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Agriculture based clusters: a model to stimulate South Africa's rural small-scale farming sector

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ABSTRACT

Unemployment in South Africa is a major problem and the marginal economic growth has not stimulated job creation. The problem is skewed to the rural communities. As the most labour absorptive sector, agriculture is best placed to help address this challenge. However, to become a viable globally competitive sector rural small-scale farmers need Government policy certainty and support; cluster creation is a means for small-scale farmers to be provided the required support.

An exploratory study was conducted on Western Cape Wine cluster members and relevant Government employees. This study sought to identify behaviours and enablers instrumental in this cluster's success; while the Government employees clarified South Africa's official readiness for cluster implementation.

The cluster abundantly evidenced: strong linkages, competition coupled with cooperation, connectedness among all the players as well as knowledge spill-over. These elements were enabled by historical support, primarily in research. The Government Departments, however, displayed paucity in these very behaviours, thus failing to maximise on efforts they made. Cluster members bemoaned the debilitating frequent changes in policy.

Unless this crucial enabler together with the provision of infrastructure for creating connected communities is provided by collaborating Government Departments, South Africa's small-scale farmers cannot enjoy the benefits of clustering.

Keywords

Clusters, small-scale farming, rural agriculture, agglomeration, knowledge spill-over

Declaration

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Signed: Mpho Toolo

Date 9 November 2015

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Table 1: Abbreviations and acronyms

ACs	Agriculture Based Clusters
AP	Agriparks
APAP	Agricultural Policy Action Plan (from DRDLR)
ARC	Agriculture Research Council
COSATU	Congress of South African Trade Unions
DAFF	Department of Agriculture, Forestry and Fisheries (South African Government)
DRDLR	Department of Rural Development and Land Reform (South African Government)
DTI	Department of Trade and Industry (South African Government)
FAO	Food and Agriculture Organization of the United Nations
GEAR	Growth, Employment and Redistribution Policy
IMF	International Monetary Fund
KWV	Co-operative Viniculture Organisation
MAR clusters	Marshall-Arrow-Romer (MAR) clusters or knowledge spill-over clusters
NDP	National Development Plan
RDP	Reconstruction and Development Plan
SAWIS	SA Wine Industry Information and Systems
SEZs	Special Economic Zones
VinPro	Representative organisation for close to 3 500 South African wine producers and cellars
WOSA	Wines of South Africa

Chapter 1

INTRODUCTION

1.1. Research problem

"A persistent and even rising level of unemployment is perhaps the greatest failing of South Africa's democratic transition. It has stymied efforts to reduce poverty, slowed growth and contributed to poor educational and health outcomes. Increasingly, it poses a threat to social stability" (Black & Gerwel, 2014, p. 254).

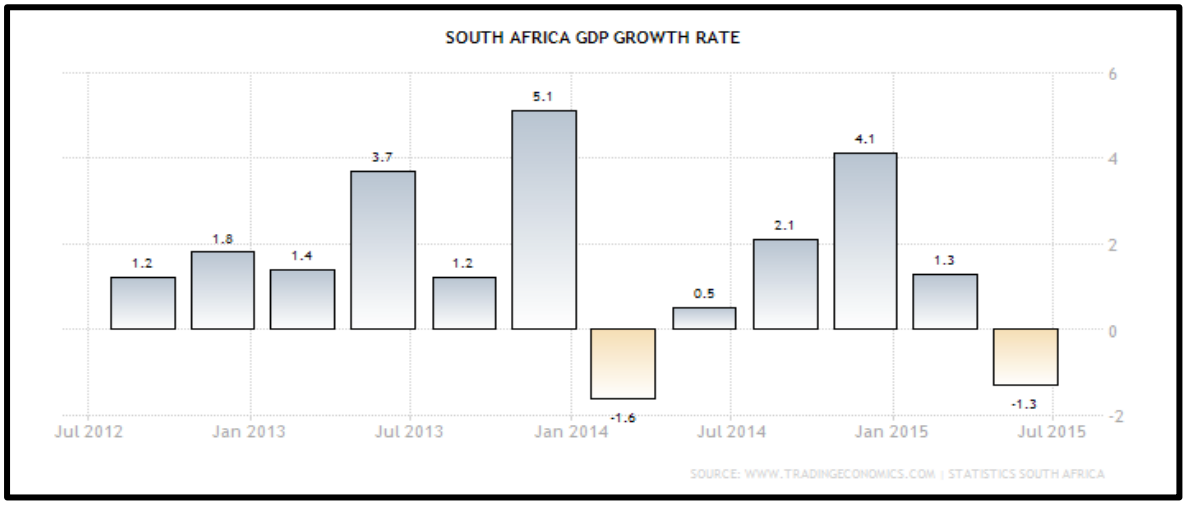
South Africa has an unemployment problem (National Planning Commission, 2012; Black & Gerwel, 2014). Twenty four percent of the population, according to the narrow definition of unemployment, are looking for work (Statistics South Africa, 2015). According to the expanded definition of unemployment which includes those who have given up looking for work, this percentage is as high as 34.6% (Statistics South Africa, 2015, p. 13). At 63.6%, unemployment levels are even higher among the youth (Statistics South Africa, 2015).

