Diamond framework into a Generalised Double Diamond, which is said to work well for analysing all small economies. Cho (1994) modified Porter's diamond model by dividing sources of international competitiveness into two broad categories, viz. the physical factors and the human factors. The physical factors refer to endowed resources, the business environment, related and supporting industries and domestic demand combined to determine the level of international competitiveness of a given nation at a given time. The human factors include workers, politicians and bureaucrats, entrepreneurs and professional managers and engineers. By creating, motivating and controlling the four physical elements, these human factors drive the national economy from one stage of international competitiveness to another (Cho, 1994). Figure 2.1 below shows the evolution of competitiveness theory from Adam Smith (1776) to Michael Porter (1990).

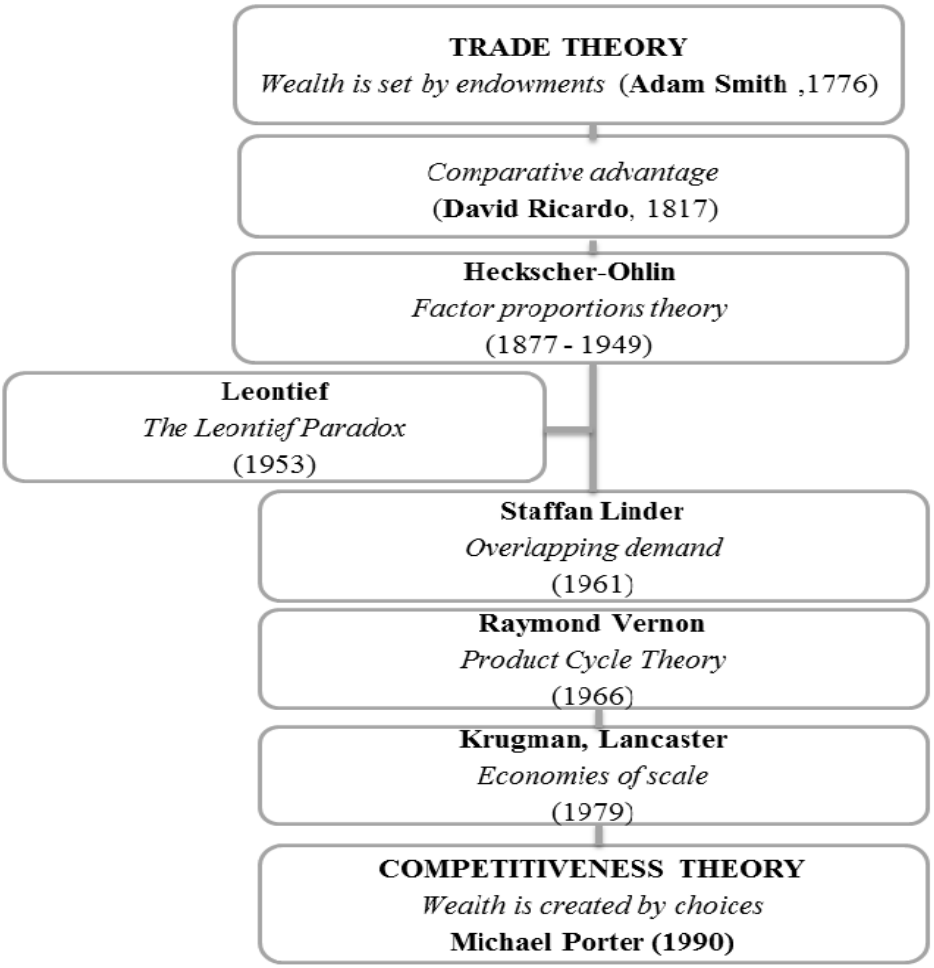


Figure 2.1: The evolution of competitiveness theory
Source: Cho & Moon (2002) and Masters (1995)

2.3 Competitiveness defined

There has been a rise in the literature on competitiveness particularly in economics and business studies. However, there is little agreement on what the concept means. The lack of coherence regarding the definition of competitiveness makes it difficult to compare results of various research that are being conducted around the globe.

2.3.1 Comparative advantage vs. competitive advantage

Comparative advantage and competitive advantage are the two important theoretical concepts for understanding the significance of international trade and for clarifying the underlying factors responsible for competitiveness and the current trade patterns. These two terms are related, although they are often mistakenly exchanged for each other (Warr, 1994; Mosoma, 2004; Mashabela, 2008). Understanding the meaning of these two terms is crucial when one endeavours to use the different techniques that are available to measure an industry's competitiveness. As stated by Siggel (2006), comparative advantage is an important source of competitiveness, and that competitive performance is derived from comparative advantage as it applies in the operational environment.

According to Lindert and Pugel (1996) and Pugel (2012), comparative advantage refers to the ability of one nation to produce a commodity at a lower opportunity cost relative to the output of another nation. Lipsey *et al*., (1993) state that comparative advantage explains how trade could potentially benefit nations through the more efficient use of the resource base (land, labour and capital input) when trade is totally unrestricted, i.e. a free market environment, or at least when an equal playing field exists. Comparative advantage therefore gives an indication of whether it is economically advantageous to expand the production and trade of a specific commodity (Pugel, 2004). Kannapiran and Fleming (2000) argue that comparative advantage is a concept that applies to inter- and intra-industry comparisons within a country in the traded goods sector, but that it is inappropriate for inter-country comparisons. According to Worley (1996), competitive advantage explains and creates existing trading patterns as they occur in the real world, including all distortions and barriers to free trade, i.e. policy effects, price effects, product quality differences and industry marketing skills, which are ignored by comparative advantage. Competitive advantage therefore reflects real business opportunities within current policy and price distortions. Porter (1990) stated that competitive advantage is created and earned through a highly localized process. He highlighted that differences in national values, culture, economic structure, institutions and histories all contribute to a competitive success.

2.3.2 What is competitiveness?

Although there is general consensus on what defines comparative advantage, there is less consensus on what defines competitiveness. Most definitions are derived from factors related to the comparative and competitive advantages of an industry and the manner in which this is manifested by sustainable trade. The difficulties in defining competitiveness derive from the various dimensions of this concept. However, some authors have defined competitiveness and it seems their definitions have been widely accepted in the economic literature. Freebairn (1986) indicated that an industry is considered competitive when it is able to deliver products to both domestic and international markets at a price as good as or better than other suppliers while earning at least the opportunity cost of returns on resources employed and is able to attract resources such as land, labour and capital from other economic activities. This definition has also been used by international institutions, such the Institute of Applied Mathematical and Economic Sciences (ISMEA), in its path breaking analyses of global competition in the broadening of the European agro-food system in the nineties (after the fall of the Berlin Wall and the expansion of the European Economic Union) (ISMEA, 1999).

Competitiveness furthermore relates to the ability of an industry to exploit the evolving market reality for gains and depends on the ability to innovate and to adapt in order to continue to do so. To a large extent, competitiveness is about the ability of a firm to win today, tomorrow and in the future, by defeating competitors for the consumers' currency, despite the presence of economic and administrative distortions such as manipulated price signals, trade barriers and related policies resulting in unequal economic playing fields in the global economy (Van Rooyen *et al.*, 2011).

Tweeten (1992) defines competitiveness as a nation's ability to maintain or gain market share by exploiting competitive advantage in the world markets through increasing productivity through technological advances or other sources. Petit and Gnaegy (1994) express competitiveness as the ability to produce and provide goods and services to international markets, while ensuring rising levels of real income as well as investment. Competitive advantage therefore indicates whether a firm or sector could compete successfully in trade of the commodity in the international market, given existing policies and economic structures (Warr, 1994). Various studies argue that trade performance measures do not adequately reflect the state of competitiveness. However, it is noted that competitiveness is most often associated with trade performance (Esterhuizen, 2006; Ezeala-Harrison, 2005 and Frohberg & Hartman, 1997). According to Ahearn Culver and Schoney (1990) and Sharples (1990) competitiveness can be defined as the ability to face competition and to be successful when facing competition. Competitiveness would then be the ability to sell products that meet demand requirements (price, quality, quantity) and, at the same time, ensure profits over time that enable the firm to thrive. Competition may be within domestic markets (in which case firms, or sectors, in the same country are compared with each other) or international ones (in this case, comparisons are made between countries). Competitiveness therefore is a relative measure. It is, however, a broad concept

and there is no agreement on how to define it, nor how to measure it precisely. Sharples (1990) argues that competitiveness relates to the observable reality; if firms and industries cannot survive by selling at the going price, they are not competitive. If they are able to survive and increase market share, they have become more competitive.

The Organization for Economic Co-operation and Development (OECD, 2004) considers competitiveness as the degree to which a nation can, under free trade and fair market conditions, produce goods and services that meet the test of international markets, while simultaneously maintaining and expanding the real incomes of its people over the long-term. The OECD (2010) looked at competitiveness from two main perspectives, viz. (i) competitiveness as the ability to face competition and to be successful when facing competition and (ii) competitiveness as the ability to sell products that meet demand requirements and, at the same time, ensure profits over time that enable the firm to thrive.

The OECD (2004) further states that competitiveness is a dynamic concept that is strongly influenced by the macroeconomic and regulatory environment, with producers and processors in a continuous treadmill in the market-place. Competitiveness embraces issues of resource endowment and the quality of these resources (labour, capital land, human resources), but also the organisation and use of resources.

However, Porter (1990) says that the fact that a country has good production factors no longer makes it competitive, and this is largely because of technology and supporting institutions. Technology allows industries to operate in a more sophisticated way and creates new alternatives. Managerial capabilities and performance are important too, like international demand and supply conditions and unpredictable physical conditions like climate. The consequences of policy interventions are also important, because they affect competitiveness (Porter, 1990; 1998).

According to The Group of Lisbon (1995), competing in the global economy has become the everyday slogan of multinational corporations' advertisers, business school managers, economists and political leaders. However, latest developments in competitiveness theory have revealed certain limitations in viewing indicators such as the wealth and power of nations, share in world markets or economic performance as the only measures of competitiveness (International Institute for Management Development (IMD), 2003). For example, competitiveness is not necessarily an indicator of economic performance. Economic performance focuses on added value over the short-term, commonly expressed as gross domestic product (GDP) growth. However, the GDP indicator has some shortcomings, as it does not take into account the depletion of non-renewable capital, such as natural resources, the volatility of the economy, the sustainability of growth or the impact of non-tangibles, such as education and research (Esterhuizen, 2006).

Industries and firms are competitive when they are able to continue to grow their trade in today's global environment. This will enable the most competitive players to attract sufficient scarce production factors such as capital, land, labour, technology and management from competing economic activities to sustain and expand their performance in the broader economic environment (Cho & Moon, 2002; Freebairn, 1986; Van Rooyen *et al*., 2000).

According to the Oxford English Dictionary (2014), competitiveness is a derivative of competitive which means the following: having to do with competition; strongly wanting to be more successful than others, and as good as or better than others of a similar nature.

Competition in the Oxford English Dictionary is defined as:
- The activity of competing against others
- An event or contest in which people compete
- The person or people with whom one is competing

From these definitions it is clear that, when you compete, you can either win or lose. To win is to be successful, victorious or to gain in a contest or conflict. To lose means to fail to win a game or contest. Freebairn's (1986) definition will be used as the basis of this study as it includes the concept of opportunity cost which allows the study to consider other alternatives competing for 'scarce resources'. Competitiveness therefore is defined as:

> 'the ability of an industry or firm to trade products in both domestic and international markets on a sustainable bases while earning at least the opportunity costs of returns on resources employed and as such it is able to attract scarce resources such as land, human capital and labour and capital from other economic activities'.

In conclusion it can be stated that competitiveness advantage can be created by combining comparative advantages with institutional structures and innovation to exploit unique opportunities in the trade environment.

2.4 Methods and techniques used to determine competitiveness of agricultural industries

The complexity imbedded in the competitiveness concept has seen many measures applied in research (Latruffe, 2010; Esterhuizen, 2006; Mashabela & Vink, 2008; Sinngu & Antwi, 2014). Turner and Van't Dack (1993) argue that there is no single, comprehensive measure that can be regarded as the appropriate indicator. Various methods exist and have been used by numerous scholars to measure comparative advantage and competitive advantage in agricultural industries. However, the choice of measurement is

influenced by the particular question or facet (definition) of competitiveness with which one wishes to deal (Latruffe, 2010).

Measuring competitiveness can be done based on two disciplines; firstly is that of neoclassical economics, which focuses on trade success and measures competitiveness with the real exchange rate, comparative advantage indices, and export or import indices (Latruffe, 2010). These measures of competitiveness include the real exchange rate (RER), the export market shares (EMS) (Latruffe, 2010), the net export index (NEI) (Banterle & Carraresi, 2007), revealed comparative advantage (RCA) (Balassa, 1965) and relative trade advantage (RTA) (Vollrath, 1991). Secondly is the strategic management measure, which places emphasis on the firm's structure and strategy and comprises the domestic resource costs ratio (DRC), social cost-benefit ratio (SCB), the agricultural cost of production method and Porter's new theory of competitiveness 'the diamond model' (Porter, 1990).

2.4.1 Trade measures

Theories of international trade suggest that a nation's competitiveness is based on the concept of comparative advantage, as stated in section 2.2. These are conceptualised by Ricardo and by the H-O model (in a two-country, two-input case) as that comparative advantage postulates that trade flows are the result of differences in production costs among countries and that a country will specialise in the production of a good in which it has a cost advantage (Latruffe, 2010). As argued above, such a concept is useful when comparing countries in terms of international competitiveness, but need to be expanded to accommodate competitive advantage measurements.

2.4.1.1. Real exchange rate (RER) and purchasing power parity (PPP)

According to Edwards (1989), the real exchange rate (RER) is one of the methods used to measure international competitiveness. When the real exchange rate of a particular country depreciates, this leads to a loss/gain in the competitiveness of that country (Edwards, 1989). Brinkman (1987) concurs with this explanation by stating that, when the demand for the currency of a competitive country is high, this strengthens the currency's exchange rate. The RER therefore is defined as the ratio of the price index of tradable commodities to that of non-tradable commodities. Mathematically it is expressed as follows:

$$\boldsymbol{RER = \frac{p^T}{p^{NT}}}$$

where p^T is the price index of tradable commodities and p^{NT} is the price of non-tradable ones.

Because of the differences in the prices of non-tradable and tradable inputs used to produce a product, the cost of production for tradable good varies amongst nations. However, the price of tradable inputs cannot cause large divergence because the differences in price between countries are only due to trade policies.

This method, however, is not without limitations. Minale (2002) states that there are several problems regarding the use of real exchange rate as a measure of competitiveness. Firstly, measuring competitiveness as a relative price narrows the definition of competitiveness. As discussed in section 2.3, there are various factors taken into account in defining the concept of competitiveness. The second challenge is that using the real exchange rate to measure competitiveness is hard, especially with low- and middle-income countries that have highly advanced nations as their trading partners. The definition of real exchange rate assumes that tradables in the domestic economy are homogenous and that the same applies to those of the rest of the world. Another assumption is that there are no transaction costs associated with the technology used and that it is accessible in all countries. This is not the case, however, because in reality technology is more costly and difficult to obtain in developing countries, and tradables in developing countries (unprocessed primary products) differ from the tradables in developed trading countries. Hence, an increase in the world price of tradables with respect to the domestic price of non-tradables does not indicate a shift in resources to the production of tradables in the economy of developing countries (Minale, 2002).

Ball *et al*., (2006) argue that a better measure for comparing different countries' relative prices is the purchasing power parity (PPP). The PPP for outputs is defined as the number of units in the domestic currency that would be required to purchase the amount of the domestic industry's good for one unit of the second country's currency. The PPP for inputs can be defined in the same way. The concept was first introduced by Bureau and Bultault (1992) within the agricultural context and they defined the PPP as the rate at which a given amount of national currency must be converted to purchase the same quantity of product in the two countries being compared.

2.4.1.2. Revealed comparative advantage (RCA) index

The RCA index was originally associated with the work of Balassa (1965). Even though Liesner (1958) was the first to utilise an index of revealed comparative advantage, the most frequently used measure in this respect is called the Balassa index, after its refinement and popularisation by Balassa (1965; 1989). Esterhuizen (2006) states that the complexity of measuring comparative advantage led Balassa (1965) to investigate actual trade patterns directly, without reference to underlying resources, productivity, subsidies or prices. Balassa's RCA index method expands the comparative advantage notion to accommodate real trade effects based on competitive advantages and has gained greater acceptance among applied trade economists. Soon after its development, it was widely adopted in agricultural sector studies. The revealed comparative advantage (RCA) and the well-known approach to the study of competition originating from

Porter (1990), known as the diamond model of competitiveness, were used by the ISMEA (1999) study to determine the competitiveness of European Union food chains in a global environment.

According to Hinloopen and Van Marrewijk (2001), the use of the RCA index for identifying a country's weak and strong sectors is widespread, both among academic scholars and policy makers. Balassa (1977) himself used this index to measure the changing competitiveness of the United States economy in research-intensive industries. For a particular country, the revealed comparative advantage in a product is defined as the ratio of the share of that product in world trade. Balassa (1965) argued that revealed comparative advantage (or competitive advantage) could be indicated by the trade performance of individual commodities and countries in the sense that the commodity pattern of trade reflects relative market costs as well as differences in non-price competitive factors, such as government policies (Mosoma, 2004).

The use of the RCA method involves an *ex-post* measure of competitiveness, comparing a country's share of the world market in one commodity relative to its share of all traded goods. Given a group of reference countries, the Balassa index basically measures normalised export shares, where the normalisation is with respect to the exports of the same industry in the group of reference countries.

The original RCA index, formulated by Balassa (1965), can be written as:

$$RCA_{Aj} = X_{Aj} \,/\, X_A \,/\, X_{refj} \,/\, X_{ref}$$

If X_{Aj} is country A's export value of industry j, X_{refj} is industry j's export value for the group of reference countries, and we define $Xi = \sum_j X_{ij}$ for i = A, ref, then country A's Balassa index of revealed comparative advantage for industry j, RCA_{Aj} is equals to the formula above.

If RCA_{Aj} exceeds 1, country A is said to have a comparative advantage in industry j, since this industry is more important for country A's exports than for the exports of the reference countries. For ease of presentation, the RCA is often multiplied by 100. For instance, if an index of a particular industry in a particular country is 110, then that would mean its share of the world market is 10% higher than its share in total exports and that the country has a comparative advantage in that industry. Any figure below 100 indicates comparative disadvantage (Esterhuizen, 2006). With RCA measure one can identify sectors for which an individual country has a comparative advantage and a comparative disadvantage. The RCA measures relative success in exporting and is not dependent on any theory regarding inter-industry trade, factor endowments, the existence, or otherwise absence, of free trade or perfect competition (Pitts & Lagnevik, 1997).

A number of authors have used Balassa's index, including Michael Porter (1990), who identified a country's strong sectors in his influential book, *The Competitive Advantage of Nations.* Other scholars

who used this index are Ariovich (1979), Esterhuizen and Van Rooyen (1999), Ferto and Hubbard (2001), ISMEA (1999), Peterson (1988), Reza (1983), Valentine and Krasnik (2000), Van Rooyen, Esterhuizen and Doyer (2000), Van Rooyen *et al*., (2011) and Yeats (1985). An RCA index, being based on trade data, can be calculated yearly, and trends in competitiveness in a sector or industry can be identified. Although the focus usually is on performance within individual countries, by aggregating the data the technique can also be used to assess the competitiveness of sectors within trade blocs. However, the absence of appropriate trade data, in general, makes it hard to use the RCA at regional (sub-national) level.

2.4.1.3. Relative trade advantage (RTA)

The RCA has been criticised, since it only takes into account exports, ignoring the level of imports. This is a problem mainly because observed trade patterns are likely to be distorted by government policies and interventions and therefore may misrepresent underlying comparative advantages. Balassa (1965) noted that this is true especially of the agricultural sector, where government interference is commonplace. Thus, the RCA was then extended by Vollrath (1991) after following the analyses of global competitiveness in agriculture (Vollrath, 1987; 1989) and in view of the open world economy. Vollrath (1991) offered an alternative specification of revealed comparative advantage that can be used to measure competitiveness, namely the relative trade advantage (RTA) index. The RTA index describes a country's share of the world market pertaining to one commodity relative to its share of all traded goods, and it accounts for imports as well as exports. It implicitly weights revealed competitive advantage by calculating the importance of relative export and relative import competitive advantages. It is calculated as the difference between relative export advantage (RXA), which equates to the Balassa index, and its counterpart, relative import advantage (RMA).

Balassa (1989) and Vollrath (1991) both argued that competitive advantage is indicated by relative trade performance, i.e. the ability to trade in the global market, because this effectively reflects all relative market costs as well as all non-competitive factors, government policies and other measures affecting actual trade patterns between competitors. This method therefore determines the revealed comparative advantage, reflecting competitive performance and competitiveness under real-world conditions. Other, more restricted measures only describe certain aspects influencing competitiveness, such as factor productivity, product characteristics, unit production cost and profit ratios, organisational performance and benchmarking, or applied comparative advantage analysis (Porter, 1990). Situations such as uneven economic playing fields due to distorted economies, protective trade policies and trade regimes directly affect trade patterns and competitive performance, but are effectively accounted for in the RTA measure. It is for this reasons that the RTA was used in this study to comprehensively measure the competitive performance of the Namibian date industry.

Frohberg and Hartmann (2007) indicate that the special feature of this measure is that the world total is always taken as the sum across all countries except the country being studied. This avoids counting countries and commodities in both the numerator and the denominator (Mashabela & Vink, 2008). Thus, instead of including all exports in the summations of equation (2), the commodity and the country considered are excluded when total exports are summed. The RTA index is mathematically expressed as follows:

$$RTA_{ij} = RXA_{ij} - RMP_{ij} \quad (1)$$

$$RXA_{ij} = \left(X_{ij}\Sigma 1,1 \neq jXi1\right)(\Sigma \mathrm{k}, \mathrm{k} \neq \mathrm{iXkj}\ \Sigma \mathrm{k}, \mathrm{k} \neq \mathrm{i}\Sigma 1, 1 \neq \mathrm{jXk1}) \quad (2)$$

$$RMP_{ij} = \left(M_{ij}\Sigma 1,1 \neq jMi1\right)(\Sigma \mathrm{k}, \mathrm{k} \neq \mathrm{iMkj}\ \Sigma \mathrm{k}, \mathrm{k} = \mathrm{i}\Sigma 1,1 \neq \mathrm{jMk1}) \quad (3)$$

where X = exports, M = imports, subscripts *i* and *k* denote the product categories, and *j* and 1 denote the country categories.

The numerator is equal to a country's exports or imports in a particular product category, relative to the exports or imports of the product for all other countries. In contrast, the denominator reveals the exports or imports of all products by considering the commodity in terms of the percentage of all other countries' exports or imports of all products. Pitts *et al*., (1995) state that it is important to take into account both export and import value because, if one considers only exports or imports, for instance, some countries may act as a transit and the RXA might indicate high levels of competitiveness that would be purely artificial.

The level of these indicators shows the degree of revealed export competitiveness and import penetration. Any value above one suggests that the country has a competitive advantage in the considered product category and values between 0 and 1 reveal that the country is marginally competitive, whereas values below 0 indicates a country's competitive disadvantage.

While the calculations of indexes RXA and RMP are based exclusively on either the export or import values, only the RTA considers both export and import activities. The RMP index can be very misleading, since it can be heavily distorted due to the protection of domestic markets (Frohberg & Hartmann, 1997). For example, in the extreme case of an import ban or a prohibitively high import tariff, the RMP measure indicates a high level of competitive advantage, while the reverse might be the case. Another factor that can lead to a distortion of all indicators that exclusively consider either exports or imports is the existence of intra-industry trade.

Although this method has the advantage of being symmetric through the origin, it has shortcomings of being non-existent when either exports or imports are 0, and it is sensitive to small values (Banterle & Carraresi, 2007). In addition, the technique does not reveal how an industry obtained its competitive edge,

since some may be well maintained by costly government incentives. This is especially true for the agricultural sector, where government interference is commonplace, a point noted by Balassa (1965). This means that the technique fails to significantly reveal what the reasons are for the non-competitiveness of an industry and how the situation possibly could be rectified (Mosoma, 2004). However, this can be addressed by combining the method with Porter's (1990) diamond model through the establishment of determinants of a particular industry's competitiveness (Esterhuizen, 2006; Jafta, 2014).

The value to determine trends and as such view competitiveness in a time series context i.e. take a long view of competitive performance is important to understand the industry's baseline, and prepare for sustained performance of a particular industry as suggested by the Organization for Economic Co-operation and Development (OECD, 2004).

2.4.2 Other export and import indices

2.4.2.1 Export market share (EMS)

The export market shares (EMS) are a simple measure of competitiveness. EMS can be measured in quantity or in terms of value (Latruffe, 2010). According to Banterle (2005), the EMS index assesses the export share of a country in percentages relative to the exports of a group of countries for a specific sector. The export market share is expressed as:

$$EMS_{ij} = \frac{X_{ij}}{\sum_{j=1}^{n} X_{ij}} * 100$$

where X_{ij} denotes exports of sector i from country j and n denotes the number of countries analysed.

The range of the index values goes from 0 to 100. In the case of 0, the country has no exports for that sector, while in the case of 100, the country is the only exporter. Therefore, the EMS outlines the competitive position of a country in the international market for a sector.

2.4.2.2 Net export index (NXi)

The RCA has been widely criticised since it only considers exports and ignores the level of imports. Vollrath (1991) indicates that, with differentiated products, intra-industry trade and flows of exports and imports, net trade effects should be taken into account. As a result Balassa (1989) proposed an alternative measure called the net export index (NXi), in terms of which net exports are exports minus imports. In order to calculate the index, net exports are divided by the total value of the trade (exports plus imports) of the commodity in question. According to Traill and Gomes da Silva (1996), an alternative way to

calculate the net export index is to divide the numerator (Xi-Mi) by domestic production (Yi), instead of total trade.

The NXi index formula is expressed mathematically as:

$$NX_i = \left[\frac{X_I - M_I}{X_I + M_i}\right] x\ 100$$

where X*i* is exports and M*i* is imports. An index with an upper limit of 100 indicates that there are no imports, and a lower limit of negative 100 indicates that there are no exports.

The main problem with the Net Export Index (NXi) is that it does not take into account the overall level of trade in a specific commodity (Galetto, 2003). This implies that a country that is relatively self-sufficient, with a small exportable surplus and no imports, would have an index of 100 and, therefore, appear to be very competitive, even though it hardly trades at all. For these reasons, Galetto (2003) recommended that both the RCA and NXi should be used together in assessing and analysing the comparative advantage and competitiveness of a specific industry or commodity.

2.4.2.3 Grubel-Lloyd measure (GL)

Another import and import index used is referred to as the Grubel-Lloyd measure (GL). This method assesses the health of exports, considering the fact that a commodity is often exported and imported at the same time - a process called intra-industry trade (Latruffe, 2010). Mathematically, Banterle and Carraresi (2007) have indicated that the GL -index is expressed as:

$$GL_{ij} = 1 - \frac{\left|X_{ij} - M_{ij}\right|}{X_{ij} + M_{ij}}$$

where *X* are exports, *M* are imports, *j* denotes a sector or product, and *i* denotes the country considered.

GL has values ranging between 0 and 1, the 0 value indicates that all trade taking place inside the *j*-th product group is inter-industry (e.g. only exports, or only imports), while the value 1 indicates an intra-industry trade only (exports equal imports).

2.4.3 Strategic management measures to competiveness

Porter (1990, cited by Latruffe, 2010) was among the first to underline the importance of firms' strategy and structure in developing their competitive status. Porter proposed a framework currently referred to as

the 'diamond model' by which nations succeed in industries for which the national diamond is the most favourable (refer to section 2.5). The four main attributes of the diamond are: i) factor conditions; ii) demand conditions; iii) presence of related and supporting industries; and iv) firm strategy, structure and rivalry. In this framework, competitiveness is exposed by performance indicators such as cost superiority, profitability, productivity and efficiency. Some of the cost measures used are discussed below.

2.4.3.1 Domestic resource cost ratio

Another technique used to measure the competitive performance of an industry is the domestic resource costs (DRC) ratio. The DRC indicator has been used frequently in the literature dealing with agricultural competitiveness. This method compares the opportunity costs of domestic production with the value added it generates (Tsakok, 1990). The numerator is the sum of the costs of using domestic primary resources such as land, labour and capital and of non-traded inputs. The denominator is the value added in border prices. In other words, it compares the value of the non-tradable domestic resources used to produce one unit of the good with what the good would earn if it was exported (Gorton *et al*., 2001; Liefert, 2002). The DRC method is used as an *ex ante* measure of comparative advantage to determine which, amongst a set of alternative production activities, is relatively efficient for a given country or region in terms of contribution to national income. Masters and Winter-Nelson (1995) indicated that the technique was originally proposed to measure the gain from expanding profitable projects or the cost of maintaining unprofitable activities through trade protection. The DRC is calculated as:

$$DRC_i = \frac{\sum_{j=k+1}^{n} a_{ij} V_j}{P_i^r - \sum_{j=1}^{k} a_{ij} P_j^r}$$

where *aij*, k + 1 to *n* are the technical coefficients for domestic resources and non-tradable intermediate inputs, and V_j are the social prices of domestic resources and non-tradable inputs necessary to estimate the opportunity costs of domestic production. P^r_i is the border/reference price of traded output, a_{ij} 1 to *k* are the technical coefficients for traded inputs, and P^r_j are the border/reference prices of traded inputs.

According to Tsakok (1990), when the DRC is smaller than 1, domestic production is efficient and internationally competitive because the opportunity cost of domestic resources spent is smaller than the net foreign exchange that the production gains in exports or saves by substituting for imports. The opposite is true when the DRC is larger than 1. The balanced case is when DRC equals 1. Then the economy neither gains nor saves foreign exchange through domestic production. DRC ratios are widely used in policy analysis, as they give an indication of the degree to which domestic production is internationally efficient, suggesting where policies should be targeted. However, this technique has also been criticised. According to Masters and Winter-Nelson (1995), the DRC ratio is based on the cost of non-tradable inputs and

understates the competitiveness of activities that use mainly such domestic factors in comparison to those that rely more on tradable inputs.

2.4.3.2 Social cost-benefit ratio

Since the DRC ratio is based on the cost of non-tradable inputs, Masters and Winter-Nelson (1995), proposed the social cost-benefit (SCB) ratio, which uses the same data as that used for the DRC ratio but in a different relationship, to overcome this shortcoming. The SCB ratio is defined as the ratio of the sum of domestic (non-tradable) and tradable input cost to the price of the good considered. The SCB is calculated as:

$$\mathrm{SCB}_j = \frac{\sum_{l=k+1}^{n} a_{jl} P_l^D + \sum_{l=1}^{k} a_{jl} P_l^B}{P_j^B}$$

where the notations are the same as in the definition of DRC.

Domestic production is considered to be competitive when the SCB is less than 1, and this indicates that total input costs are less than the revenue derived from the good. The opposite is true for an SCB greater than 1 (an SCB of less than 0 does not exist). Latruffe (2010) states that DRC and SCB may be related to the concept of comparative advantage, as they allow cost differentials to be assessed and therefore could be included in the section of trade measures to promote competitiveness. However, since this measure depends on the structure and strategy of the firm and does not rely on trade data (exports and imports) it was appropriate to consider it as a strategic management measure.

2.5 Determinants of competitive advantage – Porter's diamond model

The methods described in the previous section are only the starting point in any analysis of competitiveness. These methods help to define, through measurements, which sectors are competitive and which are not. Porter (1990; 1998) observes that the 18th century work of Adam Smith and David Ricardo on factor comparative advantage cannot provide explanations for most of the trade that takes place today. Porter's model seeks to answer this question.

The main question that various researchers and scholars ask in this context is: "When is an industry internationally competitive?" In order to find an answer to this question a second question posed by Porter (1990) must first be addressed: "Why does a nation achieve international success in a particular industry?" According to Porter (1990), the answers lies in six broad attributes of a nation that determine the environment in which local firms can compete that promote the creation of competitive advantage. Attributes that constitute the diamond of national advantage, both individually and as a system, comprise the playing field that each nation establishes and operates for its industries.

Together, these attributes are contained in six determinants that provides a framework to capture differences from product to product, from time to time and from location to location, thus explaining why some commodities, firms (or industries) succeed during particular time periods in particular locations. According to Porter (1990), reliance on only one factor (e.g. cheap labour or favourable climate, soils, etc.) is unsustainable over time (other nations will provide even cheaper labour, or develop better production systems, etc.). Adeboye (1996) calls dependence on low cost factors the low road to competitiveness, which, according to Porter, is the most travelled road. However, the abundance of a factor could lead to its inefficient deployment.

Michael Porter's (1990; 1998) work contributed to strategic thinking about industries and competitive analysis, and later about the competitiveness of nations. Porter's approach looks at clusters of industries (or commodity groupings), where the competitiveness of one company is related to the performance of other companies and other actors tied together in the value-added chain, in customer-client relations, or in local or regional contexts. This work has led to efforts that identify and measure the key factors that influence competitiveness and develop strategies for achieving it. Porter's determinants of competitiveness are illustrated in Figure 2.2 and then discussed individually below.

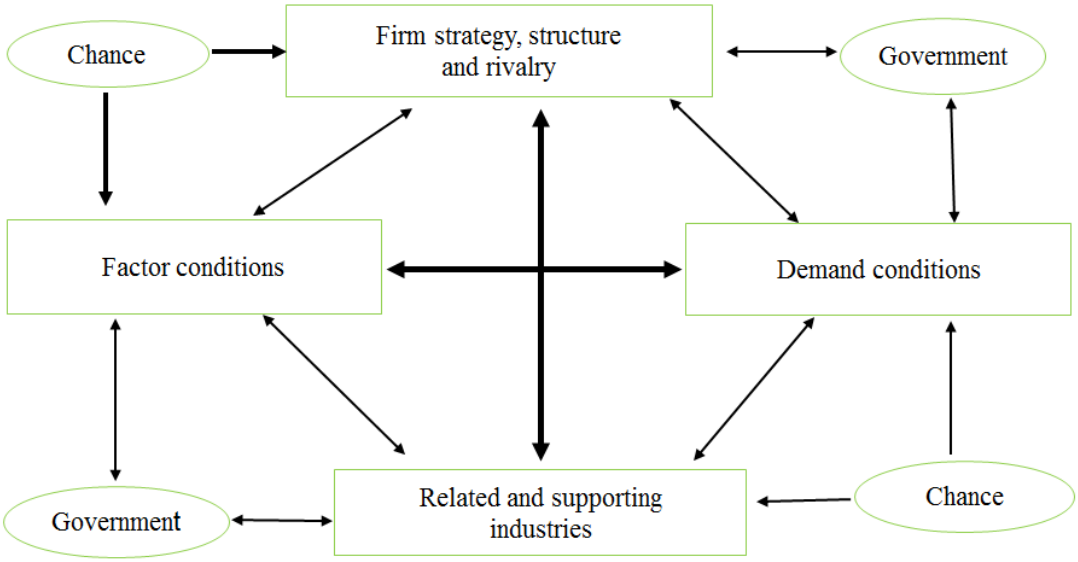


Figure 2.2: Determinants of national competitive advantage (Porter's diamond)
Source: Porter (1990)

Factor condition: the nation's position in terms of factors of production, natural resources, level of production costs such as the price of labour, diesel, pesticides, machinery, etc., and knowledge and infrastructure necessary to compete in a given industry. The fact that a country has good, low cost factors, such as unskilled labour and raw materials, does not necessarily generate sustained competitive advantage, as these can be bargained away and obtained by any many related industries. However, specialised key factors, such as skilled labour, capital and infrastructure, lead to a competitive advantage, since these factors are more difficult to duplicate or bargain-away.

Demand condition: the nature of home demand for the industry's product and service and the ability to record this demand, for example home demand composition, demand size and internationalisation of domestic demand (the mechanisms by which a nation's domestic preferences are transmitted to foreign markets), as well as the ability to enter and expand into global market segments. Demand conditions are an important factor in helping to produce competitiveness. A sophisticated domestic market pressures a company, industry or nation to sell superior products. Similar pressures apply to the global market place.

Related and supporting industries: the presence or absence in the nation of supplier industries and related industries that are internationally competitive. Internationally competitive home-based suppliers create advantages in downstream industries differently. The most cost effective inputs can be delivered efficiently, early, rapidly and sometimes in the most preferred way. Suppliers and end users located near to each other can take advantage of the short line of communication, the quick and constant flow of information and an on-going exchange of ideas and innovations. Companies have the opportunity to influence their suppliers' technical efforts and can serve as test sites for R&D work in order to accelerate the pace of innovation.

Firm strategy, structure and rivalry: the condition in the nation governing how companies are created, organised and managed and the nature of domestic rivalry. Nations differ on the goals, strategies and ways of organising firms in industries. A number of factors (social and historical) have led to differences among countries in management practices and individual attitudes towards risk and international competition. These factors affect how firms are organised and operated. According to Porter (1990), countries with a short-run point of view tend to be more competitive in industries in which investment is short-term, and countries with a long-run outlook tend to be more competitive in industries where investment is long-term. Porter (1990) bases the structure of firms on management styles, which vary among industries. Some countries may be oriented toward a particular style of management. If a particular management style suits a country it will tend to be more competitive in those industries in which that management style dominates. Local rivalries also influence innovation, which is needed for sustainable competition.

The role of government: The role of government is best viewed in terms of its influence on the four determinants of competitiveness rather than as a separate determinant. Government plays an important role, if not the most important role, in international competitiveness. Government can influence each of the above determinants either positively or negatively through policy, strategic and operational capacity. This can be achieved through a variety of government actions, such as subsidies to firms, either directly (money) or indirectly (through infrastructure); tax codes applicable to corporations, businesses or property ownership; and the educational policies that affect the skill level of workers. However, Porter (1990) explicitly rejects trade intervention, which he says, just guarantees a market for inefficient companies. Porter (1990) argues, like everyone else, that there are certain things that governments do that they should

not, and other things that they do not do but should. According to Porter, government's proper role is as a catalyst and challenger to encourage or even push companies to raise their aspirations and move to higher levels of competitive performance. Government cannot create competitive industries, only companies can do that (Porter, 1990; 1998). Government policies that succeed are those that create an environment in which companies can gain competitive advantage rather than those that involve government directly in the process. It is an indirect, rather than a direct, role.

The role of chance: Chance events are occurrences that have little to do with circumstances in a nation and are often outside the power of firms (and often the national government) to influence. Events such as war, political decisions by foreign governments, large increases in demand, discontinuities in input costs such as the energy crisis, technological discontinuities, significant shifts in world financial markets and exchange rates and health conditions such as HIV/AIDS, the Ebola virus, etc. can either be beneficial or harmful to an industry's competitive position (Porter, 1990). The effects of climate and global warming, no matter whether positive or adverse, are also significant for agricultural production (Oster, 1994). Such events can nullify sources of comparative and competitive advantage; but also create new ones. The ability of an industry to respond will depend upon the status of other parts of the Porter diamond.

Even though the Porter diamond model is a more qualitative description of factors determining the competitive success of an industry in a particular country, the model can also be used as a quantitative measure to compare the competitiveness of industries in a particular country or a particular industry among different countries. This is evidenced by the work of Boonzaaier (2014), Esterhuizen, Van Rooyen and D'Haese (2001), ISMEA (1999), Jafta (2014), Van Rooyen (1998), Van Rooyen *et al*., (2011) and Venter (1999). In these studies, factors determining the competitive success of the industry in specific countries are identified, scored and then compared among countries. Scoring the determinants has been criticised, firstly because it is difficult to determine an overall score per country, since different aspects are weighted differently. Another limitation is that different qualities are required in different market segments. Despite these critics, Porter's diamond model is the most widely used framework in assessing countries' dynamic competitive advantage (Esterhuizen, 2006; Esterhuizen and Van Rooyen, 1999; Mashabela & Vink, 2008). The Porter's framework has also been used by the International Institute for Management Development (IMD) for the World Competitiveness Report. Porter's model therefore will be considered in this study to identify the factors and determinants influencing the competitiveness of the Namibian date industry.

Porter's introduction of diamond model has made a great contribution to the study of competitiveness theory. His method of analysis breaks through those of various comparative advantage theories, and provides a new theoretic model of analysis for future researchers. However, this new model is not without problems. Various authors, including Moon, Rugman & Verbeke (1995), Rugman (1990) and Rugman and D'Cruz (1993) have referred to the model's treatment of multinational activities and government as not satisfactory. The next section discusses some of the extensions to the Porter model.

2.6 Previous studies on competitiveness of agricultural industries

In recent years, competitive analysis has become a rapidly evolving area of interest for many agricultural economic researchers, equally in South Africa (Ortmann, 2001). This is evident from the increasing number of studies that have been and are being conducted in this field. Competitive studies of agricultural products gained commercial credence in the last ten to twenty years as many agricultural researchers started to realise their importance in the sector (Sinngu & Antwi, 2014). Martinez (1996) argues that this is because of the significant changes that currently are affecting the agricultural sector, such as the shift in consumer demand, global competition, technological progress and the industrialisation of agriculture. Some of the studies conducted lately that have analysed the revealed competitive advantage of several agricultural products on both the micro- and macro-levels include analyses by Vink, Kleynhans and Street (1998), who reported the results of an international comparison of the cost of producing wheat in eight Western Cape, three Free State and seven foreign producing areas. The results showed that South Africa competes against two types of countries: high-cost, high-yield countries such as France, Britain and Germany, and low-cost, low-yield countries such as Australia and Argentina. As a low-yield, high-cost country, South Africa cannot compete in the global wheat market. The study concluded that, if the wheat industry in the Western Cape intends to survive international competition, it will have to improve its international competitiveness.

Van Rooyen and Van Rooyen (1998) conducted a study on the South African and Australian flower industries and concluded that the South African cut foliage industry had a high competitive advantage in international trade. Cut flowers and house plants showed a competitive disadvantage, which they attributed to factors such as the industry's focus on the local market, which demands a much lower quality product than European markets. Esterhuizen and Van Rooyen (1999) calculated and analysed the competitiveness of some of the selected food commodity chains in South Africa. Although the two authors found that most commodity chains are competitive, the competitiveness index generally decreases when moving from primary to processed products, explaining the general notion of beneficiation outside South Africa.

Venter (1999) studied the competitiveness of Southern Africa's sheep meat supply chain relative to the Australian industry. Venter (1999) concluded that Southern African lamb producers were competitive, but mutton producers were not. Venter (1999) found that the cost associated with value adding in the retail industry is much higher in Southern Africa than in Australia, resulting in a decrease in the competitiveness of the total value chain.

Another study that was conducted analysed the competitiveness of South African apples, pears and grapes within the European Union market. Using the revealed comparative advantage (RCA) methodology, the results of this study show that South African fruit exports were the least competitive among the selected suppliers, viz. Chile, the United States, New Zealand, Argentina and Turkey (Kalaba & Henneberry, 2001).

Kalaba and Henneberry (2001) argue that the lack of competitiveness in this industry might be attributed to many years of isolation or poor product quality compared to other products.

Van Rooyen and Esterhuizen (2001) investigated the opportunities and potential for agribusiness partnerships and co-operation in Southern Africa. It was concluded that such partnerships along supply chain integration would substantially improve the global competitiveness of local agribusinesses in the region. Mosoma (2004) examined the agricultural competitiveness and supply chain integration of South Africa, Argentina and Australia using the RTA index. His analysis established that South Africa's agricultural food chains are marginally competitive internationally, whereas Argentina's and Australia's agricultural food chains are generally more competitive worldwide than those of South Africa. His findings show that South Africa has managed to move further up the value chain compared to Argentina and Australia. He concluded that, in all three countries, competitiveness decreased when moving from primary to processed products in the chain, which implies that value-adding opportunities are limited in these countries. Hallatt (2005) used three indexes, namely the RCA index, the NXi and the RTA index to analyse the relative competitiveness of the South African oilseed industry by comparing it with that of Argentina. Her analysis showed that South African groundnuts and sunflower seeds have a competitive advantage in their primary form, but oilseed, to which value is added, in most cases has a competitive disadvantage, exactly the opposite of Argentina's oilseed products. Her study further revealed that the domestic oilseed industry was struggling with comparative and competitive disadvantage for value-added products.

Esterhuizen (2006) analyzed the competitiveness of South African agribusiness. According to the results, South Africa's agribusiness was marginally competitive, which is due to the fact that most agricultural commodities are competitive in their primary state but, after being processed they become less competitive. This notion was confirmed by a 2012 study by the same authors (Van Rooyen & Esterhuizen, 2012). Esterhuizen and Van Rooyen (2006) and Van Rooyen *et al*., (2011) also conducted studies on the competitiveness of the wine industry in South Africa. The authors measured the operational trading performance of SA wines relative to international competitors using the relative trade advantage (RTA) method. Various key success factors impacting on the competitiveness of the wine industry were found. These include intense competition between market participants, the production of affordable, high-quality products, efficient supporting industries and the availability of internationally competitive local suppliers of primary inputs. The study indicated that the wine industry can be classified as one of the winning industries in South Africa. The results reveal that South Africa's wines are internationally highly competitive, with a sustainable and increasing positive trend over recent years. The wine industry in South Africa also shows positive trends in competitiveness in the long run and it does not seem as if it will lose its competitiveness if its dynamic ability to continue to trade is sustained.

Thomas (2007) conducted a qualitative study to assess the determinants of the global market competitiveness of Namibian table grape production using Porter's diamond model. The study concluded

that the Namibian table grape chain was associated with high transaction costs, resulting from contractual and exchange arrangements, particularly due to the perishability and short shelf-life of fresh grapes. In general, transaction costs are increased by clear evidence of incomplete information within the table grape chain.

Mashabela and Vink (2008) used the RTA index to measure the competitive performance of South African deciduous fruit supply chains relative to those of Chile. Their findings revealed that the South African industry enjoyed a relative marginal competitive advantage in several deciduous fruit products, such as dried apricots, whereas Chile is strongly competitive in almost all the deciduous fruit products. The findings further revealed that the competitiveness of most of South Africa's deciduous fruit products decreased when moving further up the value chain, in contrast to the case in Chile. The authors argued that the most possible explanation for this could be the high rates of return recorded for farm-level applications of technology for most primary deciduous fruit commodities. Another possible explanation for the decrease in the competitiveness of the industry when moving up the value chain, as indicated by the National Department of Agriculture (2001), could be attributed to the high input costs, combined with low productivity, poor business strategies and inefficiencies, and unfair trade practices by the country's competitors.

Recently, Jafta (2014) conducted a study analysing the competitiveness of the South African apple industry. This analysis shows that South Africa's apple industry has sustained a competitive advantage. However, when compared to its competitors, Chile and New Zealand showed a strong competitive performance, with RTA index values above 10. Nonetheless, South Africa has a relatively better global competitive advantage over Italy, Argentina, France, Poland, China and the United States of America, and is sustaining a third position on the international apple podium.

Sinngu and Antwi (2014) investigated the competitive performance of the South African citrus fruit industry relative to its southern hemisphere rivals. Their results revealed that South Africa has a competitive advantage in some citrus fruit products, namely oranges, grapefruit and grapefruit juice, over its southern hemisphere counterparts. However, the competitiveness of oranges decreases when moving from primary orange to orange juice, which means that value adding opportunities are still lacking in the agro-processing sub-sector. This result is in line with the findings of other researchers (Esterhuizen & Van Rooyen, 1999; Mashabela & Vink, 2008; Van Rooyen & Esterhuizen, 2001; Van Rooyen *et al*., 2000; Venter, 1999).