The situation is worse in the rural areas where the expanded unemployment rate ranges between 39.6% and 69.1% (Lehohla, 2002; Yu, 2013). A consequence of the high unemployment rate is increased migration as people travel into urban areas in search of employment (Lehohla, 2002). While urban migration delivers economic benefits for the receiving and sending areas, the scale and speed within which it is happening in South Africa is unprecedented (Lehohla, 2006) and places a strain on infrastructure and service delivery in the urban areas (Serumaga-Zake & Arnab, 2012). It is of paramount importance that the employment challenge in the rural areas is addressed, as this also has the added benefit of stemming urban influx and the resultant service delivery challenges.

Statistics South Africa report that 21.7% of the population live in extreme poverty or below the food poverty line, where they are unable to meet their minimum daily nutritional requirements (Statistics South Africa, 2015). The current economic performance does not appear to indicate that this problem will be rectified in the near future. Instead, the trend appears to be regretionary with a growth rate of -1.3% reported for the second quarter of 2015 (Trading Economics, 2015) (Figure 1). The 2015 growth projection has recently been reduced from 2.5% to 2% and the 2016 forecast decreased from 2.8% to 2.4% (Vollgraaff, 2015). The growth trend has been downward for a while (Trading Economics, 2015) (Figure 1), with the actual GDP constantly coming in below potential GDP every year since

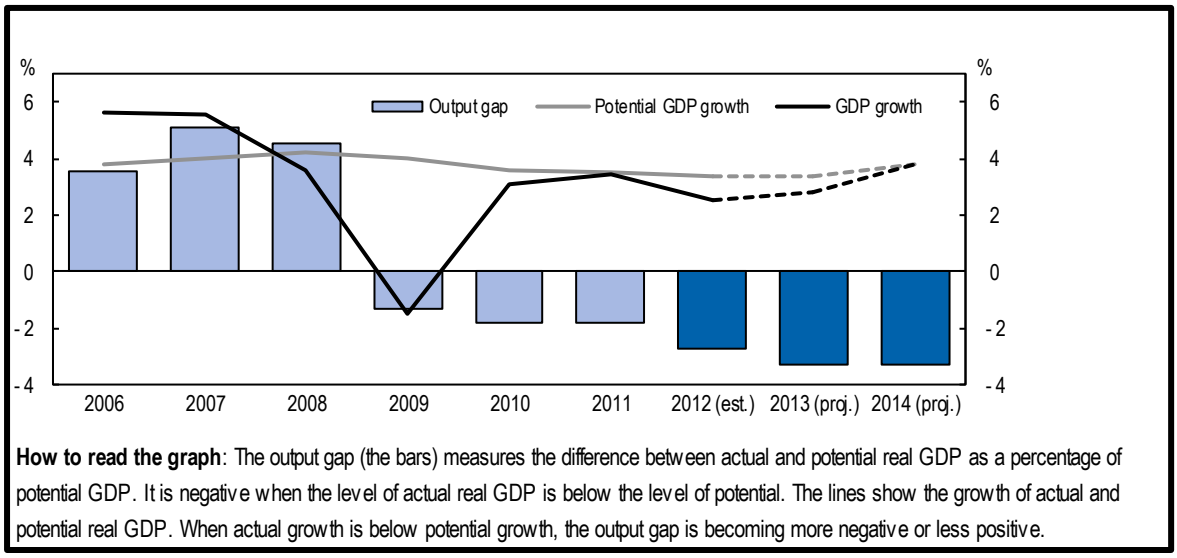
2008 (only exception, 2011) (Figure 2). The market forces appear not to be strong enough to get the economy out of its slump (OECD, 2013).

Figure 1: SA GDP Annual Growth Rates 2012 – 2015



Source: www.tradingeconomics.com/ Statistics South Africa

Figure 2: Widening Negative Output Gap



How to read the graph: The output gap (the bars) measures the difference between actual and potential real GDP as a percentage of potential GDP. It is negative when the level of actual real GDP is below the level of potential. The lines show the growth of actual and potential real GDP. When actual growth is below potential growth, the output gap is becoming more negative or less positive.

Source: OECD estimates (**OECD, 2013**).

South Africa has a Gini coefficient of 0.7, which makes it "one of the most unequal countries in the world" (National Planning Commission, 2012; Statistics South Africa, 2013). This inequality combined with the high unemployment could result in frustration among the poor, leading to protests such as the April 2015 xenophobic attacks (SAHO, 2015).

1.2. Research Purpose

The purpose of this study is to explore the use of agriculture-based clusters (ACs) as one of the possible solutions to the unemployment problem within South Africa. This study will focus on rural small-scale farming as an industry that can aid in addressing the unemployment challenge.

Several studies have shown that the reason for limited participation in agriculture among black South Africans includes the following historical factors: land ownership, lack of financial support under the apartheid government, rural-urban migration (as people went in search of lower risk employment), and risk aversion in the face of limited financial resources (Black & Gerwel, 2014; Hull, 2014). Under the conditions of apartheid Black farmers were unable to compete with well supported White farmers. In the main, these conditions still persist today (Hull, 2014). As such, unsupported Black small-scale farmers could never compete successfully with commercial farmers. This study considers ACs as a means of providing this support.

1.2.1. Reasons for the focus on rural agriculture

1. With levels ranging between 39.6% and 69.1%, rural South Africa has the highest level on unemployment (Lehohla, 2002).
2. Pollin, Epstein, Heintz and Ndikumana (2006) demonstrate that agriculture is the most labor-intensive sector, producing 18.6 labourers for every million Rand of output produced. The next best sector employs nine workers for the same output. Furthermore, both upstream (e.g. fertilizer and seed supply) and downstream (e.g. agro-processing) linkages are stronger for agriculture than in any other industry (Pollin, Epstein, Heintz, & Ndikumana, 2006). This is an important factor for the cluster concept, as will be demonstrated.
3. Black and Gerwel (2014) posit that shifting the composition of output to relatively labor-intensive sectors such as agriculture instead of manufacturing is one of the ways in which an economy can raise its employment intensity. In many middle income developing countries, agriculture usually has a share of employment that is three to four times its share of output. “Its importance to the welfare of low income groups is further heightened by the fact that poverty is disproportionately a rural phenomenon” (Black & Gerwel, 2014, p. 242).

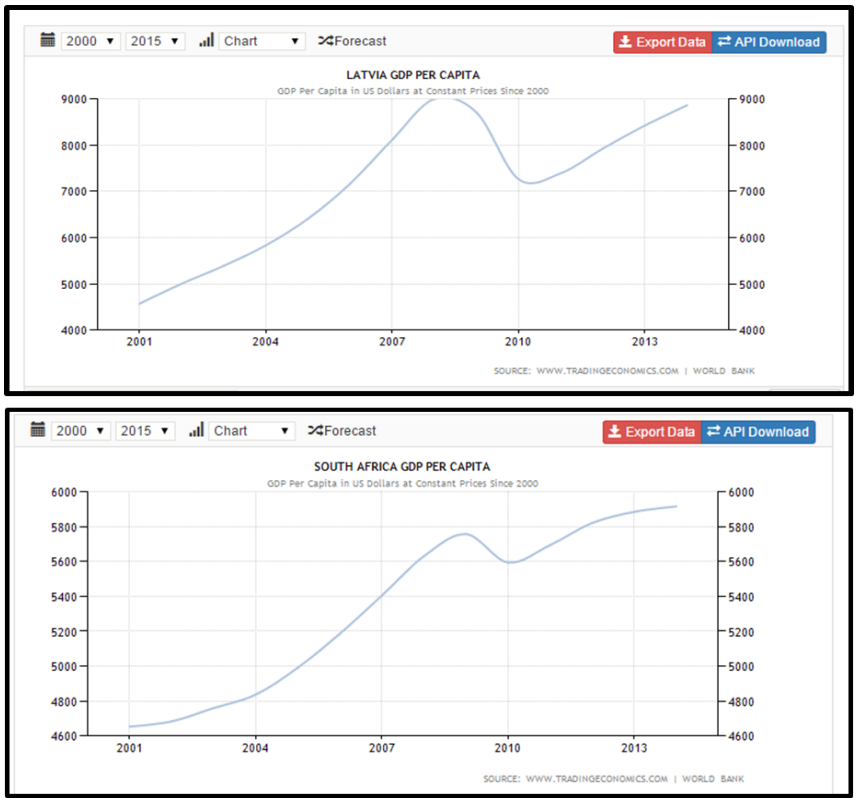
4. The bulk of South Africa's unemployed labour is unskilled or semi-skilled (Black & Gerwel, 2014). Agriculture, as a labour intensive industry requiring basic skills is best placed to absorb South Africa's labour force, both male and female.

1.2.2. Reasons for the focus on Agriculture Based Clusters

Scholars in several countries credit clusters for their economic growth in China (Yang, Hao, & Cai, 2015), Silicon Valley (Engel, 2015), China (Zeng, 2012), Latvia (Garanti, Zvirbule-Berzina, & Yesilada, Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus, 2014a), China (Nie & Sun, 2015), and electronic arts in the USA (Delgado, Porter, & Stern, 2014).

Clusters are defined as, a geographic concentration of closely related firms in a given field which have links to related institutions such as universities, government and funders (Delgado, Porter & Stern, 2014; Zeng, 2012). Latvia is an example of a country that has benefited from clusters. At the turn of the century Latvia had a GDP per capita similar that of to South Africa and has since exceeded the latter (Figure 3).

Figure 3: GDP per Capita Latvia vs. South Africa



Source: www. Tradingeconomics.com/ World Bank (Trading Economics, 2015)

Since joining the European Union in 2004, cluster theory has played a central role in strategic and policy documents in Latvia (Garanti, Zvirbule-Berzina, & Yesilada, Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus, 2014a). As a result, the former Soviet Union country has experienced radical growth in the information technology (IT) sector (Garanti, Zvirbule-Berzina, & Yesilada, 2014).

There are not many examples of developing country agriculture clusters (Galvez-Nogales, 2010; Kalayci, 2011). This could be due to the fact that the concept is associated with competitiveness and innovation which are values more prevalent in fields such as IT and electronics (Gálvez-Nogales, 2010). However, smallholder farmers, such as the Indian state of Maharashtra export grape growers, cluster in order to share the burden of meeting rigorous European Union standards. Individual producers do not have to invest in understanding how best to meet the standards nor do they have to individually invest in infrastructure, such as cold storage (Gálvez-Nogales, 2010). Individually their volumes would be too small to export but clustering allows them to meet consignment requirements and to share transport costs. The Avocado Cluster in Limpopo, South Africa, is such a cluster. Producers, individually unable to meet volume requirements from importing markets, pool their produce to meet these requirements and share shipping costs (Subtrop, 2015).