It should be noted that no statements on the validity of the industry survey, its relevance and impacts, consensus and variations, as well as similarities and differences on factors influencing the competitiveness of various industries were included in these studies. The proposed strategies thus were not strongly based on long-term relevance and current impacts of particular factors and the management thereof. It therefore

was an averaged-out approach that was recommended in these studies. In this study, a more refined approach, taking into account the relevance of the factors affecting competitive performance and the management thereof, will be applied.

2.7 Conclusion

The background that forms the basis of this research has been discussed and the research objectives, questions and hypotheses were outlined in Chapter 1. A brief overview of the theoretical framework also was provided in that chapter. In this chapter, the theoretical foundations of competitiveness have been set and the concept of competitiveness that responds to the hypotheses has been defined. The following definition will be used to direct the study:

> 'competitiveness is the ability of an industry or firm to trade products in both domestic and international markets on a sustainable bases while earning at least the opportunity costs of returns on resources employed and as such it is able to attract scarce resources such as land, human capital and labour and capital from other economic activities'.

Some of the methods and techniques used to measure competitive performance have been reviewed and their limitations outlined. Earlier studies conducted to measure and analyse the competitive performance of various agricultural industries were also reviewed.

Based on information provided in Chapter 1 and in this chapter, the next chapter provides a detailed discussion of the analytical framework that forms the basis of this study's analyses.

CHAPTER 3: ANALYTICAL FRAMEWORK

3.1 Introduction

This study sought to define, measure and analyse the competitiveness performance of the date industry in Namibia. The main purpose of this chapter is to provide a systematic and detailed description of the analytical framework and data base that was used to measure and analyse the competitiveness of the Namibian date industry and to reach some findings and draw conclusions.

3.2 A step-wise analytical framework

In order to empirically measure the competitive performance of the Namibian date industry, this study made use of the relative trade advantage (RTA) method, which is commonly used to measure the competitiveness of agricultural industries. The RTA, as described in Chapter 2, is an improved version of the Balassa's (1965) original version of revealed comparative advantage (RCA), expanded by Vollrath (1991). Vollrath (1991) suggests that the RTA may be preferable to other techniques such as RCA and NEI because it is less susceptible to policy-induced distortions, which tend to be more pronounced on the import side. It is for this reason that the RTA, which takes into account both exports and imports, was used for this study.

According to Esterhuizen (2006), it is critical to consider three aspects when coming up with an analytical framework for a sector or industry's competitiveness. The first aspect is to determine the current and previous competitiveness status. Secondly, it is imperative to understand the success and constraining factors that led to that competitive status. Thirdly, the sustainability of the sector's competitiveness status must be properly investigated. In order to understand these aspects from the perspective of the Namibian date industry, a five-step analytical framework, adapted from the work of Esterhuizen (2006) and lately used by various researchers (Boonzaaier,2014; Jafta, 2014; Ndou, 2012; Van Rooyen *et al*., 2011) was used to guide this study (refer to Figure 3.1). However, it is important to note that, in this study, four new analytical processes were added to the framework. These are: validating industry survey; factor impact and relevance; consensus and variation in opinions; and similarities or differences in the respondents' opinions as per their position in the value chain.

The following sequential steps, outlined in Figure 3.1, were followed to comprehensively measure and analyse competitive performance. Each step takes full cognisance of the information gathered in previous steps and also provides feedback on such information gathered, i.e. an interactive process is followed during the data gathering and analysis processes. The various information gathering processes, related to each step, is indicated in Figure 3.1.

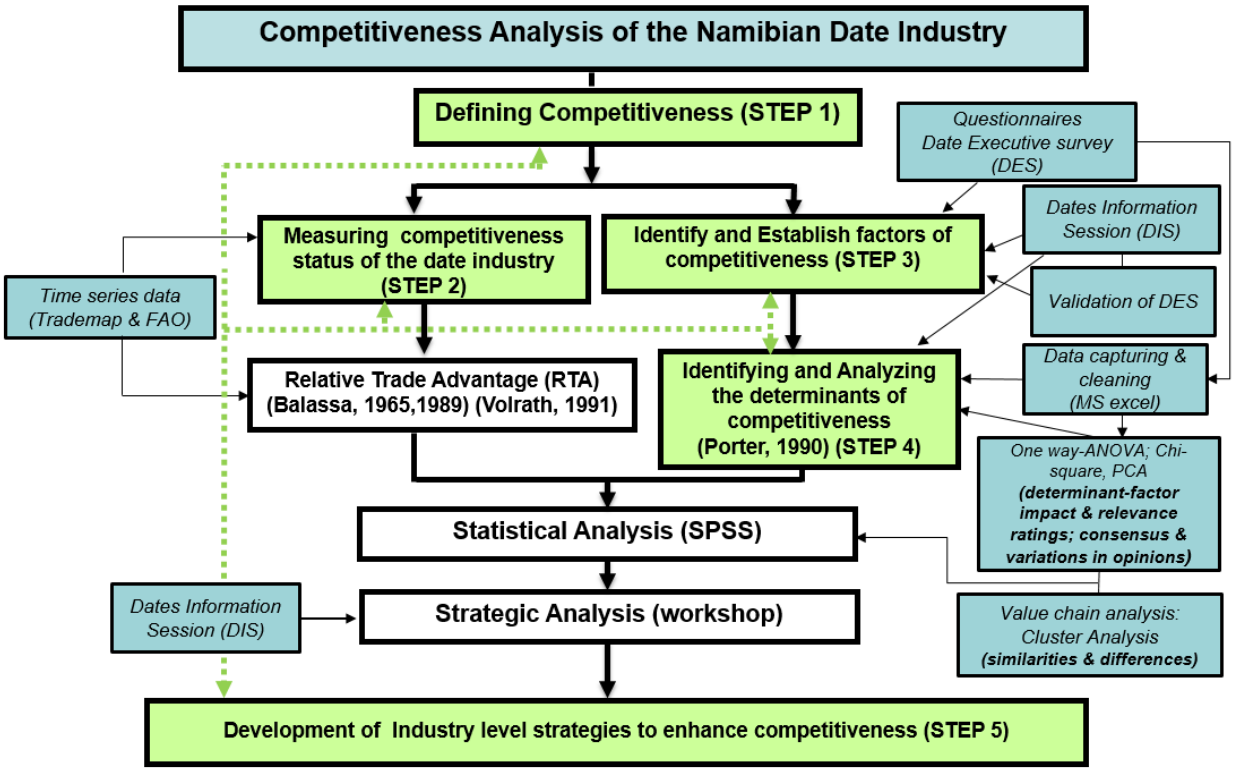


Figure 3.1: A framework to measure and analyse the competitiveness of the date industry in Namibia
Source: Adapted from Esterhuizen (2006), Van Rooyen *et al*., (2011), Jafta (2014) and Boonzaaier (2014)

3.2.1 Defining competitiveness (step 1)

Step 1 is to define competitiveness in the context of the date industry. To compete means to try to gain or win something by defeating the competitors. However, as indicated in Chapter 2, there is consensus that there is no single definition of competitiveness (Ezeala-Harrison, 1999; Krugman, 1994; Mahmood & Ezeala-Harrison, 2000). There also are different ways in which the concept is defined. In order to achieve the objectives of this research, and due to the trade orientation to competitiveness in the Namibian date industry. Freebairn's (1986) definition set the foundation and served as a point of departure. Freebairn states that industries are competitive when they are able to trade products in both domestic and international markets on a sustained basis, and as such are able to continuously attract scarce resources such as land, labour, technology, management talents and capital from other competing economic activities while earning at least the opportunity costs of returns on resources employed. This definition will form the basis of the study and set the departure point for data gathering and analysis.

3.2.2 Measuring competitiveness (step 2)

Step 2: Measuring the competitive performance of the Namibian date industry based on trade performance.
In this step, the global competitive performance of the Namibian date industry was measured. Various methods and techniques reviewed in Chapter 2 served as guidelines in selecting the appropriate method used in this study. Measuring competitiveness is a debateable issue due to its complexity. As highlighted in the preceding chapter, the concept means quite a lot of different things to different people with different interests. As a result, various techniques are used to measure the competitiveness of an industry (these techniques are discussed in Chapter 2) and the choice of a measurement method is influenced by a particular question or facet of competitiveness that one wishes to investigate.

Based on the literature and considering the limitations of the various methods discussed in Chapter 2, the relative trade advantage (RTA) method, extended by Vollrath (1991) from the original revealed comparative advantage (RCA) model developed by Balassa (1965; 1989) was used to measure quantitatively the extent to which the Namibian date industry competes internationally. This is the most suitable measure, since the trade pattern reflects all relative market advantages, enhancements, constraints, market costs as well as differences in non-price competitive factors, such as government policies (Esterhuizen & Van Rooyen, 2006). In addition, the RTA method supports the actual definition of competitiveness obtained from step 1 and enables the study to determine how the industry trades its products both in the local and global environment relative to other competitors. The formula used to measure the competitive status of this industry is presented below.

The RTA equation:

$$RTA_{ij} = RXA_{ij} - RMP_{ij} \quad (1)$$

$$RXA_{ij} = \left(X_{ij}\Sigma 1,1 \neq jXi1\right)\left(\Sigma k, k \neq iXkj\ \Sigma k, k \neq i\Sigma 1, 1 \neq jXk1\right) \quad (2)$$

$$RMP_{ij} = \left(M_{ij}\Sigma 1,1 \neq jMi1\right)\left(\Sigma k, k \neq iMkj\ \Sigma k, k = i\Sigma 1,1 \neq jMk1\right) \quad (3)$$

where:
RXA = the revealed export advantage index and
RMP = the relative import penetration index

In equations 2 and 3, X (M) refers to exports (imports), with the subscripts i and k denoting the product categories, while j and l denote the country categories. In this formula, the ratios of Namibia's trade in dates versus global trade in dates is calculated relative to the ratios of Namibia's trade in all products versus the global trade in all traded products, i.e. the ability to trade dates relative to all other trade(refer to Chapter 2, section 2.4.1.3 for a detailed description of the formula).

3.2.2.1 Data used

This study used secondary data (import and export values) in order to measure the competitive performance of the Namibian date industry and compare the country's performance against global competition. In order to empirically measure the competitive status of the industry, data were extracted from two reputable and internationally recognised statistical databases. These are the Food and Agriculture Organisation (FAO, 2014), which is available, for agricultural traded products only, on the Internet (http://www.fao.org) and the International Trade Centre (2014), which is available on the Internet (http://www.trademap.org). The ITC (Trade map) consist of data across all economic sectors i.e. broader than FAOSTAT. It covers 220 countries and territories and 5 300 products of the Harmonised System (HS), including those of Namibia.

Before 2010, trade data for Southern African Customs Union (SACU) member states which Namibia is party to, were published as a group. Even though Trade map has trade data for each SACU Member State, during the time of this study no aggregated trade data for Southern African Customs Union (SACU) member states were recorded by FAO since 1961.

This study used the import/export data i.e. volumes and values that are recorded for each country on the two international databases (Trade map & FAO) and hence their competitive measurements (RTA values) were calculated individually.

However, trade documentation and associated capturing of trade data remains a challenge for authorities and business in SACU member states, particularly in those member states that are in the process of computerizing data capturing process and those that are presently not computerized. In order to facilitate trade and improve the quality of trade data, Member States agreed to pursue the automation and interconnectivity of their customs information technology systems to enable electronic exchange of data between customs administrations (SACU, 2014)

Although questions about the quality of the data may be asked, these are the best databases available, given the cost of gathering primary data (Esterhuizen, 2006; ISMEA, 1999; Jafta, 2014; Van Rooyen *et al*., 2011). A combination of these databases was, however, used to provide a control system for the measurements and because, at the time of this analysis, the 2012 and 2013 data were not available on FAOSTAT. Statistics on all products traded by Namibia and by other countries that were considered in this study, as well as those that the world traded, were sourced from Trade Map (ITC, 2014). The time series trade data on date imports and exports from 2001 to 2013 were used to calculate the competitive indexes of the Namibian date industry, thereby giving a long-term view and allowing for a trend analysis of competitive performance, i.e. a short-term view was not taken (see section 1.2 in Chapter 1).

3.2.3 Identifying and establishing the factors of competitiveness (step 3)

Step 3: Identify the major factors affecting competitive performance. In this step, factors affecting the competitive performance of the date industry are identified through industry-level interaction and then analysed to determine those that enhance and those that are constraining.

3.2.3.1 Sampling method

The research concentrated on key industry stakeholders, i.e. producers, marketers, service providers and key informants in the date industry. Given that the industry is relatively small and that all industry representatives are known, a purposive sampling method was used to obtain relevant information for this study. Purposeful sampling is a technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 2002). This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced in a phenomenon of interest (in this case the date industry) (Cresswell & Plano Clark, 2011). Since the study intended to obtain critical information about the date industry from knowledgeable stakeholders, the purposive sampling technique was viewed to be the best method to use. This qualitative sampling method has the advantage of maximising the efficiency and validity of the information gathered (Morse & Niehaus, 2009).

3.2.3.2 Information from industry stakeholders

In order to identify the factors affecting on the competitive performance of the date industry, primary data were gathered during the date executive survey (DES). Key industry representatives operating in the mainstream of the date industry were requested to participate in the data gathering process. Executive opinions on factors and events affecting the competitive performance of the industry were gathered from those responsible for the operational and strategic management of date projects. Their perceptions of the business environment in which they operate were captured in a comprehensive and scientifically constructed questionnaire. A focus group discussion with all players in the industry (executives and experts), the dates information session (DIS), was also conducted to solicit relevant information and feedback on the preliminary findings (steps 1, 2, 3 and 4) to assist in achieving the study objectives and to propose relevant industry-level strategies (step 5).

According to De Wet (2014), there are a maximum of 30 key players in the Namibian date industry. These include producers, processers, marketers, input/service providers and advisors who are involved in the day-to-day operations of the industry. Based on this, a total of 30 questionnaires comprising mainly closed-ended questions (see Appendix A: Date Executive Survey (DES) Questionnaire) were used to gather the necessary information required for this study. These questionnaires were sent to all key stakeholders and informants. Some were distributed by the researcher via e-mail, and others were dispersed through the

Namibian Development Corporation (NDC). Some of the questionnaires were administered on a one-on-one basis, with the researcher conducting the interview directly with the respondents.

Twenty-six questionnaires were returned and used in the analysis for this study. This implies that only four questionnaires, accounting for 13% of the total population, were not returned. These four could not be reached by the researcher due to limited resources, and it was established that their email addresses were not working due to network challenges. However, the 87% response rate is considered sufficient enough to provide a good view of the industry.

3.2.4 Identifying and analysing the determinants of competitiveness (step 4)

Step 4: Identifying and analysing the determinants of competitiveness (DC), using Porter's competitiveness theory (Porter, 1990; 1998). This step complements the steps above, in which data gathered through the date executive survey are analysed. In this step, factors are clustered and grouped according to Porter's competitiveness theory (Porter, 1990; 1998) into the Porter diamond determinants of competitiveness, and analysed and discussed through the application of this theory. The six Porter's determinants are factor conditions; demand conditions; related and supporting industries; firm strategy, structure and rivalry; the role of government; and the role of chance. These determinants were discussed in Chapter 2 (refer to section 2.5).

3.2.4.1 Statistical data analyses (applied in steps 3 and 4)

As indicated earlier, the primary data of this study were collected by means of a questionnaire. The data was used to determine factors influencing competitive performance and to cluster these identified factors in to the six Porter determinants of competitiveness, viz. the Porter diamond. The Porter diamond has the advantage of allowing for a comprehensive statement by industry executives and experts on all relevant aspects affecting competitiveness (Porter, 1990; 1998). This approach systematically points out the industry's weaknesses and strengths and also identifies critical success factors to which special attention can be paid in order to develop and maintain an industry's long-term successful competitive performance.

The first stage of data analysis was to prepare the raw data from the data-capturing sheet, which was designed in a manner suitable to transform the data into a computer readable format. Data capturing and data cleaning were done using Microsoft Office Excel 2007, after which all statistical analyses were done using the Statistical Package for the Social Sciences (SPSS), version 22.0. The statistical data analyses that were carried out were the following:

The overall descriptive results were obtained through frequency distributions of categorical variables, as well as the analysis of mean rating score values for the rating-scale variables. Statistical comparisons of the frequency distributions of sub-groups were done through chi-square analysis, while statistical

comparisons of the mean rating score values of sub-groups were done through one-way analysis of variance (ANOVA).

By extending the conventional approach applied in previous studies (see, for example, Esterhuizen & Van Rooyen, 1999; 2006; Esterhuizen, 2006; Van Rooyen *et al*., 2011; Van Rooyen & Esterhuizen, 2012; Jafta, 2014; Boonzaaier, 2014), four 'new' analytical processes were incorporated in the analysis.

(i) Validation of questions in the DES: questions used in the date executive survey were validated in terms of the distributions of ratings given. If, for example, most questions were rated at a 'not relevant/no impact level', the survey would render little useful information for analysis.

(ii) Current impact vs. long-term relevance ('what is now' vs. 'what ought' to be): For each category within the Porter analysis, radar plots were compiled in Microsoft Office Excel 2007 considering two important aspects viz. the 'current impact' ratings, and the 'long-term relevance' ratings for the individual statements evaluated. Differences were analysed between these aspects. This is imperative because one needs to know and understand how the specific factors are currently performing (i.e. impacting) and whether it is important that these factors perform well toward the success of the industry's competitiveness (i.e. relevant in general). This analysis enabled the researcher to identify the performance gap between 'what is' the status of performance now and 'what ought' to be. In order to further analyse the most critical factors affecting the industry, X-Y scatter-plots (quadrants) were also compiled in Microsoft Office Excel 2007 for the 'impact' rating (X-axis) plotted against the 'relevance' rating (Y-axis). This allows the determinants and factors to be classified as: constraining or enhancing/maintenance within the context of being either highly relevant or least relevant and provides a visual identification of determinants and factors that are critical to the industry's competitive performance.

(iii) Consensus/highly correlated variables vs. variation in opinion/uncorrelated variables: Thirdly, in order to obtain an indication of the consensus and variations in responses, a principal component analysis (PCA) was performed. PCA was applied for data reduction purposes in order to distinguish between highly correlated variables, i.e. the factors for which the respondents' responses were very similar – considered here as 'consensus factors' and uncorrelated variables, i.e. the factors for which the respondents gave a more variable range of rating values – considered here as 'variation-in-opinion' factors. In statistical analysis the uncorrelated variables could be applied in further analyses such as cluster analysis to identify groups within the dataset with similar perceptions.

(iv) Cluster analysis: Fourthly, in order to identify similarities or differences in the perceptions of the stakeholders as per their positions in the date value chain/network, a cluster analysis was conducted.

PCA identifies highly correlated variables in the dataset in terms of factors related to the six main determinants. The objective of this analysis is to yield a dataset containing a smaller number of uncorrelated variables. Responses to statements (rating scores) within the various sets were subjected to PCA using 1's as prior communality estimates. The principal axis method was used to extract the components, and this was followed by a varimax rotation. Meaningful components had Eigen values larger than 1 and were retained for rotation. An item was interpreted as loading on a given component if the factor loading was 0.40 or greater for that component, and less than 0.40 for the other (Vermeulen, 2015).

A cluster analysis is used to classify objects into relatively homogenous groups, called clusters, in such a manner that objects within the various clusters tend to be similar to each other and dissimilar to objects in the other cluster (Malhotra, 1996). Sudman and Blair (1998) indicated that cluster analysis is applied to group observation based on distances across a series of variables. The basis for cluster analysis is the rationale that objects that are closer together should be allocated to the same group, while objects that are far apart should be allocated to different groups.

In the context of this study, a cluster analysis was applied in which respondents' views were grouped based on their position in the value chain in order to identify clusters of players in the Namibian date industry with similar perceptions; and in order to determine whether such clusters' responses are related to value chain functions. The information gathered through the DES was analysed in order to obtain the respective factor ratings (in terms of impact and relevance) for each cluster. Two clusters were identified, and the ratings for these clusters were then compared statistically to determine whether there were significant differences in the perception of these clusters of players towards various factors influencing the competitive performance of the Namibian date industry.

The findings and results of the step 4 analysis, together with step 3, were introduced and discussed during an industry information session (DIS) – refer to section 3.2.3.2.

3.2.5 Proposing strategies (step 5)

Step 5: Proposing industry-level strategies that can improve competitive performance. The above steps provided viewpoints on the issue of competitiveness, and contributed to a comprehensive statement on the competitiveness of the Namibian date industry. Based on the information gathered from the first four steps, this step, informed by the findings reached in step 4, together with the date information session (DIS), attended by a representative date gathering (28 stakeholders) suggests industry-level strategies specifically for those constraining factors on which there is a high degree of consensus. The proposals could be used to inform a more comprehensive, industry-wide strategic planning process in which all other findings are also noted, aiming to enhance the Namibian date industry's competitive performance (see Appendix B for the DIS attendance list).

3.3 Conclusion

This chapter's objective, which was to describe the analytical framework that was used in this study, has been accomplished. The measure of competitive performance, namely the RTA, has been set and the data to be used in the measurement and analysis thereof have been indicated. This technique applied is discussed in Chapter 5, using trade data for dates for the period 2001 to 2013. Porter's new theory of competitiveness, the diamond model which was used as the framework to identify and analyse determinants and factors influencing the Namibian date industry's competitive performance, including the four new analytical processes added to the conventional approach used in previous studies, also was discussed. These processes will be applied in Chapter 5. The next chapter provides a descriptive overview of the Namibian date industry in order to understand where the industry is coming from, its current position and future forecasts.

CHAPTER 4: AN OVERVIEW OF THE NAMIBIAN DATE INDUSTRY

4.1 Global overview

4.1.1 Introduction

To understand the Namibian date industry, it is importance to situate it in the context of world production and marketing trends for dates. A comparison of the Namibian date industry with that of other countries in the world is required in order to get a view of where Namibia is in terms of date production, consumption and marketing.

The purpose of this chapter therefore is to provide a descriptive overview of the Namibian date industry. Firstly, the global production and marketing trends are discussed, followed by a description of the Namibian horticulture industry, looking at the history, structure, production and marketing of Namibian dates.

4.1.2 Global production of dates

The date palm (*Phoenix dactylifera* L.) is one of the oldest fruit trees of the world and is closely associated with the life of people, especially in the Middle East, since ancient times. Worldwide, 2000 or more date cultivars are known to exist. Dates are a good source of food, providing fibre, carbohydrates, minerals and vitamins (Al-Shreed *et al*., 2012). According to El-Juhany (2010), the exact origin or gene centre of the date palm has been lost in history, but evidence of date palm cultivation goes back as far as 4000 B.C. in what is now southern Iraq. Date palms have also been found in Ancient Egypt (Barreveld, 1993). The remains of dates have been found in a number of Neolithic sites, particularly in Syria and Egypt, which means that they were being eaten by man as long as 7, 000 to 8, 000 years ago (Lunde, 1978). The date palm begins bearing fruit when it is about five years old and generally continues producing fruit for 75 years, although the tree itself may live until 150 years old (Huntrods, 2013).

Worldwide, date production has increased over the last decade from 6, 7 million tons in 2001 to 7, 6 million tons in 2013, as shown in Figure 4.1 (FAO, 2014). This represents an increase of about 11% over thirteen years. The world's date palm cultivation is concentrated mostly in the hot desert regions of South-West Asia and North Africa, favoured by the suitable dry sub-tropical and high temperature climate prevailing in these regions (El-Juhany, 2010).

During the years under review (2001 to 2013), Asia and Africa were the regions producing the largest quantities, representing 61.2% and 38.3% of the world's total date production respectively. America and

Europe, on the other hand, produced smaller quantities, representing 0.3% and 0.2% respectively, as indicated in Figure 4.2 (FAO, 2014). The EU countries do not produce dates, except for Spain, which produces very small quantities. Some of the EU countries, most notably France, re-export dates. France imports significant quantities of natural dates in bulk from Tunisia and Algeria, which are then processed, packaged and re-exported. Most of the re-export trade takes place between EU member countries (Liu, 2003). Figure 4.3 indicates the top five producing countries namely Egypt, Iran, Saudi Arabia, the United Arab Emirates and Iraq (FAO, 2014). These countries were responsible for 64% of the world total date production in the period covered by this study.

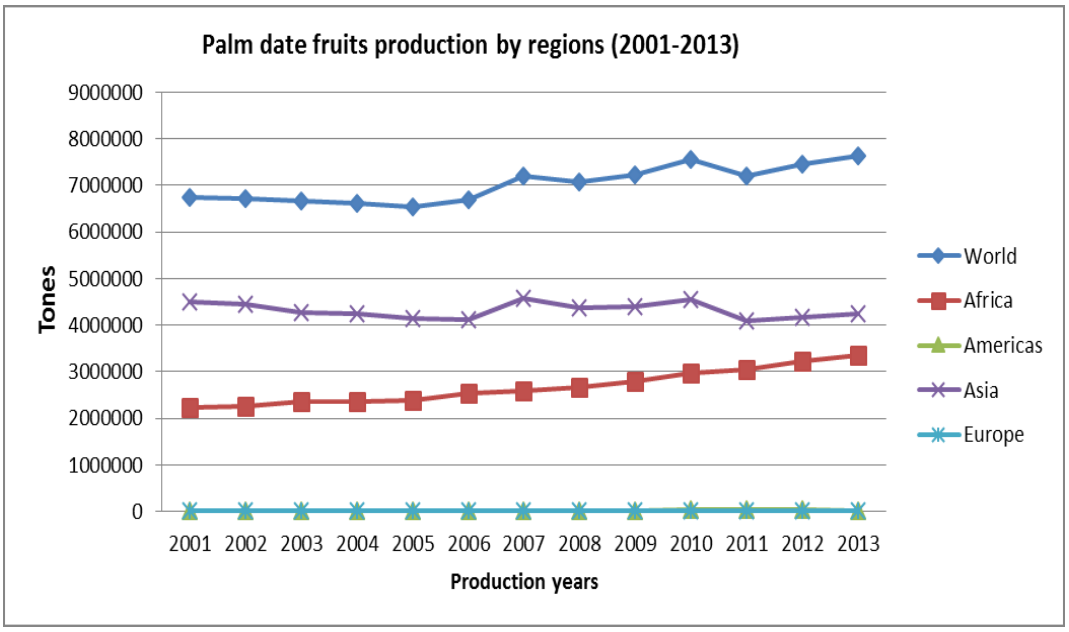


Figure 4.1: Date production by region (2001-2013)
Source: FAO (2014)

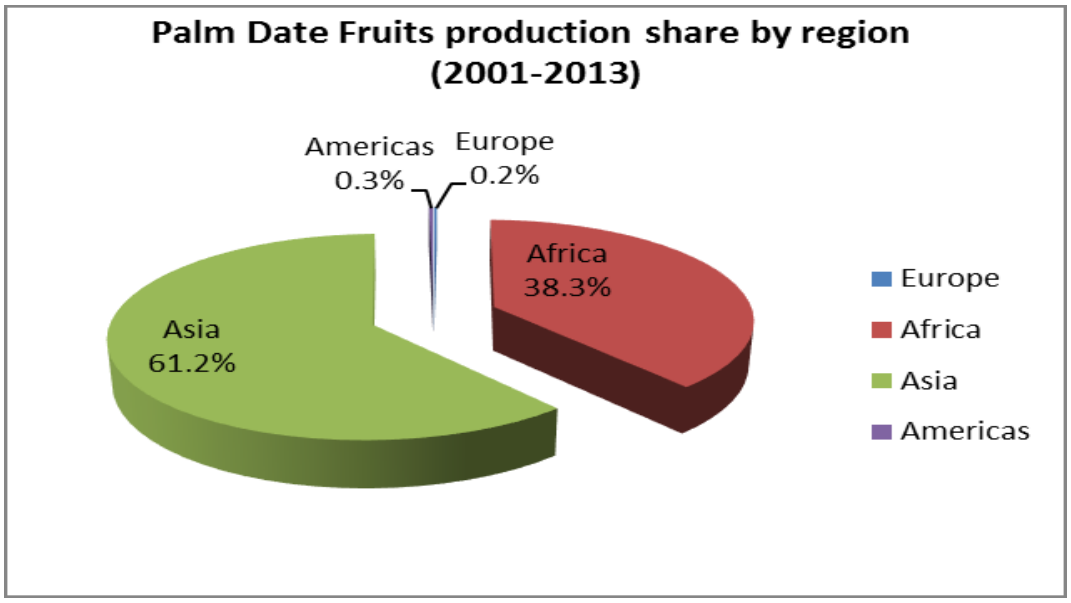


Figure 4.2: Date production share by region (2001-2013)
Source: FAO (2014)

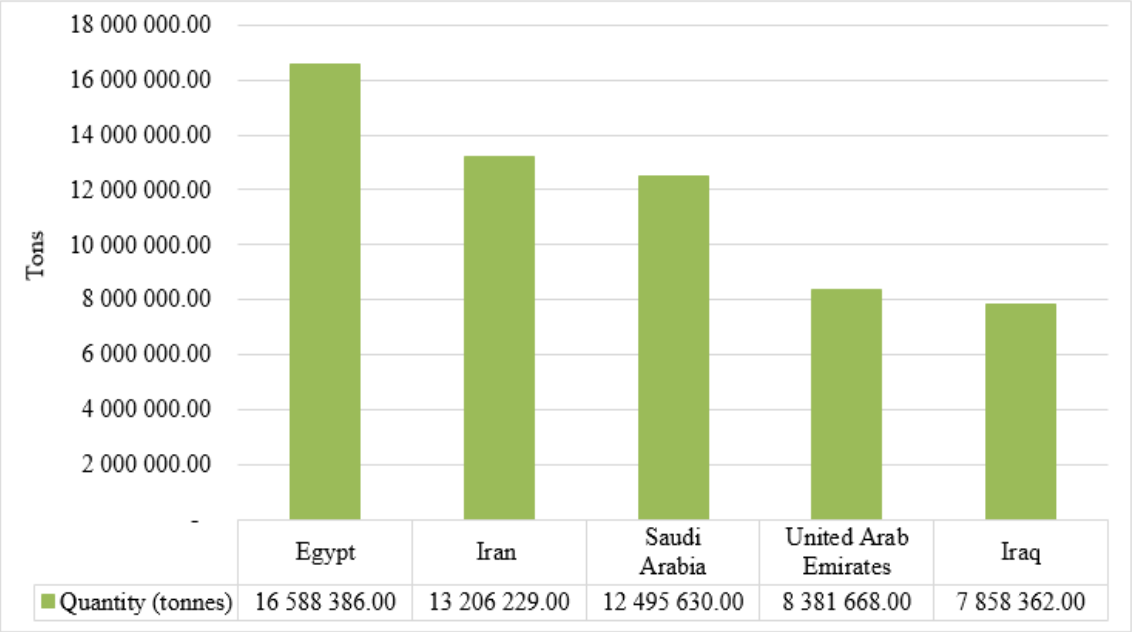


Figure 4.3: Top five date producers in the world (2001-2013)
Source: FAO (2014)

According to the report of the FAO (2014), about 75% of the world production of dates is from the Arabian countries, as shown in Figure 4.4. Half of these come from the Gulf area (including Iraq), and the other half are from North African countries (mainly Egypt). In 2013, the production of dates in Arabian countries stood at 5, 686, 421 tons (FAO, 2014) which clearly indicates that most of the world's date production is concentrated in a few countries in the same region. Date production by Egypt alone represents about 20% of the world's total production (FAO, 2014). According to Riad (1993), in most years, Egypt is first in the world concerning the production of dates. The high yield is attributed to good access to water, particularly by palms growing along the Nile Valley, which is known to be fertile with good nutrients necessary for fruit production (Bazza, 2008). In 2013, the country produced a total of 1, 5 billion tons of dates, despite a devastating threat in the form of the red palm weevil (El-Juhany, 2010). Pakistan and Iran are also considered to be among the main date producers, with production accounting for 7% and 14.20% of the total world date production respectively.

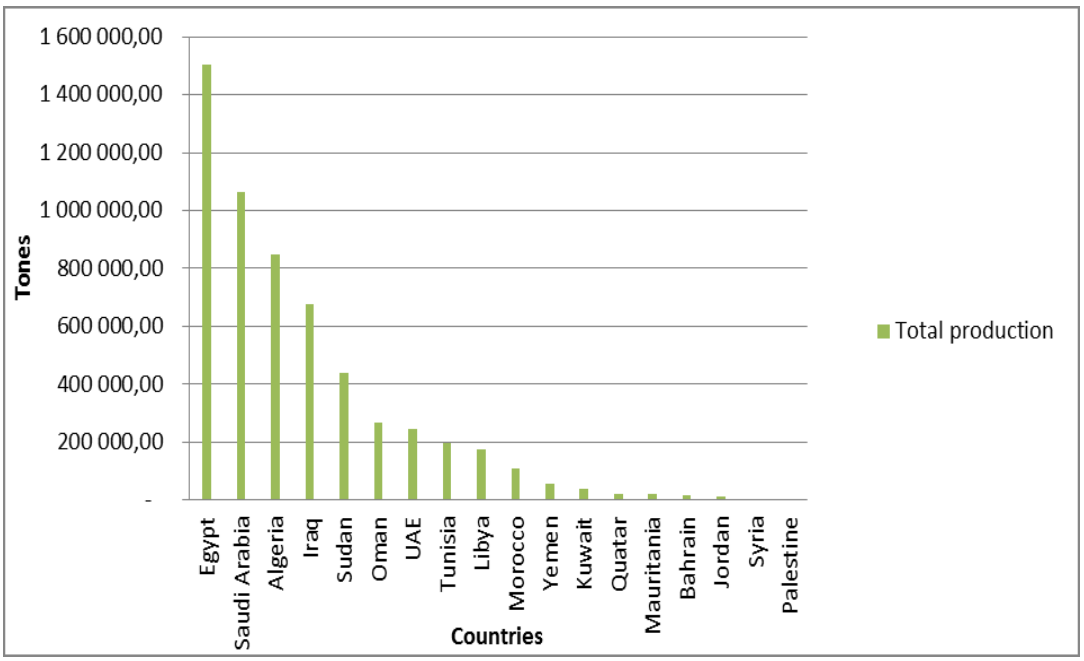


Figure 4.4: Date-producing Arabian countries 2013
Source: FAO (2014)

4.1.3 Global date exports

The international trade in dates can be volatile. Changes are often associated with political and economic instability in the main date-producing countries. In addition, unseasonable weather can also lead to production and storage losses (El-Juhany, 2010). The world market for dates is expanding, and the exporting countries are striving to further expand their market share as new markets open up with world trade liberalisation. An increase in the global export of dates has been observed over the past decade, with fluctuations in some years. On average, 691, 618 tons of dates were exported annually from 2001 to 2011. This represents a value of about US$ 555 million per annum. Africa, on average, accounted for 91, 145 tons, representing 13% of the world's exports in quantity. However, this represents a significant value of $ 173, 900, 200, which is equivalent to 31% of the world's date exports in value, as shown in Table 4.1. When this figure is compared with total production, especially in the top producing countries, it is clear that the bulk of the dates produced are consumed within the producing countries (FAO, 2014). As shown in Figure 4.5, Egypt consumes about 99% of its dates, while Iran, Saudi Arabia, Iraq and the United Arab Emirates consume more than 80% of what they produce.

World exports fluctuate between 2001 and 2011. Table 4.1 shows that world exports increased from about 547, 000 tons in 2001 to 710, 000 tons in 2011. However, there was a sharp decline in exports in 2004. The figure picked up from 381, 000 to 788, 000 tons in 2005, signifying a 52% increase in one year. A sharp decline in export was experienced again in 2008, from approximately 907, 000 tons to 599, 000 tons in 2009. This fluctuation is caused by social and political instability experienced in the traditional date producing countries such as Egypt, Algeria, Tunisia, Iran and Iraq.

Table 4.1: World and Africa's total export of dates (2001-2011)

	World exports		Africa exports			
Year	**Quantity (t)**	**Value (US$)**	**Quantity (t)**	**Share in quantities (%)**	**Value (US$)**	**Share in value (%)**
2001	546 903	252 664 000	60 465	11%	85 758 000	34%
2002	585 466	275 518 000	61 702	11%	88 502 000	32%
2003	583 328	322 674 000	51 740	9%	92 326 000	29%
2004	381 256	303 965 000	52 880	14%	102 840 000	34%
2005	787 678	437 013 000	66 863	8%	126 179 000	29%
2006	468 618	434 935 000	63 040	13%	118 679 000	27%
2007	687 058	588 907 000	89 909	13%	196 334 000	33%
2008	906 588	686 096 000	90 643	10%	203 061 000	30%
2009	598 755	571 343 000	106 025	18%	210 391 000	37%
2010	660 133	775 596 000	122 286	19%	242 400 000	31%
2011	710 394	902 201 000	145 893	21%	272 532 000	30%
Total	**6 916 177**	**5 550 912 000**	**911 446**		**1 739 002 000**	
Average	**691 618**	**555 091 200**	**91 145**	**13%**	**173 900 200**	**31%**

Source: FAO (2014)

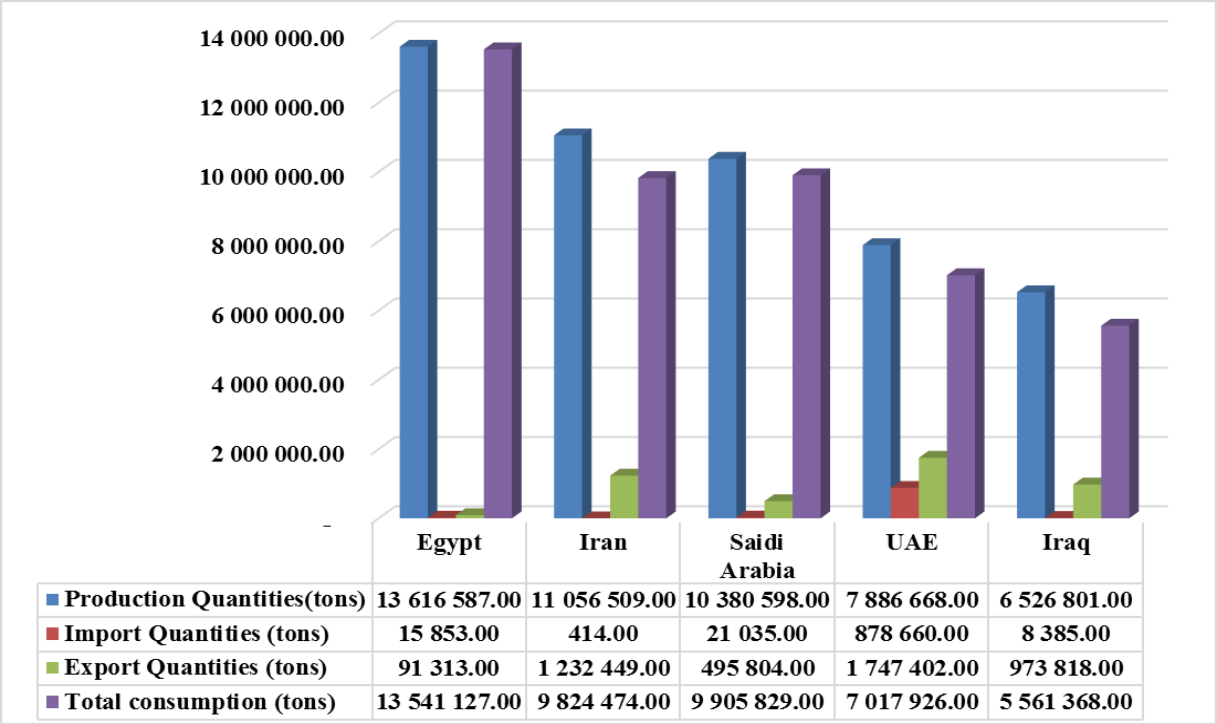


Figure 4.5: Date consumption in top five producing countries
Source: FAO (2014)

Figure 4.6 shows that Tunisia, Iran, Israel, Saudi Arabia and Pakistan are the top five date exporters in value, responsible for 59% of the world's total date exports. Tunisia tops the list, representing 25% of the global share, followed by Iran, Israel, Saudi Arabia and Pakistan, representing 10%, 9%, 7% and 7%

respectively (ITC, 2014). This clearly indicates that most of the world's date exports are concentrated in a few countries that are in the same region (Middle East), with the exception of Tunisia. A country like Egypt which produces large volumes of dates, has a bigger domestic market for its locally produced dates, hence it is not among the top exporters in the world (Erskine *et al*., 2003).

Tunisia, ranked first in world exports of dates, is the largest supplier of dates to the EU, with a market share of about 50% (ITC, 2014). The country achieved high export price of US$ 1, 744 per ton in 2011, due to its strategy of targeting the high-value European markets, while Iran exports much lower quality dates and only achieved US$ 513 per ton in 2011(FAO, 2014). Tunisia mainly exports high-quality *deglet nour* dates, a variety that is favoured by consumers in the EU market, especially in France. The country possesses approximately 50% of the world's *deglet nour* palm trees (Liu, 2003).

In quantities, as indicated in Figure 4.7, the top date exporter is Iraq, representing 18% of the world's total exports. This is followed by Pakistan, the UAE, Iraq and Tunisia, responsible for 14%, 13%, 13% and 10% respectively. These countries together are responsible for 68% of the world's total export in quantities.

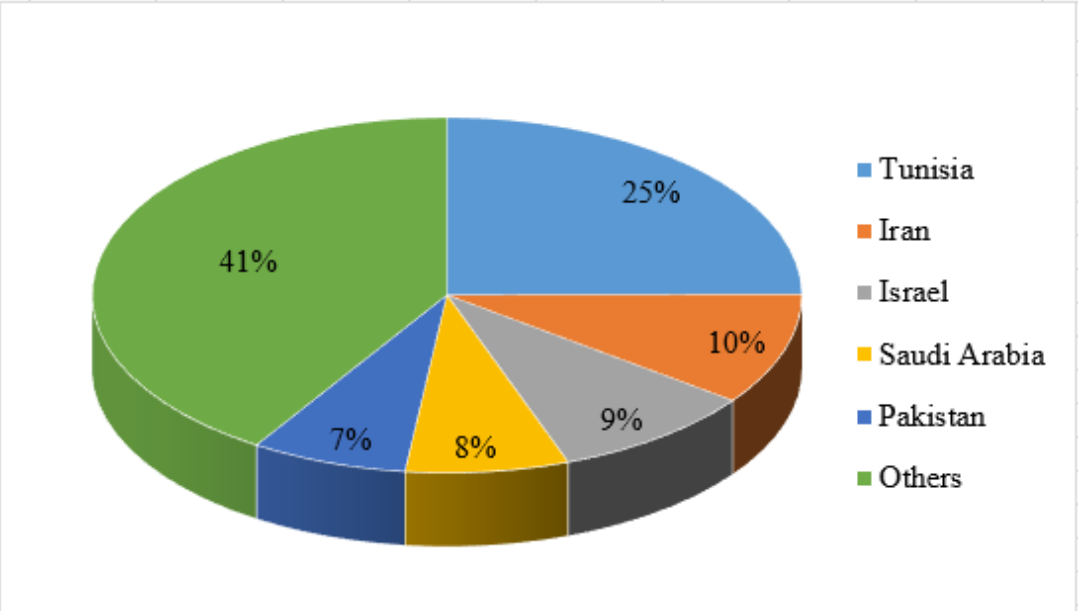


Figure 4.6: The top five date exporters in values (2001-2013)
Source: ITC (2014)

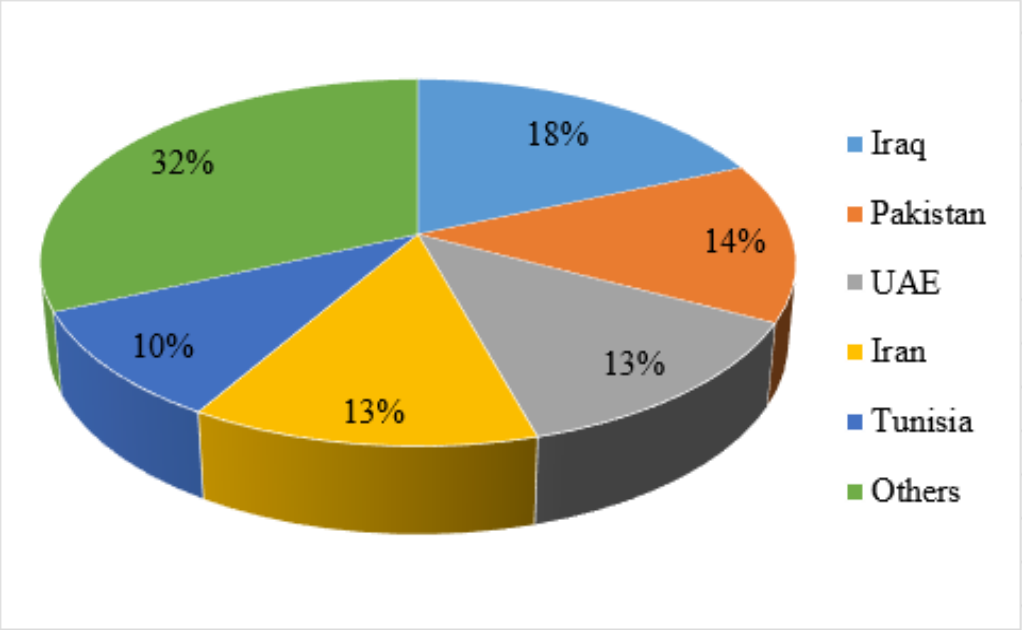


Figure 4.7: The top five date exporters in quantities (2001-2013)
Source: ITC (2014)

4.1.4 Global date Imports

On average in the years under review (2001 to 2011), the world imported about 750 000 tons of dates with a value of US$ 555 million per annum. In general there has been an annual increase in global date imports both in quantity and in value, of about 14 000 tons and US$ 60 million respectively. Africa imported about 71, 000 tons, valued at approximately US$ 57 million per year and representing 10% of world date imports in quantities, as illustrated in Table 4.2. However, in value, Africa's share is relatively small, constituting less than 1% of the global share.

Table 4.2: World vs. Africa's date imports (2001-2011)

	World Imports		**Africa Imports**	
Year	**Quantity (tonnes)**	**Value (US$)**	**Quantity (tonnes**	**Value (US$)**
2001	574 793	270 752 000	32 431	16 661
2002	552 688	274 201 000	63 760	23 032
2003	550 929	309 870 000	50 176	19 689
2004	650 874	368 771 000	46 900	23 615
2005	789 486	425 675 000	66 196	34 529
2006	700 255	492 652 000	58 236	40 753
2007	870 636	593 529 000	84 927	60 592
2008	850 934	663 063 000	71 653	78 849
2009	675 244	635 179 000	76 112	83 711
2010	605 889	724 947 000	82 896	98 506
2011	677 785	796 501 000	80 045	98 717
Total	**7 499 513**	**5 555 140 000**	**713 332**	**578 654**
Average/annum	**749 951**	**555 514 000**	**71 333.20**	**57 865.40**

Source: FAO (2014)

Figure 4.8 shows India on top of the list of date importers in quantities (2001 to 2011), responsible for 35% of the global share, followed by the United Arab Emirates (UAE) and the European Union (EU). These three account for 62% of the world's import volume (FAO, 2014). However, Liu (2003) and Al-Shreed *et al*., (2012) indicate that, although India is the largest importer in quantities, the EU is a key market for date exporters in terms of value, even though it imports relatively small volumes of dates. Compared with over half a million metric tons imported every year in the world from 2001 to 2011, EU represents only 15% of world date imports in volume. However, the EU accounts for more than 40% of global date imports in value, with a net average of US$ 237 million per year during the period 2001 to 2011, as indicated in Figure 4.9. One of the reasons for these high values is the price per ton of dates imported by the EU; for instance, in 2013, France offered a price of US$ 2, 255 per ton while the world price was US$ 1, 157 per ton of dates. This reflects the fact that EU import prices for dates are comparatively much higher than the world average.

Imports of dates into the EU are highly seasonal. They tend to take place at the end of the year, for Christmas and New Year's Eve. In 2001, for instance, over 80% of the EU's imports were done between October and December. This period corresponds to the date harvest in many of the supplying countries, particularly in North Africa. However, imports also vary according to the dates of the Muslim holy month of Ramadan. Muslims break their fast with dates because of the fruit's high level of natural sugar which provide the immediate energy required to perform their sunset prayers. The main consumers of dates in Europe are found in the large and growing Muslim communities, which consist mainly of people who emigrated from North Africa, South Asia and the Middle East (Liu, 2003). The Muslim calendar is based on the moon cycle and therefore the dates of Ramadan vary from year to year.

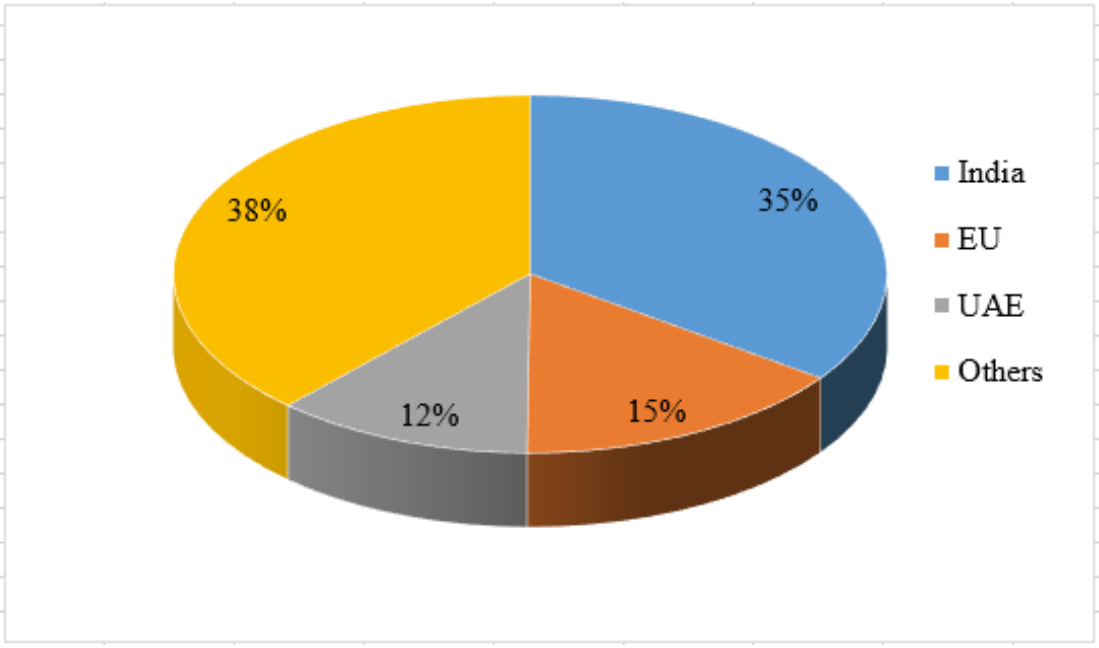


Figure 4.8: The world's top date-importing countries in quantities (2001-2011)
Source: FAO (2014)

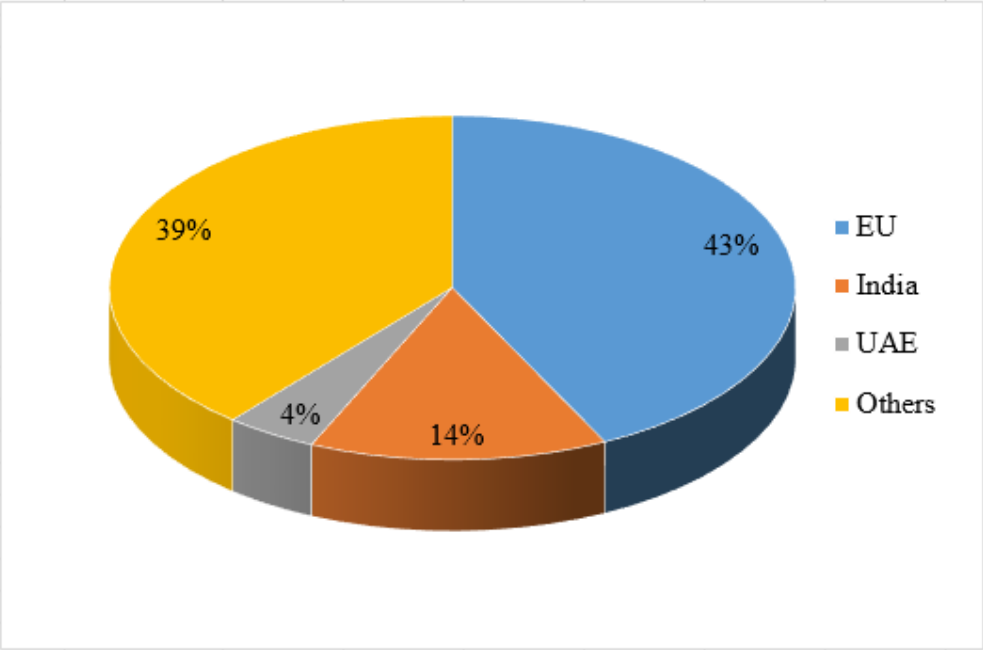


Figure 4.9: The world's top date-importing countries in value (2001-2011)
Source: FAO (2014)

4.2 An overview of the Namibian horticulture industry

The Namibian agriculture sector development is guided by the National Agricultural Policy [NAP] of 1995, which is currently under review. This policy aims at contributing toward the broad goals of development defined in the Government's Vision 2030,[2] which is being implemented through the five-year-medium term National Development Plans (NDPs). In order to achieve the set development goals, the NAP has outlined measures necessary for increasing levels of agricultural productivity and farm incomes, as well as national and household food security (NAP, 1995). The country's Vision 2030 clearly provides a framework for steering Namibia towards becoming food self-reliant and a net exporter of agricultural produce by the year 2030. Currently, the country is guided by the fourth NDP (NDP4), running from 2012 through to 2017. Increased income equality, high and sustained economic growth and employment creation are the core objectives of this National Development Plan. To reach these goals, the government has identified key focus areas that will create the necessary momentum for higher economic growth. Agriculture, manufacturing, logistics and tourism are the four main sectors that are enjoying priority status during this period. While other sectors will not be neglected, attention will be shifted to priority sectors to ensure that the impacts and results of the efforts are optimal (NPC, 2012). In 2013, Namibia had a gross domestic product (GDP) of US$ 12, 58 billion and a per capita GDP growth rate of 4.4 % (World Bank, 2013). Although Namibia's per capita income of $5, 610 places it in the World Bank's upper-middle income grouping, average income paints a misleading picture, since Namibia's income distribution is among the most unequal in the world, with a Gini coefficient estimated at 0.5971 (World Bank, 2013).

[2] The goal of Vision 2030 is to raise the quality of life of the Namibian people to that of their counterparts in the developed world by the year 2030. Vision 2030 presents a clear view of where the country is and where it wants to go and in terms of which timeframe (Namibia Vision 2030, 2004).

As a member of the World Trade Organization (WTO), Namibia has committed itself to the directives of the WTO, and this entails that Namibian producers can now compete in the global market (Thomas, 2007). The country also is a member of Southern Africa Development Community (SADC) and Southern African Customs Union (SACU) and, as such, benefits from the free flow of goods and services as a result of these trade blocs. This means that Namibia has to adhere to trade policy issues within the bilateral or multilateral agreements.

4.2.1 The current status of horticultural production and consumption

The Namibian horticultural industry is regulated by the Namibian Agronomic Board (NAB), which is a statutory body instituted by the Government of the Republic of Namibia in terms of the Agronomic Industry Act (Act 20 of 1992) (NAB, 2005). The main objectives of the NAB are to promote the agronomic industry and to facilitate the marketing, processing and storage of controlled agronomic crops in the country. Wheat, maize, pearl millet and all horticultural produce are controlled crops (NAB, 2010).
The development of the Namibian horticultural sector (fruit and vegetables) relies strictly on irrigation and it is estimated that potentially about 43,500 ha (PricewaterhouseCoopers, 2005) of the underdeveloped land could, in fact, be irrigated with water from the perennial rivers on the country borders, such as the Orange, Kunene, Okavango and Zambezi rivers, or from excess underground water that is available countrywide. In 2013, Namibia's total production of horticultural produce stood at 21, 703 tons, valued at about N$117, 2 million while the demand for fruit and vegetable was 70, 000 tons per annum, which was about N$ 450 million in terms of value. The remaining 48 297 tons, valued at N$ 331, 2 million, was supplied through imports. This means that domestic producers contribute only about 32% of the total domestic fruit and vegetable demand, while the remaining 68% is supplied by imports, mostly from South Africa (NAB, 2013). Table 4.3 shows the quantity consumed, produced and imported between 2010 and 2013, and this figure clearly indicates that Namibia is a net importer of fruit and vegetables.

Namibia is faced with considerable challenges to enhance its agronomic production potential. The challenge arises from its climatic and soil conditions, the availability of internal water sources, as well as the availability of services and marketing infrastructure, and access to finance, technologies and skills development (Hoffman, 2012). Despite the country's size of 824, 000 square kilometres (United Nations Environmental Program [UNEP], 2012), most of the land is dry and has desert characteristics, which makes it very challenging to conduct efficient and effective agricultural production. To address these challenges, various initiatives were developed and are being implemented, including the national horticulture development initiative, green scheme and the fresh produce business hubs.

Table 4.3: Namibia's total quantity of fruit and vegetables produced, consumed and imported (2010-2013)

Year	Total consumption (tons)	Quantity produced (tons)	Quantity imported (tons)	Percentage imported
2010/11	43, 001.42	7, 443.04	35, 558.38	83%
2011/12	57, 098.08	19, 039.69	38, 058.39	67%
2012/13	51, 399.84	19, 472.50	31, 927.34	62%
2013/14	70, 000.00	21 ,703.00	48, 297.00	68%

Source: NAB (2013)

4.2.1.1 The National Horticulture Development Initiative (NHDI)

The NHDI is one of the instruments adopted in 2002 in terms of which high-value irrigated crop production and marketing initiatives are being developed and promoted (MAWF, 2008). The main aim of the NHDI is to substitute imports of fresh fruit and vegetables with local produce that thrives in the Namibian climate. The primary objective of the NHDI is to increase the local production of fruit and vegetables in order to reduce the country's dependence on imported horticultural fresh produce, especially produce that can be produced under the country's environmental conditions (NAB, 2010). Through the NHDI, a national horticulture task team has been established so that producers, consumers, wholesalers and government are represented to make decisions related to the domestic production and marketing of horticultural produce (NAB, 2010).

In 2005, one of the decisions taken by the national horticulture task team was the introduction of the Namibian market share promotion scheme (MSP). This scheme is aimed at controlling the importation of fresh horticultural produce into the country. The MSP requires that all importers of horticultural fresh produce purchase a minimum percentage of Namibian cultivated produce in a given quarter, or their imports will be curtailed on a pro rata basis in the subsequent quarter. In 2007, this compulsory percentage stood at 5%, but it has increased steadily to its current level of 39% (NAB, 2010). It is estimated that this percentage could be increased to 60% in the long term, which signals the potential to increase local production in the horticulture industry. It is important to note that it can never reach 100% because a lot of commodities, including apples, which cannot be produced in Namibia due to unfavourable climatic conditions, will always be imported. NAB (2010) further indicates that, in countries like South Africa, where climatic conditions and favourable temperatures for growing certain crops vary throughout the year by geographical location, the possibility of a continuous supply of certain commodities exists. This is particularly relevant, for example, to crops such as tomatoes. No such seasonal variance is experienced in Namibia, which necessitates the import of such produce from a producing region in South Africa at a time when it cannot be cultivated in Namibia.

However, this scheme is not without limitations. One of the shortcomings of the MSP is that it is not product specific, and importers therefore can justify the importation of 100% of a product that can be produced in Namibia on account of having purchased 39% of another fresh product locally. The other drawback of the MSP scheme is that the government lacks capacity to monitor what is actually being imported under the programme, as importers are encouraged to self-report to NAB what they have imported in various periods of the year (Sahanga, 2014). This leaves the system open to manipulation through either no reporting, under reporting or over-reporting of volumes purchased.

4.2.1.2 Green scheme

The government is implementing green scheme irrigation projects along the perennial rivers and aims to put 27, 000 hectares of land under irrigation by 2030. Currently, only 12, 000 ha has been put under crop production, representing about 44% of the target. The operation of the green scheme projects is guided by the green scheme policy, which was first adopted in 2002 and reviewed in 2008. The objectives of the 2008 Green Scheme Policy (MAWF, 2008) are to increase agricultural production and sector contribution to GDP; promote investment in food production and the agro-industry; diversify agricultural production and products for the domestic and export markets; promote research and adaptation of technology to increase productivity; and to promote value addition and job creation (MAWF, 2008). Presently, the government is implementing twelve green scheme projects around the country, including the Aussenkehr date project. Fresh produce is already being produced in these schemes, both on commercial and small-scale levels. Potentially viable export products in terms of the green scheme include maize, wheat, dates, table grapes, mangoes, watermelons and tomatoes (PricewaterhouseCoopers, 2005).

According to Sahanga (2014), one of the challenges of the green scheme initiatives is that the farmers lack property rights to the land and therefore cannot use it as collateral when sourcing credit. This lack of credit access limits farmers' flexibility in improving investment in their fresh produce business activities. In addition, the green scheme model involves mentorship of several small farmers by a commercial farmer in each project. This model needs to be improved, especially in relation to data transparency between the commercial farmers and small-scale farmers on marketing and input costs in order to avoid possible exploitation of the small-scale farmers.

4.2.1.3 The fresh produce business hubs

In order to promote both food security and the formal marketing chain of fresh produce at the national level, the government has constructed two fresh produce business hubs, one in Rundu which is in the Kavango East region, and the other in Ongwediva which is in the Oshana region. It also is in the process of developing a central fresh produce hub in Windhoek (MAWF, 2011; Sahanga, 2014). These fresh produce hubs have the capacity to cool, store and handle large quantities of produce. The aim of the hubs

is to alter the substantial reliance on imports for Namibian fresh produce consumption. The main objectives of these facilities are to facilitate the marketing and distribution of fresh produce in Namibia, be it local produce or imports; to facilitate sorting, grading, packaging and branding; to facilitate and coordinate the export of Namibian fresh produce; and to ensure that producers adhere to hazard analysis critical control points (HACCP), food hygiene and other international safety standards (MAWF, 2011).

The development of these facilities has the potential to stimulate an increase in local production of all fresh produce (fruits, vegetables, meat, dairy and fish) for the domestic and export markets. The hubs also will promote the processing and value addition of fresh produce so as to create a diverse range of local products across the value chain. This ultimately will contribute to employment creation and improve the sector's contribution to GDP (Sahanga, 2014). In order to manage these facilities, the government has established an Agro-Marketing and Trade Agency (AMTA). The operations of AMTA are guided by the 2011 Namibia Agriculture Marketing and Trade Policy and Strategy, which calls for the promotion of marketing and an increase in the share of Namibia originating agricultural produce in the domestic markets; an improvement in the competitiveness of Namibian agricultural and agro-industry produce in the domestic and international markets; and, most importantly, to take full advantage of the liberalised regional and global market on the basis of the country's competitive advantage (MAWF, 2011).

4.3 Date production in Namibia

4.3.1 Historical background of date production

Agricultural policies in Namibia call for an increase in and diversification of crop production, which entails a thorough identification of crops that performs best under the country's climatic conditions. Given that Namibia is a semi-arid country, there is a need to look into the type of crops and fruit trees, such as date palms, that perform well under harsh conditions. According to De Wet (2013), date palm plantations in Namibia were initiated by German troops in around 1900 and were located in river beds. This is mainly because there always are two potential sources of groundwater: one is the primary alluvial aquifer along the river valleys, and the other is secondary structural aquifers in the underlying and adjacent rocks. The potential of commercial date production in Namibia was realised around 1906, and the planting of seedling dates, at various locations, was initiated. The result was that approximately 10 000 seedlings date palms were planted in various parts of the country, namely Karibib, Swakopmund, Sesfontein, Mariental and Keetmanshoop, where water quality, soil and climate are suitable for date palm cultivation.

Since 1990, the industry has been experiencing challenges that hinder fast progress. Some of the major challenges experienced include the lack of high-quality date plant material of sought-after cultivars; the lack of effective techniques and modern facilities to propagate date palms; as well as the lack of technical know-how on practical techniques of date palm cultivation (Zaid & De Wet, 1997). To address these

challenges, Zaid and De Wet (1997) state that the Namibia Development Corporation (NDC), through government, requested assistance from the Food and Agriculture Organisation (FAO) of the United Nations to study the technical situation of date palm culture in Namibia and the potential for its expansion. This assistance was approved in 1992 under the FAO Technical Cooperation Programme. The situation of date production was assessed, technical constraints were identified, and an overall strategy and action programme to support the development of the date industry in Namibia were formulated. Consequently, a Unilateral Trust Fund Agreement was signed in 1995 between NDC, as agent of the Government of Namibia, and the FAO. The project was designed to provide technical and scientific skills to the date-production enterprise by establishing a date industry, introducing modern plant materials and propagation improvement production techniques and training personnel.

Since then, substantial investments have been made in irrigation projects and in date production. In 1994 and 1995, the Namibia government allocated about N$15, 2 million to the three main palm date plantations namely the Naute, Eersbegin and Aussenkehr projects, and also for the construction of a tissue culture laboratory. Most of these funds were used to construct water supply pipelines, irrigation systems, and housing and office complexes. This was a manifestation of government's commitment and support to enhance the development of the date industry (Zaid & De Wet, 1997). The date industry is of particular importance as it contributes to achieving the government's objectives of improved income for both small- and large-scale farmers, job creation, foreign exchange earnings and control of desertification by introducing these projects in the dryer areas of the country.

4.3.2 The role of the Namibian Development Corporation (NDC)

The NDC is a national development institution set up to promote, develop and support economic growth and development. The NDC was established under the Namibia Development Corporation Act, Act 18 of 1993. The Government of the Republic of Namibia has a 100% shareholding in the NDC, but the Corporation is controlled by an autonomous Board of Directors. The Board consists of 12 members seven of whom are selected from the private sector and five of whom represent the government (NDC, 2013).

The NDC became involved with date palm development in 1987, as requested by the government in order to develop and manage the Eersbegin date project in the Kunene Region of Namibia. However, at that stage the NDC did not have a knowledge base on date cultivation and many mistakes were made.

4.3.2.1 Date Production Support Programme (DPSP)

During 1993, the NDC, as development agent of the Government of Namibia, requested the Food and Agriculture Organization of the UN (FAO) to investigate the potential of date production in Namibia. A project proposal consequently was formulated and, in 1995, the Date Production Support Programme

(DPSP) was implemented with funds made available by the Ministry of Agriculture, Water and Forestry (MAWF). The NDC was appointed by the Government of Namibia as the implementation agent for the programme. The NDC further appointed the FAO as co-implementers and the two institutions thus are jointly responsible for the implementation of the project. Support is rendered through the DPSP, as highlighted in Figure 4.10.

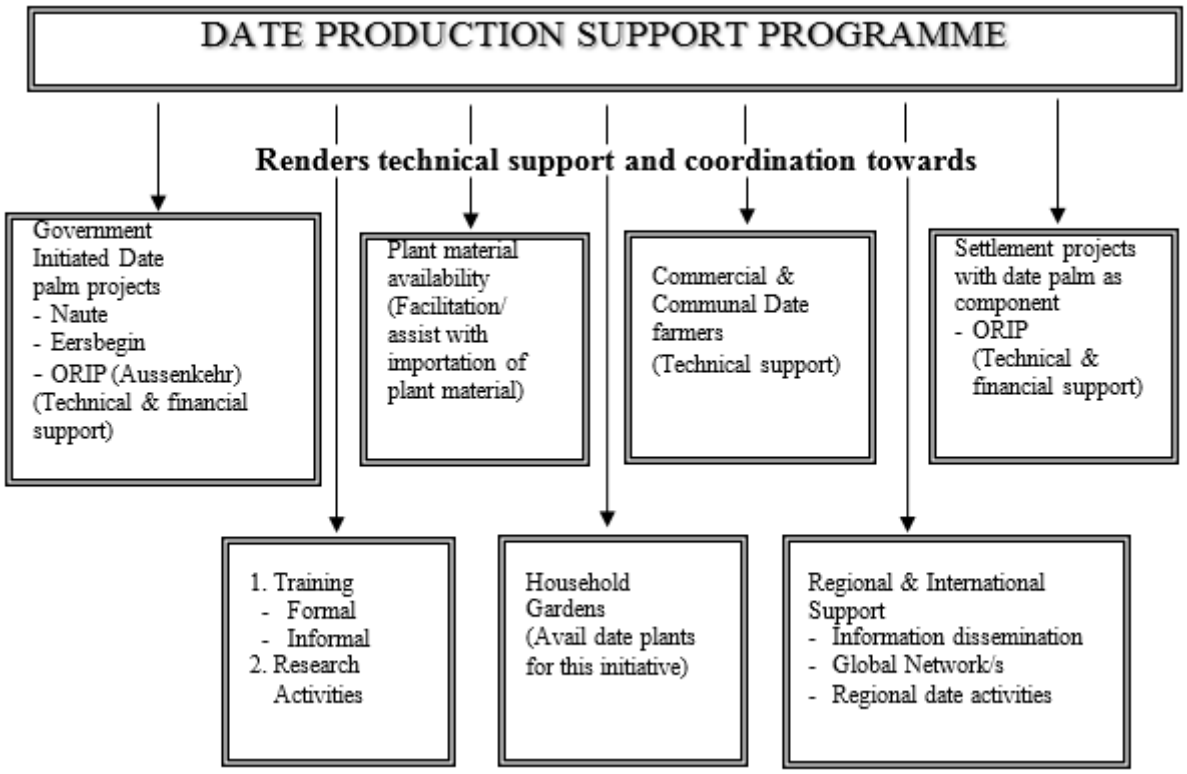


Figure 4.10: Date Production Support Programme
Source: NDC (2015)

4.3.3 Date palm plantations

At the time of this study, there were nine date plantations in Namibia and a total of 624 ha under date production (NDC, 2015). Most of the date projects are located in the Karas region in the southern part of the country. On average, a date project in Namibia harvests about three tons of dates per hectare per annum, depending on the variety planted and the stage of production (FAOSTAT, 2014). Table 4.4[3] indicates that the country produced about 925 tons with a value of N$45, 174 000 from all projects. Out of the 624 ha under date production, only 368 ha had reached production stage, while 256 ha representing 41% has not yet started bearing fruit and it is envisaged that these palms will start bearing fruit in the 2016/2017 cropping season. The 256 ha can produce 644 tons, valued at N$31, 4 million, and this amount could be higher, depending on the variety and quality of the dates, as well as the price they earn in the market.

[3] This figures are for 2014

Medjool and Barhee are the main date cultivars produced in the country. Other varieties include Zahidi, Boufeggouss, Khadraoui, Khanezi, Khalas and Zamli (Date Executive Survey - DES, 2015). Namibia has an advantage in the production of dates because of the favourable climate, especially in the southern region of the country, its location in the southern hemisphere (harvesting during February/March) and also because is free from all major pests and diseases related to date palms.

Table 4.4: The Namibian date industry at a glance

Projects	Ha	Labourers	Production volumes (tons)	Value of production (N$)	Volume exported (tons)	Export destination
Naute	117	**331** (49 permanent and 282 seasonal)	**220** tons (Medjool)	13, 200, 000	211	South Africa, UK,UAE
			205 tons (Barhee)	6, 150, 000	198	Middle East, UK, France, Spain
			20 tons (others)	500, 000	20	South Africa
Aussenkehr	50	**38** (18 Permanent & 20 Seasonal)	**70** tons (Medjool)	3, 150, 000	52	South Africa
			55 tons (Barhee & Others)	1, 210, 000	45	
Eersbegin	34	**68** (20 permanent and 48 seasonal)	**45** tons (Medjool)	900, 000	45	South Africa
Al-Dahra	180	**255** (85 permanent and 170 seasonal)	**0** (Medjool, Barhee and various other varieties of palm trees in the project)	0	0	Palms will start producing from 2016
Hardap	10	**72** 12 permanent and 60 seasonal)	**85** tons (Medjool)	4, 500, 000	85	South Africa & Middle East
Komsberg (Desert Fruit)	150	**250** permanent	**120** tons (Medjool)	9, 216, 000	120	South Africa, France, Russia
			100 tons (Barhee and others)	6 ,048, 000	100	UK & UAE
Haakiesdorn	70	**22** permanent	**0** (Medjool palm trees in the project)	0	0	Palms will start producing from 2016/17
Dr Burger's project	6	**4** permanent	**0** (Medjool palm trees on the project)	0	0	Palms will start producing from 2016/17
Kleinbegin	7	**12** (6 permanent and 6 seasonal)	**5** tons (Medjool)	300, 000	0	Pick n Pay Namibia
Total	**624**	**1, 052**	**925 / year**	**45, 174, 000 / year**	**867 / year**	

Source: NDC (2015)

The NDC, together with the Ministry of Agriculture, Water and Forestry (MAWF) as well as various private organisations, is establishing date palm plantations in strategic parts of the country, as shown in Figure 4.11. This section discusses the four main date plantations, namely Naute, Aussenkehr, Al-Dahra and Komsberg.

Naute Date Project: This project is located in the Karas region and uses water from Naute Dam for irrigation. The project covers a total area of 117 ha, of which 65 ha is planted with Medjool, 27 ha with Barhee and 25 ha is planted with other date varieties, including BouFeggouss dates. In total, the project produces 445 tons of dates, which are valued at N$19, 8 million. However, not all palm trees have reached their full production potential; once this is achieved, the value will increase. Plans are underway to remove the BouFeggouss variety, since it does not perform well under the prevailing conditions. It will be replaced with Medjool date palms. There are plans to increase the date plantation with an additional 120 hectares earmarked for the Medjool variety over the next five years. It is important to note that there have been and still are markets that pay high prices for Medjool and, for this reason, most date projects focus on the production of this variety (De Wet, 2013).

Al Dhahra/NDC Date Palm Development: Al Dahra is one of the agricultural companies from the United Arab Emirates (UAE) that have established a joint venture with the Namibia Development Corporation. This company invested a total of US$20 million in order to increase production and boost the availability of the fruit across the Middle East outside their summer harvest season. In 2010, the company secured a total of 200 ha of land from the Namibian government and shipped about 24, 000 date palm trees from the UAE to Namibia. About 180 ha are used for date production and the remaining 20 ha are used for the production of table grapes. The project is situated adjacent to the Naute project in the Karas region and also uses the Naute Dam as its source of water for irrigation. This development is motivated by Namibia's climate, which is very good for date growing, and the season complements the off-season in the Middle East, which serves as an opportunity for Namibian dates to access lucrative markets. Medjool, Barhee, Khalas and Hilali are among the date varieties being grown. Since Al Dahra planted the palm trees in 2010, the palms will only start producing in 2016 (NDC, 2015). It is estimated that, once the trees reach the production stage, a total of 1 512 tons of dates will be harvested, with an estimated valued of N$90, 7 million per annum. Al Dahra is keen to ensure date varieties that are familiar to Middle East consumers.

Aussenkehr Date Project: This project is also situated in the Karas region and utilises the Orange River as source of water for irrigation. This project is owned and managed by the government (MAWF) and covers a total area of 50 ha. Of that, 40 ha is planted with the Medjool variety only, and the remaining 10 ha is planted with selected date varieties, including Khanezi, Zahidi and Khadraoui. The production value of dates from this project is valued at N$1, 2 million, as indicated in Table 4.4 above.

Komsberg Date Plantation (Desert Fruit): Komsberg farm is located next to the Orange River and has a total of 150 ha under date production. The project is planning to expand the area under date production with an additional 100 ha in the next two years. Medjool is the main variety produced, but the project also produces other varieties such as Zamli, Barhee, Khallas and Dahan. The agricultural experts on the farm utilise state-of-the-art technology in order to ensure that the quality of the dates remains world class.

Komsberg Farming has been accredited by Global Good Agricultural Practices (GAP)[4] and Nature's Choice and is one of the Namibian farms registered with Fair Trade.[5] The project has about 25, 000 date palms of varying ages, but only 9, 000 trees have reached the production stage, producing about 300 tons of dates that are valued at N$15,2 million. In full production, the five varieties of date palms will produce a total of 2, 500 tons of export quality dates. The project's high-quality dates are sold through the finest retailers in South Africa, the UK, Holland, France and the Middle East. The price per kg for Medjool is €6, while other varieties are priced at €4/kg.

Figure 4.11: The date plantation areas in Namibia
Source: The author

Note: Dates project locations as numbered on the map are: (1) Naute, (2) Al-Dhahra, (3) Komsberg (Desert Fruit), (4) Haakiesdorn, (5) Kleinbegin, (6) Aussenkehr, (7) Hardap, (8) Dr G Burger and (9) Eersbegin.

4.4 Namibia dates export to international market

In 2013, Namibia was ranked 33rd in the world in terms of date exports. The country exported a total of 448 tons with a value of US$ 748, 000, representing only 0.07% of the world's total exports. A closer look at Table 4.5 shows that South Africa is Namibia's main export market for dates, accounting for 38.6%,

[4] Good agricultural practices (GAP) are practices that address environmental, economic and social sustainability for on-farm processes and result in safe and quality food and non-food agricultural products.
[5] Trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers.

followed by the United Arab Emirates, France and Spain, with 31.6%, 23% and 6.8% respectively. This implies that Namibia's exports are concentrated in those markets, meaning that a large quantity of Namibia's dates go to only a few countries. However, the high market concentration tends to increase the level of dependency of the few importers and this could pose a risk to the industry if, for instance, trade barriers are introduced in those countries.

The country fetches premium prices from France and Spain, which pay US$6, 143 and US$5, 100 per ton respectively, as indicated in Table 4.5, and no tariffs are charged on Namibian dates in these countries (ITC, 2014). Table 4.6 presents the list of all importers of Namibian dates over the past twelve years. The trend in this table confirms that South Africa has been the main export destination for Namibian dates, with a high percentage share in the country's exports compared to other export markets. Figure 4.12 shows Namibian date exports in quantities and values.[6] In 2014, the country exported 867 tons valued at US$1, 3 million, and fluctuations in the previous years (2001 to 2012) were caused mainly by rain damage (NDC, 2015)

Table 4.5: Export markets for Namibian dates (2013)

Importers	Exported value in 2013 (USD'000)	Share in Namibia's exports (%)	Exported quantity in 2013 (tons)	Unit value (USD/ton)	Ranking of countries in world imports	Tariffs faced by Namibia (%)
South Africa	289	38.6	328	881	36	0
UAE	236	31.6	122	1,934	24	0
France	172	23	28	6,143	3	0
Spain	51	6.8	10	5,100	13	0
Total	**748**	**100**	**488**			

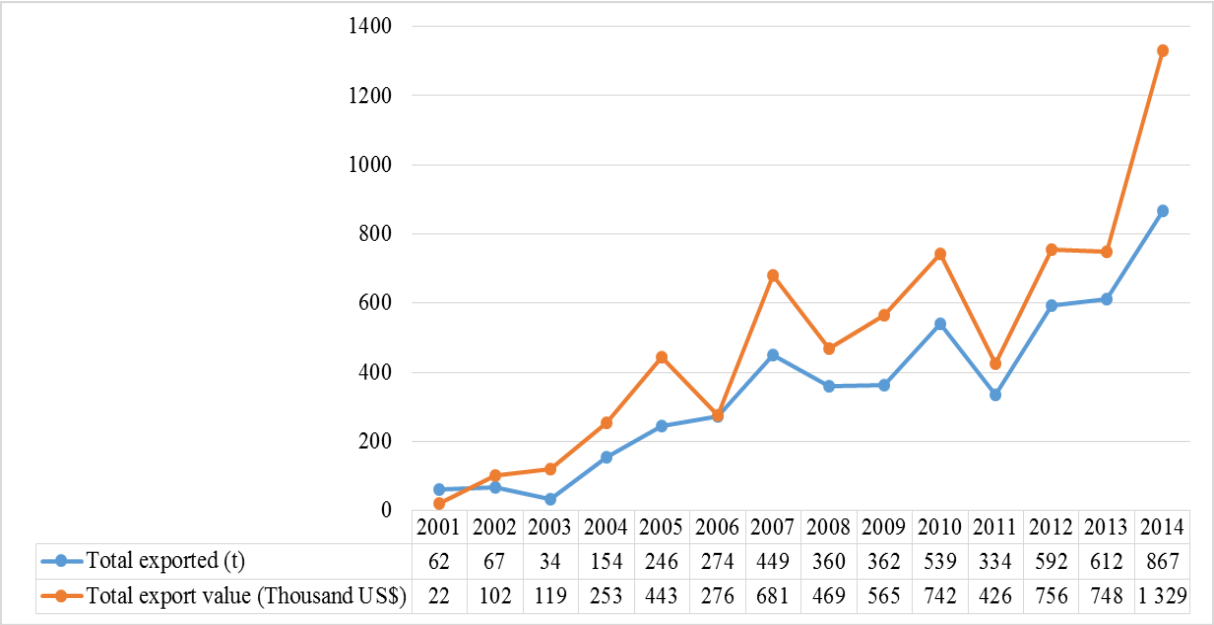
Source: ITC (2014)

[6] The 2014 figures were obtained from the industry through the date executive survey(DES), 2015)

Table 4.6: Export markets for Namibian dates (2001 to 2013)

Importers		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
South Africa	Exported value (USD '000)	20	7	119	117	192	167	457	425	358	377	214	332	289
	Share in Namibia's exports (%)	90.9	6.9	100	46.2	43.3	60.5	67.1	90.6	63.4	50.8	50.2	43.9	38.6
	Exported quantity (t)	61	40	34	95	138	220	362	338	278	428	262	499	452
UAE	Exported value (USD '000)	0	0	0	0	0	0	8	0	15	116	62	70	236
	Share in Namibia's exports (%)	0	0	0	0	0	0	1.2	0	2.7	15.6	14.6	9.3	31.6
	Exported quantity (t)	0	0	0	0	0	0	3	0	6	24	24	26	122
France	Exported value (USD '000)	0	26	0	47	33	21	32	7	22	36	56	341	172
	Share in Namibia's exports (%)	0	25.5	0	18.6	7.4	7.6	4.7	1.5	3.9	4.9	13.1	45.1	23
	Exported quantity (t)	0	7	0	20	14	9	11	4	9	12	16	62	28
Spain	Exported value (USD '000)	0	0	0	28	110	59	77	14	96	160	26	0	51
	Share in Namibia's exports (%)	0	0	0	11.1	24.8	21.4	11.3	3	17	21.6	6.1	0	6.8
	Exported quantity (t)	0	0	0	12	47	32	27	7	38	52	9	0	10
British Indian Ocean Territories	Exported value (USD '000)	0	0	0	0	0	0	0	0	0	0	9	0	0
	Share in Namibia's exports (%)	0	0	0	0	0	0	0	0	0	0	2.1	0	0
	Exported quantity (t)	0	0	0	0	0	0	0	0	0	0	3	0	0
Angola	Exported value (USD '000)	0	0	0	0	8	0	0	0	1	2	0	0	0
	Share in Namibia's exports (%)	0	0	0	0	1.8	0	0	0	0.2	0.3	0	0	0
	Exported quantity (t)	0	0	0	1	4	0	4	0	1	6	0	0	0
Canada	Exported value (USD '000)	0	0	0	0	0	0	12	6	7	17	17	5	0
	Share in Namibia's exports (%)	0	0	0	0	0	0	1.8	1.3	1.2	2.3	4	0.7	0
	Exported quantity (t)	0	0	0	0	0	0	4	3	3	6	6	2	0
Netherlands	Exported value (USD '000)	0	0	0	0	0	0	17	0	0	0	0	0	0
	Share in Namibia's exports (%)	0	0	0	0	0	0	2.5	0	0	0	0	0	0
	Exported quantity (t)	0	0	0	0	0	0	7	0	0	0	0	0	0
United Kingdom	Exported value (USD '000)	2	68	0	60	100	28	79	18	67	34	43	8	0
	Share in Namibia's exports (%)	9.1	66.7	0	23.7	22.6	10.1	11.6	3.8	11.9	4.6	10.1	1.1	0
	Exported quantity (t)	1	20	0	26	43	13	31	8	27	11	14	3	0
Total exported (t)		**62**	**67**	**34**	**154**	**246**	**274**	**449**	**360**	**362**	**539**	**334**	**592**	**612**
Total export value (thousand US$)		**22**	**102**	**119**	**253**	**443**	**276**	**681**	**469**	**565**	**742**	**426**	**756**	**748**

Source: ITC (2014)



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total exported (t)	62	67	34	154	246	274	449	360	362	539	334	592	612	867
Total export value (Thousand US$)	22	102	119	253	443	276	681	469	565	742	426	756	748	1 329

Figure 4.12: Quantity and value of the dates exported from Namibia
Source: ITC (2014)

4.4.1 Domestic market

The domestic market for dates is relatively small. The information provided in Table 4.4 indicates that only 6% of dates produced in the country are sold locally. The remaining 94% are sold in the international markets, and this is a proof that the industry is export driven. Fruit and Veg Market and Pick n Pay supermarkets are the two main retailers that sell Namibian dates, which they source from small-scale producers such as the Kleinbegin date project in Karasburg (DES, 2015). Information obtained through personal interviews with these retailers indicated that the large scale producers have well-established markets internationally. Moreover, the demand for dates is very low and hence retailers cannot afford to place a product in the market without customers buying them. The retailers stated that this could be caused by the fact that local consumes are not aware of the nutritional value of dates (DES, 2015). The availability of international markets for dates enables the Namibian date industry to be in the playing field. In addition to the current export markets indicated in Table 4.5 above, the existence of potential export destinations that include the UK, the USA and the Middle-East markets serves as an opportunity for Namibia to explore lucrative markets (De Wet, 2013).

4.4.2 South African markets

Due to historical reasons arising from commercial links established before independence, South African businesses have maintained their interest in Namibia, both as a market for South African products and as a source of Namibian products. According to Sattar, Diz and Franklin(2003), South Africa does not only act as the main external market for Namibian food products, but also serves as a transit route for exports to other countries. Thomas (2007) concurs with this by stating that Namibian exporters to third world

countries use the marketing facilities provided by South African firms as intermediaries. For instance, dates are made available to the European market through South African firms such as Karsten Farms (Klein Pella), who ship the produce to international markets via Cape Town. Such arrangements carry the added advantage of providing Namibian firms with relatively easy penetration of foreign markets (De Wet, 2013).

Table 4.7 show the details of South African date imports from 2001 to 2013. This table illustrates that South Africa's import of dates, particularly from Namibia, increased during the years under review. South Africa is Africa's net exporter of most agricultural products; however, the country is a net importer of dates. In 2013, South Africa exported a total of 1, 596 tons and imported a total of 2, 075 tons of dates. Its export share represents 0.47% of world exports and the country is ranked 21st in world exports of dates (ITC, 2014). The country's imports are sourced mainly from Saudi Arabia, the United Arab Emirates, Iran, Pakistan and Namibia, as shown in Figure 4.13. These countries were responsible for 92% of the total dates imported by South Africa.

Table 4.7: A list of supplying markets for dates imported by South Africa (2001-2013)

Exporters		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Iran	**Quantity (t)**	398	528	453	786	403	313	548	554	806	573	636	593	495
	Unit value (US$/t)	676	695	678	803	789	1, 751	816	832	784	1, 646	1, 211	916	933
	Value (thousand US$)	269	367	307	631	318	548	447	461	632	943	770	543	462
Pakistan	**Quantity (t)**	90	135	241	290	247	488	573	320	373	420	189	108	364
	Unit value (US$/t)	911	733	780	745	870	832	1, 007	1, 359	936	955	1, 122	1, 481	1, 184
	Value (thousand US$)	82	99	188	216	215	406	577	435	349	401	212	160	431
Namibia	**Quantity (t)**	20	7	119	117	192	167	457	425	358	377	214	332	324
	Unit value (US$/t)	508	575	3, 500	1, 705	1, 804	1, 041	1, 381	1, 352	1, 421	1, 012	1, 103	756	715
	Value (thousand US$)	10, 160	4, 025	416, 500	199, 485	346, 368	173, 847	631, 117	574, 600	508, 718	381, 524	236, 042	250, 992	231, 660
UAE	**Quantity (t)**	122	42	82	282	109	82	26	34	16	86	119	73	526
	Unit value (US$/t)	680	643	1, 073	3, 475	4, 092	4, 720	538	1, 235	563	1, 465	1, 546	1, 110	1, 249
	Value (thousand US$)	83	27	88	980	446	387	14	42	9	126	184	81	657
Saudi Arabia	**Quantity (t)**	37	50	63	67	80	145	113	138	135	142	133	186	178
	Unit value (US$/t)	1, 432	1, 700	2, 143	2, 358	1, 713	2, 324	3, 389	2, 652	2, 348	3, 268	3, 466	6, 500	5, 831
	Value (thousand US$)	53	85	135	158	137	337	383	366	317	464	461	1, 209	1, 038
Egypt	**Quantity (t)**	61	71	83	25	60	18	71	94	62	66	66	80	113
	Unit value (US$/t)	754	690	578	680	633	1, 000	662	787	871	1, 015	924	963	894

	Value (thousand US$)	46	49	48	17	38	18	47	74	54	67	61	77	101
UK	**Quantity (t)**	64	50	23	-	114	46	42	20	1	70	77	71	63
	Unit value (US$/t)	859	1, 220	1, 348		991	1, 630	1, 786	2, 050	5, 000	714	1, 065	1, 099	1, 222
	Value (thousand US$)	55	61	31	-	113	75	75	41	5	50	82	78	77
Tunisia	**Quantity (t)**	40	55	13	58	57	26	52	36	55	58	42	30	12
	Unit value (US$/t)	1, 700	1, 564	2, 000	2, 448	2, 754	3, 731	2, 500	2, 611	2, 673	3, 190	3, 143	2, 333	2, 750
	Value (thousand US$)	68	86	26	142	157	97	130	94	147	185	132	70	33
Total imported (t)		**832**	**938**	**1, 077**	**1, 625**	**1, 262**	**1, 285**	**1, 882**	**1, 621**	**1, 806**	**1, 792**	**1, 476**	**1, 473**	**2, 075**
Total import value (Thousand US$)		**10, 816**	**4, 799**	**417, 323**	**201, 629**	**347, 792**	**175, 715**	**632, 790**	**576, 113**	**510, 231**	**383, 760**	**237, 944**	**253, 210**	**234, 459**

Source: ITC (2014)

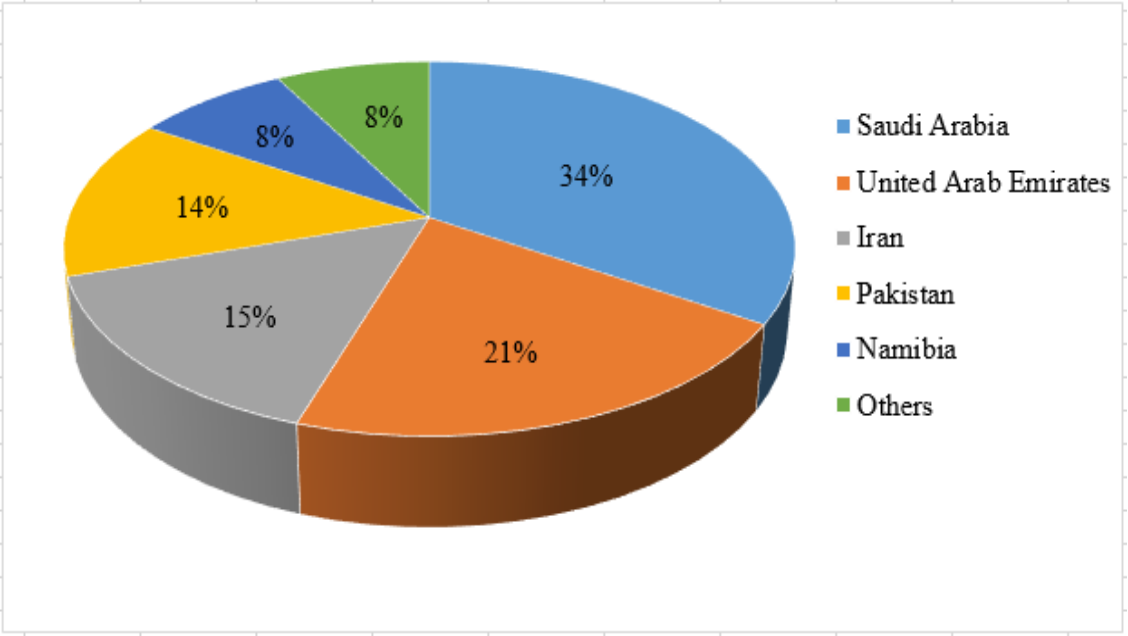


Figure 4.13: The top five countries supplying dates to South Africa (2013)
Source: ITC (2014)

4.4.3 Other markets and potential markets

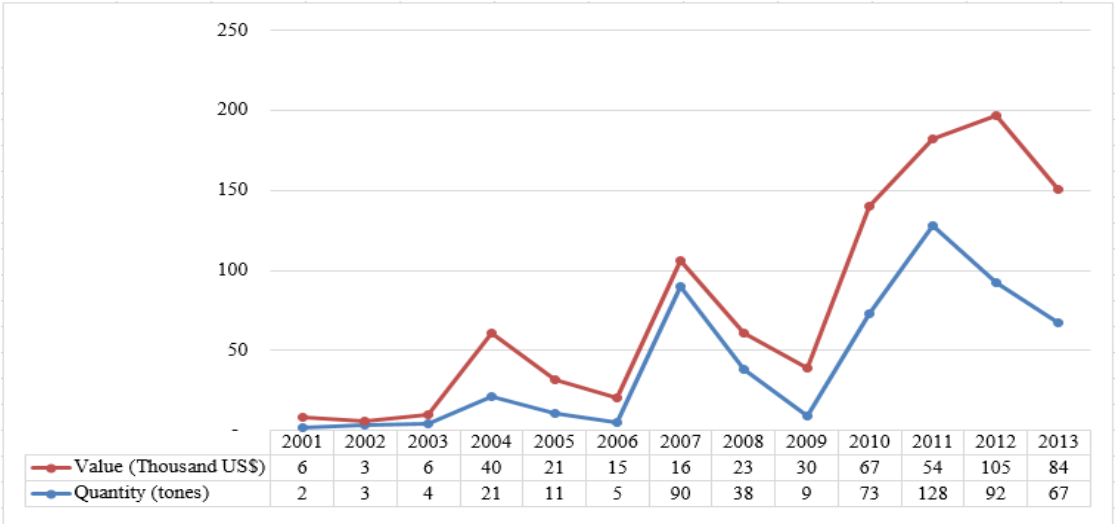
The growing market for selected food products such as dates in Asian and Middle Eastern countries is characterised by consumers who, in general, tend to be less sophisticated than are consumers in some European markets. In these countries, the consumer demand focus is on the commodity itself, rather than on the varieties obtainable. Such markets offer much potential, due to their high rates of population growth, especially with regard to their rapidly expanding middle classes (Giles, 2001).