1.3. Research objectives

Reporting for the Food and Agriculture Organization of the United Nations, FAO, Galvez-Nogalez (2010, p. 1) asks the following question: “If clustering is an approach that seems to work, why not promote it?”

The purpose of this study is to try and answer this question for South Africa and explore ways in which ACs can be implemented as a means of stimulating rural agriculture within the country.

The objectives of the study are:

1. To list the factors that make agriculture clusters operate successfully in South Africa.
2. To identify some implementation gaps, which if addressed could help increase the speed of AC execution in South Africa.

1.3.1. Relationship between research problem and objectives

FAO states that ACs "can constitute an important tool for the economic and social development of a given territory: They can have positive impacts on income enhancement, employment generation and well-being of workers and entrepreneurs of the cluster and, more generally, they offer great potential for improving the local economy" (Gálvez-Nogales, 2010, p. 2).

South Africa has an unemployment problem (Black & Gerwel, 2014). Figuring out how clusters can be used to address this challenge in the rural agriculture space is the specific problem that this research confronts. The objective of this study is to understand how best to implement this model to address the employment challenge within the country.

1.3.2. How will industry benefit from this study?

Albeit in a small way, this study should reinforce cluster stimulating/forming behaviour from a small-holder farmer, support services and government point of view. It is hoped that this study will highlight those areas for improvement in the implementation of the cluster model.

1.3.3. The theoretical problem this study addresses

Galvez- Nogales (2010) states that promoting ACs in developing countries is a complicated process due to the "weak linkages that exist among actors" (p. 11). This study considers an established agriculture cluster within South Africa and seeks to learn how best to strengthen these ties.

1.3.4. Study scope

The scope of this study will be limited to agriculture-based clusters in South Africa with the aim of accelerating similar implementations in the rural sector. The focus is on an established cluster, namely the Western Cape Wine cluster (Gálvez-Nogales, 2010). This is with the explicit aim of understanding this cluster's development experiences with the objective of understanding the minimum requirements for the formation of an AC within South Africa. South African Government departments that impact agriculture in the rural environment will also be subjects of the study. These are: Department of Rural Development and Land Reform (DRDLR), Department of Agriculture, Forestry and Fisheries (DAFF) and Department of Trade and Industry (DTI).

Chapter 2

LITERATURE REVIEW

2.1. South Africa's unemployment problem

South Africa (SA) has an unemployment level that ranges, depending on the definition of unemployment used, between 24% and 35.6%; while the level for unemployment among the youth is as high as 63.6% (Statistics South Africa, 2015a). Several studies have highlighted that the problem was most acute for Black females and people living in rural areas, such as the Eastern Cape and Limpopo (Black & Gerwel, 2014; Kyei & Maboko, 2015; Yu, 2013). Black women were usually confined to the rural areas where they often raised their children singlehandedly, due to issues of polygamy or the migrant labour system which removed the men from their homes (Kyei & Maboko, 2015).

2.1.1. Defining South Africa's rural unemployment problem

The reasons for South Africa's high unemployment rate, especially in rural communities, are numerous. Black and Gerwel (2014) referred to the destruction of peasant farming under apartheid as a key factor. This resulted in the lack of appreciation of non-wage labour in rural communities (Hull, 2014). A second major cause was the post-apartheid reduction in commercial agriculture subsidies, which reduced international competitiveness and the ability to create jobs (Black & Gerwel, 2014).

South Africa's labour law was another factor. For example, small firms—often in labour intensive sectors—were in certain instances forced to retrench staff or cease trading due to prohibitive legal requirements, e.g. minimum wage laws (Yu, 2013). Some studies pointed to the adoption of capital intensive methods of production in place of labour (Black & Gerwel, 2014; Muzindutsi & Maepa, 2014; Yu, 2013). South Africa also had structural unemployment with an increased demand for highly skilled personnel, mainly in the financial and services sectors, which limited the economic growth; while semi-skilled and unskilled labour was retrenched (Yu, 2013).

Some authors highlighted education and limited skills as an unemployment driver (Black & Gerwel, 2014; Kyei & Maboko, 2015). Under apartheid Black women were subjected to low or poor education levels, which remained one of the reasons why large numbers remained unemployed or were employed only in low level jobs (Kyei & Maboko, 2015).

SA's high rural unemployment was also the unintended consequence of post-apartheid education policies (Burger, Van der Berg, & Von Fintel, 2015). Guidelines meant to reduce the number of overage students in the school system, e.g. limiting the number of times a student could be failed, either forced young people into the job market early or delivered learners with suboptimal results into the market (Burger, Van der Berg, & Von Fintel, 2015).