Apart from South Africa, the two main markets for dates originating from Namibia are France and Spain. France's imports represent about 8% of the world imports and the country is ranked 3rd in the world import of dates in value. Spain's imports of dates, on the other hand, represent only about 2% and the country is ranked 14th in world imports of dates. Tunisia, Algeria, Israel and South Africa are the four main competitors of Namibia in the two markets. However, in Spain, Namibia also competes with France, which mainly re-exports dates from other countries (ITC, 2014).

The USA, Canada and the Middle East could be potential markets for some Namibian food and processed products, including fresh fruit (such as table grapes and dates). According to Sattar *et al*., (2003), the African Growth and Opportunities Act (AGOA), a trade and development programme launched in the USA, allows African countries, including Namibia, to export various products both duty and quota free. However, African countries still have to meet all the sanitary and phytosanitary standards (SPS), as well as other requirements for importing agriculture-based commodities into the USA that are stipulated by United States Department of Agriculture (USDA). Given that Namibia already complies with international standards in the trade of dates, especially in the European Union markets, meeting the regulatory and sanitary standards for the USA and other potential markets is not a major concern. A small market share (a niche) for Namibian dates, particularly in the USA, would lead to considerable growth in export earnings.

4.5 Namibian date imports

Namibia is a net exporter of dates. The country has a positive trade balance and this implies that Namibia exports more dates than what are imported (ITC, 2014). Figure 4.14 below shows the quantity and values of dates imported by Namibia. The small volume imported is mainly used for processing into cakes, date syrups and liqueurs. Some are bought by a few consumers with an understanding of the nutritional importance of dates. All dates are imported from South Africa.



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Value (Thousand US$)	6	3	6	40	21	15	16	23	30	67	54	105	84
Quantity (tones)	2	3	4	21	11	5	90	38	9	73	128	92	67

Figure 4.14: Quantity and value of dates imported into Namibia
Source: ITC (2014)

4.6 The date industry value chain

In order to provide a thorough analysis of any industry, it is important to understand its value chain. According to Min and Zhou (2002) a value chain is an integrated system that synchronises a series of interrelated business processes in order to: (i) acquire raw materials; (ii) transform the raw materials into finished products; (iii) add value to the products; (iv) distribute and promote the products to either retailers or customers; and (v) facilitate information exchange among various business entities (e.g. suppliers, manufacturers, distributors, third-party logistics providers, and retailers). Such a chain is traditionally characterised by a forward flow of materials and a backward flow of information (Beamon, 1998). Esterhuizen (2006) concurs with this by referring to a value chain as an institutional arrangements that links producers, processors, marketers and distributors (from the farm to the final consumer), often separated by time and space, and that progressively adds value to products as they pass along the chain. The main objective of a value chain is to enhance the operational efficiency, profitability and competitive position of a firm and its supply chain partners (Min & Zhou, 2002). Lazzarini, Chaddad and Cook (2001) emphasise that value chain analysis plays a role in identifying interdependencies between firms, and reveals how inter-organisational relationships can serve as a source of competition.

According to Robson (1997), the value chain model is the flow of activities that add value by contributing to customers' willingness to buy a particular product. Robson (1997) adds that, when demonstrating the activities of an industry, it is important to differentiate between the primary activity and its supporting activities. Primary activities are those that contribute to getting the goods or services one step closer to the customer. The resources used by activities can be judged in terms of efficiency and effectiveness. Efficiency is the measure of how well the resources are being used, and such measures could include profitability, capacity use and yield gained from that capacity. Effectiveness, on the other hand, is the assessment of how well the resources are allocated to those activities that are competitively significant within the value chain.

Given the importance of a value chain in contributing to the success of an industry's competitive performance, the Namibian date industry's value chain is discussed. There are various players within the date industry, each of which has specific roles in the chain. This section briefly clarifies the role played by different stakeholders within the date industry value chain. Figure 4.15 provides a schematic illustration of the date industry value chain and a brief description of this chain is provided thereafter. In this chain, six stages are distinguished, namely the supplier of primary inputs, production, sorting and packaging, processing, marketing (exporters) and the final consumer.

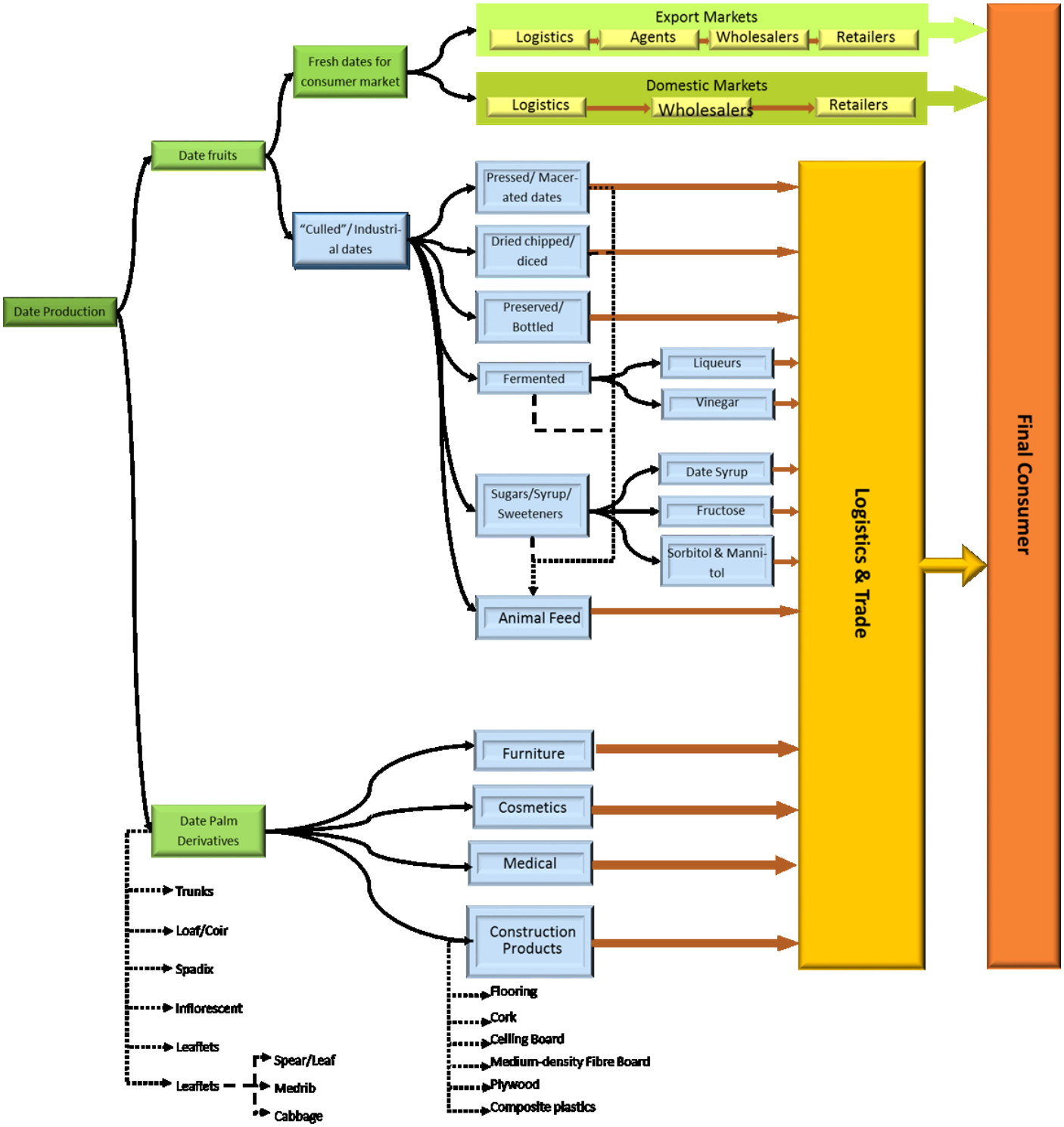


Figure 4.15: The Namibian date industry value chain
Source: OABS (2015)

Supply of primary inputs

The local suppliers of primary inputs required for date production are limited in Namibia. The date plant materials are supplied by tissue culture laboratories that propagate date plants under controlled conditions. Namibian date producers import Medjool plants from Al Wathba Marionnet LLC, which is a company in the United Arab Emirates. This company charges, approximately US$ 30 per plant. There also is a

laboratory in Israel that supplies Medjool plants, but at a high price i.e. US$ 65 per plant, then those from the UAE (De Wet, 2013). Those plants from Israel are bigger and can be planted directly in the field, while the plants from the UAE must first be grown (hardened) for at least one year in the nursery at project level before they can be planted in the field. Another laboratory is in the United Kingdom, but they cannot supply Medjool plants, which are most suitable in the Namibian environment.

Given the high price of imported plant material, producers are embarking upon the production of their own plants through offshoots propagations (Boshoff, 2015). This is a method where offshoots develop from axillary buds on the trunk of the mother plant; the fruit produced from these shoots will bear the same quality as that of the mother palm and ensures uniformity of produce (Zaid & De Wet, 1997). An added advantage is that offshoot plants will bear fruits two to three years earlier than seedlings. However, according to Kunert, Baaziz and Cullis (2003), the challenge of this traditional method involves the limited number of offshoots produced from superior selected plants and the development of useful offshoots from the single plants, which occurs only during the juvenile phase of the palm's life. The bulk of the inputs, such as fertilizer, chemicals, irrigation material (pipes, fittings, micros, filters, etc.), crop protection (shade net bags) and berry trays, are procured mostly from local suppliers who import them from South Africa.

Water and electricity, which also constitute a large cost elements, are supplied by Namibia Water Corporation (NamWater) and NamPower respectively. NamPower is a state-owned enterprise, which is the largest multilateral energy supplier in the country and provides bulk electricity to regional electricity distributors (REDs), mines, farms and local authorities (where REDs are not operational) throughout Namibia.

Production level

Date production can be an economically viable industry, especially in the long run; however, production requires a high level of labour and management, sound management that maximises date yields and effective cost management, and marketing that captures top date prices is imperative, i.e. an agribusiness approach is required.

This approach requires a substantial investment in fixed assets. When establishing a new date plantation, certain actions need to be implemented to ensure the long-term success of the plantation. These actions involve the initial land preparation, which should be done prior to transplanting the plant material (offshoots or tissue culture-derived plants). The purpose of land preparation is to provide the necessary soil conditions that will enhance the successful establishment of the young offshoots or the tissue culture plants received from the nursery. Considering the nature of the date palm, one cannot save capital on this operation and hope for long-term sustainability of the plantation (Klein & Zaid, 2002). Correct and accurate fertilizer application rates with the nutrient elements necessary for plant growth and production, and the

chemical application of herbicides that kill or alter the normal growth of weeds, are necessities. During production, the labour requirement is at its highest. On-farm trained labourers are essential for irrigation, pruning, cleaning, fertiliser application, pollination, bunch preparation, chemical and mechanical weed control. In order to carry this out, a total amount of N$ 60 163 is required to cater for labour for one hectare per year and, on average, one hectare has 120 palm trees (NDC, 2015).

Like any other fruit tree, date palms need sufficient water of acceptable quality for sustainable growth to reach their potential yield (Liebenberg & Zaid, 2002). Liebenberg and Zaid (2002) indicate that the availability and quality of irrigation water are critical factors that need to be taken into account for date production. Summer water requirements (July, August and September) are about 7 154 m^3/ha, while only 4 372 m^3/ha is needed for the winter period (December, January and February). Summer requirements are almost double the winter requirements and constitute one third of the total annual water consumption. These volumes are supplied to the trees through a drip/micro/furrow basin irrigation system. The Naute Dam, Hardap Dam and Orange River serve as the main sources of water for date plantations in Namibia (De Wet, 2015).

Harvesting

The harvesting of dates refers to physically detaching the fruits from the palm tree. Harvesting is done in accordance with the standard requirements outlined in the two certifications to which the Namibian date industry is party and to which it should adhere. These are the Euro GAP and Nature's Choice. These certifications cover a whole number of aspects, from the harvest of various date varieties until the final shipment of the fruit (Boshoff, 2015). There are specific harvesting considerations for each date variety and the form in which they will be consumed. Differences in the state of the fruit at harvesting are great at the level of spikelets, bunch and palms (Glasner *et al*., 2002). These differences are both visible, such as the fruit colour and the degree of ripeness, and invisible, such as the percentage of water and of sugar.

Harvesting must be done properly because it can significantly affect the rest of the marketing process. Although attempts are being made to harvest the fruit by shaking the trunk of the palm in order to avoid having to climb it, it is still necessary to reach the top of the palm to harvest the fruit. The palm grows up to one metre every year (depending on variety and the intensity of treatment). Harvesting the fruit entails the use of experienced workers, investing in aluminium ladders, attaching ladders to the palms permanently or purchasing mechanical appliances to lift workers to the top of the palm. During harvesting, extra care is taken to minimise fruit damage and to ensure that the quality of the product is in line with the rising expectations of clients. This process is stable, repeatable and capable of producing identical qualities for any length of time (Glasner *et al*., 2002). An amount of N$5 775 is required for labour per ha during harvesting (NDC, 2015). The main challenge experienced during harvesting is the possibility of rain, which causes damage to the fruit and impairs its quality due to rotting, fermentation and insect infestation.

According to Glasner *et al*., (2002), the fruit therefore must be protected from rain with the help of wax-covered paper or nylon sleeves.

There are specific harvesting and packing considerations for each date variety and the form in which they will be consumed. For instance, Barhee dates are harvested on branches and packed in cardboard boxes for export purposes. The fruit (Barhee) must be unripe, yellow, clean, smooth and hard without scratches. The timing of harvesting of Barhee is very important to ensure that the fruit reaches customers in an unripe state.

Medjool, on the other hand, is a soft and delicate fruit with a thin skin, requiring careful treatment. Harming the skin may cause sugar crystallisation. Harvesting begins by picking the dates one by one at the beginning of the ripening process, since the fruit that remain on the palm will become too hard to satisfy the needs of customers. The harvesting method is planned in such a way as to ensure that the fruit have the appropriate texture when they reach the market. The demand is for large fruit (over 20 g) in which no skin separation or blooming has taken place, with a soft and elastic texture and colour ranging from light to dark brown (Glasner *et al*., 2002). These requirements are critical for Medjool fruit so that they can be packed and preserved without changing shape.

Sorting and packing

Sorting of dates is done manually at most of the date plantations, because sorting machines are very expensive and not economically feasible given the small volumes produced. According to the NDC (2015), the labour requirement amounts to N$3, 630 for the sorting and packaging of dates per hectare per year. However, a pack house has been constructed at Naute date plantation and plans are under way to procure a date-sorting machine as soon as production volumes reach the critical volume that warrants such development. Conversely, Desert Fruit (Komsberg) is the only date plantation that has its own fully equipped pack house, including a sorting machine. Fresh dates are not something new to the European market. Therefore, to be able to sell the dates, the packaging should be attractive, and the contents should be of a higher quality than that of the competitors.

Information provided by the NDC (2015) indicates that an approximate amount of N$236, 115 is required for the production of dates for one hectare per year. Figure 4.16 shows the percentage share of various expenditures required, from production through to getting the product to South Africa for marketing. The labour costs are the second highest after transport costs, accounting for 29% of the total cost per hectare per annum. The cost of electricity required in the pack house, and of packing material expenses, representing 12% and 10% respectively. This signifies that dates production is associated with high costs, especially in the early stage of production. Figure 4.17 shows the expected gross production value, directly allocated variable costs and gross margin per hectare for a typical date project under normal conditions.

Figure 4.17 confirms that the production of dates is characterised by high costs in the early years of production, and a small amount of inflows are only obtained from year five, with the expected cost and income per hectare at about N$ 185, 625 and N$ 7, 720 respectively. The cash flow remains negative until the project reaches its breakeven point. A typical date project reaches breakeven in the ninth year (a point at which costs or expenses and revenue are equal and there is no profit or loss), with expected costs of N$ 277, 200. However, in year ten, the expected costs increase slightly to N$ 293, 700, and generally are expected to remain almost the same over the next ten to twenty years. In the same year, the expected income increases to N$429, 009, representing an increase in income of over 30% after the breakeven point. A date farm reaches its full production capacity in year twelve, with a projected income of N$ 554, 400 that outstrip the costs by far (NDC, 2015). This means that, in the long run, date production could be profitable.

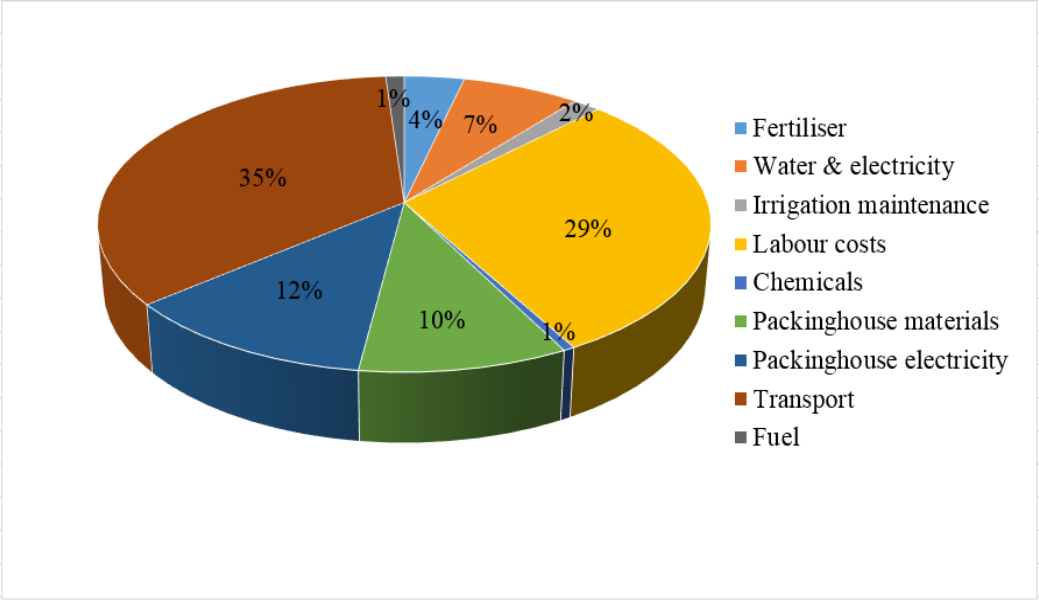


Figure 4.16: The share of various costs required for dates per hectare during the production process
Source: NDC (2015)

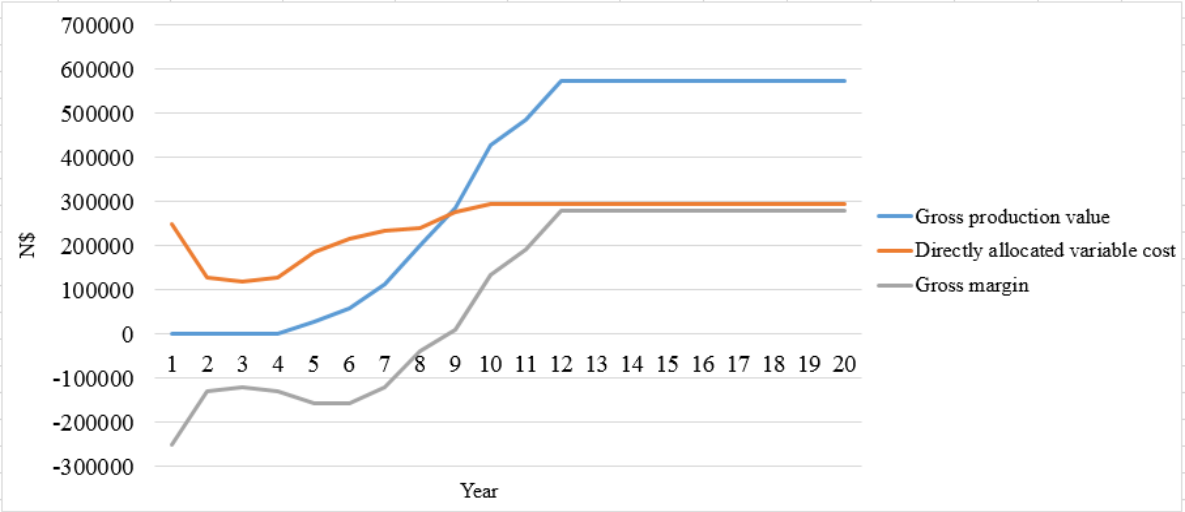


Figure 4.17: Analysis of date establishment and production costs per hectare
Source: Own calculation from figures provided by the NDC

Date processing

During sorting, the undesirable fruit that which are not good enough to be sold as fresh fruit to customers are not discarded but are separated from the marketable lots and diverted into processing activities. These damaged dates are then processed into various forms, including date syrups, dried and chipped dates, preserved and bottled dates or fermented into liqueurs and vinegar. This signifies that value addition opportunities exist within the date industry and fruit do not go to waste.

However, the most important value stream would be the one focusing on marketing fresh dates in domestic and export markets. According to OABS (2015), current international experience shows that anywhere between 8 to 10% of the fruit harvest would not be suitable for the fresh consumer market, and these dates become culled or industrial dates.

Currently, the Namibian date industry has about 95 tons of culled dates per year. These dates are still perfectly suitable for human consumption, but are rejected because of blemishes, size, colour or damage during harvesting/sorting. Since the inception of date production in Namibia, most of the cull dates have gone to waste, since there are no processing facilities. Because of this enormous wastage, the NDC decided to assist in the development of a small-scale boutique distillery at the Naute Date Farm. In 2014, of the 925 tons produced per annum, 867 were sold as fresh dates to international markets and about 58 tons were regarded as cull dates. About 30 tons of the culled dates were processed at this distillery with the purpose of distilling a high-quality alcohol and to blend a number of uniquely Namibian liqueurs (OABS, 2015). The remaining 28 tons were either given to workers or went to waste because of the limited capacity of the small-scale distillery.

As shown in Figure 4.18 it is expected that the volumes of cull dates will increase from 2015 to 2030. Even though the volume of cull dates as a percentage of the total yield will decrease from year to year as a result of improved production and management techniques, the total volume will increase.

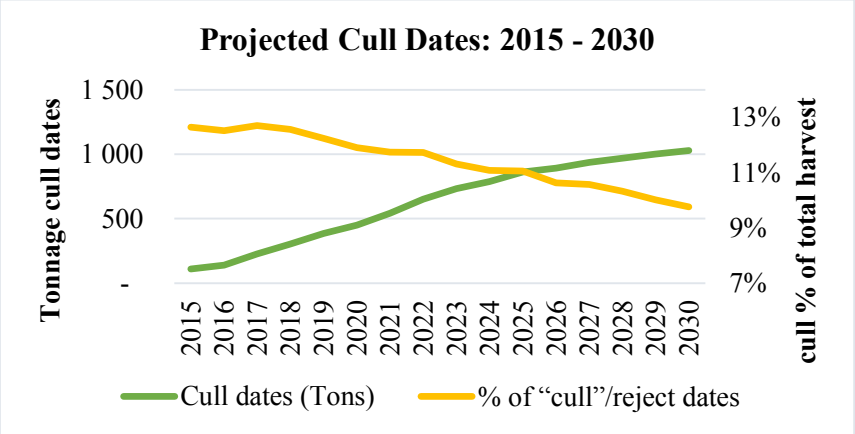


Figure 4.18: The expected growth in the volume of cull dates
Source: OABS (2015)

Given the current planned expansion in date production, it is expected that total yield will increase from the current 925 tons to approximately 10 500 tons in around 2030. However, harvesting efficiency is also expected to improve and it is projected that cull date yields will be around 10% of the total harvest only. This entails that cull volumes will grow from the current 95 tons to just over 1 000 tons per year in 2030, as indicated in Figure 4.18 (OABS, 2015).

Accessing international markets

The Namibian ports (WalvisBay and Lüderitz) are not well equipped with the necessary cold storage facilities required for dates. For export purposes, dates from Naute in particular are packed in bulk in cardboard boxes and transported directly to South Africa (to Karsten Farm) for appropriate repacking and branding before the fruit are sold to South African fresh produce markets or shipped to the European markets. Based on information gathered through the date executive survey (DES, 2015), Karsten Farms initially became involved with the development of the table grape component of the Naute Project and their involvement was later expanded to date production and other crops. An agreement was concluded between NDC and Karsten Farms and they render the following support:

- ✓ Assist with overall project planning
- ✓ Assist with the compilation, advising on and monitoring of the implementation of crop programmes
- ✓ Act as marketing agent for table grapes and dates from Naute

In addition to well-developed sorting and packaging facilities, Karsten Farm has an advantage because of its well-established relationship with the international markets. However, this arrangement leads to additional costs and therefore projects incur double costs, such as for transport, packaging materials and labour during packaging (NDC, 2015). Only two projects (Eersbegin and Naute) which are under the administration of the NDC, sell their dates by means of this arrangement, while other projects market their fruit by means of other agents or on their own. The NDC commenced with the construction of a modern packing facility at Naute, which means that final packing will be done at Naute, from where the produce will be shipped directly to export markets.

4.7 The date industry in the Namibian agro-processing growth strategy: New proposals

In January 2015, the Ministry of Industrialisation, Trade and SME Development commissioned a study titled "Sector growth strategy for the Namibia agro-processing industry" to investigate the agro-processing industries in the country. The objectives of this study were to identify the top four agro-processing value chains in terms of domestic value-addition potential and to develop a sector growth strategy to define concrete interventions that can enhance domestic value addition, upgrade manufacturing capacities and generate growth and employment in the agro-processing industry (OABS, 2015). Given that date

production is one of Namibia's agro-processing industries, the date industry was also identified for analysis in order to determine whether it will emerge as one of the top four. Apart from dates, other commodities considered by OASB includes; fish and marine products, game, chicken, swakara wool, vegetables, millet, pigs and liquor from indigenous fruits. Only vegetables i.e. potatoes and onions could be directly compared to dates given that they are irrigation products too.

In the process of selecting the top four agro-processing value chains, a multi-criteria analysis was done, comprising nine criteria (OABS, 2015). These criteria and the weight assigned to each are shown in Table 4.8.

Table 4.8: Criteria used to select the top four agro-processing industries in Namibia

Code	Criteria used	Weight assigned to each criterion
A	Contribution to gross agri-production (%)-potential	15%
B	Number of primary producers involved (commercial and subsistence farmers), as well as those that potentially could be involved	5%
C	Potential contribution to job creation (primary and secondary)	15%
D	Processing potential (value adding)	20%
E	Potential contribution to exports (raw/processed) and current level of export development	10%
F	Potential contribution to import replacement	5%
G	Level of capital intensity-agro-processing	10%
H	Distance from market (location)	5%
I	Development potential	10%
J	Current and potential level of competitiveness	5%
	Total	**100%**

Source: OABS (2015)

Based on these criteria, the date industry was ranked 7th, largely because it's current and potential level of competitiveness was only given a weight of 5%.

This is potentially a very crucial statistic for an industry to position itself and to sustain growth in the long run. These particular ratings were, however, conducted on a restricted basis and in a highly subjective manner based on selective perceptions only, mainly from observations of the analytical team (OABS, 2015).

Whereas this study does not take issue with the OABS report, it needs to be stated that a much more comprehensive approach (the five-step strategic analysis) was followed here in which industry responses and views were analysed through statistical analysis to reach particular conclusions and proposals (step 5, in Chapter 6) after the findings were submitted to a well-attended date industry information session (DIS) in April 2015. At this session it was agreed that the OABS report should consider the findings of this study in a final submission (DIS, 2015).

4.8 Conclusion

The main purpose of this chapter was to provide a descriptive overview of the Namibian date industry. The global production and marketing of dates were reviewed. The chapter looked at the historical background of the industry, the production, export and import of dates, as well as the contribution of the industry to the country's economy. The date industry value chain was discussed and strategic issues surrounding the industry were highlighted. With all this in mind, and considering that the current status of measuring competitiveness in the industry, as in other agri-industries is subjective, a more considered and scientifically comprehensive analysis of the industry's competitive performance is required. In chapters 5 and 6, the results and findings of this analysis will be presented and discussed.

CHAPTER 5: ANALYSES, RESULTS AND DISCUSSIONS

5.1 Introduction

This chapter presents the results of the application of the first four steps of the five-step analytical framework for this study.

In this study the data analysis will be extended from the conventional competitiveness performance of agribusiness activity analysis (as used inter alia by ISMEA (1999), Esterhuizen (2006), Van Rooyen *et.al*., (2011) and Jafta (2014) to consider the validity of the questions used, as well as similarities and variation in the ratings by respondents in the DES. This will allow for the drafting of a more refined strategic framework than in the mentioned studies.

Step 5, based on the findings in this chapter and the analysis therein, will be attended to in the next chapter, in which industry-level strategic activities will be proposed to assist the date industry in improving its competitive performance based on the findings.

5.2 Defining Competitiveness (step 1)

More than 90% of Namibian dates are traded in global markets. In this thesis it thus is argued that the competitiveness of an internationally traded agricultural product, such as dates, is based on the ability to sell successfully in the global market and continue to do so, i.e. to trade on a sustainable basis; it thus is not only about profits and productivity over the short term but rather the ability to perform competitively on a sustained basis. As argued in Chapter 2, the analysis in this study is therefore guided by competitive performance, which is defined as '*the ability of the Namibian date industry to trade products in both domestic and international markets on a sustainable bases; and as such it is able to attract resources such as land, labour, technology, management talents and capital from other competing economic activities while earning at least the opportunity costs of returns on resources employed'* (from Freebairn, 1986; Esterhuizen, 2006; Van Rooyen *et al*., 2011).

This definition, which considers trade (international and local) as a key element of the measurement of such performance, was also accepted and supported by key industry representatives during a representative industry focus group session. This definition also allows for a long-term view of competitive performance to be developed to support a comprehensive approach to the measurement and analysis of the competitive performance (also refer to ISMEA, 1999; Esterhuizen, 2006; Van Rooyen *et al*., 2011 and Jafta, 2014). Additionally, the definition incorporates the concept of opportunity cost which allows the study to consider alternatives and the RTA formula used in the study does take other trade or alternatives into account.

5.3 Measuring the competitive performance of the date industry (step 2)

Step 2 of the framework of analysis involves measuring, describing and analysing the competitiveness trends of the Namibian date industry between 2001 and 2013. As discussed in Chapter 3, the relative trade advantage (RTA) method, based on trade performance over the period of analysis, was selected to measure the competitive performance of the date industry in Namibia based on trade performance over the period of analysis and based on the ability of the industry to perform in the trade environment. The trade data (export and import value) of dates were used in the calculations to obtain the RTA value.

5.3.1 Relative trade advantage (RTA) values

Table 5.1 shows the competitiveness status of the Namibian date industry. Based on data from FAOSTAT (FAO, 2014) (considering only agricultural trade data) and Trademap (taking into account multi-sectoral trade data i.e. trade from all sectors of the economy), the results show that the competitiveness of the date industry recorded a positive trend, with RTA values ranging between 0.40 and 4.0 over the past 12 years (2001 to 2013). There was a sharp decline from a RTA value of 4.0 of 2007 to a RTA value of 0.4 in 2008. However, from 2009 the industry improved its competitive performance again (RTA value 2.12). Since then, the industry has maintained its performance with a positive RTA index of greater than 1. Although the data from 2012 were not yet available on the FAO database, Trademap figures indicated an increasing positive trend from 2011 to 2013.

Table 5.1: The competitiveness status (RTA values) of the Namibian date industry

Years	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
RTA values (FAO)	0.4	2.2	2.1	2.5	4.0	3.0	4.0	0.4	2.1	1.5	1.5	-	-
RTA values (Trademap)	0.3	2.2	2.2	2.9	3.6	2.1	3.5	3.4	1.9	2.1	1.2	2.5	1.9

Source: Own calculation based on data from FAOSTAT (2014) and ITC (2014).
Competitive (RTA > 1), marginally competitive (1 > RTA > -1), not competitive (RTA < -1)

Despite some fluctuations in the industry's competitive performance, these results classify Namibia's date industry as being generally competitive over the past 12 years. Since 2008, the RTA values reflect greater instability and fluctuation, although still positive. The agriculture based RTA values (FAOSTAT) also show more fluctuation than the multi-sectoral (Trademap) set. This indicates the relatively greater sensitivity of competitive performance measurements of an agricultural product when only agricultural trade data (FAOSTAT) are considered. This is particularly the case when climate factors could affect agricultural trade performance in general, as in 2008, when Namibian agriculture was severely affected by flood (NSA, 2013), along with the general economic impacts of the global economic meltdown experienced during that period (2008/2009) and reflected in both data sets.

5.3.2 Trends in the competitive performance of the Namibian date industry

The competitive performance of the Namibian date industry since 2001 fluctuates somewhat, but remains competitive, as shown in Figure 5.1. From this trend and based on the discussions with key industry stakeholders, three distinct phases can be distinguished.

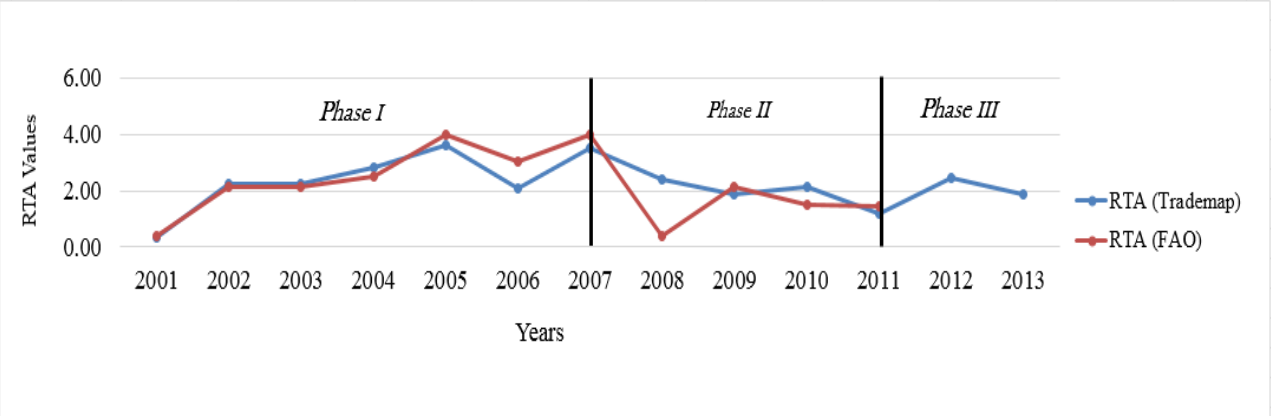


Figure 5.1: Competitive trends of the Namibian date industry based on RTA calculations (2001 to 2013)
Source: Own calculations based on data from FAOSTAT (2014) and ITC (2014)

Phase 1: Getting into the 'date game' (2001 to 2007)

The first phase, which ran from 2001 to 2007, is considered the 'start-up' stage, with the industry deliberately gearing-up towards global markets when date plantations entered into production after the industry received technical assistance from the FAO through its date production support programme (refer to section 4.3 in Chapter 4). The industry only started trading marginally competitively in 2001, with a positive RTA value, although less than 1 and peaked around 4 points in 2007. This phase was characterised by a sustained increase in competitive performance, partly because of the increase in date volumes traded that was experienced as plantations came into production from 2001 onwards. The industry also increasingly improved know how, i.e. found ways to get the product into the market and to understand what the market wanted in terms of standard requirements and consistency (quality, time and forms).

One main reason for the gaining of a competitive advantage in this phase was due to the Namibian industry exploiting the seasonality advantage provided in global markets. Given the country's location (southern hemisphere), the Namibian dates enter the market when most of the traditional date-producing countries (which are mainly on the northern hemisphere) are out of season. In 2006, the industry experienced a marginal drop in competitiveness due to the effect of weather, with the high rainfall received that damaged some dates, resulting in the export of reduced volumes compared to previous years. In addition, the industry also tried to push for a distinctive 'Namibian country brand' in order to achieve recognition of Namibian dates in the international market. This, however, could not work effectively because volumes were too small and it was too costly and inconsistent for the industry to pursue this 'brand' in the global markets (De Wet, 2015).

Phase 2: Repositioning to gain competitive advantage (2007 to 2011)

The second phase, during which the industry repositioned itself, ran from 2007 to 2011. Global conditions also deteriorated due to the 'economic meltdown' during this period. In this phase, market requirements, combined with climatic phenomena, resulted in a decline in export volumes and the exports of some varieties also were reduced. For instance, in 2008, the export of Barhee dates (one of the major varieties produced) dropped from more than 100 tons to 14 tons due to rain damage, and the supply of this variety was very limited thereafter (DIS, 2015). In 2007, the industry exported Barhee dates to Spain and England, but the quality was not good as per market requirements and therefore they did not obtain good prices and market space. Furthermore, the seasonality advantage also faced increasing pressure as countries in the northern hemisphere started to introduce improved technology and new techniques of storing dates for consumption in the offseason.

To deal with such threats the Namibian industry repositioned itself through institutional arrangements. In 2010, the Al Dahra company (from the United Arab Emirates) signed an agreement with NDC to export Barhee dates from Eersbegin and Naute to their main branch in Abu Dhabi. Al Dahra has the advantage of sustainable and reliable market connections, since it has established a worldwide market network for agricultural products from its base in Abu Dhabi. According to Saleh (2014), Al Dahra can secure good markets for Namibian dates, based on the supplying of selected markets in the offseason (during July and August) while Namibia's peak season is during February and March. By establishing operations in Namibia and with their existing harvest in Abu Dhabi, the company now effectively has two harvest seasons a year and they know which market to target with such fresh dates. With this strategy the Namibian industry was actively repositioned to reach different market segments for its dates.

Phase 3: Towards sustained growth (2011 to?)

Indications are that a next phase in the competitive performance trend started around 2011. The industry secured market penetration for dates concurrently with a sustained increase in the production of quality dates. Namibia now consistently exports dates to South Africa, Spain, France and the Middle East, and it is expected that the industry will search for additional markets once the envisaged expansion is realised.

Approximately 35% of the current plantations in the country are in production (the remaining 65% are still small trees that have not reached production stage). Moreover, most of the projects plan to increase the areas under date production and, once this is achieved, the industry is expecting to export more and better quality products and subsequently improve its competitive performance, i.e. towards sustained growth.

Moreover, there was a drop in the market supply of dates from Tunisia, a major supplier, as a result of the effect of the 'Arab spring' social upheaval (2010/2011) (Joffé, 2011). This started around 2010 and contributed to the decrease in date production and supply. This, a typical Porter 'chance factor determinant'

served as an opportunity for the Namibian date industry, together with its partners, to penetrate markets, and consumers increasingly became aware of Namibian dates and their quality.

5.3.3 Comparison of Namibian competitive performance with other countries

In order to establish the competitive performance of Namibia's date industry in the international market, an analysis of the competitive performance of the Namibian date industry, from 2001 to 2011, as measured by the RTA, in comparison with other major date trading countries was conducted. As explained in Chapter 2 and 3, the RTA method allows one to make comparisons between countries because it is a ratio that measures the exports and imports of a country relative to what the world exports and imports in terms of dates.

Given that RTA is a relative measure, it allows this study to measure how well the Namibian date industry performed relative to its rivals. It is noted that RTA values of various countries may be affected by different sizes of the economies (Esterhuizen, 2006). However, the RTA methodology captures market distortions and the size of the economy and that is why it is acceptable to compare RTA between countries. In this case, dates may be relatively more competitive in one country, for instance in Pakistan (refer to Table 5.2) then in USA because the opportunity cost of dates would make this industry less competitive (lower value) in USA while the opportunity cost of dates in Pakistan would make it relatively more competitive. A comparison of the RTA enables one to determine the relative importance of the traded commodity (dates) viz a viz different trading competitors, also not only for dates. Such comparisons could also be conducted in terms of competitive trends i.e. does Pakistan dates perform more competitively than USA dates over a certain period? RTA thus provides a relative measure, not an absolute competitiveness measure.

The largest date producers are the Arab countries, and Egypt is the biggest producer in the northern hemisphere. The nearest competitors for Namibia are Saudi Arabia, the United Arab Emirates, Tunisia, Algeria, South Africa and Israel. Table 5.2 and Figure 5.2 show the competitiveness of Namibia's date industry versus that of other countries globally.

Table 5.2: Date RTA index: Namibia versus selected date-producing countries

Countries	RTA 2001	RTA 2002	RTA 2003	RTA 2004	RTA 2005	RTA 2006	RTA 2007	RTA 2008	RTA 2009	RTA 2010	RTA 2011
Tunisia	383.5	313.2	279.2	363	298.3	277.9	364.8	278.1	391.3	325.6	317
Pakistan	53.5	61.3	47.8	40.6	44.1	50.9	50.7	38.3	55.7	47.2	51.5
Israel	5.4	10.3	27.4	26.4	25	32.4	25.3	21	30.1	23.2	28.3
Algeria	13.7	21.5	16.3	14	9.8	10.9	9.3	6.1	5.9	5.9	7.2
Saudi Arabia	7.1	8.3	6.1	7.6	3.8	4.6	4.1	4.1	-0.3	6.3	4.9
Egypt	1.6	7.2	1.4	3.8	3.9	4.5	3.4	6.3	15.8	14	17.3
UAE	9.3	12.1	10.5	1.5	2.7	-3	-2	-2.2	3.1	-0.5	1.3
Namibia	0.4	2.1	2.1	2.5	4	3	4	0.4	2.1	1.5	1.5
South Africa	-0.5	-0.6	-0.4	0	0.6	0.3	0.7	1.1	1	0.7	0.7
USA	0.3	0.3	0.3	0.4	0.2	0.3	0.2	0.3	0.2	0.2	0.2
Australia	-1.7	-1.7	-1.5	-1.6	-1.4	-1.7	-1.5	-0.9	-1	-1.4	-1.5
Kenya	-1.1	-3.5	-1.3	2.1	-0.8	-1.2	-1.8	-1.2	-1.5	-1.1	-0.5
India	-29.1	-11.7	-11.7	-12.6	-10.5	-12	-8.9	-6.9	-8.7	-5.9	-8.3

Source: Own calculations based on data from FAOSTAT (2014)
Competitive (RTA > 1), marginally competitive (1 > RTA > -1), not competitive (RTA < -1)

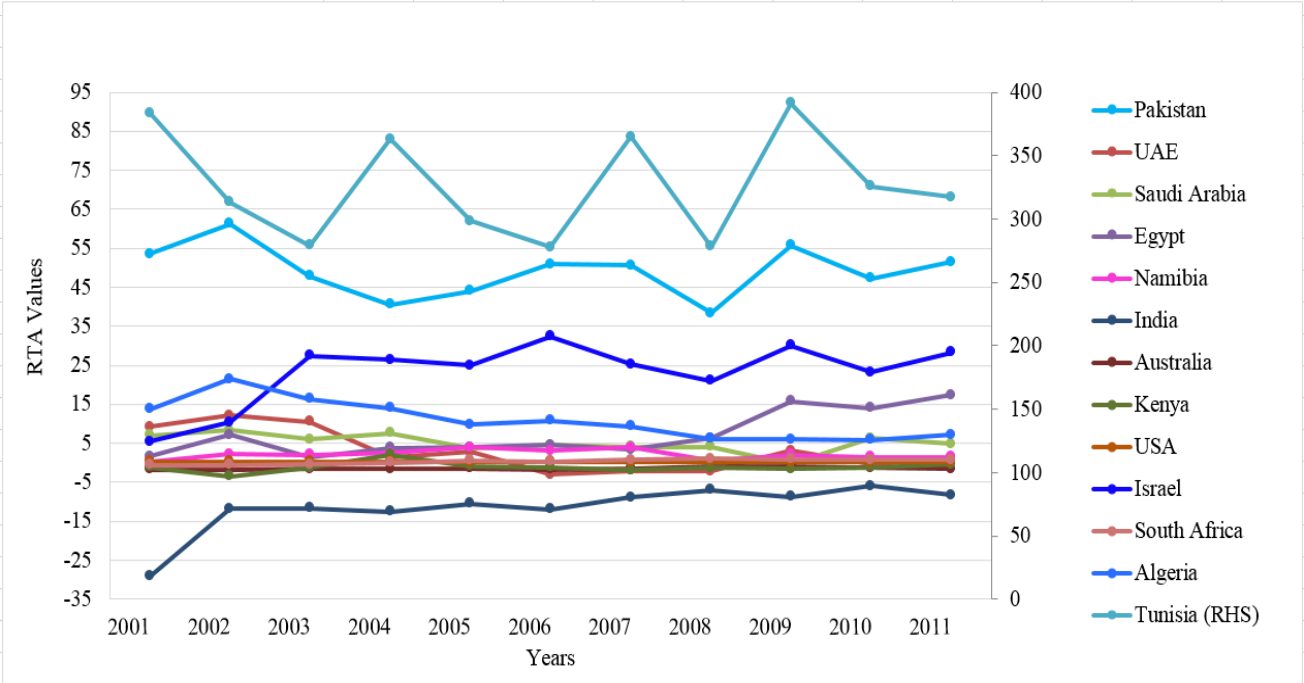


Figure 5.2: Competitive status of Namibian dates versus other major dates-producing countries from 2001 to 2011
Source: Own calculation based on data from FAOSTAT (2014)

Looking at the trend, the RTA index values for Tunisia[7] (values presented on the secondary axis, right-hand-side), based on data from the FAO (2014), indicate that Tunisia is relatively more competitive and has by far the strongest and most globally competitive status in terms of dates. Its RTA values are constantly far higher (ranging between 278 and 391) than those of all other countries. As indicated in Chapter 4 (section 4.1.3), Tunisia's export of dates represents 21.3% of the world export and it is ranked number one in the world export of this commodity. The reason for this performance is the high demand for Tunisia's dates in France, the close proximity of this market and the consistency of supply by Tunisia. According to Liu (2003), France is the world's largest importer of *deglet nour*, a variety that is produced mainly in Tunisia. In 2013, the price of dates imported by France was US$ 2, 255 per ton, while on global level the price was US$1, 157 per ton. In 2013, France imported a total of 32, 089 tons of dates valued at about US$72.3 million. Of these, 18, 102 tons with a value of US$34.2 million were supplied by Tunisia, representing 56% and 47.3% of France's total date imports in quantity and value respectively (ITC, 2014). A healthy lifestyle is consistently gaining popularity in France, with consumers preferring ready-to-eat products such as dates, which have high nutritional values (Liu, 2003). It also is interesting to note that the reduction in volumes traded by Tunisia was affected by the Arab Spring occurrences and reflected negatively on the competitive performance index, with RTA values dropping from 391.7 in 2009 to 317 in 2011.