One of the consequences of rural unemployment was chronic poverty. Poverty was the absence of resources to meet the basic needs for survival, such as healthcare, education or potable water. Chronic poverty was defined as, poverty that was transmitted from one generation to the next; where children grew up to be poor adults whose children also ran the same economic risk (Aliber, 2003). According to the author, the chronically poor—the majority of the population who lived in rural areas—were likely to remain poor in the absence of outside assistance. This research sought to look at possible intervention mechanisms to alleviate the unemployment problem in rural South Africa.

2.1.2. Solving the unemployment problem in South Africa

Since the advent of democracy in 1994, the South African Government has adopted many policies to address the employment challenge. These include the Keynesian, democratic policy for growth through redistribution, the Reconstruction and Development Programme (RDP), and later the Neoliberal Growth, Employment and Redistribution plan (GEAR) (Peet, 2002). GEAR foresaw a "trickle-down" effect from a fast growing economy to job creation (Leshoro, 2013). However, this did not adequately allow for the negative impact that trade liberalization, inadequate skills creation, capital flight, poor infrastructure and stifling labour laws would have on job creation (Peet, 2002). These policies did not deliver, as South Africa was experiencing jobless growth (Kumo, 2012).

In a study of causality between economic growth measured as gross domestic product (GDP) and a change in employment, Leshoro (2013) highlighted that this policy direction was correct. It followed the Keynes General Theory, which stated that changes in employment resulted from changes in GDP through increases in aggregate demand. Therefore, in South Africa, employment "does not lead economic growth but economic growth does lead employment" (Leshoro, 2013, p. 341). Yet, despite moderate economic growth between 1.6% and 3.7% since 2012 (OECD, 2013), this growth did not create jobs (Leshoro, 2013). Kumo (2012) found that there was no causal link between GDP and private sector employment. This was largely due to the private sector preferring capital versus labour (Leshoro, 2013).

Not only did the private sector need to contribute towards job creation, the economy as a whole needed to grow by a minimum of 6% per year in order to create five million jobs by 2020 (Nattrass, 2011). In order to increase employment, South Africa needed to stimulate small enterprise and—in particular—labour absorbing industries, instead of expecting existing business to create employment (Leshoro, 2013; Muzindutsi & Maepa, 2014). There were various reasons for South Africa not being able to grow small enterprise participation in the economy; chief of which was a lack of financial and technical support (Black & Gerwel, 2014; Department of Rural Development and Land Reform, 2014).

Small-scale farming was seen as such a labour absorbing sector. This research sought to understand how this sector could be supported through the cluster concept, for it to be able to compete with the established commercial sector.

2.1.3. Solving the unemployment problem in South Africa – Government's plan

In 2012 the South African Government adopted the National Development Plan (NDP) as the blueprint for economic and socioeconomic development strategies. It outlined a vision for South Africa in 2030 and a plan for its attainment (National Planning Commission, 2012). The NDP was divided into 15 chapters that addressed gaps highlighted in a broad consultative process, which outlined broadly how the NDP goals would be achieved.

The NDP chapters that related to agriculture and rural communities, the subject and focus of this study, are:

1. Chapter 3 - Economy and empowerment
2. Chapter 6 - Inclusive rural economy

2.1.3.1. Economy and empowerment

The NDP painted a broad vision for the creation of 11 million jobs, one million of which would be in agriculture, by 2030. This would be achieved by "realising an environment for sustainable employment and inclusive economic growth, promoting employment in labour absorbing industries and mobilising all sectors of society around a national vision" (National Planning Commission, 2012, p. 10). One of the labour absorbing industries identified was agriculture. The NPD went further to state that "as a small open economy, South Africa can develop niche products. Capturing a small share of global demand in areas where local firms can be competitive will have a big impact" (National Planning Commission, 2012, p. 11).

Focus on exports

Ajmi, Aye, Balcilar and Gupta (2015) proved emperically that South Africa could address these challenges by increasing exports; as that occurred GDP would increase accordingly, due to an enhanced income from the exports sector. Operating in the exports market also encouraged companies to become more competitive through increased local cooperation and investment in technical expertise (Ajmi, Aye, Balcilar, & Gupta, Causality between exports and economic growth in South Africa: Evidence from linear and nonlinear tests, 2015, p. 175). A South African example of such cooperation was seen in the Avocado cluster in Limpopo Province. Producers unable to meet volume requirements from importing markets as individuals, pooled their produce to meet these requirements - thus sharing transport costs and other demands of the importing market (Subtrop, 2015).

2.1.3.2. Inclusive rural economy

The NDP envisioned that by 2030 South Africa's rural communities would be empowered enough to participate in the social, political and—most importantly—economic sectors. Increased focus and budget allocation to agriculture was seen as one of the ways in which this would be achieved. A multipronged approach was proposed as a means of addressing the historical wrong that had reduced farming activity in rural communities. This approach covered the creation of a million jobs through agricultural development, the development of required skills and the expansion of related industries, such as agro-processing (National Planning Commission, 2012).

2.1.4. Small-scale farming and an inclusive rural economy

Small-scale farming is seen as a relatively small number of commercially orientated or semi-commercial food producers which is different to the large number of subsistence or semi-subsistence farming households (Cousins, 2013). Critics of a development plan that sees small-scale farming as a driver of economic growth listed issues of scale, the inability to compete with established large-scale farmers and the high cost of compliance—especially for the export market.as major challenges. Most importantly, they listed the motivation of young people to join the sector, given that farming was seen as the last refuge for those who could not be appointed to a salaried position (De Wet, 2010).

Notwithstanding these arguments, the South African Government's focus on rural agriculture was supported by the potential long term benefits that could be derived. Black and Gerwel (2014) motivated for increasing output from relatively labour-intensive sectors such as

agriculture instead of manufacturing, as a means of increasing employment intensity. In many middle income developing countries, agriculture usually had a share of employment that was three to four times its share of output. “Its importance to the welfare of low income groups is further heightened by the fact that poverty is disproportionately a rural phenomenon” (Black & Gerwel, 2014, p. 242).

Pollin, Epstein, Heintz and Ndikumana (2006) demonstrated that agriculture was the most labour-intensive sector, producing 18.6 labourers for every million Rand of output produced. The next best sector employed nine workers for the same output. Important to the cluster concept, both upstream and downstream linkages were stronger for agriculture than in any other industry (Pollin, Epstein, Heintz, & Ndikumana, 2006).

Hull (2014) addressed the issue of demotivation among small-scale farmers and highlighted that this was largely related to South Africa’s history of colonial rule. This system entrenched formal employment as a symbol of status and masculinity. In fact, one’s public worth was closely linked to one’s position in formal employment. Furthermore, the absence of regular income deprived households of the capacity to procure farming inputs and to withstand unpredictable market conditions (Hull, 2014). The solution to this problem was often diversification and risk mitigation through participation in non-core/non-agricultural activities. In this context, therefore, the provision of some structure and certainty to rural small-scale farming would address the status and demotivation concerns.

Only 9.9% of South Africa’s land mass was considered arable (The World Bank, 2015). The challenge is to discover ways to optimise the use of this limited resource and achieve the NDP goals of increasing employment and eradicating poverty. Although large-scale farming was found to be technically more efficient than small-scale farming, this was not the case where there were clearly defined markets and where economic conditions were more certain (Tonini & Jongeneel, 2006). There are examples where small-scale farmers, which had clearly defined markets as well as government support, were instrumental in feeding entire countries. The Kenyan dairy industry, built by small-scale farmers supplying milk to a government feeding scheme, was one such an example (IIED, n.d.). The Brazilian Zero Hunger program which supplied food to government for distribution to vulnerable groups is another example of such a scheme (Brazil Government, n.d.).

In its Agricultural Policy Action Plan (APAP), the DRDLR acknowledged the need to shift South Africa’s economy towards labour intensive agriculture, the need to rely more on locally produced inputs (such as fertilisers and animal feed) and highlighted the requirement for a better balance between large scale commercial farmers and small-scale farmers through land reform as well as technical support (Department of Rural Development and Land

Reform, 2014). The significance of small-scale farming for stimulating economic growth in South Africa was therefore very clear. The aim of this study was to investigate the possibility of using cluster theory as a mechanism for providing the required support to the small-scale farmers.

In summary, given that employment opportunities were not being generated in other sectors of the economy and the fact that the unemployment rate was as high as 34.6%, according to the extended definition (Statistics South Africa, 2015a), efforts are required to stimulate growth in labour intensive areas, such as agriculture (Black & Gerwel, 2014). Providing support and policy certainty were indicated as necessary to improve the efficiency of small-scale farming (Tonini & Jongeneel, 2006). Such efficiency of land use should increase economic growth which, as Leshoro (2013) demonstrated, was required to stimulate employment. The next section explores cluster theory, a method that could be used to provide this support to small-scale farmers.

2.2. Cluster Theory

2.2.1. Introduction

The NDP was not explicit about how achieving the economic growth targets would impact employment any better than had been realised at the point of its publication (Black & Gerwel, 2014). However combining the arguments in the preceding section shed some light about how this could be achieved. Leshoro (2013) showed that growth led employment, while Black and Gerwel (2014) posited that agriculture was labour intensive (Black & Gerwel, 2014). Gálvez-Nogales (2010) brought this all together and argued that the greatest potential for sustainable growth in developing countries, like South Africa, rested in the agriculture-based clusters (ACs). Therefore, sustainable growth could be derived from ACs and this woul lead to labour intensive job creation in South Africa.

Gálvez-Nogales (2010) listed the following among AC advantages:

a) Increased innovation among all the players in the cluster as a result of interacting with supporting institutions and other cluster members.
b) Increased access to markets and information while driving competitiveness.
c) The encouragement of small-scale farmers to undertake market orientated and value added production and channel public support.
d) The driving of success in high value export markets due to agglomeration economies, which help the small-scale farmers face the high standards set by their importing markets.

Several South African government departments have embraced this concept and have incorporated cluster thinking in their policy frameworks (Department of Rural Development and Land Reform, 2014; Mangole & Samuel, 2014).

2.2.2. What are clusters?

Scholars in several countries credited economic clusters for their economic growth: China (Yang, Hao, & Cai, Economic Clusters: A bridge between economic and spatial policies in the case of Beijing, 2015), Silicon Valley (Engel, 2015), China (Zeng, 2012), Latvia (Garanti, Zvirbule-Berzina, & Yesilada, Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus, 2014), China (Nie & Sun, 2015), Electronic Arts in the USA (Delgado, Porter, & Stern, 2014).