Pakistan, Israel, Algeria, the United Arab Emirates, Saudi Arabia and Egypt are also highly competitive effectively as a 'second league', with Pakistan rated the best and leading competitor. Namibia, South Africa and the United States of America are generally competitive, but clearly have a 'third league' status, with Namibia consistently leading. The date industries in Kenya, Australia and India are relatively internationally uncompetitive.

Given that Namibia is located in the southern hemisphere, this study also analysed Namibia's performance against the date-producing countries of the southern hemisphere. The results reveal that Namibia is 'first' on this 'podium', i.e. the most competitive country in dates, followed by South Africa, while Australia and Kenya are not consistently internationally competitive (Figure 5.3).

Namibian producers and marketers thus are being challenged globally by most other countries, especially in the 'second league group', and this calls for the industry to develop meaningful strategies in order to improve the performance of the country's date industry and ensure that it remains in the playing field in the future.

[7] Tunisia's RTA values are presented on the secondary axis (right hand side), while all the other countries' RTA values are indicated on the primary axis.

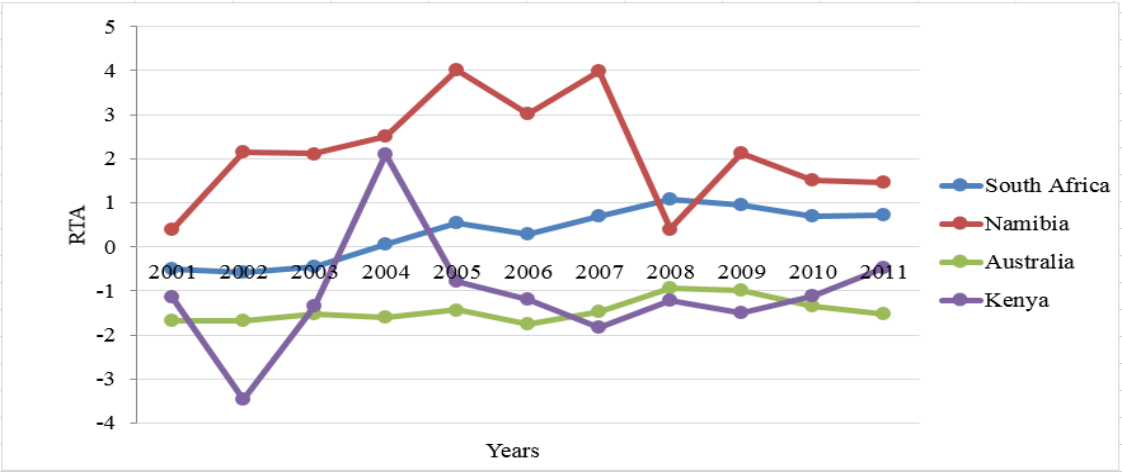


Figure 5.3: Competitive status of the Namibian date industry versus other southern hemisphere date-producing countries from 2001 to 2011
Source: Own calculations based on data from FAOSTAT (2014)

5.3.4 Comparison of dates with other Namibian fruits

Dates were compared with other tradable fruits from Namibia to get an idea of where dates stand within the entire Namibian fruit industry. With the use of Trademap data (ITC, 2014), dates were then compared to the category grouping of all fruits and nuts produced for the period 2001 to 2013. These include grapes, watermelons and papaya, mangoes, avocadoes, citrus, bananas, apples, pears, peaches, apricots, cherries and quinces. Even though other fruit generally appear to be marginal competitive, as shown in Figure 5.4, this comparison revealed that the date industry is more competitive than other fruits as a group.

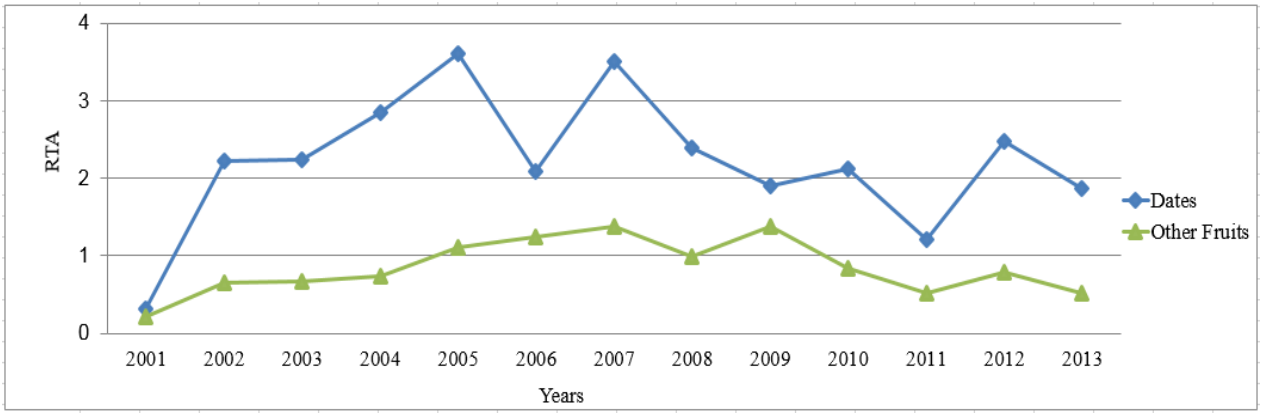


Figure 5.4: Competitive status of the Namibian date industry versus other fruit from 2001 to 2013
Source: Own calculation based on data from Trademap (ITC, 2014)

Comparisons were also made between dates and table grapes because these are the two main fruit types that the country produces and exports. RTA values indicate that Namibian table grapes are more competitive than dates, as shown in Figure 5.5. The driving force for a competitive position of table grapes is productivity, that is, output efficiency in relation to specific inputs with regard to human, capital and natural resources (DIS, 2015). It could also be partly due to the fact that the waiting period before a producer gets returns on the investment is shorter for table grapes than dates. It takes about five years for

dates to get into production, while table grapes take only two years. However, in the long run, dates could be more competitive because the per unit establishment and production costs will reduce while the returns will increase. It also is important to note that palm trees can be productive for more than 50 years, while table grapes needs to be replaced after 20 to 25 years of production (DES, DIS, 2015). This could increase investment in the long-term expansion in the date industry.

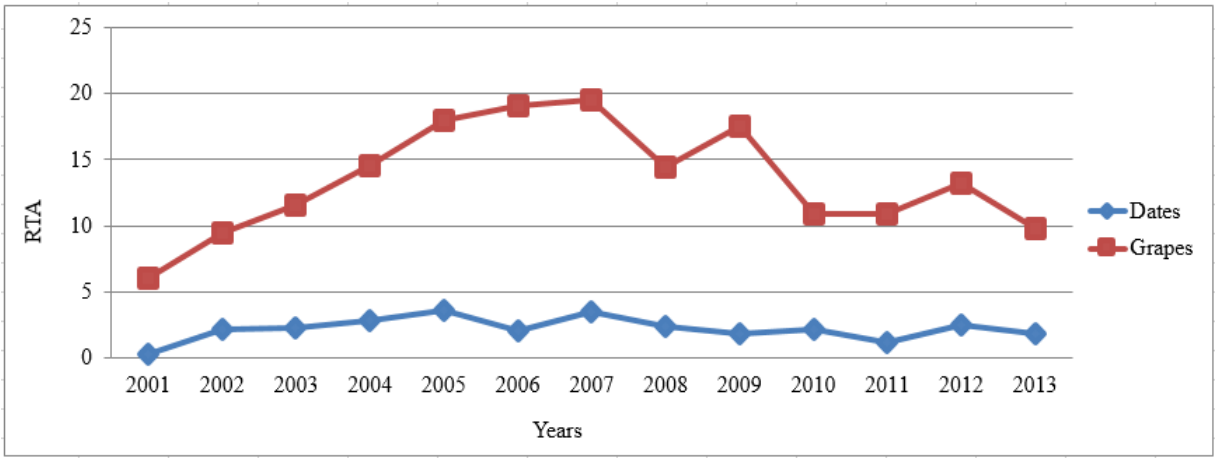


Figure 5.5: Competitive performance of dates versus table grapes from 2001 to 2011
Source: Own calculations based on data from FAOSTAT (2014)

The comparison of the expected gross production value, directly allocated variable costs and gross margin for dates and table grapes per hectare under normal expectations is shown in Figure 5.6. This figure indicates that the production of grapes is associated with lower establishment and production costs relative to those of dates. To start producing dates, an approximate amount of N$250, 425 per hectare is required while for table grapes only N$162, 533 per hectare is required. This indicates a difference of N$87, 892 per hectare, representing 35% higher cost for dates. Furthermore, table grapes break even at two and half years; this is the point where the industry makes neither profit nor loss. In year five, the table grape industry reaches its maximum production capacity with a gross production value of N$212, 258 per hectare. In contrast, the date industry experience only a small amount of inflows in its infancy stage (returns are obtained from year five), which is accompanied by very high establishment and production costs lasting until the ninth year, when the industry reaches its breakeven point. The date industry reaches its full production capacity in year twelve, with the gross production value of N$572, 011 accompanied by greatly decreasing variable costs. This trend shows a difference of N$359, 753 gross production value per hectare between the two industries, with the date industry's returns almost doubling those generated from table grapes. From a strategic investment view point, the date industry thus will be in a good position to bargain away scarce resources and investment from a competing industry such as table grapes. In the short run, however, 'cash flow' consideration may favour the grape industry.

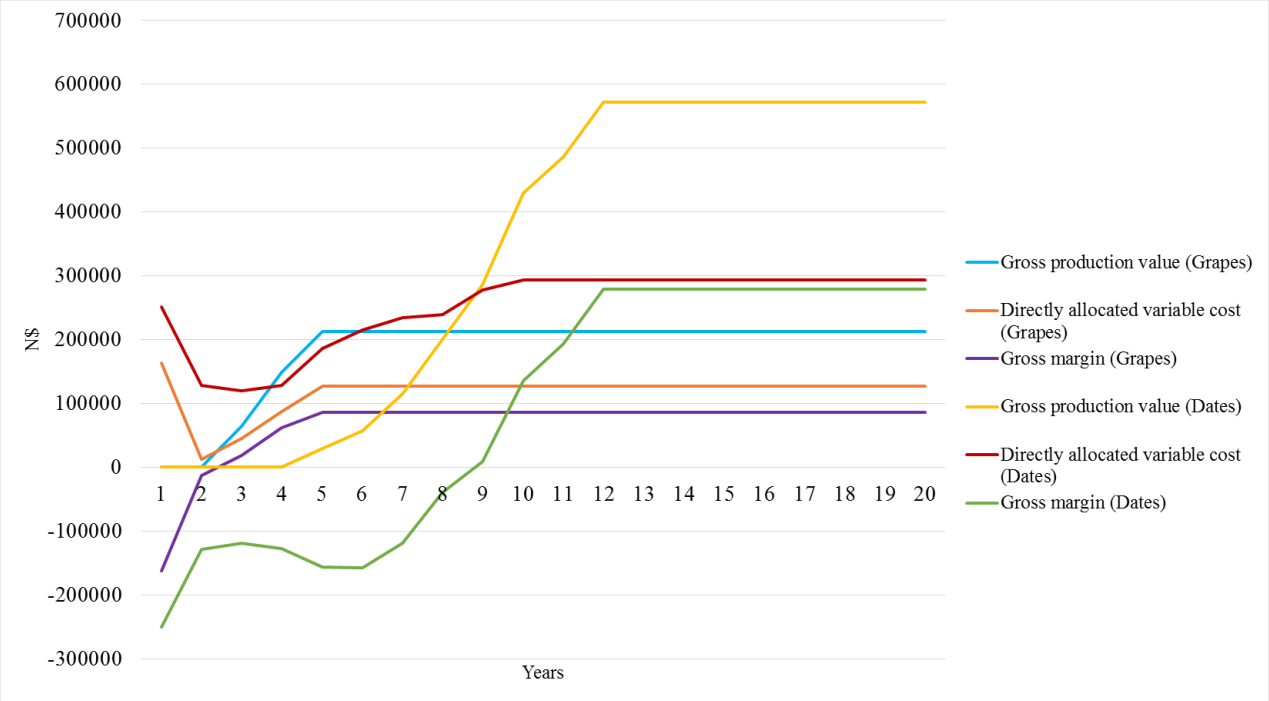


Figure 5.6: An analysis of the establishment and production cost per hectare of dates and table grapes
Sources: NDC, 2015 (date figures); Hoffmann, 2015 (grape figures)

5.4 Analysing competitive performance: the dates executive survey (DES) (step 3)

The previous section empirically measured the competitive performance of Namibia's date industry from 2001 to 2013, compared it with other sectors and determined the competitive performance trends since 2001. The results indicate that the Namibian date industry is generally competitive but only leading the so-called 'third league' of competitors in the competitive global date environment. Why is the Namibian date industry just leading the 'third league'? Is it related to its size or productivity, a lack of technological innovation, input costs, or government trade policy, etc. and how can this performance be improved?

The purpose of this section is to explore these questions and to find the underlying reasons or factors for the competitive performance described in the above sections. This information was obtained from key industry stakeholders through the dates executive survey (DES) by means of an opinion questionnaire (see Appendix A), supported by an analysis of secondary data and inputs from an industry level information session (DIS).The respondents (executives, experts and industry leaders) were requested to identify and rate the impact and relevance of various factors on the basis of their views and perceptions.

5.4.1 Descriptive analysis

There currently are nine (9) date palm plantations in Namibia. Given the size of the industry which is relatively small, all date producers at the executive level and most of the key industry players were interviewed by means of a questionnaire. The questionnaires were distributed by e-mail, while some were completed during personal interviews. A total of 30 (sample size) questionnaires were sent to different

stakeholders in various positions in the industry's value chain. A total of 26 questionnaires were returned and used in the analysis representing a response rate of 87% of the target population. This rate is fairly high given the size of the industry and therefore it is argued that it represent the views of the industry.

The first section of the questionnaire required respondents to indicate the date varieties produced, their position in the value chain, the area under date production, the quantity harvested and the quantity exported in order to profile the respondents in the sample.

The questionnaire was further divided into five parts to cover the current value chain namely the producers; inputs or service providers; exporters or marketers; processors; and advisors or key informants. Of the 26 respondents interviewed, the majority were advisors, representing 58%; producers and exporters/marketers represented 31%; while processors and services providers accounted for 23% and 12% respectively. This representation is more than 100% due to the fact that some respondents hold more than one position in the value chain. Table 5.3 presents the percentage share of the respondents' position in the value chain.

Table 5.3: Share of respondents' position in value chain

Value chain position:	**Share of sample involved in position: (n=26)***
Advisor / Informant / Consultant	58%
Producer	31%
Exporter or marketer	31%
Pack house or processors	23%
Input / service provider	12%

** Shares add up to more than 100%, as some respondents are involved in more than one value chain position*

Information gathered from the DES revealed that Medjool was the main date variety produced in Namibia, as 100% of the respondents (producers) indicated that they produced that variety. This was followed by Barhee, Zahidi and Kandrawi representing 58%, 12% and 8% respectively. This share also adds up to more than 100%, as most of the respondents were involved in the production of more than one variety. The reason for the high production of Medjool is that it adapts very well to the country's climatic conditions. Namibian date producers also prefer Medjool because it is in highly demand in the international market and producers generally receive premium prices for this variety. The majority of producers sell fresh and dried dates, accounting for 81% and 54% respectively, and only 12% of the respondents sold processed dates.

5.4.2 Identification of major factors affecting competitive performance

Despite the importance of empirically measuring the status of competitiveness, it is crucial to determine the various underlying reasons for competitiveness in the Namibian date industry. Thus, in this step, the various factors affecting the competitive performance of the Namibian date industry are identified. A total of 72 factors were identified, listed and rated in the DES (refer to Appendix C).

Factors were rated based on their 'current impact' and 'long-term relevance'. 'Impact' refers to the current performance of a particular factor (i.e. its current status) on the competitive performance of the date industry, while 'relevance' refers to the long-term importance of a factor to the industry's competitiveness (refer to Chapter 3, section 3.2.4.1). These ratings are important in order to identify the 'performance gap', i.e. 'what is happening now *vis-à-vis* what should be happening' and direct strategies based on the constraining or enhancing effects of specific factors.

The list of factors as rated by industry role players based on their impact and relevance is given in Figure 5.7, each with its rating out of five. The green lines indicate factor impact ratings, with five (5) representing most enhancing and one (1) most constraining. The results reveal that 43% of the factors are constraining and 47% are enhancing the date industry's competitive performance, while 10% are viewed as neutral. The purple lines indicate factor relevance ratings with five (5) signifying highly relevant and one (1) least relevant. The results reveal that 100% of the factors identified are viewed to be highly relevant (i.e. important), as all scored above 3.5 out of 5.

Statistical comparisons of the frequency distributions of factors were done by Chi-square analyses, while statistical comparisons of the mean rating score values of factors were done using one-way analysis of variance (ANOVA).

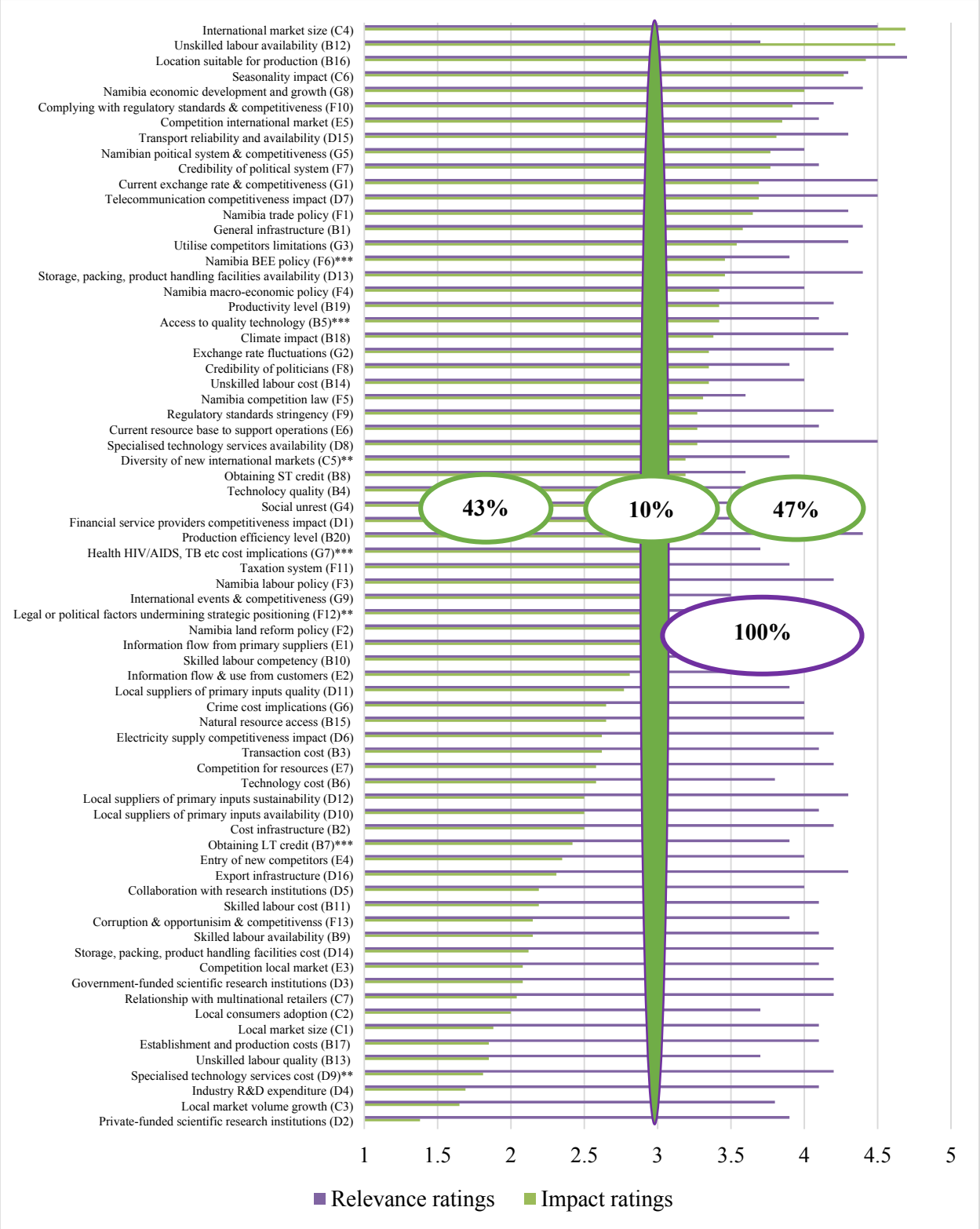


Figure 5.7: Impact and relevance ratings of factors influencing the competitive performance of the Namibian date industry
Sources: Own calculation based on DES (2015)

5.4.3 Validating the questionnaire

The validity of the data collected, i.e. the applicability of questions asked in the DES, is important for this analysis as it signifies whether such questions in the DES represent relevant issues or not. In Figure 5.7

above, it is clear from the impact rating, that 47% of the factors identified are viewed as having an enhancing impact on the date industry's competitive performance, and 43% have a constraining effect on the industry's competitive performance. The fact that only 10% were viewed as either irrelevant or neutral indicates that most of the questions asked were relevant to this analysis and thus valid. Based on the relevance rating, Figure 5.7 also indicates that all factors, i.e. 100%, were highly relevant and therefore present the importance of the questions asked in the DES.

5.4.3.1 Top ten most constraining and most enhancing factors

Based on current factor impact and long-term relevance ratings, the top ten most enhancing and constraining factors were identified.

Major enhancing factors: The most significant factors with a positive influence on the competitive success of the Namibian date industry are: the substantial size of the international date market; the availability of unskilled labour; the suitability of date production (project) locations; the impact of seasonality on the supply of Namibian dates in the global market; the country's economic development and growth process; the ability of the date industry to comply with international regulatory standards; the ability to perform in a strong and competitive international market; the availability and reliability of transport networks; the credibility of the political system in the country; and trust in the country's political governance system. It is essential to monitor these factors constantly, especially those that are under the industry's control in order to improve their enhancing status and maintain their positive space.

Major constraining factors: The highest rated constraining factors were identified as: the lack of privately funded scientific research; the slow growth of local markets; insufficient industry expenditure on research and development (R&D); the high cost of specialised technology services; the low quality of unskilled labour; the high establishment and farm production costs; the small local market size; the lack of awareness of the nutritional importance of dates by local consumers; the lack of an effective relationship between the industry and multinational retailers; as well as the low level of competition in the local market. These are the major concerning factors that are having a negative effect on the competitiveness of the date industry in Namibia. This calls for a comprehensive and balanced strategy that would lead to greater inter-industry coordination and also to industry-government collaboration.

Impact vs relevance: The most critical factors influencing the competitiveness of the Namibian date industry, along with their current impact and relevance ratings, are presented in Table 5.4. Impact and relevance rating refer to the scores for each factor obtained from all the respondents with regard to the current performance and long-term importance of factors to the industry. Strategies on how to address constraints will be discussed in Chapter 6 as part of step 5 of the analysis.

Table 5.4: Top ten major factors constraining and enhancing the competitiveness of the Namibian date industry

Major constraining factors	Impact ratings*	Relevance ratings*	Major enhancing factors	Impact ratings*	Relevance ratings*
Availability of privately funded scientific research	1.4	3.9	Size of international market	4.7	4.5
Growth of local market in volumes	1.7	3.8	Availability of unskilled labour	4.6	3.7
Industry's expenditure on R&D	1.7	4.1	Suitability of date production (projects) locations	4.4	4.7
Cost of specialised technology services	1.8	4.2	Seasonality impact	4.3	4.3
Quality of unskilled labour	1.8	3.7	Namibia's economic development and growth	4.0	4.4
Establishment and farm level production costs	1.8	4.1	Compliance to regulatory standards	3.9	4.2
Size of local market	1.9	4.1	Competition with international markets	3.8	4.1
Adoption by local consumers	2.0	3.7	Transport network availability and reliability	3.8	4.3
Industry relationship with multinational retailers	2.0	4.2	Credibility of political system	3.8	4.1
Competition in local market	2.1	4.1	Trust in the political governance system in general	3.8	4.0

**Rating scores out of 5*
** Impact ratings (1=Most constraining; ...; 3=Neutral; ...; 5=Most enhancing)*
** Relevance ratings (1=Least relevant; ...; 3=Neutral; ...; 5=Most relevant)*

To explain Table 5.4, the most constraining factor will be used to illustrate: Firstly, the availability of privately funded research is viewed by industry role players as highly relevant (rating 3.9/5); however, this factor's current performance is low (1.4/5). In this sense, this factor is constraining competitive performance. Secondly, the size of the international market is viewed as the most enhancing factor, with both current impact (4.7/5) and relevance (4.5/5) rated high. Strategies to maintain and further develop this aspect need to be considered. These relationships and gaps are explored in greater depth in the following sections.

5.4.4 Determinants of the competitiveness of the Namibian date industry (step 4, Porter's diamond analysis)

This step in the analysis will first group the 72 factors into more concise clusters as the major sets of determinants of competitiveness for the industry (see Appendix C for factors under each determinant). According to Porter (1990), competitiveness status is determined by a complex and interactive set of determinants, each consisting of a number of related factors. To ensure that an accurate picture of the current state of affairs regarding the competitiveness of the Namibian date industry was obtained, the 72 factors identified in step 3 were first grouped into the six Porter diamond determinants (Porter, 1990; 1998).

The determinants of the competitiveness of the Namibian date industry are then analysed and discussed by using this Porter diamond framework.

The six main determinants of competitiveness, according to the Porter diamond framework, are: Production factor conditions (determinant B); Demand and market conditions (determinant C); Related and supporting industries (determinant D); Firm strategy, structure and rivalry (determinant E); Government support and policies (determinant F); and Chance factors (determinant G).

The impact and relevance ratings of each of these determinants were calculated based on the combined DES ratings of the factors included in each determinant. For each one of the six determinant sets, a representative rating was obtained by calculating an average value from all the ratings for both impact and relevance factor scores within that determinant. The rating scores are shown in Table 5.5 and Figure 5.8.

Table 5.5: Overall rating* of all determinants

Determinants		***Impact rating scores****	***Relevance rating scores*****
G	Chance factors	3.3	4.1
F	Government support & policies	3.3	4.0
B	Production factor conditions	3.0	4.1
E	Firm strategy, structure, rivalry	2.8	4.1
C	Demand market forces	2.8	4.1
D	Related and supporting industries	2.6	4.2

**Scores out of 5*
***Impact rating (1 = Most constraining; ...; 3 = Neutral; ...; 5 = Most enhancing)*
**** Relevance rating (1 = Least relevant; ...; 3 = Neutral; ...; 5 = Most relevant)*

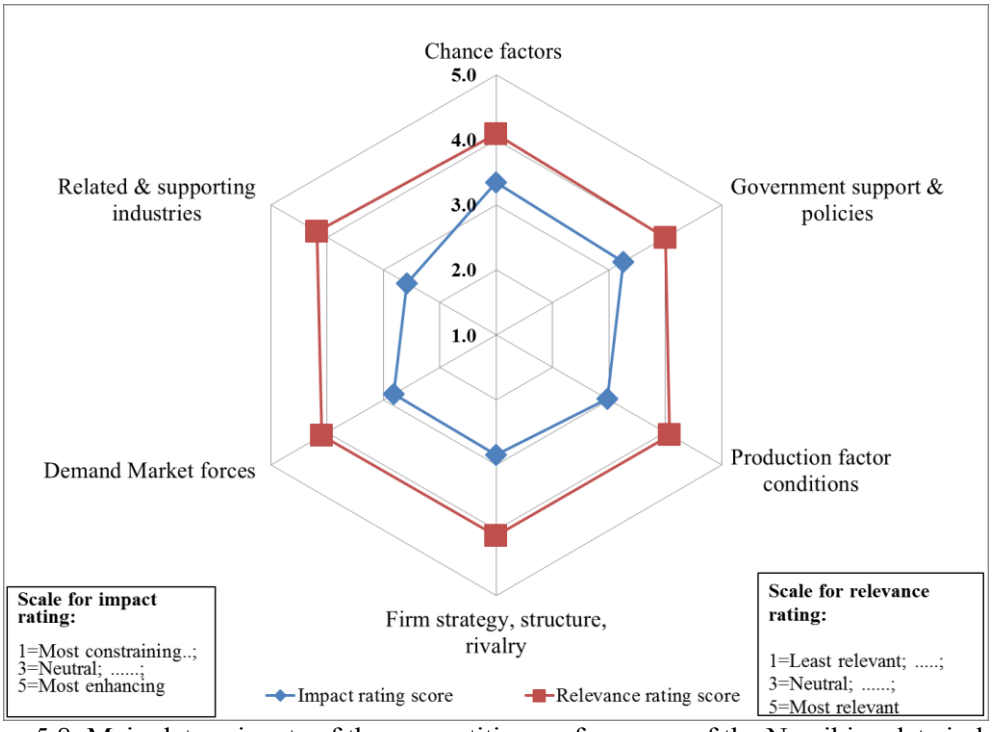


Figure 5.8: Main determinants of the competitive performance of the Namibian date industry
Source: Date executive survey (2015)

These results indicate that the role of chance factors (G) and government support and policies (F) currently are viewed as having a moderately enhancing impact on the Namibian date industry's competitive performance, with production factor conditions (B) neutral i.e. not directly influencing – enhancing or constraining competitive performance (a rating of 3 out of 5). From a relevant view point, improvements could, however, be achieved (rating 4.1). These ratings also reflect the participants' confidence to respond to 'chance occurrences' and to activate factor conditions, and also a trust in government partnerships to develop and promote the industry. The determinants with a constraining impact (rating lower than 3) on the current industry's competitiveness performance are: related and supporting industries (D), demand and market conditions (C) and firm strategy, structure and rivalry (E). This generally reflects the lack of collaboration in the industry. As to the 'relevance' ratings, all determinants were rated as highly important (ratings higher than 4 out of 5). This provides an indication of how important all determinants are towards increased and sustained competitive performance of the Namibian date industry and therefore a positive mind-set in utilizing the Porter's diamond model.

Figure 5.8, however, shows, a clear 'performance gap' between current impact ratings (blue line) and relevance ratings (red line). This indicates tensions between what is required (relevant) and what is happening (current impact). This finding identifies a 'performance gap' and needs to be explored further. An extension of the conventional Porter diamond analysis (Ismea, 1999; Esterhuizen, 2006; Van Rooyen, *et al*., 2011; and Jafta, 2015) is shown in figure 5.9, exploring this 'performance gap'. On the basis of Table 5.5, Figure 5.9 displays an X-Y scatterplot of 'impacts' and 'relevance' scores for all determinants. This provides a visual identification of determinants that are critical to the industry. The yellow quadrant (in the top left corner) shows determinants that are relevant, but currently constraining competitive performance, i.e. 'not doing the right things right'; these need to be restructured to close the 'performance gap' in order to increase their impact and be managed as such.

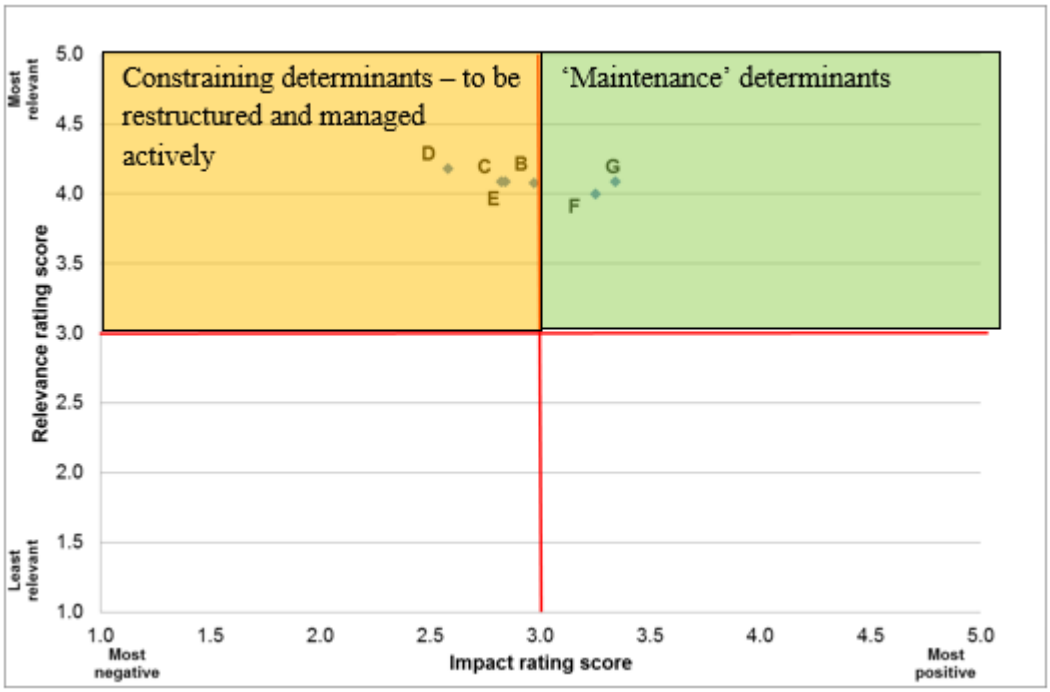


Figure 5.9: A quadrant plot: All determinants of competitiveness
Source: Date executive survey (2015)

The 'constraining' determinants (top left corner of the quadrant) are:

- Related and other supporting industries (D)
- Firm strategy, structure and rivalry (E)
- Demand and market factors (C)
- Production factor conditions (B)

The green quadrant (top right corner in Figure 5.9) show the critical determinants that currently are contributing to the successful competitive performance of the date industry, i.e. being relevant and currently enhancing, thus 'doing the right things right'. No 'performance gap' thus is apparent. These determinants need to be managed to maintain and expand them in that 'positive space', i.e. 'maintenance determinants'.

The 'maintenance' determinants (top right corner of the quadrant) are:

- Chance factors (G)
- Government support and policies (F)

The introduction of this current impact vs. long-term relevance analysis clearly adds to the quality of step 4 of the five-step analytical framework, as it provides a sound platform for strategic planning by the industry in an attempt to close the gap and create a productive, long-term development path. A clear development path for converting currently constraining but potentially relevant determinants, as well as for those to be maintained and further improved, can be developed from this analysis (see Chapter 6).

5.4.5 An analysis of related competitiveness factors within the Porter diamond determinants

Analyses that were conducted on each particular determinant and its related factors are now reported on. Only the three major constraining and enhancing factors within a determinant are discussed.

5.4.5.1 Production factor conditions (Determinant B)

Production factor conditions are basic to the production process throughout the value chain. Using the impact ratings from information gathered during the DES, factors influencing the production factor condition, as a determinant of the competitiveness of the Namibian date industry, were identified (refer to Appendix C). As shown in Figure 5.10, the results with respect to enhancing factors reveal that the respondents were mostly positive about the ability of the industry to attract unskilled labour (B12), with a rating score of 4.6. This reflects that, in general, there are many low skilled people in the rural areas seeking jobs. The second factor is the location of the date production sites (B16), rated 4.4, because most of the date plantations are viewed to being strategically well placed in terms of production potential factors such as water and climate and also for potential growth and expansion. This means that the projects are well located in areas with suitable environmental conditions and factors necessary for date production and also with suitable conditions to link to fellow producers and to the logistic marketing network. The third enhancing factor under this determinant is general infrastructure network development (B1), which received a rating score of 3.6; this supports the previous argument and allows producers to engage in production supporting networks and link with markets efficiently and effectively.

As for constraining factors, the industry is most concerned about the high establishment and farm production costs (B17). This means that the industry experiences high costs at the onset because of the initial cost of on-farm infrastructure and the farm production-related activities required during the first five to nine years of operations before projects reach a break-even point. This also means that there is a relative long waiting period in date production (about five years) before positive cash flows and a return on investment can be realised.

In addition to this, the quality of unskilled labour (B13) is also viewed as a constraining factor. In contrast to availability, the quality of unskilled labour poses a challenge and needs upgrading. Both the establishment and farm production cost, and the quality of unskilled labour, received low scores of 1.8.

The third constraining factor is the availability and cost of skilled labour, both with a rating of 2.2. This means that there is a shortage of qualified personnel with the necessary skills for efficient date production. Agricultural training institutions in the country are viewed as not effectively delivering the necessary local skills required for the production and handling of dates. This, according to industry players (DIS, 2015), could be due to the fact that the industry is still relatively small compared to other horticultural industries,

such as table grapes, and because the nutritional and economic importance of dates is not yet well known. Thus, obtaining 'expensive' knowledgeable and skilled people, mainly from abroad, proves to be a constraining factor.

Taking current impact vs. long-term relevance into account, the results shown in Figure 5.10 indicate that most of the factors identified under this determinant are relevant to enhance sustained competitive performance, receiving a relevance rating score of between 3.6 and 4.7 out of 5 (red line). However, from a current impact (blue line) perspective, lower performance rating scores are observed, indicating a 'performance gap' between 'what is required' (relevancy) and 'what is currently happening' (impact) which are apparent for most factors within this determinant.

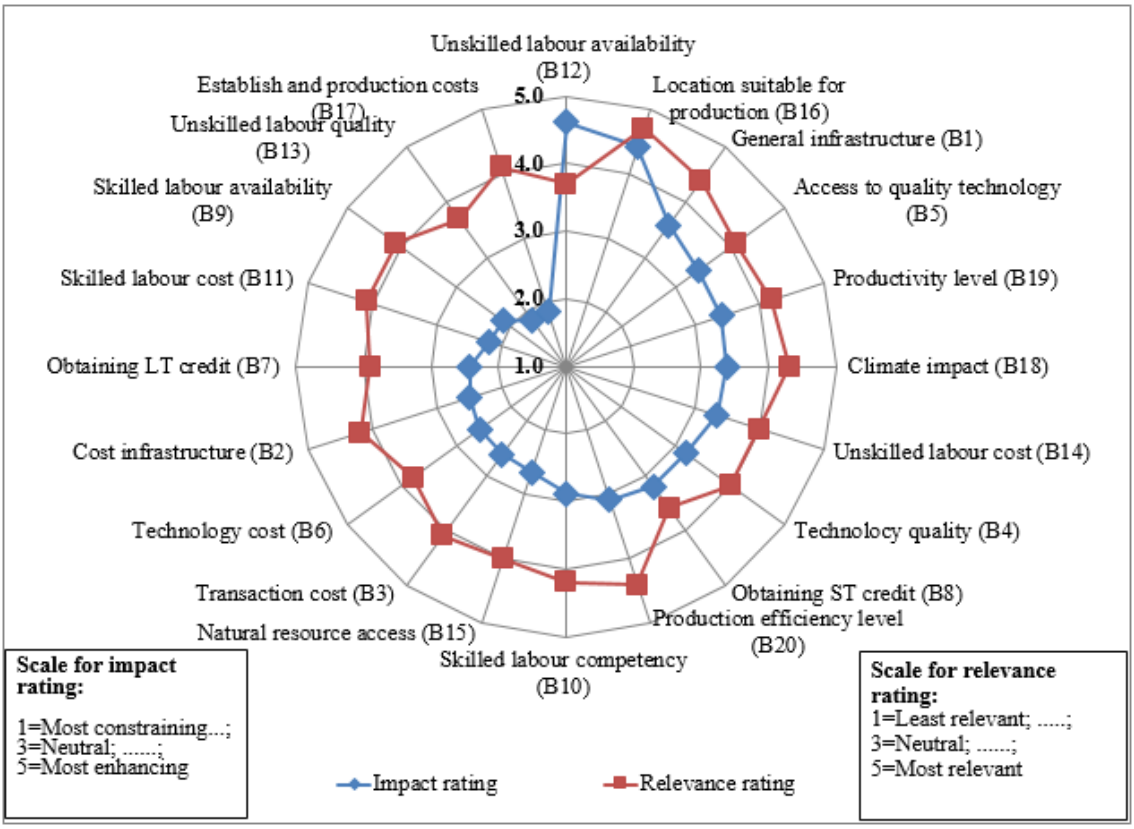


Figure 5.10: Radar plot: Ratings of production factor conditions
Source: Date executive survey (2015)

In analysing this 'performance gap' in the production factor conditions determinant, Figure 5.11 shows the X-Y scatter plot (quadrants) of relevance versus impact ratings for factors influencing the production factor determinant. This figure shows the combination of the most relevant and highly enhancing or constraining factors that the industry needs to take into account when planning and managing this determinant. The result shows that most of the factors under the production factor conditions were rated as being highly relevant and hence they appear in the upper part of the quadrant.

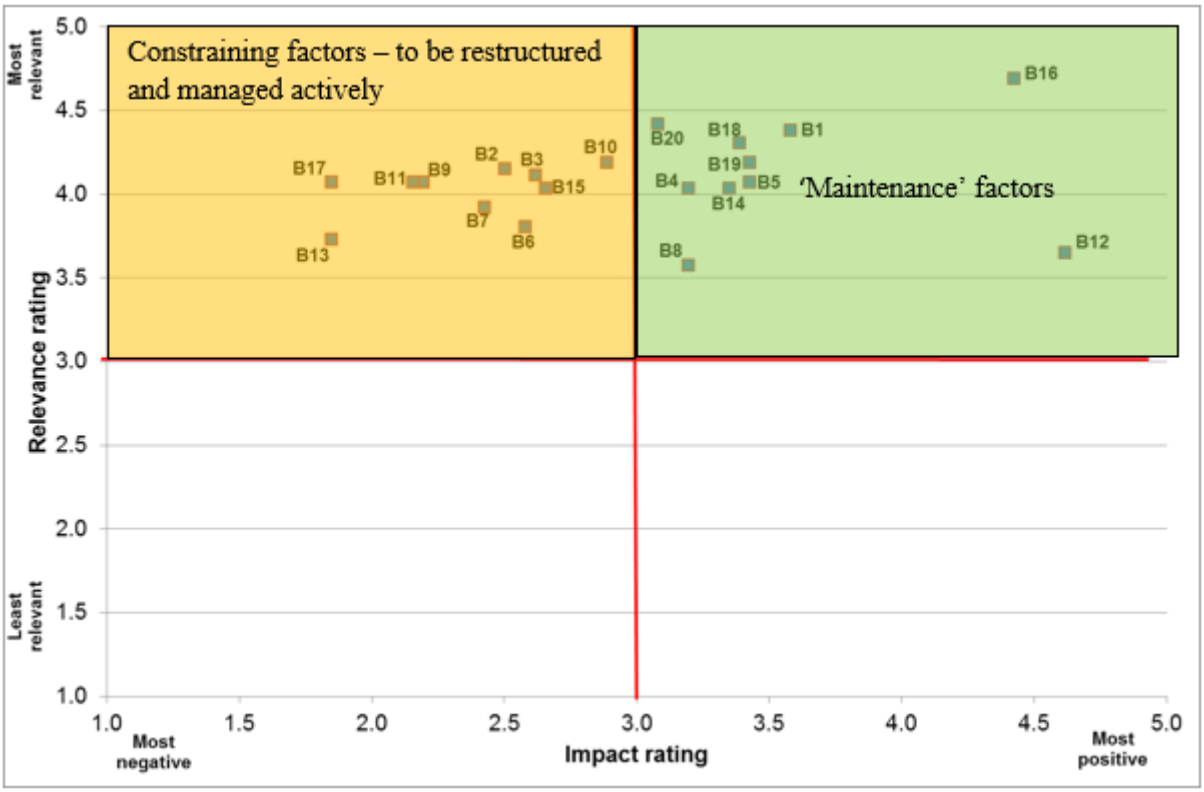


Figure 5.11: Quadrant plot: Production factor conditions
Source: Date executive survey (2015)

Constraining factors: Looking at the top left quadrant (yellow block) in Figure 5.11, the production factors negatively influencing the industry's competitive performance are: the cost of infrastructure (B2), the cost of doing business (B3), the cost of technology (B6), obtaining long-term credit (B7), obtaining skilled labour (B9) and the cost of skilled labour (B11), the quality of both skilled (B10) and unskilled labour (B13), access to natural resources (B15), as well as the establishment and farm production costs (B17). These are considered the main constraining factors causing the observed performance gap, and they will need an improvement strategy and plan.

The high cost of infrastructure is mainly caused by the off-farm infrastructure being expensive, while the developer generally is responsible for bringing such infrastructure, i.e. water supply from dams/rivers/boreholes to the field, including pump stations to the plantation/project. The high costs of doing business (transaction costs) are mainly as a result of the long-term nature of date production development, reflected in the high cost of financing the long period of waiting before actual production starts, as well as the cost of reaching markets, which is high due to the long distance to global markets and the high investment costs related to packing and cooling facilities required for high-quality products as expected in the markets served by Namibian dates.

Moreover, financial institutions are reported to be reluctant to make long-term funding available for the development of date plantations, since capital repayment can only be done between the seventh and the tenth years. Access to land and water resources in climatically suitable areas also is limited. In cases were

land is under government ownership, it is difficult for private entities to obtain land. This also influences the provision of collateral for long-term funding (DES, 2015).

Enhancing/maintaining factors: Factors that are relevant and are currently enhancing competitive performance (presented in the green block on the upper right corner in Figure 5.11) are: project location suitability for date production (B16), general infrastructure development (B1), climatic impact (B18), production efficiency levels (B20), productivity levels (B19), quality of technology (B4), access to quality technology (B5), cost of unskilled labour (B14) and availability of unskilled labour (B12), and obtaining short-term credit (B8).

These factors all enhance competitive performance and this status should be maintained and improved where possible. Some however, are to be dealt with in conjunction with other factors such as the quality of unskilled labour, currently constraining competitive performance. Only relying on the availability and low cost of unskilled labour will not sustain competitiveness but needs to be linked to skills upgrading and related matters (refer to Chapter 6 for proposed strategies).

Principal Component Analysis (PCA)

An important issue that is explored next relates to whether responses to questions in the DES generally reflect a consensus of opinion by the industry, or variations of opinions. This analysis represents an extension of the conventional agribusiness competitive analysis (Ismea, 1999; Esterhuizen, 2006; Van Rooyen, *et al*., 2011; and Jafta, 2015). For this purpose, principal component analysis (PCA) was performed to identify redundant (highly correlated) variables, i.e. factors in the dataset for which the individual responses were very similar and concentrated on a particular rating – to be viewed as 'consensus'; as well as uncorrelated variables, i.e. factors for which respondents gave a more variable range of rating values, to be viewed as 'variation' factors.

For the purpose of this study, the various sets of impact and relevance ratings of factors were included in the PCA, using a relatively small data set (26 respondents), as well as to set a bench mark to focus on those factors that are expected to enhance long-term competitive performance.

The uncorrelated variables – those with 'variation in opinion' could be considered in further analyses (refer to section 3.2.4.1 in Chapter 3) to reach greater clarity on the distribution of the opinions and to further determine possible consensus clusters. However, in the case of this study, the sample size is too small (due to the fact that it is a small industry in Namibia), which eliminated such cluster identifications from a statistical point of view (Vermeulen, 2015).

The uncorrelated or 'variation-in-opinion' factors identified by the PCA for the production factor conditions determinant were: general infrastructure (B1), cost of infrastructure (B2), cost of doing business(B3), quality of available technology (B4), access to quality technology (B5), obtaining short-term credit (B8), obtaining skilled labour (B9), quality of skilled labour (B10), availability of unskilled labour (B12), quality of unskilled labour (B13), access to natural resources (B15), project location suitability (B16), impact of climate (B18) and production efficiency (B20). Note, however, that 'variation' does not imply that such factors are not valid, but rather that there are differences of opinion on them and they may require further analysis.