Economic clusters are defined as, a geographic concentration of closely related firms in a given field which have links to related institutions, such as universities, the government and funders (Delgado, Porter, & Stern, 2014); (Zeng, 2012). Specifically related to this study, ACs are defined as, a "concentration of producers, agribusiness and institutions that are engaged in the same agricultural or agro-industrial subsector, and interconnect and build value networks when addressing common challenges and pursuing common opportunities" (Gálvez-Nogales, 2010, p. x).

Clusters were seen as a way of enabling industry players to compete and cooperate, aided by government policies, to drive the country towards regional, national and international competitiveness (Zeng, 2012). Yang et al. (2015) in their definition highlight the interconnectedness that arises between the various players as well as the sharing of often debilitating infrastructure. According to Wolman and Hincapie (2015), a cluster formation follows one of two models, dependent on the factors that caused the cluster to form. These are agglomeration economy clusters and knowledge spill-over or Marshall-Arrow-Romer (MAR) clusters.

2.2.3. Agglomeration economy clusters

Agglomeration economy clusters resulted from companies operating within geographical proximity to one another, often with no requirement for cooperation. External benefits accrued to the firms as a result of the co-location (Wolman & Hincapie, 2015). These benefits include lower input costs and improved productivity due to the following:

1. Labour market pooling. Competition for jobs and the resultant skills improvement.
2. Input sharing and supplier specialization. Suppliers located themselves close to the customers, thus reducing transport costs or customizing their product or services to the requirements of the customer.
3. Market aggregation. To reduce transaction costs for consumers of niche products, suppliers aggregated in a geographical area which made access to their wares easy for consumers.

Agglomeration economies clusters were formed organically as a result of market forces, and did not usually require government policy intervention (Wolman & Hincapie, 2015). Should government want to stimulate such clusters, though, the kind of policy that could be beneficial could be land or transportation infrastructure provision, as this would reduce the cost of supplier co-location. Another avenue could be workforce development (Wolman & Hincapie, 2015).

An example of an agglomeration cluster is that of the smallholder farmers in the Indian state of Maharashtra (Gálvez-Nogales, 2010). Here, export grape growers clustered in order to share the burden of meeting rigorous European Union standards. Individual producers did not have to invest in understanding how best to meet the standards nor did they have to individually invest in infrastructure, such as cold storage (Gálvez-Nogales, 2010). Individually, their volumes would be too small to export but clustering allowed them to meet consignment requirements and share transportation costs.

Their competitiveness was brought about by three factors: Firstly, the horizontal links between small-scale farmers allowed for pooling of resources. Secondly, the vertical links between the small-scale farmers, input providers and customers pushed the farmers to continuously strive for higher standards and to innovate in order to remain competitive. Finally, there were strong links between the producers and support industry, such as research institutions, which generated vital information that encouraged constant innovation (Gálvez-Nogales, 2010).

Other successful agglomeration economic clusters are found in countries like Italy (stone quarries, automotive, construction and apparel), Belgium (financial services, business services and pharmaceuticals) and Germany (automotive and metal manufacturing financial services) (Protsiv, 2015; Lindqvist, Ketels & Sölvell, 2013).

2.2.4. Knowledge spill-over clusters

Knowledge spill-over or MAR clusters, on the other hand, resulted from a “concentration of many people working on problems in a similar or related set of industries, skill sets, and processes that produce a widely shared understanding of the problem and its workings” (Wolman & Hincapie, 2015, p. 138). In this model, informal and formal networks were formed across firms and with related support organisations, such as universities and industry bodies. This network resulted in the exchange of knowledge, which led to constant innovation (Couture, 2015). This resulted in greater innovation; which then lowered costs, increased competitiveness and productivity. In his original work on the subject, Marshall (1890, p. 156) stated that in these clusters the “mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously”.

Wolman and Hincapie (2015) stated that these networks were based on interpersonal relationships and trust. The knowledge transfer happened mainly through interaction in the resultant informal networks. Knowledge transfer also occurred through labour migration within a given industry. Both of these processes were more likely to happen when

companies in the same industry were in the same geographical proximity (Wolman & Hincapie, 2015).

Granovetter (1973) posited that networks with “weak ties”, as opposed to close knit groups of individuals, were more likely to encourage information exchange. Weak ties served as “bridges” which provided members of one small network with access to information from other social networks. In clusters, weak ties stimulated innovation while old social networks stimulated groupthink and reinforced old behaviours (Wolman & Hincapie, 2015).

“Weak ties” should not be confused with “weak linkages” in clusters. Weak linkages were tenuous horizontal or vertical relationships within a cluster which existed where a strong internal network was required (Gálvez-Nogales, 2010). Weak ties, on the other hand, existed between clusters or networks and were encouraged (Granovetter, 1973).

Silicon Valley was an example of a successful knowledge spill-over cluster (Engel, 2015). The reasons for its success include: (1) Strong support from major universities in terms of new technologies, ongoing training, research and development. (2) Military funding of engineering projects at universities, plus military contracts helped build corporations such as Hewlett-Packard (Engel, 2015). (3) The presence of highly skilled and innovative entrepreneurs was identified as a key component to Silicon Valley success. (4) Close collaboration and easy access to various stakeholders, such as mature corporations, venture capitalists, service providers (e.g. lawyers, designers, investment bankers), and (5) Professional management was another driver for cluster success (Engel, 2015).