The production factor condition determinant had a total of 20 factors. Only six of the original 20 factors were indicated as highly correlated or 'consensus' factors. These are: the cost of technology (B6), obtaining long term credit (B7), cost of skilled labour (B11), cost of unskilled labour (B14), establishment and production cost (B17) and the productivity level of the projects (B19). These indicate that industry stakeholders agree on the rating of these factors. This therefore would provide a sound basis for immediate collective industry action. (Refer to Appendix D (Determinant 1) for detailed statistical analyses).

5.4.5.2 Demand and market factor conditions (Determinant C)

This Porter determinant refers to market conditions and factors affecting decisions in that environment. With regard to the competitive factors influencing the demand and market conditions, the results presented in Figure 5.12 indicate that the respondents were positive about the size of international market opportunities for dates (C4), receiving a rating of 4.7. This reflects that the industry can access global date markets lucratively, given that the country produces the quality of dates that is demanded in various markets and does so through the use of effective marketing channels. The availability of international markets could be the result of seasonal differences when the Namibian dates can be supplied to these markets. A second factor is thus the impact of seasonality on the availability of Namibian dates in the market (C6), with a rating score of 4.3. Being in the southern hemisphere, Namibia is one of the countries besides South Africa that can supply fresh dates during the period February to July, when the biggest suppliers (mainly from the northern hemisphere) are off season. It must be noted, however, that technological innovations are increasingly allowing competitors to supply market-ready dates throughout the year.

With regard to the constraining factors, the industry is concerned about the prospects of local market growth for dates (ability to handle increasing volumes) (C3), which was rated 1.7. This, according to industry stakeholders, is caused by poor demand for dates in the local markets, which is caused by a lack of promotion and consumer awareness of the nutritional importance of dates. Moreover, dates are considered as 'food for the elites' and mainly as export products. The small quantities found in the local markets are furthermore expensive and this makes it difficult for a larger number of consumers to buy. The

size of the local market (C1), i.e. the ability of the local market to sell dates lucratively is also viewed to be small, rated 1.9 and this could be due to the same reasons outlined under factor C3. This points to the strategic importance of having a strong and stable local market to compensate for fluctuations in the global market. The results revealed that all factors under this determinant were perceived to be highly relevant (important) for the future, with a long-term relevance rating of more than 4.0 out of 5.

Looking at the current impact (blue line), most factors, except for the impact of seasonality (C6) and the size of the international market (C4), received a much lower performance rating compared to their relevance rating. It is important that this 'performance gap' between 'what is required' (relevant) and 'what is currently happening' (impact) is closed through appropriate industry strategies. The impact and relevance ratings for all factors under demand and market conditions are presented in Figure 5.12.

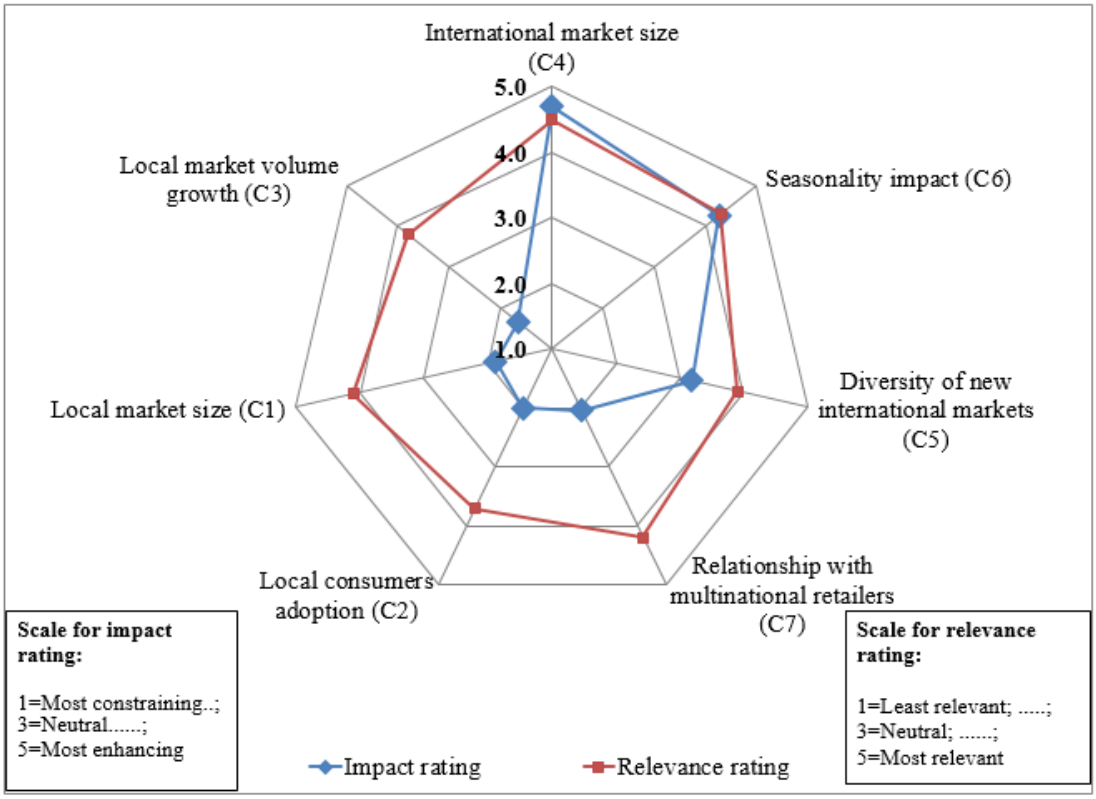


Figure 5.12: Radar plot: Ratings of demand and market factor conditions
Source: Date executive survey (2015)

To further analyse the 'performance gap' in the demand and market factor condition, Figure 5.13 shows the X-Y scatter plot (quadrants) of long-term relevance versus current impact rating on various factors under this determinant.

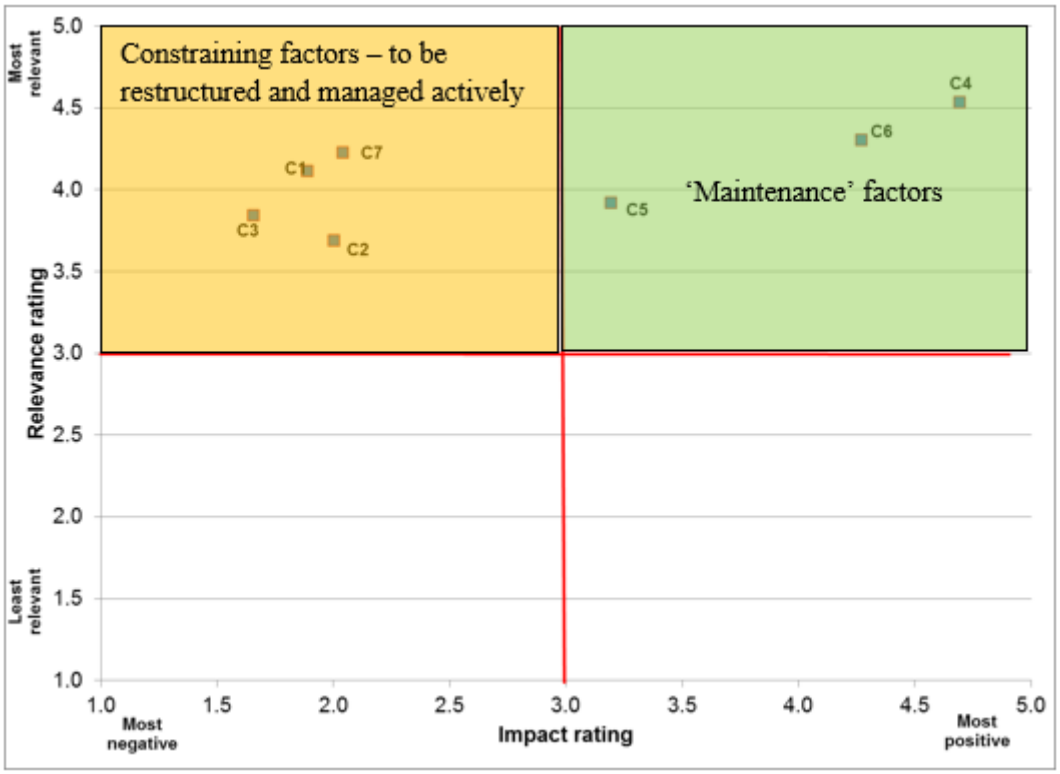


Figure 5.13: Quadrant plot: Demand and Market factor conditions
Source: Date executive survey (2015)

Constraining factors: Figure 5.13 shows the demand and market factors that are constraining the industry's competitiveness (presented in the yellow block on the upper left corner of the quadrant). These are: the industry's relationship with multinational retailers (C7), local market size (C1), local market growth in volumes (C3) and local consumer adoption (C2*)* as presented on the upper left corner of the quadrant. These aspects are considered to be most constraining and therefore negatively influencing the date industry to compete successfully.

According to key industry representatives (DES, 2015), establishing relations with multinational retailers (C7) (e.g. Pick n' Pay, Shoprite, Fruit and Veg, etc.) is viewed to be a challenge especially for the smaller producers since a generic or industry-wide multinational marketing support network is not in place. From a broader perspective, the prices obtained from export markets are high and, as such, the low prices offered in the local market are not so attractive and does not play an important role. Additionally, the quality of dates supplied to the local markets is generally poorer than those dates delivered to the international market because the producers are rather maximising foreign earnings. Given the low volumes that are not exported, it also is difficult for an individual producer to target this small market (volumes could be too low to justify an improved market structure) (DES, DIS, 2015).

Maintenance factors: The three factors that are relevant and also currently enhance the date industry's competitive performance (presented on the green block in the upper right corner of the quadrant) are: the size of international date markets (C4), the impact of seasonality on the availability of the Namibian dates in the international markets (C6) and the diversity (based on volume and varieties) in which the country's

date industry can penetrate new lucrative international markets (C5). These therefore should at least be maintained, or preferably improved.

Principal component analysis (PCA)

To explore whether the responses to questions in the DES related to the factors under this determinant reflect a consensus in opinions, or variations, principal component analysis (PCA) was carried out (see section 5.4.5.1) to identify redundant (highly correlated) variables, i.e. factors in the data set for which the individual responses were very similar and concentrated on a particular rating – to be viewed as 'consensus' factors; as well as uncorrelated variables, i.e. factors for which respondents gave a more variable range of rating values, to be viewed as 'variation' factors. (Refer to Appendix D (Determinant 2) for detailed statistical analyses.)

The uncorrelated or 'variation-in-opinion' factors identified under the demand and market conditions are: size of the local market (C1), local consumer adoption (C2), the impact of seasonality on the availability of Namibian dates in the market (C6) and the date industry's relationship with multinational retailers (C7) From this it is clear that further analysis may be required to determine industry-related strategies.

Only three of seven factors were identified as being highly correlated i.e. 'consensus' factors and these are: the local market growth for dates (C3), the size of date markets internationally (C4) and the diversity (based on volume and varieties) in which the country's dates can penetrate new, more lucrative international markets (C5).

5.4.5.3 Related and supporting industries (Determinant D)

This determinant focus on the competitive factors supporting the industry and its firms to perform. The results revealed that the availability and reliability of transport (D15), rated 3.8, was the major enhancing factor influencing the date industry's competitiveness under this determinant. Responses from industry stakeholders (DES, 2015) revealed that there is good and reliable transport (with appropriate cooling facilities) for the movement of dates to the main international markets. Secondly, the telecommunication services (D7) available in the country and particularly in the industry, contribute to the successful competitive performance of the date industry, earning it a rating of 3.7. These services range from landlines to mobile telecommunications supplied by Telecom Namibia Ltd and Mobile Telecommunications Limited (MTC) respectively, which are the two largest and most effective telecommunications service providers in the country. Thirdly is the availability of quality storage, packing and product-handling facilities (D13), rated 3.5. The availability of these facilities has been a challenge over the past years and it is the reason that sorting and packaging are now done in a cost effective manner in South Africa at Karsten Farms (Klein Pella). NDC, in 2013, commenced with the construction of a modern packing facility

at Naute, with the result that final packing could be done at Naute in future, from where the produce of nearby projects could be shipped directly and less costly to export markets (De Wet, 2015).

Industry stakeholders gave a rating score of 1.4 to privately funded scientific research institutions (D2) and indicated that such institutions are not available to support the industry. In general, Namibia has limited private scientific research institutions, which hinders the performance of various primary industries, including agriculture, and hence dates. Stakeholders highlighted that research is critical, especially with the changing climate, which presents a host of new challenges to producers. The availability of scientific research institutions could assist the industry to engage in various research activities, including a search for other date varieties that can adapt to Namibian conditions and are highly demanded in the market, and also to develop improved, productive farming methods (DES, 2015).

The second and related factor is the industry's expenditure on R&D (D4), which is perceived to be poor and therefore was rated 1.7. This is attributed to the fact that the industry is still in its infancy and rather is investing in infrastructure development. The industry also requires government to fund R&D better. Poor expenditure on R&D presents similar constraints to those outlined under factor D2 within this determinant.

The third factor is also related to the above factors, viz. that of the high cost of specialised technology (D9), which is rated 1.8. Most of the sophisticated equipment is imported because the country has limited capacity to manufacture it.

From a relevance (red line) perspective, both factors under this determinant are also considered potentially important for the successful performance of the date industry and therefore received a relevance rating of between 3.5 and 4.5. However, from the current impact point of view, the lower rating performance scores than for relevance, present a 'performance gap' between 'what is required' (relevant) and 'what is currently happening' (impact) which was apparent for most factors within this determinant. This gap indicates substantial scope for industry action to improve ratings.

The impact and relevance ratings for all factors under the related and supporting industries determinant are shown in Figure 5.14.

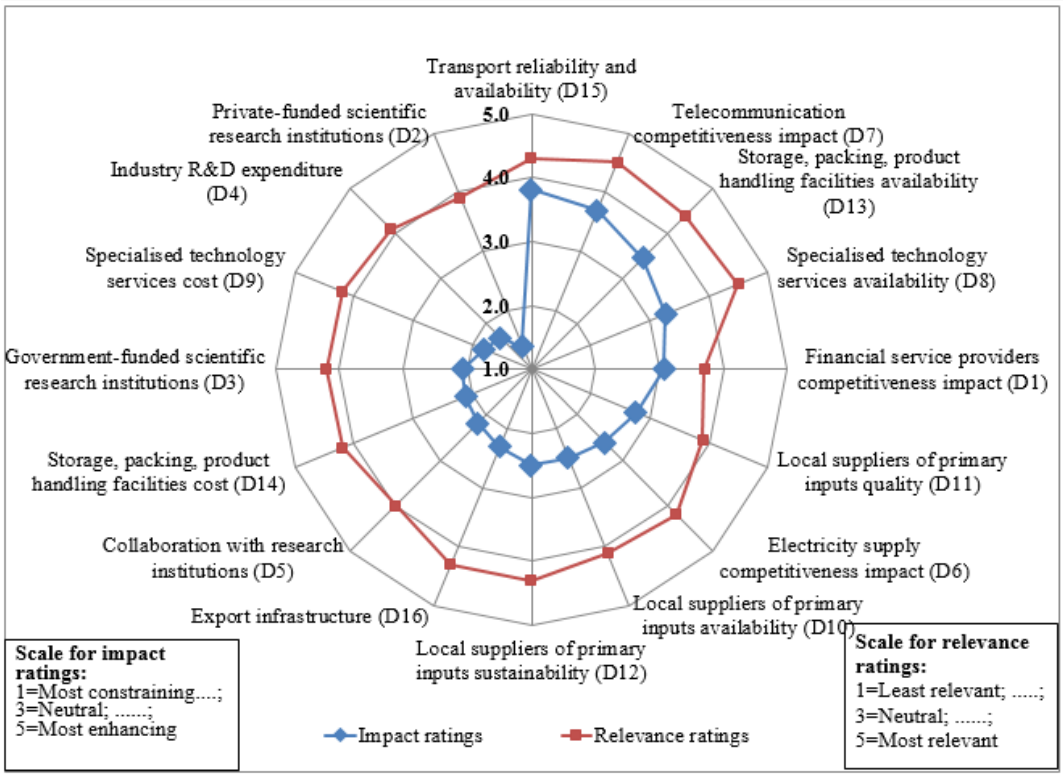


Figure 5.14: Radar plot: Ratings of related and supporting industries factor conditions
Source: Date executive survey (2015)

In analysing the 'performance gap' observed under this determinant, the results were plotted in the quadrant (Figure 5.15). The results reveal that most of the factors under the related and supporting industries were rated to be highly relevant and constraining, hence they appear in the upper left corner of the quadrant.

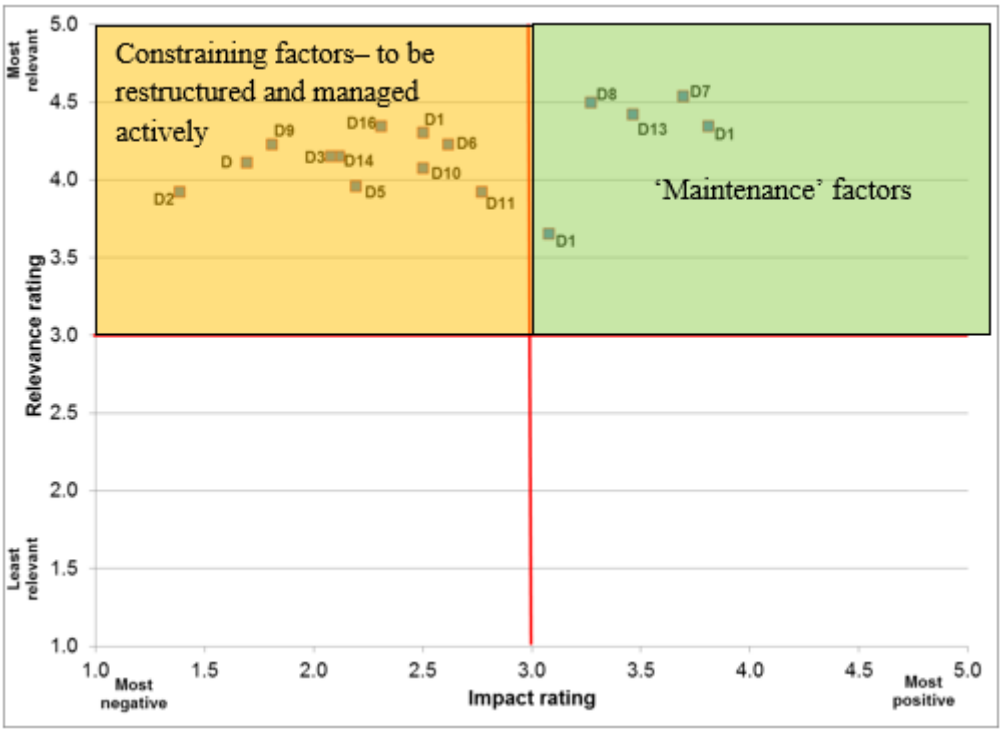


Figure 5.15: Quadrant plot: Related and other supporting industry factor conditions
Source: Date executive survey (2015)

Constraining factors: The most relevant and highly constraining factors under this determinant, as shown in the yellow block in the upper left corner of the quadrant in figure 5.15 above, are: availability of export facilities (D16), availability of local suppliers of primary inputs (D10), quality of primary inputs from local suppliers(D11), sustainability of local suppliers of primary inputs (D12), electricity supply (D6), collaboration with research institutions (D5), government funded scientific research institutions(D3), cost of storage/packing facilities (D14), cost of specialised technology (D9), industry expenditure on R&D (D4) and privately funded scientific research institutions (D2).

Export facilities (D16) for fresh fruit still are generally poorly developed in Namibia mainly due to the relatively low volume of fruit exported from the country. Seasonality also plays a role, as specialised cooling facilities are only needed for a short period of the year (DES, 2015). Industry executives are confident that such facilities will be developed if and when the production volume of fresh produce in Namibia renders them viable. The country also has limited local suppliers of primary inputs (D10), and the bulk of the inputs, such as chemicals for weed control and fertilisers, currently are procured from South African suppliers.

On the issue of electricity supply (D6), the industry is concerned because some development initiatives to supply electricity to the southern part of the country (where the date plantations are concentrated) have been delayed, as the national supply grid to the area has reached its limit (DES, 2015). Producers and processers therefore are concerned about the reliability of a continuous supply of electricity during critical periods, such as harvesting, when it is needed for the packing and cooling facilities. There also is limited collaboration with researchers (D5). These factors need to be taken into account when planning and strategizing in order to improve the performance of the industry.

Maintenance factors: Factors that are relevant and currently enhancing the industry's competitive performance under this determinant (presented in the green block on the upper right corner of Figure 5.15) are: transport availability and reliability (D15), telecommunication (D7), availability of storage, packing and product-handling facilities (D13), availability of specialised technology services (D8) and financial service providers (D1). These factors should be managed or improved to keep them in that positive 'maintenance' space.

Principal component analysis (PCA)

In order to explore whether the responses to questions in the DES related to the factors under this determinant reflect consensus in opinions, or variations, a principal component analysis (PCA) was undertaken (see section 5.4.5.1) to identify redundant (highly correlated) variables, i.e. factors in the data set for which the individual responses were very similar and concentrated on a particular rating – to be viewed as 'consensus' factors; as well as uncorrelated variables, i.e. factors for which respondents gave a

more variable range of rating values, to be viewed as 'variation' factors. (Refer to Appendix D (Determinant 3) for detailed statistical analyses.)

The uncorrelated or 'variation-in-opinion' factors identified under the related and other supporting industry factor conditions are: impact of financial service providers (D1), government-funded scientific research institutions (D3), industry expenditure on R&D (D4), electricity supply (D6), cost of specialised technology services (D9), availability of local suppliers of primary inputs (D10), quality of primary inputs from local suppliers (D11), sustainability of local suppliers of primary inputs (D12), availability of storage, packing and product handling facilities (D13) and transport reliability and availability (D15). This reveals that there were differences in the respondents' opinions on most factors under this determinant. An in-depth analysis of such differences will be required to determine what can be achieved by the date industry as a group, and what rather should be the responsibility of individual players.

Only six out of original 16 factors were indicated as highly correlated 'consensus factors' and these agreements are: the availability of privately-funded scientific research institutions (D2), date industry collaboration with research institutions (D5), impact of telecommunication (D7), availability of specialised technology services (D8), cost of storage, packing and product-handling facilities (D14) and the availability of export facilities (D16).

5.4.5.4 Firm strategy, structure and rivalry (Determinant E)

This determinant deals with the direct environment in which firms operate and make decisions, viz. firm strategy, structure and rivalry. This is perceived to be highly relevant determinant, with a rating of 4.0 out of 5. However, the results reflect that factors under this determinant are currently not viewed as enhancing from the current performance point of view, and they received low impact ratings. This means that factors under this determinant currently play a constraining role in the competitiveness of Namibian date.

As indicated in Figure 5.16, the results revealed that competition in international market (E5), rated 3.8, influences the industry's performance positively. Key industry representatives interviewed during the survey highlighted that consumers are concerned about food safety and prefer high-quality products (mostly organic) such as dates (DES, 2015), and that Namibia is able to meet this requirement and win consumer interest. Competitors thus are producing to effectively fulfil the needs of consumers. These preferences were noted and this created pressure on the Namibian date industry to develop innovative to meet consumers' requirements and hence improve their ability to compete. Market analysis, improvement in supply chain logistics and choice of market agencies, packaging processes and quality assurance have enhanced firm-level performance, in particular since 2007.

The industry is concerned about the level of competition in the local market (E3), which is said to be limited and thus was rated 2.1. This is due to the size of the local market, as well as the industry, as there only are a few plantations, most of which export dates and do not sell domestically. At the time of the study, only one date project was supplying to Pick n' Pay Namibia (refer to Table 4.4. in Chapter 4). In addition to this factor, the entry of new competitors (E4) putting pressure on existing firms to 'lift their game' rarely occurs and was rated 2.3. According to industry players (DES, 2015), virtually no new date projects were being developed locally and this was perceived to be due to the nature of date production, which is associated with high establishment costs and the long waiting period before returns can be realised. Internationally, the entry of new regional producers may not impose a great risk over the short to medium term (De Wet, 2015).

The third factor under this determinant is the date industry's ability to compete for resources (E7), which was rated 2.6. Dates compete with other commodities such as table grapes for resources (land, water, human and capital); however, table grapes have the advantage of coming into commercial production much earlier than dates, and this could be the main reason why one would opt to invest available resources in the production of table grapes (refer to section 5.3.4 of this chapter). The return on investment, however, proves to be higher in the long run for dates than for grapes, as illustrated in Figure 5.6 in this chapter.

Taking current impact vs. long-term relevance into account, the results shown in Figure 5.16 indicate that most of the factors identified under this determinant are relevant for improved competitive performance, receiving rating scores of between 3.8 and 4.3 out of 5 (red line). However, looking at the current impact (blue line), most factors, with the exception of the ability of the date industry to compete in the international market (E5), received a lower performance rating compared to relevance which illustrates a clear 'performance gap' between 'what is required' (relevant) and 'what is currently happening' (impact) on factors within this determinant. Closing this gap will be important for strategic planning in the industry.

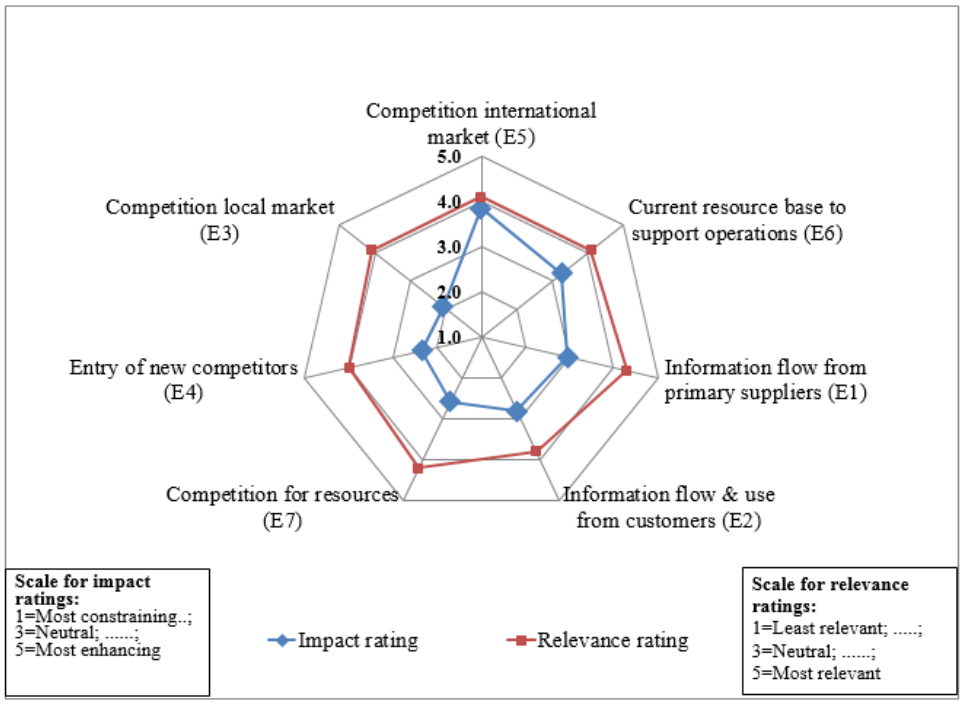


Figure 5.16: Radar plot: Ratings of firm strategy, structure and rivalry factor condition
Source: Date executive survey (2015)

To further analyse this 'performance gap' in the firm strategy, structure and rivalry determinant, Figure 5.17 shows the X-Y scatter plot (quadrants) with the critical factors influencing the industry's performance. A closer look at the figure indicates that there are many factors constraining the industry's competitive performance and only two that currently are enhancing the industry's competitiveness.

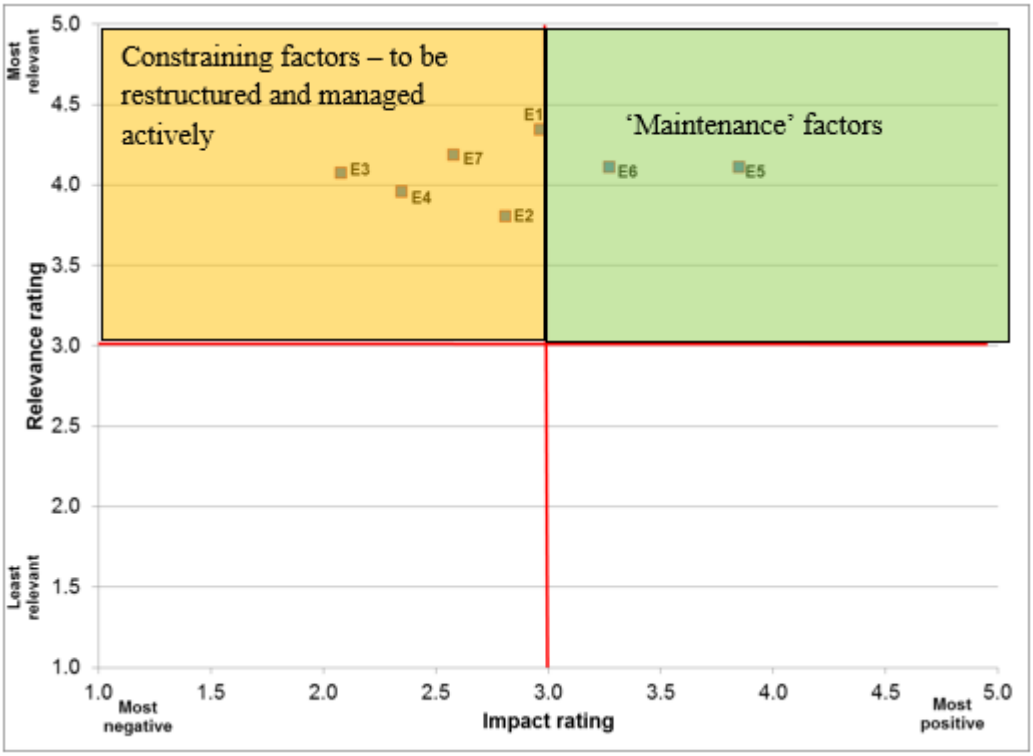


Figure 5.17: Quadrant plot: Firm strategy, structure and rivalry factor conditions
Source: dates executive survey (2015)

Constraining factors: Figure 5.17 shows factors that negatively influence the industry's competitive performance (presented in the yellow block in the upper left corner of the quadrant) and these are: information flow from primary suppliers (E1), competition of dates for resources relative to other agricultural activities (E7), information flow from customers (E2), entry of new competitors (E4) and competition in the local market (E3). These are concerning factors and the industry needs to take them into account when developing industry-level strategic measures to improve competitiveness.

Information regarding production techniques and marketing potential is not shared sufficiently among producers or with market agents. They rather operate in isolation and therefore keep information confidentially (DES, 2015). In a competitive environment this, behaviour is understandable. This, however, could adversely affect the industry because such collaboration could be a key to successful performance. Industry 'intelligence' such as the information contained in this study, for example, could contribute to alleviating these constraining factors.

Maintenance factors: As presented in the green block in the upper right corner in Figure 5.17, only two factors are relevant and currently performing well under this determinant. These are: competition in the international market (E5) and current resource base to support the industry's operations (E6). These factors should be upgraded and managed to keep them in that maintenance space. In this sense, the firms operating in the industry view their ability to access resources and markets in a positive manner.

Principal component analysis (PCA)

In order to explore whether the responses to the questions in the DES related to the factors under the firm strategy, structure and rivalry determinant reflect consensus in opinions, or variations, a principal component analysis (PCA) was carried out (see section 5.4.5.1) to identify redundant (highly correlated) variables, i.e. factors in the data set for which the individual responses were very similar and concentrated on a particular rating – to be viewed as 'consensus' factors; as well as uncorrelated variables, i.e. factors for which respondents gave a more variable range of rating values, to be viewed as 'variation' factors. (Refer to Appendix D (Determinant 4) for detailed statistical analyses.)

Under this determinant, the results revealed that there were variations in the respondents' opinions on all seven factors identified, i.e. all are found to be uncorrelated. The uncorrelated or 'variation-in-opinion' factors under the firm strategy, structure and rivalry factor condition determinant are: information flow from primary suppliers (E1), information flow from customers (E2), competition in the local market (E3), entry of new competitors (E4), competition in the international market (E5), current resource base to support operations (E6) and date industry competition for resources (E7). This implies that the views and opinions of the industry stakeholders interviewed differed with regard to the current performance of these

factors in relation to the industry's competitive performance. This, however, is understandable for factors affecting firm-level performance in a competitive environment such as the Namibian date industry.

5.4.5.5 Government support and policies

From the discussion so far the role of the public sector, including factors related to government action and policies, is apparent. Government is considered by the industry as a reliable partner in a range of activities and plays a major role in positively influencing the performance of the date industry. Information gathered during the dates executive survey (DES, 2015) revealed an agreement about the important enhancing role played by government in terms of creating a conducive environment for the industry to thrive. As presented in Figure 5.18, the industry representatives highlighted that complying with international regulatory standards (F10), rated 3.9, together with the credibility of the political system in the country (F7), rated 3.8, are the major factors that enhances the industry's competitive performance.

The stable Namibian political system supports the development of programmes and projects geared toward the social and economic development of its citizens including the date industry (DES, 2015). In addition to these factors, the country's trade policy (F1) also plays a positive role in the success of the industry. This is evident from the 2011 Namibia Agriculture Marketing and Trade Policy and Strategy, which called for the promotion of marketing and an increase in the share of agricultural produce originating in Namibia in both the domestic and international markets (MAWF, 2011).

The presence of corruption and opportunism is perceived to have a negative effect on the industry and is rated 2.2. This may only be a perception, however, as no formal evidence of such behaviour could be found in the date industry at the time of the study. The lack of trust constitutes an important issue, however, and needs to be addressed.

The second concerning aspect, albeit marginal, is the political orientation towards the date industry (F12), which was rated 3.0. The date industry is small (in terms of number of projects and volumes produced) and competes with a multitude of other social, political and commercial needs and desires for resources. Government is perceived to be concerned about projects and industries that create a large number of employment opportunities and also contribute significantly to the country's economy. Even though the industry contributes to employment and foreign earnings, industry stakeholders are concerned that the date industry may lose out on major valuable support because of its current status related to size and contribution, while the long-term prospects should rather be envisioned (DES, 2015).

The third factor that is perceived to influence the industry negatively is the country's land reform policy (F2). Industry players, especially producers, are concerned about the impact of possible future changes in land reform policies to reduce production capacity. This is confirmed by the rating of 3.0 for this factor.

Taking current impact and long-term relevance into account, the results shown in Figure 5.18 reveal that all factors under this determinant were perceived to be highly relevant (important) (red line), with a rating of above 4.0 out of 5. Looking at the current impact (blue line), most factors, received a moderate to high performance rating, of between 3.0 and 3.9 out of 5, which is closer to their relevance rating, which received scores of between 3.6 and 4.3. However, there is a 'performance gap' in some factors between 'what is required' (relevant) and 'what is currently happening' (impact), and it is imperative that such gaps are closed through appropriate industry strategies.

The differences between the current impact and long-term relevance of factors under this determinant reveal the need for both the industry and government to improve their efforts to plan and act strategically.

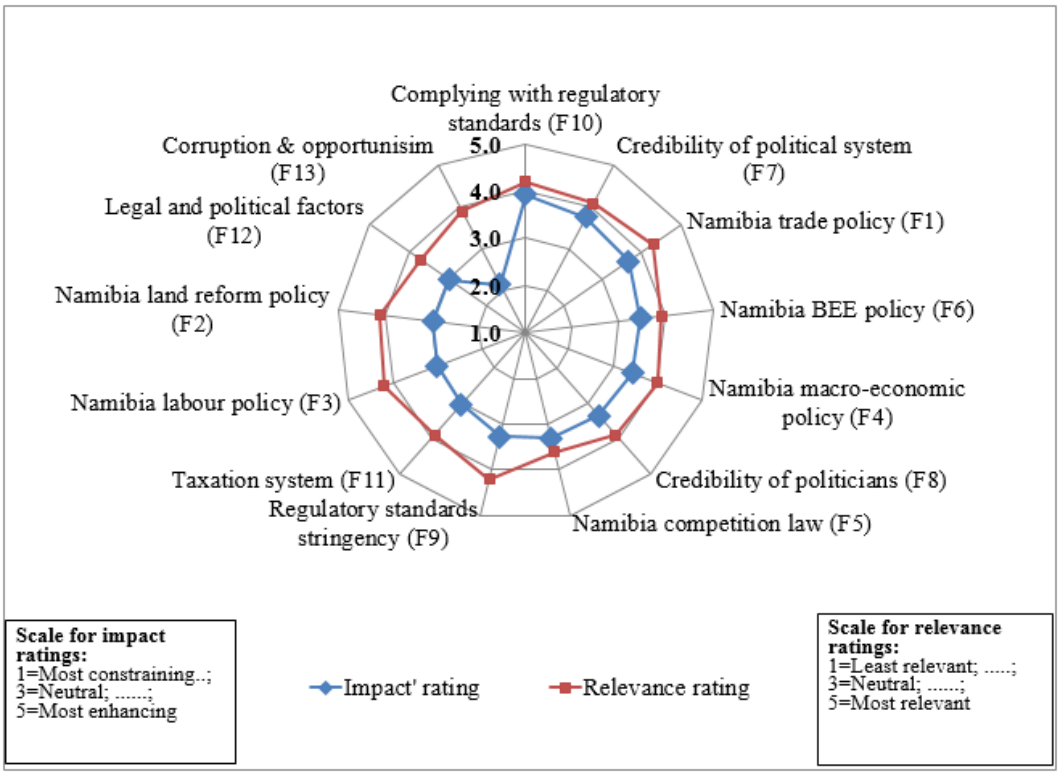


Figure 5.18: Radar plot: Ratings of government support and policies factor conditions
Source: Date executive survey (2015)

In analysing the 'performance gap' in the government support and policies factor conditions, Figure 5.19 shows the X-Y scatter plot (quadrants) of relevance versus impact ratings. This figure clearly reflects that the majority of the factors under this determinant appear to have a positive impact on the industry's performance, and hence are located in the upper right corner of the quadrant.

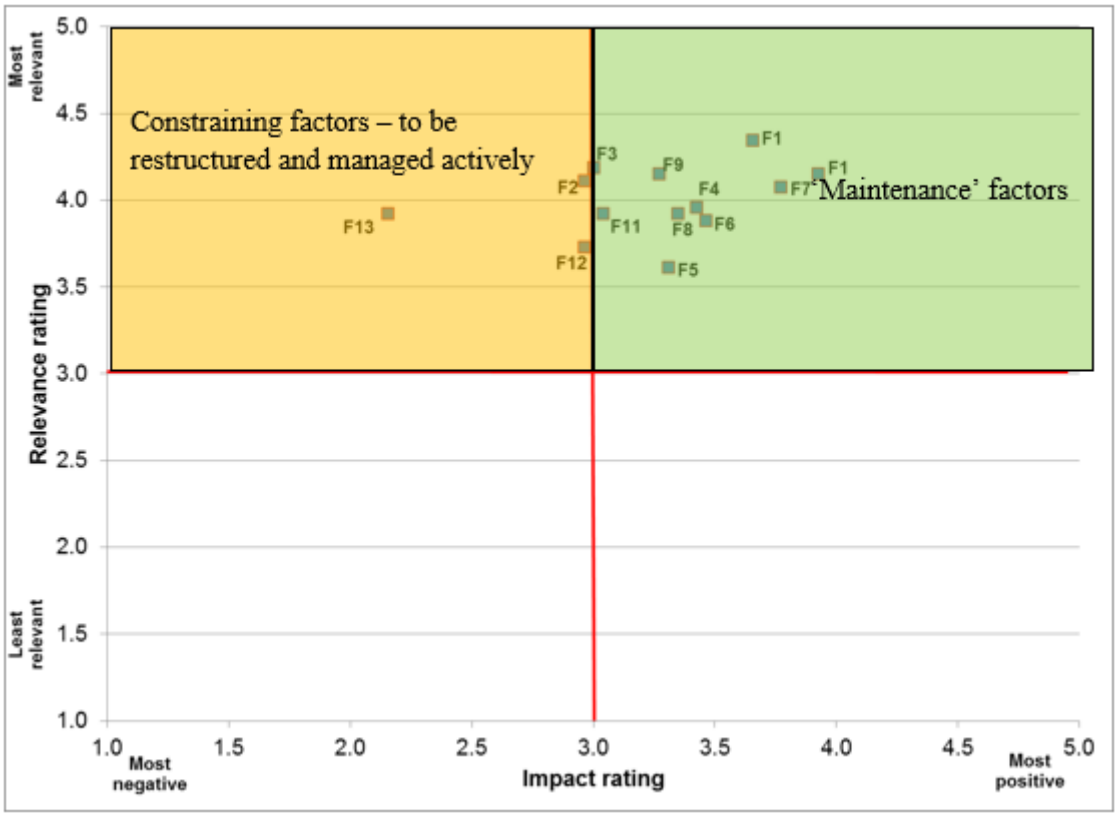


Figure 5.19: Quadrant plot: Government support and policies factor conditions
Source: Date executive survey (2015)

Constraining factors: Factors influencing the industry's competitive performance under government support and policies negatively, as shown in Figure 5.19 (presented in the yellow block in the upper left corner of the quadrant) are: legal or political factors (F12), the Namibian land reform policy (F2) and the effect of corruption and opportunism (F13). These are identified as concerning and are perceived to undermine the strategic positioning of the date industry.

Maintenance factors: Factors that currently are enhancing the industry's competitive performance under this determinant (presented in the green block in the upper right corner of Figure 5.19) includes: Namibia's trade policy (F1), Namibia macro-economic policy (F4), Namibia's competition law (F5), Namibia's BEE policy (F6), the credibility of the political system (F7), the credibility of politicians (F8), the stringency of regulatory standards stringency (F9), complying with regulatory standards and competitiveness (F10), the taxation system (F11) and Namibian labour policy (F3). These are performing well and should be improved, or at least be maintained.

Principal component analysis (PCA)

An important issue to explore relates to whether the responses to questions in the DES linked to this determinant reflect a consensus in opinion, or variations. For this purpose, principal component analysis (PCA) was performed (see section 5.4.5.1) to identify redundant (highly correlated) variables, i.e. factors

in the data set for which the individual responses were very similar and concentrated on a particular rating – to be viewed as 'consensus' factors, as well as uncorrelated variables, i.e. factors for which respondents gave a more variable range of rating values, to be viewed as 'variation' factors. (Refer to Appendix D (Determinant 5) for detailed statistical analyses.)

The 'variation' in opinion factors identified under the government support and policies factor conditions includes: Namibia's land reform policy (F2), labour policy (F3), macro-economic policy (F4), BEE policy (F6), the credibility of the political system (F7), the stringency of regulatory standards (F9), compliance with regulatory standards (F10), legal or political factors undermining strategic positioning (F12) and corruption and opportunism (F13). This reveals that there also were differences in the respondents' views on most factors identified within this determinant, which might be explained by the various experiences with government. This could be improved by creating more consistency in this context, i.e. clarifying procedures and protocols for government-industry collaboration.

Only four of the original 13 factors were identified as highly correlated or 'consensus' factors and these are: the country's trade policy (F1), competition law (F5), the credibility of politicians (F8) and the taxation system (F11).

5.4.5.6 The chance factors determinant

The chance determinant consists of competitiveness factors over which the industry and firms have little/no influence, i.e. that fall outside the sphere of influence of industry action. Firms in the industry therefore operate with such factors as 'given' variables and are challenged to deal with these exogenous variables. As stated by Porter (1990), the role of the chance determinant could be crucial, as it effectively can nullify or create new competitive advantage in a specific industry. There are various chance factors that affect the performance of the date industry. An analysis of information gathered in the executive survey produced a large number of chance factors with a positive effect on the date industry. The three most enhancing factors are; the country's economic development and growth situation (G8), rated 4.0, the political system in general (G5), with a rating of 3.8, and the current exchange rate (G1), rated 3.7. These are chance factors and are not under the industry's control but could adversely affect the industry's competitive performance are possible. However, it would be favourable if these factors could remain in the positive 'maintenance' space. All the factors identified under this determinant are viewed to be potentially important to the date industry and obtained a long-term relevance rating of 4.1 out of 5.

The implications due to crime (G6) receive an impact rating score of 2.7 and are viewed as having a constraining effect to the successful performance of the industry. Cases of theft of dates, especially prior to and during the harvesting period, had been experienced at most of the plantations. This reduces the volumes of dates for market and subsequently decreases the returns. The effect of international events

(such as conflicts, international strikes) could also have a negative impact on the industry, and this aspect thus was rated 3.0 (DES, 2015).

The results shown in Figure 5.20 reveal that all factors under this determinant were perceived to be highly relevant (important), with a rating of between 3.5 and 4.0 out of 5 (red line). Looking at the current impact (blue line), most factors received a moderate to high performance rating of between 3.0 and 4.0 out of 5 compared to their relevance rating. There is a 'performance gap' between 'what is required' (relevant) and 'what is currently happening' (impact), and it is imperative that such gaps are closed where possible. The closeness of both impact and relevance ratings for Namibian economic development and growth and the trust in the political governance system is noted as a key factor of success and an example of other chance factors. The impact and relevance ratings for all factors under government support and policies are presented in Figure 5.20.

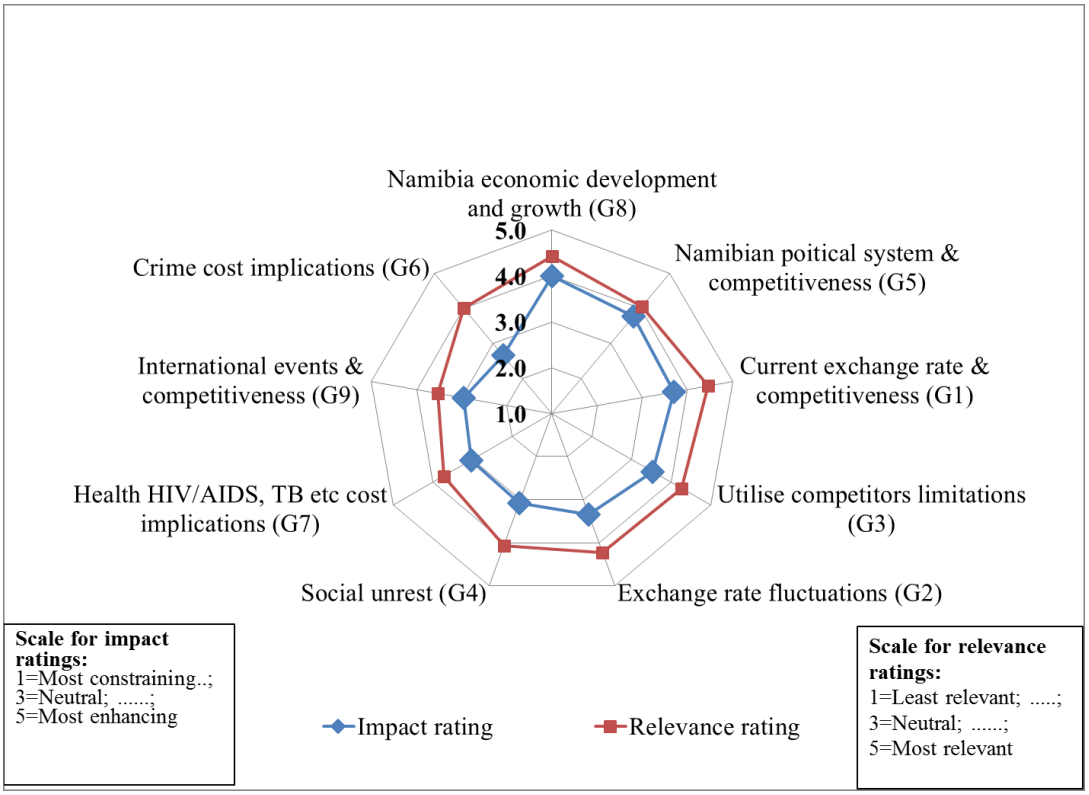


Figure 5.20: Radar plot: Ratings of the chance factor conditions
Source: Dates executive survey (2015)

To further analyse the observed 'performance gap' in the chance factor determinant, Figure 5.21 shows the X-Y scatter plot (quadrants) with the critical factors influencing the industry's performance. This figure indicates that most factors in this determinant enhance the industry's competitive performance and only two factors were constraining the industry's competitiveness.

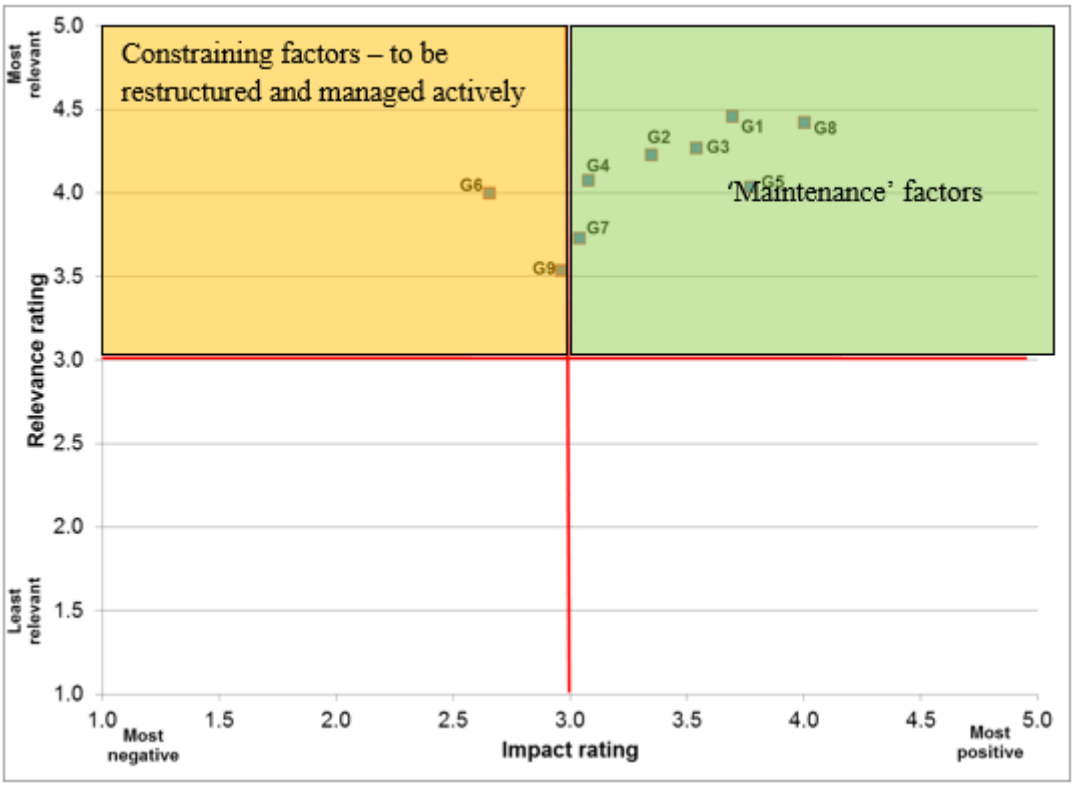


Figure 5.21: Quadrant plot: The chance factor conditions
Source: Date executive survey (2015)

Constraining factors: The X-Y scatter plot (Figure 5.21) presents the relevance versus impact ratings of various factors under the chance factor conditions. Presented in the yellow block in the upper left corner of the quadrant are factors that negatively influence the date industry's competitive performance. These are: crime cost implications (G6) and the effect of international events (G9). The industry needs to be cautious about monitoring these chance factors and must take them into consideration when planning and managing.

Maintenance factors: Chance factors that are relevant and had a positive influence on the date industry's competitive performance (presented in the green block on the upper right corner) when this study was done are: Namibia's economic development and growth (G8), exchange rate (G1), the country's political system in general (G5), the ability of the industry to utilise competitors' limitations (G3), exchange rate fluctuation (G2), social unrest (G4) and effect of HIV/AIDS and other related diseases (G7). The industry needs to be aware of these factors and monitor them because any change in these could have either a positive or negative effect on the industry's performance, in which case alternative measures would have to be put in place to minimise any adverse effects that could occur.

Principal component analysis (PCA)

In order to explore whether responses to questions in the DES related to the chance factor determinant reflect consensus in opinions, or variations, principal component analysis (PCA) was performed (see section 5.4.5.1), to identify redundant (highly correlated) variables, i.e. factors in the data set for which the

individual responses were very similar and concentrated on a particular rating – to be viewed as 'consensus' factors, as well as uncorrelated variables, i.e. factors for which respondents gave a more variable range of rating values, to be viewed as 'variation' factors. (Refer to Appendix D (Determinant 6) for detailed statistical analyses.)

Of the nine factors identified, the results reflect that the respondents varied in opinion on eight factors, namely: the current exchange rate (G1), exchange rate fluctuations (G2), the industry's ability to utilise competitors' limitations (G3), social unrest (G4), the country's political system (G5), crime cost implications (G6), health aspects (HIV/AIDS, TB etc.) cost implications (G7) and international events and competitiveness (G9).

Only one of the original nine factors was identified as a correlated or 'consensus' factor, and this was the country's economic development and growth (G8). (Refer to Appendix D (Determinant 6) for detailed statistical analyses.)

5.4.6 Some remarks on the variation in opinions from the DES

The above sections highlight the degree of consensus and variation in the opinions through the application of PCA, i.e. for both constraining and enhancing factors. A summary of this is given in Table 5.6 below.

Table 5.6: Consensus and variation regarding the long-term relevance of enhancing and constraining factors for each determinant

Relevance: Impact (enhancing factors)	Consensus in opinions	Variation in opinions
	Production factor determinants	
	✓ Productivity level (B19) ✓ Cost of unskilled labour (B14)	✓ Project location suitability (B16) ✓ General infrastructure development (B1) ✓ Climatic impact (B18) ✓ Production efficiency level (B20) ✓ Quality of technology (B4) ✓ Obtaining short term credit (B8) ✓ Availability of unskilled labour (B12) ✓ Access to quality technology (B5)
	Demand and market factors determinants	
	✓ Size of the international market (C4) ✓ Diversification of new lucrative (C5) markets	✓ Seasonality impact (C6)
	Related and supporting industries determinants	
	✓ Impact of telecommunication (D7) ✓ Availability of specialised technology services (D8)	✓ Transport availability and reliability (D15) ✓ Availability of storage, packing and product handling facilities (D13) ✓ Financial service providers (D1)
	Firm strategy, structure and rivalry determinants	
		✓ Current resource base to support the industry's operation (E6) ✓ Competition in international markets (E5)
	Government support and policies determinant	
	✓ Namibia's trade policy (F1) ✓ Namibia's competition law (F5)	✓ Namibia's macro-economic policy (F4) ✓ Namibia's BEE policy (F6)

	✓ Credibility of politicians (F8) ✓ Taxation system (F11)	✓ Namibian labour policy (F3) ✓ Credibility of political system (F7) ✓ Stringency of regulatory standards (F9) ✓ Complying with regulatory standards (F10)
	The role of chance factors determinants	
	✓ Namibia's economic development and growth (G8)	✓ Exchange rate (G1) ✓ Namibia's political system in general (G5) ✓ Industry's ability to utilise competitor's limitations (G3) ✓ Exchange rate fluctuations (G2) ✓ Social unrest (G4) ✓ Effect of HIV/AIDS and other related diseases (G7)
Relevance: Impact (constraining factors)	**Consensus in opinions**	**Variation in opinions**
	Production factor determinants	
	✓ Cost of technology (B6) ✓ Obtaining long-term credit (B7) ✓ Cost of skilled labour (B11) ✓ Establishment and production costs (B17)	✓ Cost of infrastructure (B2) ✓ Cost of doing business (B3) ✓ Obtaining skilled labour (B9) ✓ Quality of skilled labour (B10) ✓ Quality of unskilled labour (B13) ✓ Access to natural resources (B15)
	Demand and market factors determinants	
	✓ Local market growth in volumes (C3)	✓ Local market size (C1) ✓ Local consumer adoption (C2) ✓ Industry's relationship with multinational retailers (C7)
	Related and supporting industries determinant s	
	✓ Availability of export facilities (D16) ✓ Collaboration with research institutions (D5) ✓ Availability of privately funded scientific research institutions (D2) ✓ Cost of storage/packing facilities (D14)	✓ Availability of local supplier of primary inputs (D10) ✓ Quality of primary inputs from local suppliers (D11) ✓ Sustainability of local suppliers of primary inputs (D12) ✓ Electricity supply (D6) ✓ Industry expenditure on R&D (D4) ✓ Cost of specialised technology services (D9) ✓ Government-funded scientific research institutions (D3)
	Firm strategy, structure and rivalry determinants	
		✓ Information flow from primary suppliers (E1) ✓ Information flow from customers (E2) ✓ Date industry competition for resources (E7) ✓ Competition in local market (E3) ✓ Entry of new competitors (E4)
	Government support and policies determinants	
		✓ Namibia's land reform policy (F2) ✓ Legal and political factors (F12) ✓ Corruption and opportunism (F13)
	The role of chance factor determinants	
		✓ Implication of crime (G6) ✓ Effects of international events (G9)

From this, it can be concluded that the industry fully agrees on 20 of the 72 factors - 11 of which are highly relevant and enhancing, and nine of which are highly relevant and constraining the current competitive

performance of the date industry. The industry shows some variation on 52 out of 72 factors - 26 of which are highly relevant and enhancing and 26 that are highly relevant and constraining. The ratings, however, confirmed the importance of all of these factors for the competitive performance of the industry, i.e. either constraining or enhancing. The degree of consensus on or variation in relation to relevant factors would have to be accommodated in a strategic planning process in order to determine clarity and improved agreement, i.e. variation factors may require additional analysis and more engaged discussions to move toward a consensus opinion (see Chapter 6).

5.5 Analysis of the date value chain/network

The aim of this section is to consider the question of whether different players in the date value chain offer different views on the factors affecting competitiveness. To do this, a cluster analysis was conducted (refer to section 3.2.4.1 in Chapter 3) in which the views of the respondents were grouped into clusters with similar views. This was done to determine whether such resulting clusters are related to value chain positions and whether they offer different views.

5.5.1 Profiling the cluster groups

Respondents in the DES were divided into two main groups (clusters), cluster 1 and cluster 2. Cluster 1 (production cluster) contained those that were directly involved with production activities -primary production of dates, processors as well as exporters and marketers. Cluster 2 (service network cluster) contained those who supported direct production activities, i.e. indirectly involved in chain functions, e.g. in 'supporting functions' comprising of the inputs or service providers, advisors and informants (Table 5.7). In total there were 12 and 14 respondents in cluster 1 and cluster 2 respectively. Only two clusters could be structured because the numbers of respondents in each value chain shown in Table 5.7 were too small to analyse statistically and to allow statistical comparisons.

Table 5.7: Actual number of respondents in value chain positions

Respondents' positions*	Number of respondents	Share of respondents (n=26)	Respondents' cluster
Advisor/Informant only	12	46.15%	2
Exporters/Marketers only	4	15.38%	1
Producer and processors	3	11.54%	1
Input/Service providers only	2	7.69%	2
Producer and processors and exporters/marketers	2	7.69%	1
All functions	1	3.85%	1
Producers and exporters/Marketers	1	3.85%	1
Producers only	1	3.85%	1

5.5.2 Cluster analysis

The information provided by the respondents was analysed in order to obtain the factor impact and relevance ratings for each cluster. The ratings for the two clusters were then compared statistically to determine whether there were significant differences in the opinions expressed by the two clusters.

Table 5.8 below shows the statistical analyses of the seven factors with significant differences between the two clusters. Refer to Appendix E for detailed statistical analyses of all 72 factors.

Table 5.8: Comparisons of factors' statistical differences between the two clusters

Factors	Cluster 1 (production)(n=12) Impact rating*	Cluster 2 (services)(n=14) Impact rating*	F	df	p-value
Access to quality technology	3.1	3.7	3.122	1	0.090***
Obtaining long-term credit	2.9	2.0	4.454	1	0.045**
Market diversification	3.7	2.8	6.387	1	0.018**
Cost of specialised technology services	1.5	2.1	5.129	1	0.033**
Effect of legal and political factors	2.5	3.4	3.732	1	0.065***
Namibia BEE policy	3.0	3.7	3.287	1	0.082***
HIV/AIDS, TB etc. health cost implications	3.4	2.7	3.218	1	0.085***

**scores out of 5*
***p value <0.05 indicates clear statistically significant differences between the two clusters*
****p value greater than but closer to 0.05 indicates a slight difference between the two clusters*

In general, there are 'similarities', in the views and opinions of respondents in both clusters on most factors and statistically, there are no significant differences in the responses of the two groups, with the exception of a few factors. In terms of factor relevance, no statistical differences were observed between the respondents' views in both clusters, i.e. there was consensus between clusters on such factors. However, in terms of factor impact, seven out of 72 factors indicated statistically significant differences (variations) between clusters. These were: access to quality technology (B5), obtaining long-term credit (B7), diversification in the international market (C5), cost of specialised technology services (D9), the effect of legal and political factors on the industry's strategic position (F12), the country's black economic empowerment (BEE) policy (F6) and health cost implications (G7).

Comparing determinants:

Comparing the impact rating of factors related to **production factor conditions**, statistically significant differences were observed in terms of access to the quality technology (B5) generally required by the industry. The production cluster (producers, processors and marketers) (cluster 1) indicated a neutral view towards this factor, at 3.0. [F=3.122, df = 1, p = 0.090], while the service network cluster (cluster 2) indicated a significantly more positive rating of 3.7. Input or service providers generally have easier access to technology options and related information due to their 'service business model' and relationship with

major technology suppliers in and outside the country. Respondents in this cluster indicated that, due to globalisation and considering the level of development in various countries, especially those that operate on a commercial basis, such as Israel and the USA, the operational, logistical and processing technologies are well developed and generally accessible to them. Furthermore, recent information is readily available 'on the click of a button' and the owners of such technologies are more than willing to ship any technology anywhere in the world (DIS, 2015). The production cluster (cluster 1), on the other hand, relied on service provider networks and access to funding, usually long-term funding, to gain access to such technology; this seems to be perceived as constraining their access somewhat.

There also were statistically significant differences in terms of obtaining long-term credit (B7). Producers in cluster 1, whilst rating this as somewhat problematic, were more positive about this factor, rating it 2.9 compared to the 2.0 rating by cluster 2. According to information gathered during the executive survey (DES, 2015), producers indicated that access to finance generally was not a major problem because the available collateral and related security required by financial institutions normally is in the form of a bond on the property. Service providers (cluster 1), in contrast, indicated that it was more complicated, difficult and less affordable to obtain long-term credit to venture into the date service business, rating it 2.0 [$F = 3.732$, $df = 1$, $p = 0.065$]. According to the service providers, this is basically due to the long time they have to wait before date palms start producing economical quantities, which burdens the repayment capacity of the production entity at the onset. In addition, financiers in the country were not yet aware and/or fully convinced of the potential of date production, especially in the long run, and thus are reluctant to finance any supporting network activities (DIS, 2015).

In terms **of demand and market factor conditions**, statistically significant differences were observed with regard to the diversification of the international market for Namibian dates (C5). The producer cluster indicated a significantly more positive view with a factor impact rating of 3.7, compared to the 2.8 rating of the service network cluster [$F = 4.454$, $df = 1$, $p = 0.045$]. Producers and marketers (cluster 1) were of the opinion that the industry can penetrate new markets especially if it increases volumes and produces varieties sought after by customers in the international markets. According to respondents in this cluster, the EU market currently is well developed and absorbs most of the produce, but due to the (out of season) period in the southern hemisphere, the Middle East market also is open and potential exists to market Namibian dates in such markets. However, the input and service providers (cluster 2) indicated that the industry would benefit from targeting the same markets due to well-established relationship with those particular markets. Given the current production volumes, the size of existing markets is so large that it is not necessary to diversify further over the short or medium term. The group acknowledged, however, that not sufficient market research had been conducted to identify other potential markets or marketing channels for Namibian dates (DIS, 2015). This view may explain their more negative view regarding this factor.

In terms of the **related and other supporting industries**, statistically significant differences were observed regarding the cost of specialised technology services (D9). Statistically, cluster 2 (service

networks) indicated a constraining, but slightly more positive, rating of 2.1 compared to cluster 1 (the producers and marketers) who rated this factor as highly constraining (1.5) [F = 4.308, df = 1, p = 0.018]. Producers find it expensive to obtain specialised technology services (from local service providers). Cost implications are especially high for smaller scale farmers who work on a very tight budget and find it difficult to afford such services. Service providers, on the other hand, highlighted that due to the cost of skilled labour and the quality of unskilled labour, successful commercial producers show entrepreneurial attitudes and tend to opt for specialised technologies, and the perception is that such additional costs, in comparison to an increasing labour administration burden and related problems, is worthwhile for labour-saving technologies. On the producer cluster level, this view may not be shared due to the high costs of such technologies (DIS, 2015).

There were statistically significant differences in terms of **government support and policies** in relation to the effect of legal and political factors (F12) on the industry's strategic position. Cluster 2 (service providers) was significantly more positive about this factor and rated it 3.4 while cluster 1 (producers) indicated a less positive view of this factor, rating it 2.5 [F = 5.129, df = 1, p = 0.033]. According to the service providers, government is perceived as actively seeking ways to create a conducive environment in which farmers and entrepreneurs can operate in order to create more jobs, earn foreign exchange and improve the country's social and economic development. However, from the perspective of the producer cluster (cluster 2), government policies such as the land reform policy represent a perceived future risk, especially in the long run, although not immediately. Concerns are mainly about aspects that are not clear with regard to land redistribution, and some producers noted that possible changes in land ownership, population redistribution models and labour legislation requirements, etc. could affect future expectations and hence interest and investment in the date industry (DES, DIS, 2015).

In addition to land policies, a difference was also observed (statistically) in terms of the country's black economic empowerment (BEE) policy (F6). Cluster 2 (service providers) indicated that the BEE policy had a positive impact on expanding their business development opportunities and increasing industry competitiveness, rating it 3.7. The service providers stated that proper partnering (not window dressing) with BEE partners with entrepreneurial skills and access to financial resources showed potential to unlock the industry's growth potential (DES, DIS, 2015). However, the producer cluster was less optimistic about this factor and rated it lower, at 3.0 [F = 3.287, df = 1, p = 0.082]. Although not viewing this factor as negative or constraining, they stated that BEE partners still need much orientation in terms of industry understanding and also were constrained to contribute to capital investment.

Comparing the impact rating scores of aspects related to the **chance factor conditions**, statistically significant differences were observed in terms of the cost implication for the industry of adverse health conditions (G7), such as HIV/AIDS, TB and related diseases. In general, cluster 1 (producers) stated that with very few incidences, such diseases rarely occurred and therefore had no cost implication for the

industry. They hence rated this factor (2.7. Cluster 2 (service providers), however, indicated a significantly higher positive rating of 3.4 [F = 3.218, df = 1, p = 0.085]. Cluster 2 highlighted that the general health of the workers had a direct impact on the productivity of any firm. Respondents in cluster 2 further indicated that the people who make up the biggest part of the date industry labour force are unskilled labourers with limited knowledge of good sanitation or health precautions, and thus are susceptible to diseases. The Namibian law stipulate that up to 90 sick leave days can be taken by an employee over a three-year cycle. However, more sick leave days were experienced at some projects, sometimes even exceeding the 90 days allocated (DES, DIS, 2015). This has considerably high cost implications for projects and consequently for the industry.

5.6 Conclusion

In this chapter, the first four steps of the five-step analytical framework were applied. This sets the framework for proposing strategic actions to be considered by the industry (step 5 in Chapter 6). The concept of competitive performance was defined in the context of the Namibian date industry (step 1) and was also measured by using the RTA model (step 2). The results revealed that the Namibian date industry generally is globally competitive, leading in the 'third league'. The various underlying factors and determinants of the industry's competitiveness were identified as either enhancing or constraining competitive performance, and were discussed. In step3, an innovation was added to the conventional approach applied in previous studies. The questions asked in the DES were validated and most of them provided relevant information required for the analysis in this study. A total of 72 factors influencing the date industry's competitive performance were identified.

Porter's theory of competitiveness, through the application of the 'the diamond model', was used to derive the industry determinants of competitive performance. The 72 factors identified were grouped in to six determinants, namely production factor conditions; demand and market factors; firm strategy, structure and rivalry; related and other supporting industries; government support and policies; and the role of chance factors.

In step 4, three new analytical processes were introduced into the data analysis processes to enable a more comprehensive analysis of the views of the respondents. Firstly, differences between current impact and long-term relevance were analysed to assist with strategic planning. Some pronounced differences were recorded within each determinant between the ratings of current impact and long-term relevance of factors, i.e. between what is and what ought to be. Such gaps indicate important strategic discrepancies and provide a framework for an industry-based gap analysis and recommendations to improve competitive performance.

Secondly, in order to establish whether responses to questions in the DES reflected a consensus or variations in the views and opinions of the respondents, principal component analysis (PCA) was carried

out. The results indicated that the industry had consensus on 20 out of 72 factors rated as relevant (both enhancing and constraining) for competitive performance, and showed some variation in opinion on 52 out of 72 factors. However, in the firm strategy, structure and rivalry determinant, variations in opinions were observed in relation to all factors.

This analysis was important for strategic planning purposes. Where there is consensus, recommendations clearly will be easier to agree on, whilst factors with variations in perceptions will have to be dealt with in more depth at the strategic planning level to reach greater consensus.

Thirdly, the diversity of perceptions in the date value chain were also considered. The respondents were grouped based on their functions in the industry's value chain. Two clusters were identified, viz. those directly involved in the various production processes of dates (cluster 1), and those performing supporting functions (cluster 2). Statistical analysis of these clusters was carried out to determine the similarities and differences in respondents' views. The results revealed that, in general, no statistically significant differences in the views and opinions of the industry stakeholders on most of the factors. This agreement shows that there indeed was consistence in the respondents' views of the industry. Only seven factors showed differences; these were access to quality technology (B5), obtaining long-term credit (B7), diversification in the international market (C5), cost of specialised technology services (D9), the effect of legal and political factors on the industry's strategic position (F12), the country's black economic empowerment (BEE) policy (F6), and health cost implications (G7). These need to be noted for strategic planning purposes.

CHAPTER 6: RECOMMENDATION AND CONCLUSIONS

6.1 Introduction

This chapter firstly provides a brief summary of the study, an outline of the procedures followed, and of the major findings of the study. The study hypotheses will be considered and strategic recommendations to improve the competitive performance of the Namibian date industry are proposed i.e. the application of step 5 of the study's analytical framework. The last section of this chapter proposes areas for further research on this field of study and draw final conclusions.

6.2 A brief summary

In Chapter 1, background to this research was provided, the research problem was discussed and the study objectives, research questions and hypotheses were outlined. A snapshot of the step-wise analytical framework to be followed in this study, including data collection and data analysis for the research, was provided. Chapter 2 provided a detailed review of the theoretical foundation of competitiveness and various definitions of the concept of competitiveness were reviewed. A definition was decided upon for application in this study. Different methods used to measure the competitiveness of various industries were evaluated, with a selection of appropriate methods for the purposes of this study. A brief review was provided of earlier studies conducted to measure and analyse competitive performance of several agricultural industries in southern Africa and other parts of the world.

Chapter 3 highlighted in detail the selected methodological processes and data used in this study and a five-step analytical framework, introduced earlier, in Chapter 1 was discussed thoroughly.

Chapter 4 provided an overview of the Namibian date industry was provided. A global view of dates, including their production and marketing, was given. Government policies guiding the operation of the horticultural sector in Namibia, in which the date industry is situated, were highlighted. The historical background of date production in the country, current date plantations, their location, size, quantity and the value of dates produced and exported, were indicated. The same chapter included a discussion of the domestic market, and existing and potential international markets for Namibian dates. The industry's value chain, as well as some strategic issues relating to the date industry, also was described in Chapter 4.

In Chapter 5, the first four steps of the five-step analytical framework were applied. In step 1, the concept of competitiveness was defined in the context of the global trade orientation of the Namibian date industry. This definition, which guided the rest of this study's analysis, was based on Freebairn (1986); Esterhuizen (2006) and Van Rooyen *et al*., (2011) and state that the Namibian date industry is considered to be competitive when:

> 'it is able to trade products in both domestic and international markets on a sustainable bases; and as such it is able to attract resources such as land, labour, technology, management talents and capital from other competing economic activities while earning at least the opportunity costs of returns on resources employed'.

This entails that the industry is able to trade profitably and continues to do so on a sustainable basis. This definition allows competitiveness to be measured empirically in trade terms.

In step 2, the competitiveness of the Namibian date industry was empirically measured using the selected relative trade advantage (RTA) methodology. This technique which was originally introduced by Balassa (1965) and later extended by Vollrath (1991), is deemed appropriate to measure the competitiveness of an internationally traded product. Using trade data from FAOSTAT (i.e. only agricultural trade data) and Trademap (i.e. multi-sectoral trade data), the RTA values for the industry were obtained for the period 2001 to 2013. The results revealed that the Namibian date industry is generally competitive but only leading the 'third league' in the international competitive date environment. The trend line between the years under review was analysed and three phases were identified and discussed to find the reasons behind its competitive status.

In order to determine the competitive position of the Namibian date industry globally, comparisons were made with selected-date producing countries in the world. The Tunisian date industry was found to be the most competitive, comfortably winning the first league. Other countries that were identified as more competitive than Namibia included Pakistan, Israel, Algeria, the United Arab Emirates, Saudi Arabia and Egypt.

In step 3, 72 factors influencing the Namibian date industry's competitiveness were identified and analysed. Information used in the process was gathered by means of an opinion questionnaire through the date executive survey (DES), involving key stakeholders in various positions of the industry's value chain. In this step, an extension of the conventional approach (applied in previous studies) was applied in which statements on 'currently perceived factor impact', i.e. current performance of a particular factor, and 'factor relevance', i.e. the (long-term) potential importance of a factor to the industry, were included. These two important aspects were not taken into account in the framework of analysis used in previous related studies: Esterhuizen and Van Rooyen (1999), Esterhuizen and Van Rooyen (2006), Esterhuizen (2006); Van Rooyen *et al*., (2011); Van Rooyen and Esterhuizen (2012); Sinngu and Antwi (2014); Jafta (2014) and Boonzaaier (2014).

A total of 72 factors were identified and the results revealed that all factors (100%) were rated highly relevant (i.e. of long-term importance) to the competitive performance of the industry, with some factors

playing an enhancing role, while others were constraining the competitive performance of the Namibian date industry. Statistical comparisons of factors were done through a chi-square analysis while statistical comparisons of the mean rating score values of factors were done through one-way analysis of variance (ANOVA). The results indicated that the questionnaire used was indeed valid, given that factors were rated as either enhancing (47%) or constraining (43%) the industry's competitive performance and only 10% of the factors investigated were rated neutral/not relevant. These responses signify that the questions in the DES significantly represents relevant issues in the investigation of the competitive performance of the Namibian date industry (refer to Figure 5.7 in Chapter 5).

In step 4, the determinants of the Namibian date industry's competitiveness were structured and analysed through the application of Porter's new competitiveness theory, the diamond model. The determinants of competitiveness are: production factor conditions; demand and market conditions; related and other supporting industries; firm strategy, structure and rivalry; government support and policies; and the chance factors. The factors identified in step 3 were grouped into these determinants, and then analysed and discussed.

The Porter analysis is based on perceptions, views and opinions regarding factors affecting competitive performance. The study considered similarities and variations in the opinions of the respondents. For this purpose, four new analytical processes were incorporated in the analysis. Firstly, questions used in the date executive survey were validated in terms of the distributions of ratings given (as discussed above). Secondly, each determinant (and its related factors) was subjected to 'current impact' and long-term 'relevance' ratings, determining the perceived differences between 'what is happening now' and 'what ought to be'. This analysis provided a 'performance gap' to be attended to in strategic planning actions.

Thirdly, in order to establish the variations or consensus in the views and opinions of the respondents, a principal component analysis (PCA) was carried out. The results revealed that, for each determinant, there were variation in opinion on some factors and consensus in others, except for firm strategy, structure and rivalry determinant, in which the respondents' opinions varied on all factors. Consensus was registered for 20 factors, and variation for 52 factors. The consensus factors provided a common base for industry-level action, whereas the variation-in-opinion factors may require further analysis to determine the validity and weights of such differences. Industry-level strategies will be proposed, with specific attention being paid to the constraining factors for which there was a high degree of consensus (refer to section 6.4).

Fourthly, a cluster analysis was conducted to identify similarities and differences among the respondents as per their position in the date value chain. Two clusters were identified, one including those directly involved in date production activities (producers, processors and marketers) and the other comprising those providing supporting functions – the input and service providers, advisors and informants in the value chain.

In general, the findings indicated that there was consistency in the views of the respondents in the two clusters. Statistically, significant differences were observed in only seven factors out of the identified 72 factors affecting the industry's competitive performance. These were access to quality technology, market diversification, cost of specialised technology services, effect of legal and political factors, obtaining long-term credit, Namibia's BEE policy and health (i.e. HIV/AIDS, TB etc.) cost implications. The reasons for such differences between the two clusters are provided (refer to section 5.5.2 in Chapter 5). This analysis confirms the importance of involving representatives from the full date value chain in strategic planning activities to develop strategies to improve the competitiveness of the industry as an operating system.

The last step (step 5) of this study calls for proposal of the industry-level strategies in order to provide intelligence to improve at firm level. This step will be applied in section 6.4 of this chapter.

6.3 Validating the hypotheses

In Chapter 1, the two main hypotheses to be explored in this research were established. The aim of this section was to validate these hypotheses. The two hypotheses that were formulated for this study have been proven to be true and this means they are accepted on the basis of the study analysis:

- Firstly, after measuring the competitiveness status by applying the trade-based RTA method, the results revealed that the Namibian date industry, as an industry trading most of its product in the global environment, has been generally competitive over the past 12 years. The results presented in the radar graphs (see section 5.4.5.1 in Chapter 5) also show that there are highly enhancing factors within the production factor determinant; and

- Secondly, looking at Figure 5.7 in Chapter 5, most of the identified factors are scored as either enhancing or constraining, viz. 34 factors out of 72, representing 47%, were rated as impacting positively on the industry, while 31 factors, accounting for 43%, were rated as affecting the date industry's competitive performance negatively. This implies that more than the production factors only determines the competitive performance of the Namibian date industry and needs to be analysed as such, i.e. through the application of the Porter diamond methodology.

These findings permit the researcher to argue for the acceptance of both hypotheses. From this, the proposal of particular industry-level strategies to improve competitive performance, based on the aforementioned analysis, could be attempted with confidence and in collaboration with representative industry inputs (DES, DIS, 2015).

6.4 Proposed strategies for the date industry's competitive performance (step 5)

The findings of the analysis reveal that there is a need for a comprehensive and balanced strategy that has to be implemented for the Namibian date value chain to sustain and improve its current positive competitive status.

For such an industry-wide strategic planning process, the following viewpoint of Worley (1996) should be heeded as the need for and relevance of an industry-wide approach. Incorporating all functions in the Namibian date value chain, including government, was clearly shown in the preceding analysis.

According to Worley (1996) the value chain/network of any industry can compete sustainably when most, if not all, components in that network perform effectively and efficiently. The Namibian date industry needs to ensure that it comprises of such a value chain that provides for an informed and well-coordinated system of product and service delivery as required by global markets, while being cost effective and maintaining/improving the quality, freshness and safety of its product, as required by its markets. Thus, for the industry to enhance and sustain a long-term competitive performance, it is vital that there should be trusted and strategic partnerships that leads to greater intra-industry coordination between stakeholders involved in the date value chain. These partnerships, supported by appropriate macro-economic policies, allow the industry to explore the development of a globally competitive date business in Namibia and unlock opportunities to exploit the industry growth potential.

Porter (1990) furthermore states that an industry can be more efficient if the attributes that determine its competitive performance (determinants) are managed strategically.

The purpose of this section is to build on the above advices offered by Worley and Porter and to propose industry-level strategies that potentially can assist in improving the industry's its competitive performance internationally. These strategic recommendations have also been informed by the date information session (DIS) in April 2015, where the findings of this study was presented and most key industry stakeholders were represented, and also by personal interviews with industry experts.

This study proposes a number of industry-wide strategies. No direct or firm level strategies will be proposed, however, as this will require a much more detailed analysis and scenario development related to the unique financial, organisational and institutional position of a particular firm. This was clearly also not the focus of this study.

From Chapter 5, an industry view of factors influencing competitiveness was obtained for the 72 identified factors affecting competitive performance. These factors were rated and classified in terms of (a) current impact vs. relevance regarding constraining and enhancing competitiveness; (b) consensus vs. variations

and (c) similarities vs. differences within the value chain. These classifications provide an interesting 'intelligence information matrix' for strategic action in the industry (refer to the information contained in the scatter diagram in section 5.4.5, in Table 5.7, where a summary of views regarding constraining and enhancing factors is given in relation to long-term relevance, consensus and variation, and in Table 5.8, containing the rating of factors by different groups in the value chain (production activities; and industry support activities).

Within an idealised framework those factors constraining competitiveness for which there are gaps between current impact (what is) and long-term relevance (what ought to be) should receive priority attention. Such factors, for which there was a high degree of consensus, would be well positioned at the industry level to consider for remedial activities. Those factors on which there was variation in opinions should rather be subjected to further clarification with greater consensus in mind before actions are proposed.

During the date information session (DIS) in April 2015, the above 'intelligence information matrix' of findings and the idealised planning framework for industry action were presented. With a high degree of general agreement, it was agreed that a comprehensive strategic planning process would be required to consider all the relevant information provided by the study. Such information also had to be considered in the OABS report to government.

Fifteen industry-level actions, agreed to at the DIS, are noted below. These actions, listed in their respective Porter determinant clusters, focused on consensus statements by the industry with respect to the gap between current impact and long-term relevance i.e. what is vs. what ought to be, as discussed at the DIS, with general agreement for immediate consideration and action. The suggestions made in Chapter 5 on a range of matters, based on the ratings of factors affecting competitiveness, were also noted for further reference.

6.4.1 Proposals for production factor conditions

(i) Focus on industry specific human resource factors (availability, skills, costs employment matters, etc.): The availability of appropriately skilled labour (B9) [immediate impact 2.2; relevance 4.1]; the cost of skilled labour (B11) [immediate impact 2.2; relevance (4.1)] - management, technical, professional services, etc., and their competence (B10) [immediate impact 2.9; relevance 4.2] will ensure a sustainable competitive advantage. It thus is of strategic importance that skilled workers/talent are drawn to the industry.

Industry respondents indicated that unskilled labourers are readily available (B12) [immediate impact 4.6; relevance 3.7]; however, their skill levels and productivity generally are low – not immediately productive

in the production process (B13) [immediate impact 1.8; relevance 3.7]. When such labourers are trained in the basic skills required at the onset, not all return in following seasons. It is imperative that unskilled labourers are trained to properly perform the exact tasks related to activities such as irrigation, harvesting, sorting, packing, transportation and distribution etc. as it applies to date production activities. Keeping the most productive labourers year after year thus is problematic, but will allow to save on annual recruitment and training costs, ensuring the availability of qualified and experienced workers. Retaining employees from the previous season is the most efficient way to improve and maintain productivity (Agee, 2014) and particular actions will be required to do so.

Retaining seasonal workers: Actions could include the provision of competency certificates to those who are trained in the necessary skills required to perform specific tasks in the production of dates; long-term contractual appointments with incentives to obtain such certificates and improved work experience (a loyalty scheme); and to build an exchange type of relationships with other related/complementary industries, especially those requiring workers in a different season than that of dates, to stabilise employment at this levels. Such collaboration with other industries could entail cross-training employees to perform various tasks required by these industries. Incentive bonuses could also be added to such schemes. Further to that, the industry could embark on conducting formal exit interviews in which workers are interviewed at the end of the season to determine if they would like to return the following season or not, and the reasons for their decisions.

Structured labour relationships: Even though the law permits people to practise their democratic rights, strikes (social unrest) that may occur in the date industry could be a challenge to sustained competitive performance. It thus is important that such undertakings are negotiated and do not jeopardise the effort and sustainability of the industry, but rather are performed in a manner that can sustain productivity. Protests should be structured in a legal manner and be organised in a proper fashion, and complaints should be put in writing and be discussed by all parties.

(ii) Focus on on-farm level production – introducing supplementary and complementary activities: Given the long-term production nature of dates (palm trees only start producing in the fifth year), the Namibian date industry could be made sustainable if there was greater diversity in farm-level activities. The respondents indicated that the establishment and on farm-level production costs (B17) [immediate impact 1.8; relevance 4.1] constrain the industry's ability to compete successfully. In this regard, it could be considered to create on-farm production activities that supplement cash flows and generate income during the first five years of date production. At the onset, the producers potentially could consider producing annual crops such as maize or wheat (DIS, 2015). Such practices should clearly be done without neglecting the date palms, as this could adversely affect the production potential of these trees. The production of cash crops such as vegetables and lucerne could also be beneficial. However, these crops should not be intercropped with dates to avoid risks associated with pests and diseases (De Wet, 2015).

(iii) Focus on strategic partnerships: An aspect that negatively influenced the competitive performance of the date industry was the cost of infrastructure (B2) [immediate impact 2.5; relevance 4.2]. Initiatives by which such investments could be mobilised through the NDC entering into strategic partnership with the private sector, especially during the start-up period in order to share the cost, could assist in economising on such costs. Once the projects are fully fledged, the NDC could exit and its shares could then be transferred to the workers or other empowerment candidates. In additional, the joint use of facilities, with other date or grape producers, i.e. the sharing of resources like packaging and cold storage facilities, could be beneficial. This all could lead to achieving an important reduction in unit production costs.

(iv) Focus on public-private partnership and the development of project-level socio-economic investment packages: Financial institutions are regarded as being reluctant to provide long-term credit (B7) [immediate impact 2.4; relevance 3.9] due to the long-term production nature of dates; funds also are intended only for the production of dates and do not include other activities related to the development nature of date production, such as for the development of socio-economic investment packages to include education (building pre-primary schools), training, housing, health (clinics), recreational activities and electricity supply, i.e. typical rural development activities. Such social investments to a large extent would sustain production investments. Industry alone, however, cannot fund such activities without government support. However, it would be possible through public-private partnerships.

6.4.2 Proposals for demand and market factor conditions

(i) Focus on local market development through industry collaboration with national retailers: The demand for dates in Namibia is low, while increased demand would boost sales, competition and performance (C1) [immediate impact 1.9; relevance 4.1]. The study found disappointing relationships between the industry and national retailers (C7) [immediate impact 2.0; relevance 4.2] to facilitate and promote local sales of this fruit. Dates are largely perceived to be a luxury food and, as such, local, particularly lower-income consumers, do not have a culture of buying the fruit. Sale facilities also do not exist to serve these groups of consumers. This implies that little pressure is put on strategies to mobilise the local consumption of dates. Industry-level collaboration to develop generic marketing strategies together with retail, i.e. the creation of a national marketing support network to promote dates, is required for the product to become more visible and attractive.

A related factor identified during the DIS that requires immediate action is local market growth in volumes (C3) [immediate impact 1.7; relevance 3.8] and local consumer adoption (C2) [immediate impact 2.0; relevance 3.7]. Industry stakeholders agreed that embarking on date consumption promotions in the local market could have a positive effect on competitiveness. The creation of awareness of the nutritional importance of dates could influence local consumers' willingness to increasingly purchase the fruit. This

could be done generically through radio and television advertising as well as road trip campaigns and targeting schools and youth training institutions. Generic promotion may require market segmentation. According to Van Raaij and Verhallen (1994), market segmentation involves the identification of market segments (i.e. types of people as target groups for marketing) that leads to market targeting and evaluation of the attractiveness of the obtained segments, as well as the selection of the target segments. This strategy needs to identify a diverse range of consumers at various levels in the country as a result of income disparity and preferences in such market segments. This would also lead to improved information flow from consumers to the industry (E2), which currently is constraining [immediate impact 2.8; relevance 3.8] and also could form a sound basis for product distribution, pricing, and communication strategy. This can be realised mainly if there is sound collaboration between the industry and the food retail sector.

(ii) Focus on reducing marketing costs: The industry respondents argued that the current marketing channel (to international markets) for dates operated cost effectively, largely because volumes still were small. The gap between current cost of doing business (2.6), and the long-term realisation of lower per unit costs for marketing (relevance, 4.1), however is perceived to be large. Economies of size could significantly reduce such costs. With future expansion in the traded volumes forthcoming, the industry should start to plan the necessary up-scaling of facilities such as sorting and packaging machines as well as transportation infrastructure timeously in order to reduce future costs.

(iii) Focus on export market diversification: The industry supported the action to conduct market research to determine the long-term potential of current and new export markets. This also would facilitate diversification strategies and the creation of new marketing channels. Diversification is often used as a safety net against downturns in a single industry and a way to grow the business while minimising risks (Liu, 2003). This is particularly important because, in a globalised and competitive world, the search for foreign markets is no longer an option, but rather a necessity, for future growth.

6.4.3 Proposals for related and supporting industries

Porter (1990) states that the presence or absence of suppliers and other supporting industries that are internationally competitive has a significant impact on an industry's competitiveness. The respondents indicated that the quality of industries supporting date production in Namibia constrain competitive performance. It is against this finding that the study proposes the following strategic actions.

(i)Upgrading export facilities and (ii) investing in long-term R&D: The increasingly unavailability of appropriate date facilities at the ports (D16) is an issue of concern [immediate impact 2.3; relevance 4.3]. The date industry, along with other fresh fruit firms, the NDC and government, needs to engage in public-private partnerships to consider upgrades at the Walvis Bay and Lüderitz ports to make provision for cold storage facilities dates and also other fresh fruits.

Further to that, the lack of publicly funded scientific research (D3) [immediate impact 2.1; relevance 4.2] and privately funded scientific research (D2) [immediate impact 1.4; relevance 3.9] impedes the industry's performance.

The date industry's expenditure on research and development (R&D) (D4) [immediate impact 1.7; relevance 4.1] needs serious consideration. Together with government and universities, the date industry should commit to investing more in R&D through appropriate long-term focused public-private partnerships. The industry could, for example, contribute through a dedicated research levy.

For technological improvement and a reduction in costs of specialised technologies (D9) [immediate impact(1.8; relevance 4.2], it could be beneficial to research and develop appropriate methods that are suitable to the country's conditions because not all techniques used elsewhere in the world (which can be imported) can be applied to the Namibian environment.

6.4.4 Proposals for firm structure, strategy and rivalry factor conditions

The context in which individual firms in the date industry are created, organised and strategically positioned and managed, as well as the nature of domestic rivalry, is critical for the success of this industry. Domestic rivalry is arguably a most important factor because of the powerful stimulating effect it has on all the other factors (Porter, 1990).

From a strategic perspective, it became clear through the DES and at the DIS that no consensus was recorded for all constraining factors in this determinant, as there only were differences in opinion; as can be expected with highly competitive firms (Van Rooyen *et al*., 2011). This section therefore cannot focus on consensus views as with the other determinants. However, the DIS elected to comment on some of the variable factors with in this determinant, as they had general industry-level application. Individual firm-based strategies were not discussed at the DIS, as expected.

(i) Promoting local/internal-level competition: Competition within the date industry at the local level (E3) [immediate impact 2.1; relevance 4.1] rarely occur and could be viewed as having a constraining effect on the industry to compete successfully. However, local competition is vital to create pressure on the date businesses to advance. According to Porter (1998), the existence of local rivals enables the firms within the industry to improve on quality and services rendered, and also to develop new products and processes. An industry can strive better in international markets if it surpasses its competitors domestically. The Namibian date industry thus should strive consistently to create an environment for firms to be more competitive. For this to happen, collaborative action such as the DES and information sessions such as the DIS should be conducted regularly, supported by targeted promotion campaigns. The inquiry on firm-level

constraints should also be continued in order to create an improved basis for collaboration to lobby public-private partnerships, funding packages, training programmes and generic promotion activities.

(ii) Developing a strategic vision and industry-level institutions, promoting competitiveness through a strategic plan: Another constraint identified was the manner in which the date industry was operating. The respondents indicated that there was no strategic vision or plan and clear actions to guide the operation of the industry, and that organisation in the industry was fragmented, resulting in a poor network in the industry. The need was registered for stronger industry institutions to initiate, carry out and conduct such collective actions derived from a shared vision. A particular action called was for the initiation of a comprehensive date industry strategic plan (the DISP), at both country (Namibia) and even regional (Southern Africa) level in order to set priorities, focus energy and resources, strengthen operations and ensure that all relevant stakeholders were working toward aligned common goals and actions. This strategic planning process should also be informed by high-level industry intelligence. A value addition of a competitive performance analysis, such as conducted in this study, was noted and it was mentioned that this study could be viewed as a bench mark for similar future investigations.

Such a DISP needs to be driven by the industry, be coordinated and clearly outline the goals, objectives and activities that the industry is going to carry out in order to achieve the goals. This initiative should allow various players, both small and large scale, as well as government agencies, to share ideas and learn to direct and enhance the industry's competitive performance. This also could improve the flow of information from primary suppliers (E1) [immediate impact 3.0; relevance 4.3], as well as information flow from customers (E2) [immediate impact 2.1; relevancy 4.1] which currently are viewed as constraining.

6.4.5 Proposals for government support and policies

An active role for government in shaping the environment and contributing successfully to the performance of the industry is viewed by industry stakeholders as vital. Government acts as a strategic partner in development, investment, trade, research, etc., and also acts as an important catalyst by encouraging or even pushing firms to raise their aspirations and move to higher levels of competitive performance (Porter, 1990).

(i) Industry-level orientations: In order to obtain support from the public sector, the date industry needs to convince government about what it has to offer. These, however, also has to be in line with government development priorities for agriculture. Issues of job creations, rural development, household income, foreign earnings and industry's contribution to the country's economy are vital inputs that the date industry is capable of offering. Such arguments could lend the date industry support from government.

The Namibian date industry stakeholders generally recognised and acknowledged, with a degree of variation, the significant role played by government in creating a conducive environment for the industry to grow through various policies and initiatives. The DIS highlighted that in order for this role to be sustainable, government - as a reliable partner - needed to boost investment in human skills (e.g. improving labour relations and training), establish research institutions, as well as assist in the development of the physical infrastructure required by the date industry. Government also needed to play an active role in providing financial support for industry initiatives, such as date promotions, research activities and market access, which can only be achieved when there is good collaboration. This support potentially can encourage the industry to perform competitively.

Since dates are tradable products, the costs linked to international prices and the industry can generate income for rural communities through the supply of exports. The industry is also encouraged to assist in rural development through skills transfer and indigenisation where local people are allowed to participate in administrative as well as management positions and explore partnerships with labour by allowing them to be shareholders. This kind of initiative potentially could eliminate or reduce negative activities such as theft and encourage co-owners to use the shared resources in a sustainable manner.

(ii) Government-level support: The industry, at the DIS, also requested greater clarity and transparency from government with respect to factors related to the security of investment and long term development. Issues highlighted were; future land reform policy and strategy (F2), applicable legal arrangements (F12), and methods to combat corruption and opportunism at all levels (F13).

6.4.6 The chance factors

Most of the chance factors were perceived to have influenced the date industry's competitiveness positively. This is favourable because most of the factors under this determinant are beyond the industry's control and can nullify the industry's competitive performance.

(i) Social factors: In general the DIS highlighted local social factors and the role government could play to mitigate negativities. A DISP could also attend to such matters through, for example a "social compact" agreement between role players. General health conditions and criminal activities (G6) were listed in this context.

(ii) International relationships: The DIS highlighted the importance for Namibia to be viewed as a reliable trading partner to do business with, applying good governance practices and ethical values. International relationships are important, and both the industry and government needed to be vigilant and be pro-active, where possible, and put precautionary measures in place, as chance factors could arise and affect the industry negatively/or positively if the necessary actions are in place.

6.5 Recommendation for further research

This study, in attempting a comprehensive analysis of competitive performance, has identified a few aspects that need further deliberation and evolution in future, research activities within the competitiveness theme.

(i) Improving the Porter diamond analysis: The Porter diamond analysis provided a comprehensive basis for analysis, actuating the information requirements far beyond production factor costs and farm benchmarking alone. The method, as applied in this and other recent studies, may fall short of recommending the specific and priority actions required, however, as such detail information may be beyond the scope of such studies. A number of data manipulation innovations were introduced in this study and led to an improved 'strategic planning matrix'. However, additional research and enquiries with respect to specific measures will be required to provide a sound basis for operational actions. Methodologies of this nature need to be researched and considered in future analyses of competitiveness. The application of 'double diamond' thinking would be a point in case.

In this study, differences were noted and described in the competitive factor ratings, viz. in impact and relevance/importance; these distinctions, in particular as they relate to differences in ratings, i.e. non-consensus, will have to be dealt with in much more depth. Further consultations with the industry also will be required with respect to factors with variations in opinion in order to determine clarity and improved agreement, and also to decide on what should be followed to deal strategically with such factors.

(ii) Case study-based research and introducing a 'triple Porter diamond' model: In order to create greater understanding of the industry's performance, this study recommends that further competitiveness studies need to be conducted at firm level, considering the five-step analytical framework applied in this study, but extending this to a firm-level case study (introducing a 'triple Porter diamond' model dealing with national, industry and firm level analysis). This will enable the firm-level identification of critical issues regarding operations and focus more pertinently on the weak factors that have a negative effect on performance. However, one problematic area will be the measurement of RTA with respect to the confidentiality of firm-level trade, as trade at this level is not captured in the internationally recognised trade databases. A confidentiality agreement possibly could be structured at firm level. Similar challenges could prevail at the level of value chain analysis, due to the confidentiality of trade records. The Porter diamond analysis (a triple Porter diamond model), would not be complicated at this level, however, as only opinions and perspectives are required. Firm-level case studies could improve the understanding of industry operations (see 6.5 (i) above).

(iii) Enhancing the consumer research focus: A study at the level of the date consumer will enhance strategic action at both industry and firm levels, as such research will determine the underlying reasons for

the current poor local demand for dates, reveal consumers' preferences (in terms of varieties and forms) in various market segments (locally and globally), and advises the industry players to strive towards fulfilling the needs of the various market segments.

(iv) Towards market diversification: The DIS identified that market diversification will be necessary to enable the industry to be prepared in the case of detrimental uncertainties (e.g. market shocks). Market research by using the Market Attractiveness Index (MAI) could be considered to provide strategic intelligence to unlock new markets for Namibian dates, apart from the existing traditional markets. A MAI is an instrument of the International Trade Centre (ITC) aimed at supporting the selection of markets (Pienaar & Partridge, 2014). This will support the date industry to diversify its markets in the long run, especially in the case of unforeseen increase in date production.

(v) Rural development impact research: Further research could also be conducted on the impact of the date production industry on rural development. For example, research could be done on on-farm income-generating activities that could be carried out to relieve the date project's lack of cash flow during the first five years while waiting for palm trees to bear fruit; the determination of income and employment linkages and multipliers, justifying public sector investment in the date industry; and the social, gender and distributional effects (a Social Accounting Matrix – SAM - analysis) of investment (or not) in this sector.

6.6 Conclusion

This study focused on the measurement and analysis of the competitive performance of the Namibian date industry in the period from 2001 to 2013. By applying a five-step framework of analysis, the competitive performance of the date industry was traced and analysed. Competitiveness in the context of the Namibian date industry was firstly defined as the ability of an industry or firm to trade products in both domestic and international markets on a sustainable bases; and as such it is able to attract resources such as land, labour, technology, management talents and capital from other, competing economic activities while earning at least the opportunity costs of returns on resources employed. This definition provided the point of departure to execute the other four steps, viz. measuring competitiveness, identifying and analysing factors and determinants of competitive performance, and drawing conclusions.

The sustained competitive performance of the Namibian date industry was found to be dependent on its trading performance with more than 90% of the production being exported. Competitive performance thus is defined for the purposes of this study as the ability of the Namibian date industry to sustain trade against the competition in the global market.

In step 2, the question raised was how competitive performance based on trade performance, can be measured? The relative trade advantage (RTA) technique was applied to measure the Namibian date

industry's competitive performance, using trade data from FAOSTAT (2001-2011) and Trademap (2001-2013). The results revealed that Namibia's date industry generally is competitive internationally and that it consistently recorded a positive trend, with RTA values ranging between 0.40 and 4.0 over the past 12 years. From this trend, three distinct phases were distinguished. Phase one ran from 2001 to 2007 and was characterised by a consistent increase in competitiveness, due to increased volumes traded as new plantations came into production in 2001. Phase 2 was experienced from 2007 to 2011, with a slight decrease in competitive performance due to changing market requirements combined with climatic phenomena. Phase 3 is from 2011 onwards and indicates a gradual increase in competitive performance, as the industry secured market penetration concurrently with a sustained increase in the production of quality dates.

In step 3, the study focused on the identification and analysis of factors and determinants that enhance and constrain the competitive performance of the Namibian date industry and how these determinants can be verified statistically. Seventy-two (72) underlying factors influencing the date industry's competitive performance were identified through the date executive survey (DES).

In step 4, these 72 factors were condensed into the Porter diamond determinants, applying Porter's new competitiveness theory. The following determinants were constructed: production factor conditions; demand and market conditions; related and other supporting industries; firm strategy, structure and rivalry; government support and policies; and chance factors, and the various factors were grouped into these determinants. To obtain greater clarity on the status of the industry's responses in the DES (i.e. rated factors and determinants), the conventional competitiveness analysis framework was expanded to include four analytical processes [viz. (a) validation of DES ; (b) current impact vs. long-term relevance of constraining and enhancing factors, through chi-square and one-way analysis of variance (ANOVA); (c) consensus vs. variations through the application of PCA; and (d) similarities vs. difference in the views of stakeholders within the value chain through cluster analysis] were added to the conventional approach used in previous studies.

In step 5, the answer was also provided to the last question of this study, viz. what strategies can be proposed to enhance the competitiveness of the Namibian date industry? From this analysis in step 4, and based on those factors which recorded consensus ratings, an 'intelligence information matrix' was presented to and verified by industry experts during the DIS. The study proposed (and this was accepted at the DIS) to pay special attention to 15 strategic actions focussing on constraining factors on which a large degree of consensus was recorded, as well as those factors that the industry deemed to require immediate actions. These are a need for the industry to focus on human resources factors; supplementary and complimentary activities at on-farm level production-; strategic partnerships; public-private partnership and the development of project-level socio-economic investment packages; local market development through industry collaboration with national retailers; a reduction in marketing costs; export

market diversification; upgrading export facilities; investing in long-term R&D; promoting local level competition; developing industry-level institutions and a strategic plan; as well as government-level support in order to create a conducive environment for the industry to compete successfully.

These strategic proposals are viewed to provide 'new' strategic intelligence to the industry to develop a plan of action to achieve a more sustainable competitive advantage.

Overall, the hypotheses directing this study were accepted, all research questions were explored and the objectives of the study were achieved.

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APPENDIX A: Dates Executive Survey (DES) Questionnaire

SECTION A: RESPONDENT INFORMATION	
Name of Respondent:	
Contact number:	
E-mail address:	
Geographical Area: (Region/constituency)	

Palm Date varieties addressed (Mark with "x" where applicable)	**Medjool**	**Barhee**	**Other**	**Other**	**Other**	**Other**

Fruit Type: Crop Distribution (Mark with "x" where applicable)	**Fresh**	**Dried**	**Processed**

Position in the value chain: Mark with "x" where applicable * More than one position is possible	**Input or Service Provider**	**Producer**	**Pack house or Processor**	**Exporter or Marketer**	**Advisor/ Informant/Consultant**

If an Input or Service Provider, indicate with an "x" applicable % of resources (land, human, capital) spent on Palm Date operations	<10%	11%-25%	26%-50%	51%-75%	>75%

If a Producer, indicate with an "x", the applicable area (ha) under Palm date Production	<5ha	6ha-15ha	15ha-25ha	25ha-50ha	>50ha

If a Pack house or Processor, indicate with an "x" the volume of Palm date (ton) produced by your project	<50t	50 t-100 t	100 t - 500 t	>500 t

If an Exporter or Marketer, indicate with an "x", the applicable volume (equivalent cartons) of all Palm Dates Exported	<100	100 - 500	500 - 1000	>1000

If an Advisor/ informant/consultant, indicate with an "x" applicable % of resources (human capital e.g. time) spent on Date palm Industry	<10%	11%-25%	26%-50%	51%-75%	>75%

Please mark only one block: 1 = negative; 3 = neutral; 5 = positive
Any additional comments would be welcomed in the space provided

SECTION B: PRODUCTION FACTOR CONDITIONS

1) The general infrastructure used by your Project is:

Poorly developed and insufficient | 1 | 2 | 3 | 4 | 5 | Well developed and sufficient

The relevance of this factor is:

Not relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

2) The cost of infrastructure is:

Extremely high | 1 | 2 | 3 | 4 | 5 | Very affordable

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

3) The transaction cost in your business is: (E.g. cost of doing business, finding markets, bureaucratic red-tape etc.)

Extremely high | 1 | 2 | 3 | 4 | 5 | Very affordable

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

4) The quality of technology available to your industry:

Generally lags behind other industries | 1 | 2 | 3 | 4 | 5 | Is outstanding

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

5) Access to quality technology for your industry is:

Difficult to obtain | 1 | 2 | 3 | 4 | 5 | Easy to obtain

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

6) The cost of technology is:

Extremely high	1	2	3	4	5	Very affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

7) Obtaining long-term credit for your business is:

Extremely difficult and too costly	1	2	3	4	5	Easy and very affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

8) Obtaining short-term credit for your business is:

Extremely difficult and too costly	1	2	3	4	5	Easy and very affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

9) Skilled labour is:

Difficult to obtain	1	2	3	4	5	Easy to obtain

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

10) Competency level amongst skilled labour is:

Not of a very high quality	1	2	3	4	5	Is outstanding

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

11) Skilled labour is:

Too costly	1	2	3	4	5	Very affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

12) Unskilled/Entry-level labour is:

Difficult to obtain	1	2	3	4	5	Easy to obtain

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

13) Unskilled/Entry-level labour is:

Not of a very high quality	1	2	3	4	5	Of outstanding quality

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

14) Unskilled/Entry-level labour is:

Too costly	1	2	3	4	5	Very affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

15) Access to natural resources (land and water) is:

Limited	1	2	3	4	5	Readily available

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

16) Your location's suitability for Palm Dates production is:

Not suitable	1	2	3	4	5	Appropriate

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

17) Establishment-and production costs are:

Too costly	1	2	3	4	5	Very affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

18) The impact of Namibian climate/weather variation (unpredicted conditions) affects your business:

Negatively	1	2	3	4	5	Positively

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

19) The productivity level of your business is:

Very low	1	2	3	4	5	Very high

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

20) The efficiency (input : output relation) level of your business:

Very low	1	2	3	4	5	Very high

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

SECTION C: DEMAND/MARKET FACTORS

1) Local market size is:

Unable to handle large volumes	1	2	3	4	5	Large enough and growing in demand

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

2) Local consumers of Palm Dates are:

Slow to adopt new products and processes	1	2	3	4	5	Actively seeking out new products and processes

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

3) The growth in volume of the local market is: (Capacity to handle increasing volumes)

Too slow	1	2	3	4	5	Large enough and fast enough

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

4) The international Date Fruit export market is:

Too small	1	2	3	4	5	Large enough

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

5) The diversity (based on volume and variety) of new (more lucrative) international markets is:

Similar	1	2	3	4	5	Varied

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

6) The impact of seasonality and availability of the Namibian Date Fruits Industry's competitiveness:

Negatively	1	2	3	4	5	Positively

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

7) The Namibian Date Fruits Industry's relationship with multinational retailers (Shoprite, pick n pay, fruits n Vegies etc.)

Very Poor	1	2	3	4	5	Very good

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

SECTION D: RELATED AND SUPPORTING INDUSTRIES

1) Financial service providers generally:

Constraint your business' competitiveness | 1 | 2 | 3 | 4 | 5 | Enhances your business' competitiveness

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

2) Private-funded scientific research institutions are:

None-existent | 1 | 2 | 3 | 4 | 5 | The best in their fields

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

3) Government-funded scientific research institutions are:

None-existent | 1 | 2 | 3 | 4 | 5 | The best in their fields

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

4) Industry`s expenditure on Research & Development

Insufficient | 1 | 2 | 3 | 4 | 5 | Sufficient

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

5) Your company's collaboration with scientific research institutions in their R&D activity is:

Non-existent | 1 | 2 | 3 | 4 | 5 | Intensive and continuing

The relevance of this factor is:

Not Relevant | 1 | 2 | 3 | 4 | 5 | Highly Relevant

Comment: _____

6) Electricity supply (including renewable energy and fossil fuels):

Constraints competitiveness	1	2	3	4	5	Enhances competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

7) Telecommunication services:

Constraint competitiveness	1	2	3	4	5	Enhance competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

8) Specialised technology services are: (E.g. computerised irrigation systems/services, smart fresh, consultants etc.)

Not available	1	2	3	4	5	Available from outstanding local institutions/firms

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

9) The cost of specialised technology services are:

Too expensive	1	2	3	4	5	Very affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

10) Availability of local suppliers of primary inputs:

Largely non-existing and limited supply	1	2	3	4	5	Numerous and provides all necessary input components

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

11) The quality of local suppliers for your industry's primary inputs is:

Inefficient and have little technological capability	1	2	3	4	5	Internationally competitive, innovative and reliable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

12) The sustainability of local suppliers of your industry's primary inputs:

Problematic	1	2	3	4	5	No problem at all

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

13) Availability of storage and packing/product handling facilities:

Not available	1	2	3	4	5	Readily available

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

14) The cost of storage and packing/product handling facilities:

Extremely high	1	2	3	4	5	Affordable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

15) Availability and reliability of transport:

Unavailable and unreliable	1	2	3	4	5	Readily available and trustworthy

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

16) Necessary infrastructure requirements for export purposes: (E.g. facilities at Walvis Bay harbour)

Insufficient and hinders competitiveness	1	2	3	4	5	Sufficient and improves competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

SECTION E: FIRM STRATEGY, STRUCTURE AND RIVALRY

1) The management of information flow from primary suppliers to your company is:

Inadequate	1	2	3	4	5	Excellent

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

2) The flow and use of information from customers to your company to inform strategy is:

Inadequate	1	2	3	4	5	Excellent

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

3) Competition in the local market is:

Very limited	1	2	3	4	5	Very intense

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

4) Entry of new competitors:

Almost never occurs	1	2	3	4	5	Is common in the local market

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

5) Competition in international market is:

Very limited	1	2	3	4	5	Very intense

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

6) Your current resource (land, human and capital) base to support projected Palm Date Fruits operations:

Insufficient	1	2	3	4	5	Sufficient

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

7) Palm date Fruit's competition for resources (land, human and capital) from other agricultural activities:

Not competitive at all	1	2	3	4	5	Very competitive

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

SECTION F: GOVERNMENT SUPPORT AND POLICIES

1) Namibia's trade policy:

Constraints your company's competitiveness	1	2	3	4	5	Enhances your company's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

2) Namibia's land reform policy:

Constraints your company's competitiveness	1	2	3	4	5	Enhances your company's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

3) Namibia's labour policy:

Constraints your company's competitiveness	1	2	3	4	5	Enhances your company's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

4) Namibia's macro-economic policy:

Constraints your company's competitiveness	1	2	3	4	5	Enhances your company's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

5) Namibia's competition law:

Constraints your company's competitiveness	1	2	3	4	5	Enhances your company's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

6) Namibia's BEE policy:

Constraints your company's competitiveness	1	2	3	4	5	Is a opportunity to increase your firm's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

7) The credibility of the political system is:

Very low	1	2	3	4	5	Very high

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

8) The credibility of the politicians is:

Very low	1	2	3	4	5	Very high

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

9) Regulatory standards (e.g. Products standards, energy, safety, and environment) in your opinion are:

Lax or non-existent	1	2	3	4	5	Among the world's most stringent

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

10) Complying with regulatory standards:

Obstructs competitiveness	1	2	3	4	5	Increases competitiveness by promoting improvement

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

11) The taxation system:

Impedes business investment	1	2	3	4	5	Promotes business investment

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

12) Have legal or political factors over the past five years undermined your company's strategic positioning?

Have severely undermined strategic planning	1	2	3	4	5	Have had no effect on strategic planning

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

13) The effect of corruption and opportunism on business' competitiveness:

Impedes business investment	1	2	3	4	5	Promotes business investment

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

SECTION G: CHANCE OF OPPORTUNITY FACTORS

(factors over which your firm or project has no control and are of an external nature to the firm, industry and country)

1) The current exchange rate:

Constraints your company's competitiveness	1	2	3	4	5	Enhances your company's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

2) The exchange rate fluctuations:

Constraints your company's competitiveness	1	2	3	4	5	Enhances your company's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

3) The ability of the Palm Date Fruit industry to fully utilise the effect of unfavourable weather conditions on competitors:

Incapable	1	2	3	4	5	Capable

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

4) Social unrest

Imposes significant costs to your company	1	2	3	4	5	Does not impose significant costs to your company

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

5) The Namibian political system in general:

Hinders competitiveness	1	2	3	4	5	Promotes competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

6) Crime

Imposes significant costs to your company	1	2	3	4	5	Does not impose significant costs to your company

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

7) Health -HIV/AIDS, TB, etc.:

Imposes significant costs to your company	1	2	3	4	5	Does not impose significant costs to your company

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

8) Economic development and growth in Namibia:

Constraints your company's competitiveness	1	2	3	4	5	Is an opportunity to increase your firm's competitiveness

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

9) To what extent do international/world events impact on your competitiveness? (E.g. warfare/conflicts, international strikes etc.)

Big impact	1	2	3	4	5	No impact

The relevance of this factor is:

Not Relevant	1	2	3	4	5	Highly Relevant

Comment: _____

SECTION H: GENERAL QUESTIONS - In your opinion:

1. What are the **5** main factors that enhance the competitive performance of your industry?

a

b _____

c _____

d _____

e _____

2. What are the **5** main factors that constrain the competitive performance of your industry?

a _____

b _____

c _____

d _____

e _____

3. Who are the most threatening competitors (both international and local)

International _____

_____

Local _____

_____

4. Do you think the current strength of the industry is sufficient to cope with competition? If not, what could be done?

_____

_____

_____

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE
YOUR RESPONSE IS HIGHLY APPRECIATED

APPENDIX B: Attendance list of industry stakeholders who participated at the Date Information Session (DIS) (April, 2015)

NAME	ADDRESS	TELEPHONE	FAX NO	E-MAIL
INVITED GUESTS:				
Mr Willie Vermeulen & Wife	P.O.Box 18, Grunau	063-262028		kbergvermeulen@gmail.com
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Mr. Bertus O'Callaghan	Desert Fruit	+27 722459654		bertus@desertfruit.net
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Ms. Linda Perny	City of Windhoek/GSI	061-2902095		Linda.Perny@windhoekcc.org.na
Mr. Andre Botes & Wife	Standard Bank	081 129 3802		Andre.botes@standardbank.com.na
Mr. Fanie Oosthuizen	IMLT	081 128 4200		fanie@imlt.org.na
Prof. Johan van Rooyen	University of Stellenbosch	+27 82 785 3300		cjvr@sun.ac.za
Ms Alexandria Angala	MSc. Student-Stellenbosch University	+27 84 4160 899		shoopalaa@gmail.com
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Dr. Stellemacher	P.O.Box 3019,RHB	0812233337		
Mr. Quentin Diergaardt!	P.O.Box 2384, WHK	081 148 0333		tarquinn@iway.na
Mr. Ervin Strubing	Jakkalswater Suid,WHK	0812790837	062-581665	es@iway.na
Mr. Otto & Anzette Cloete	Kleinbegin Lodge	063-269315		kleinbeginlodge@gmail.com
Mr. Andries Nolte	Hakiesdoring	0811248924	063-270635	ajnolte@afol.com.na
Mr. Allen Van Zyl	Hakiesdoring	063-683725		alan@karasdates.com
Mr. Tiaan du Preez	Hakiesdoring	063-683725	+27820549660	thean@karasdates.com
Mr Jonathan Golaith	P.O.Box 647,Keetmanshoop	081 262 2401		
Mr Willem April		081 875 7437		
Mr Nicky Rossouw	Aussenkehr	081 147 2718		Niekie.nr@gmail.com
PROJECT STAFF:				
Mr. P. De Wet	P/bag 13252, Windhoek	061-2062235	061-247843	Pieter.dewet@ndc.org.na

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Mr Jacques Joubert	Eersbegin project	081 381 2166	067-331125	Jacques.joubert@ndc.org.na
Ms Renee Jarrett	NDC	081 355 8968		Renee.jarrett@ndc.org.na
UNIVERSITY OF STELLENBOSCH				
Mr Japie Mare		+27 82 785 3300		

APPENDIX C: The list of 72 factors and grouping all factors into the determinants of competitiveness for the Namibian date industry

Factors	***Impact ratings****	***Relevance ratings****
Production Factor conditions (Determinant 1)		
General infrastructure (B1)	3.6	4.4
Transaction cost (B3)	2.6	4.1
Technology quality (B4)	3.2	4
Access to quality technology (B5)	3.4	4.1
Technology cost (B6)	2.6	3.8
Obtaining LT credit (B7)	2.4	3.9
Obtaining ST credit (B8)	3.2	3.6
Skilled labour availability (B9)	2.2	4.1
Skilled labour competency (B10)	2.9	4.2
Skilled labour cost (B11)	2.2	4.1
Unskilled labour availability (B12)	4.6	3.7
Unskilled labour quality (B13)	1.8	3.7
Unskilled labour cost (B14)	3.3	4
Natural resource access (B15)	2.7	4
Location suitable for production (B16)	4.4	4.7
Establishment and production costs (B17)	1.8	4.1
Climate impact (B18)	3.4	4.3
Productivity level (B19)	3.4	4.2
Production efficiency level (B20)	3.1	4.4
Cost infrastructure (B2)	2.5	4.2
Demand/Market Factor Conditions (Determinant 2)		
Local market size (C1)	1.9	4.1
Local consumers adoption (C2)	2	3.7
Local market volume growth (C3)	1.7	3.8
International market size (C4)	4.7	4.5
Diversity of new international markets (C5)	3.2	3.9
Seasonality impact (C6)	4.3	4.3
Relationship with multinational retailers (C7)	2	4.2
Related and other supporting Industries (Determinant 3)		
Financial service providers competitiveness impact (D1)	3.1	3.7
Private-funded scientific research institutions (D2)	1.4	3.9
Government-funded scientific research institutions (D3)	2.1	4.2
Industry R&D expenditure (D4)	1.7	4.1
Collaboration with research institutions (D5)	2.2	4
Electricity supply competitiveness impact (D6)	2.6	4.2

Telecommunication competitiveness impact (D7)	3.7	4.5
Specialised technology services availability (D8)	3.3	4.5
Specialised technology services cost (D9)	1.8	4.2
Local suppliers of primary inputs availability (D10)	2.5	4.1
Local suppliers of primary inputs quality (D11)	2.8	3.9
Local suppliers of primary inputs sustainability (D12)	2.5	4.3
Storage, packing, product handling facilities availability (D13)	3.5	4.4
Storage, packing, product handling facilities cost (D14)	2.1	4.2
Transport reliability and availability (D15)	3.8	4.3
Export infrastructure (D16)	2.3	4.3
Firm Strategy, Structure and Rivalry (Determinant 4)		
Information flow from primary suppliers (E1)	3	4.3
Information flow & use from customers (E2)	2.8	3.8
Competition local market (E3)	2.1	4.1
Entry of new competitors (E4)	2.3	4
Competition international market (E5)	3.8	4.1
Current resource base to support operations (E6)	3.3	4.1
Competition for resources (E7)	2.6	4.2
Government support and Policies (Determinant 5)		
Namibia trade policy (F1)	3.7	4.3
Namibia land reform policy (F2)	3	4.1
Namibia labour policy (F3)	3	4.2
Namibia macro-economic policy (F4)	3.4	4
Namibia competition law (F5)	3.3	3.6
Namibia BEE policy (F6)	3.5	3.9
Credibility of political system (F7)	3.8	4.1
Credibility of politicians (F8)	3.3	3.9
Regulatory standards stringency (F9)	3.3	4.2
Complying with regulatory standards & competitiveness (F10)	3.9	4.2
Taxation system (F11)	3	3.9
Legal or political factors undermining strategic positioning (F12)	3	3.7
Corruption & opportunism & competitiveness (F13)	2.2	3.9
The Chance Factors (Determinant 6)		
Namibia economic development and growth (G8)	4	4.4
Namibian political system & competitiveness (G5)	3.8	4
Current exchange rate & competitiveness (G1)	3.7	4.5
Utilise competitors limitations (G3)	3.5	4.3
Exchange rate fluctuations (G2)	3.3	4.2
Social unrest (G4)	3.1	4.1
Health HIV/AIDS, TB etc. cost implications (G7)	3	3.7
International events & competitiveness (G9)	3	3.5
Crime cost implications (G6)	2.7	4

**Scores out of 5*
**Impact rating (1=Least positive; ...; 3=Neutral; ...; 5=Most positive)*
** Relevancy rating (1=Least relevant; ...; 3=Neutral; ...; 5=Most relevant*

APPENDIX D: Principal component analyses (PCA): Detailed statistical output

Determinant 1: Production Factor conditions

PCA was applied to identify redundant (highly correlated) variables in the data set and thus yield a dataset containing a smaller number of uncorrelated variables. The detailed statistical results of the PCA analyses are presented below. The non-redundant (least correlated variables) identified by the PCA for the sample as a whole are (B1, B2, B3, B4, B5, B8, B9, B10, B12, B13, B15, B16, B18, B20). Only six of the original seven variables were indicated as highly correlated (B6, B7, B11, B14, B17, B19).

Communalities

	Initial	Extraction
B1	1.000	.739
B2	1.000	.874
B3	1.000	.840
B4	1.000	.840
B5	1.000	.826
B6	1.000	.797
B7	1.000	.822
B8	1.000	.770
B9	1.000	.802
B10	1.000	.756
B11	1.000	.826
B12	1.000	.731
B13	1.000	.677
B14	1.000	.816
B15	1.000	.794
B16	1.000	.814
B17	1.000	.728
B18	1.000	.858
B19	1.000	.816
B20	1.000	.801

Extraction Method: Principal Component Analysis

Most of the extraction values are high, thus indicating the variance in each variable accounted for by the components. The extracted components represent the variables well.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.156	25.778	25.778	5.156	25.778	25.778	3.642	18.208	18.208
2	2.324	11.622	37.400	2.324	11.622	37.400	2.515	12.574	30.782
3	2.162	10.812	48.213	2.162	10.812	48.213	2.140	10.698	41.480
4	1.981	9.906	58.119	1.981	9.906	58.119	2.139	10.696	52.176
5	1.545	7.726	65.845	1.545	7.726	65.845	2.036	10.180	62.356
6	1.527	7.636	73.481	1.527	7.636	73.481	1.844	9.218	71.574
7	1.230	6.149	79.630	1.230	6.149	79.630	1.611	8.056	79.630

8	.835	6.149	83.805						
9	.690	6.149	87.254						
10	.599	6.149	90.249						
11	.457	6.149	92.535						
12	.404	6.149	94.556						
13	.294	6.149	96.026						
14	.273	6.149	97.390						
15	.224	6.149	98.507						
16	.128	6.149	99.147						
17	.080	6.149	99.544						
18	.047	6.149	99.781						
19	.028	6.149	99.921						
20	.016	6.149	100.000						

Extraction Method: Principal Component Analysis
Note: The first seven components had Eigen values larger than 1 and was included in the analysis

Rotated Component Matrix[a]

	Component						
	1	2	3	4	5	6	7
B18	.854						
B3	.808				.340		
B8	.731					.302	
B14	.704		.491				
B7	.688						.502
B19	.649			.475			
B9		.794					
B10		.723					
B13		.710					
B11		.615				.499	.344
B20			.831				
B5			.767		.393		
B4				.863			
B1				.743		.338	
B17		-.476		.568	-.322		
B16					.855		
B12					.784		
B2						.889	
B6			.433			.641	.375
B15							.836

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
[a] Rotation converged in 9 iterations

An item was interpreted as loading on a given component (i.e. not being highly correlated) if the factor loading was 0.40 or greater for that component and was less than 0.40 for the other. See yellow cells in table above.

Determinant 2: Demand/Market Factor Conditions

PCA was applied to identify redundant (highly correlated) variables in the data set and thus yield a dataset containing a smaller number of uncorrelated variables. The detailed statistical results of the PCA analyses

are presented below. The non-redundant (least correlated variables) identified by the PCA for the sample as a whole are (C1, C2, C6, C7). Three of the original seven variables were indicated as highly correlated (C3, C4, C5).

Communalities

	Initial	Extraction
C1	1.000	.562
C2	1.000	.808
C3	1.000	.614
C4	1.000	.781
C5	1.000	.715
C6	1.000	.715
C7	1.000	.491

Extraction Method: Principal Component Analysis

Most of the extraction values are high, thus indicating the variance in each variable accounted for by the components. The extracted components represent the variables well.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.116	30.230	30.230	2.116	30.230	30.230	1.853	26.466	26.466
2	1.304	18.633	48.863	1.304	18.633	48.863	1.529	21.838	48.304
3	1.266	18.087	66.950	1.266	18.087	66.950	1.305	18.646	66.950
4	.984	14.055	81.005						
5	.660	9.428	90.432						
6	.383	5.471	95.903						
7	.287	4.097	100.000						

Extraction Method: Principal Component Analysis

Note: The first three components had Eigen values larger than 1 and was included in the analysis

Rotated Component Matrix[a]

	Component		
	1	2	3
C2	.873		
C7	.698		
C6		.836	
C3	.440	.645	
C5		-.609	.586
C1			.687
C4	-.573		.665

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization.

[a] Rotation converged in 5 iterations

An item was interpreted as loading on a given component (i.e. not being highly correlated) if the factor loading was 0.40 or greater for that component and was less than 0.40 for the other. See yellow cells in table above.

Determinant 3: Related and other supporting industries factor Conditions

PCA was applied to identify redundant (highly correlated) variables in the data set and thus yield a dataset containing a smaller number of uncorrelated variables. The detailed statistical results of the PCA analyses are presented below. The non-redundant (least correlated variables) identified by the PCA for the sample as a whole are (D1, D3, D4, D6, D9, D10, D11, D12, D13, D15). Six of the original 16 variables were indicated as highly correlated (D2, D5, D7, D8, D14, D16).

Communalities

	Initial	Extraction
D1	1.000	.696
D2	1.000	.828
D3	1.000	.631
D4	1.000	.725
D5	1.000	.864
D6	1.000	.639
D7	1.000	.748
D8	1.000	.758
D9	1.000	.876
D10	1.000	.813
D11	1.000	.814
D12	1.000	.875
D13	1.000	.692
D14	1.000	.722
D15	1.000	.865
D16	1.000	.799

Extraction Method: Principal Component Analysis

Most of the extraction values are high, thus indicating the variance in each variable accounted for by the components. The extracted components represent the variables well.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.431	21.445	21.445	3.431	21.445	21.445	3.216	20.099	20.099
2	2.962	18.511	39.956	2.962	18.511	39.956	2.350	14.688	34.787
3	2.032	12.700	52.655	2.032	12.700	52.655	1.926	12.035	46.821
4	1.543	9.643	62.299	1.543	9.643	62.299	1.809	11.304	58.125
5	1.358	8.485	70.784	1.358	8.485	70.784	1.736	10.850	68.975
6	1.020	6.372	77.156	1.020	6.372	77.156	1.309	8.181	77.156
7	.764	4.777	81.933						
8	.720	4.499	86.431						

9	.564	3.525	89.956						
10	.468	2.923	92.879						
11	.376	2.351	95.230						
12	.287	1.792	97.022						
13	.222	1.387	98.409						
14	.148	.922	99.331						
15	.084	.524	99.855						
16	.023	.145	100.000						

Extraction Method: Principal Component Analysis
Note: The first six components had Eigen values larger than 1 and was included in the analysis

Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
D12	.910					
D10	.857					
D11	.775					.367
D16	-.553		.356	.439		
D15		.911				
D7		.675			.484	
D14		-.647	.446			
D5	.319	.638	.533			
D4			.766			
D3	-.368		.618		.309	
D1				.794		
D8	.493			.651		
D2			.496	.650		
D6					.752	
D13					.703	.334
D9						.914

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
[a]Rotation converged in 9 iterations

An item was interpreted as loading on a given component (i.e. not being highly correlated) if the factor loading was 0.40 or greater for that component and was less than 0.40 for the other. See yellow cells in table above.

Determinant 4: Firm strategy, structure and rivalry factor Conditions

PCA was applied to identify redundant (highly correlated) variables in the data set and thus yield a dataset containing a smaller number of uncorrelated variables. The detailed statistical results of the PCA analyses are presented below. None of the original 7 variables were indicated as highly correlated. All factors (E1, E2, E3, E4, E5, E5, E6, and E7) were indicated as non-redundant (least correlated variables) identified by the PCA for the sample as a whole.

Communalities

	Initial	Extraction
E1	1.000	.890
E2	1.000	.837
E3	1.000	.587
E4	1.000	.873
E5	1.000	.599
E6	1.000	.771
E7	1.000	.758

Extraction Method: Principal Component Analysis

Most of the extraction values are high, thus indicating the variance in each variable accounted for by the components. The extracted components represent the variables well.

Total Variance Explained

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.183	31.183	31.183	2.183	31.183	31.183	2.014	28.767	28.767
2	1.742	24.889	56.072	1.742	24.889	56.072	1.758	25.109	53.876
3	1.391	19.871	75.943	1.391	19.871	75.943	1.545	22.067	75.943
4	.751	10.727	86.669						
5	.551	7.873	94.542						
6	.242	3.457	97.999						
7	.140	2.001	100.000						

Extraction Method: Principal Component Analysis

Note: The first three components had Eigen values larger than 1 and was included in the analysis

Rotated Component Matrix

	Component		
	1	2	3
E4	.928		
E7	.784		.376
E3	.728		
E1		.940	
E2		.905	
E6			.863
E5			.751

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization.

An item was interpreted as loading on a given component (i.e. not being highly correlated) if the factor loading was 0.40 or greater for that component and was less than 0.40 for the other. See yellow cells in table above.

Determinant 5: Firm strategy, structure and rivalry factor Conditions

PCA was applied to identify redundant (highly correlated) variables in the data set and thus yield a dataset containing a smaller number of uncorrelated variables. The detailed statistical results of the PCA analyses are presented below. Four of the original 14 variables were indicated as highly correlated (F1, F5, F8, F11). Other factors (F2, F3, F4, F6, F7, F9, F10, F12 and F13) were indicated as non-redundant (least correlated variables) identified by the PCA for the sample as a whole.

Communalities

	Initial	Extraction
F1	1.000	.779
F2	1.000	.771
F3	1.000	.726
F4	1.000	.707
F5	1.000	.813
F6	1.000	.869
F7	1.000	.900
F8	1.000	.666
F9	1.000	.869
F10	1.000	.821
F11	1.000	.730
F12	1.000	.883
F13	1.000	.873

Extraction Method: Principal Component Analysis

Most of the extraction values are high, thus indicating the variance in each variable accounted for by the components. The extracted components represent the variables well.

Total Variance Explained

Component	**Initial Eigenvalues**			**Extraction Sums of Squared Loadings**			**Rotation Sums of Squared Loadings**		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.958	38.138	38.138	4.958	38.138	38.138	3.377	25.980	25.980
2	1.900	14.618	52.756	1.900	14.618	52.756	2.139	16.454	42.434
3	1.372	10.552	63.307	1.372	10.552	63.307	1.900	14.615	57.048
4	1.137	8.748	72.055	1.137	8.748	72.055	1.535	11.807	68.855
5	1.039	7.995	80.050	1.039	7.995	80.050	1.455	11.195	80.050
6	.758	5.835	85.885						
7	.619	4.761	90.646						
8	.378	2.911	93.557						
9	.284	2.183	95.740						
10	.229	1.763	97.503						
11	.190	1.459	98.962						
12	.099	.764	99.726						
13	.036	.274	100.000						

Extraction Method: Principal Component Analysis

Note: The first five components had Eigen values larger than 1 and was included in the analysis

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
F6	.883				
F2	.837				
F4	.733				
F1	.615	.518		-.330	
F11	.548		.367		.524
F7		.943			
F3	.396	.729			
F8	.441	.530		.337	
F12			.913		
F10	.316		.730		.361
F13				.921	
F5	.454		.473	.512	
F9					.931

Extraction Method: Principal Component Analysis
Rotation Method: Varimax with Kaiser Normalization.
[a] Rotation converged in 7 iterations

An item was interpreted as loading on a given component (i.e. not being highly correlated) if the factor loading was 0.40 or greater for that component and was less than 0.40 for the other. See yellow cells in table above.

Determinant 6: The chance factor conditions

PCA was applied to identify redundant (highly correlated) variables in the data set and thus yield a dataset containing a smaller number of uncorrelated variables. The detailed statistical results of the PCA analyses are presented below. The non-redundant (least correlated variables) identified by the PCA are (G1, G2, G3, G4, G5, G6, G7 and G9). Only one of the original 9 variables were indicated as highly correlated (G8).

Communalities

	Initial	**Extraction**
G1	1.000	.378
G2	1.000	.896
G3	1.000	.667
G4	1.000	.738
G5	1.000	.745
G6	1.000	.695
G7	1.000	.667
G8	1.000	.636
G9	1.000	.483

Extraction Method: Principal Component Analysis

Most of the extraction values are high, thus indicating the variance in each variable accounted for by the components. The extracted components represent the variables well.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.775	30.829	30.829	2.775	30.829	30.829	2.029	22.546	22.546
2	1.847	20.521	51.351	1.847	20.521	51.351	1.971	21.905	44.451
3	1.282	14.247	65.597	1.282	14.247	65.597	1.903	21.146	65.597
4	.985	10.949	76.547						
5	.802	8.914	85.461						
6	.458	5.089	90.550						
7	.353	3.925	94.475						
8	.331	3.677	98.152						
9	.166	1.848	100.000						

Extraction Method: Principal Component Analysis

Note: The first three components had Eigen values larger than 1 and was included in the analysis

Rotated Component Matrix[a]

	Component		
	1	2	3
G5	.832		
G4	.770		
G8	.680	.409	
G2		.905	
G3		.740	
G1		.586	
G6			.786
G7	-.385		.717
G9			.694

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization.

An item was interpreted as loading on a given component (i.e. not being highly correlated) if the factor loading was 0.40 or greater for that component and was less than 0.40 for the other. See yellow cells in table above.

APPENDIX E: Comparisons for all factors statistical differences between the two clusters

Factors of competitiveness: Namibian Date Industry	Impact ratings* (Producer cluster) (n=12)	Impact ratings* (Service network cluster) (n=14)	Impact ratings* Total sample	F	df	p-value
General infrastructure (B1)	3.8	3.4	3.6	2.730	1	0.112
Cost infrastructure (B2)	2.7	2.4	2.5	0.574	1	0.456
Transaction cost (B3)	2.8	2.5	2.6	0.222	1	0.642
Technology quality (B4)	3.2	3.2	3.2	0.013	1	0.912
Access to quality technology (B5)	3.1	3.7	3.4	3.122	1	0.090***
Technology cost (B6)	2.8	2.4	2.6	1.537	1	0.227
Obtaining LT credit (B7)	2.9	2.0	2.4	3.732	1	0.065***
Obtaining ST credit (B8)	3.4	3.0	3.2	1.081	1	0.309
Skilled labour availability (B9)	2.5	1.9	2.2	1.846	1	0.187
Skilled labour competency (B10)	2.9	2.9	2.9	0.038	1	0.848
Skilled labour cost (B11)	2.4	2.0	2.2	1.000	1	0.327
Unskilled labour availability (B12)	4.5	4.7	4.6	1.216	1	0.281
Unskilled labour quality (B13)	1.7	2.0	1.9	0.470	1	0.500
Unskilled labour cost (B14)	3.3	3.4	3.4	0.251	1	0.621
Natural resource access (B15)	2.7	2.6	2.7	0.002	1	0.965
Location suitable for production (B16)	4.5	4.4	4.4	0.174	1	0.681
Establishment and production costs (B17)	1.8	1.9	1.9	0.442	1	0.512
Climate impact (B18)	3.3	3.4	3.4	0.032	1	0.860
Productivity level (B19)	3.7	3.2	3.4	1.668	1	0.209
Production efficiency level (B20)	2.9	3.2	3.1	0.646	1	0.430
Local market size (C1)	1.8	1.9	1.9	0.046	1	0.832
Local consumers adoption (C2)	2.0	2.0	2.0	0.000	1	1.000
Local market volume growth (C3)	1.6	1.7	1.7	0.193	1	0.664
International market size (C4)	4.7	4.7	4.7	0.047	1	0.831
Diversity of new international markets (C5)	3.7	2.8	3.2	4.454	1	0.045**
Seasonality impact (C6)	4.3	4.3	4.3	0.007	1	0.935
Relationship with multinational retailers (C7)	2.2	1.9	2.0	0.427	1	0.520
Financial service providers competitiveness impact (D1)	3.2	3.0	3.1	0.446	1	0.511

Private-funded scientific research institutions (D2)	1.4	1.4	1.4	0.068	1	0.797
Government-funded scientific research institutions (D3)	2.2	2.0	2.1	0.244	1	0.626
Industry R&D expenditure (D4)	2.0	1.4	1.7	2.363	1	0.137
Collaboration with research institutions (D5)	2.3	2.1	2.2	0.081	1	0.778
Electricity supply competitiveness impact (D6)	2.2	3.0	2.6	2.859	1	0.104
Telecommunication competitiveness impact (D7)	3.6	3.8	3.7	0.233	1	0.634
Specialised technology services availability (D8)	3.1	3.4	3.3	0.609	1	0.443
Specialised technology services cost (D9)	1.5	2.1	1.8	6.387	1	0.018**
Local suppliers of primary inputs availability (D10)	2.5	2.5	2.5	0.000	1	1.000
Local suppliers of primary inputs quality (D11)	2.8	2.8	2.8	0.009	1	0.926
Local suppliers of primary inputs sustainability (D12)	2.2	2.8	2.5	1.350	1	0.257
Storage, packing, product handling facilities availability (D13)	3.1	3.8	3.5	2.169	1	0.154
Storage, packing, product handling facilities cost (D14)	2.4	1.9	2.1	1.696	1	0.205
Transport reliability and availability (D15)	3.7	3.9	3.8	0.782	1	0.385
Export infrastructure (D16)	2.2	2.4	2.3	0.186	1	0.670
Information flow from primary suppliers (E1)	3.0	2.9	3.0	0.032	1	0.860
Information flow & use from customers (E2)	2.7	2.9	2.8	0.682	1	0.417
Competition local market (E3)	2.4	1.8	2.1	1.306	1	0.264
Entry of new competitors (E4)	2.6	2.1	2.4	0.869	1	0.361
Competition international market (E5)	3.9	3.8	3.9	0.114	1	0.738
Current resource base to support operations (E6)	3.5	3.1	3.3	0.952	1	0.339
Competition for resources (E7)	2.8	2.4	2.6	1.008	1	0.325
Namibia trade policy (F1)	3.4	3.9	3.7	1.809	1	0.191
Namibia land reform policy (F2)	2.7	3.2	3.0	1.602	1	0.218
Namibia labour policy (F3)	3.2	2.9	3.0	0.445	1	0.511
Namibia macro-economic policy (F4)	3.3	3.5	3.4	0.214	1	0.648
Namibia competition law (F5)	3.1	3.5	3.3	2.168	1	0.154
Namibia BEE policy (F6)	3.1	3.8	3.5	3.287	1	0.082***

Credibility of political system (F7)	3.8	3.7	3.8	0.083	1	0.776
Credibility of politicians (F8)	3.3	3.4	3.4	0.139	1	0.713
Regulatory standards stringency (F9)	3.3	3.3	3.3	0.009	1	0.927
Complying with regulatory standards & competitiveness (F10)	3.7	4.1	3.9	2.445	1	0.131
Taxation system (F11)	2.9	3.1	3.0	0.385	1	0.541
Legal or political factors undermining strategic positioning (F12)	2.5	3.4	3.0	5.129	1	0.033**
Corruption & opportunism & competitiveness (F13)	2.0	2.3	2.2	0.607	1	0.444
Current exchange rate & competitiveness (G1)	3.6	3.8	3.7	0.273	1	0.606
Exchange rate fluctuations (G2)	3.5	3.2	3.4	0.431	1	0.518
Utilise competitors limitations (G3)	3.4	3.6	3.5	0.188	1	0.668
Social unrest (G4)	3.4	2.8	3.1	1.572	1	0.222
Namibian political system & competitiveness (G5)	3.9	3.6	3.8	0.413	1	0.526
Crime cost implications (G6)	2.6	2.7	2.7	0.044	1	0.835
Health HIV/AIDS, TB etc. cost implications (G7)	3.4	2.7	3.0	3.218	1	0.085***
Namibia economic development and growth (G8)	4.0	4.0	4.0	0.000	1	1.000
International events & competitiveness (G9)	2.8	3.1	3.0	0.307	1	0.584

**Scores out of 5*

***p value <0.05 indicate a clear statistical significant differences between the two clusters*

****p value greater but closer to 0.05 indicate a slightly difference between the two cluster*