Engel (2015), in regard to the Silicon Valley success story, posited that behaviours (what actually created the value and provided action) and interactions between the above components had been as important as the components themselves. The critical behaviours identified were mobility of resources (information, knowledge, money and people), innovation and experimentation, having a global – big results – perspective, international linkages, new market creation and business model experimentation (Engel, 2015).

Another example of a successful knowledge spill-over cluster was provided by the Latin American wine industry (Gálvez-Nogales, 2010). There winemakers joined forces to bring in international wine experts to advise them on strategies for improving their wines. Knowledge linkages among cluster members driven by the supporting institutions encouraged constant innovation and skills upgrades (Gálvez-Nogales, 2010). The benefit derived from improved quality and a strong regional brand was enjoyed by the entire industry.

A local example of a spill-over AC is the South African Avocado Growers cluster in Tzaneen, Limpopo Province (Subtrop, 2015). These farmers coordinated volumes to supply the

exports market but they also shared information about how to improve the quality of their crops, for example, what cultivars to use, how to deal with disease and when to plant or prune. They sent representatives on international scouting trips for the industry, which helped marketing efforts and kept the industry competitive (Subtrop, 2015).

2.2.5. How are clusters formed?

Clusters were mostly created organically by business or communities as a reaction to economic stimuli but in some instances they were created as a result of government policy (Gálvez-Nogales, 2010; Wolman & Hincapie, 2015).

Informal industries traditionally existed in developing communities as an overflow from subsistence activities (Mottaleb & Sonobe, 2013). Successful clusters grew organically, from the bottom up from these informal industries, and were created by leveraging the region's core competencies. They therefore had community buy-in from their inception (Zeng, 2012).

According to Wolman and Hincapie (2015), there is no set formula for how clusters should be formed. In developing countries agriculture was organized more informally. With many small-scale farmers, limited networking and minimal specialization there is a greater need for government intervention than in developed countries (Gálvez-Nogales, 2010). Wolman and Hincapie (2015) warned against the creation of clusters where they have previously not existed. This was due to poor community buy-in and the perception of choosing and "supporting winners". Rather, they recommended government support for clusters that were involved in growth industries or industries that were expected to grow (Wolman & Hincapie, 2015).

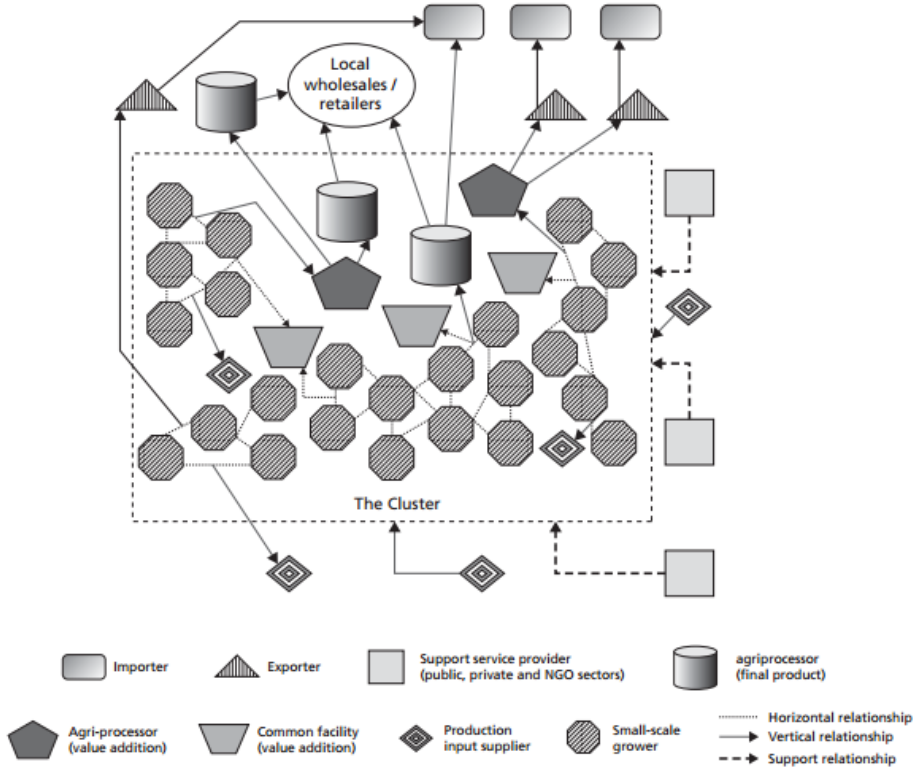
One would therefore interpret this to indicate that the South African Government was correct in playing a leading role in cluster formation (Department of Rural Development and Land Reform, 2014; Mangole & Samuel, 2014). The approach of supporting clusters in the agriculture sector which is earmarked for future growth through exports as stipulated in the NDP also appears to be correct.

2.2.6. Are all industry agglomerations clusters?

There were various attempts in the literature to separate clusters from other industry concentrations. In illustrating the ideal cluster (Figure 4), Galvez-Nogales (2010) stated that what distinguishes an AC from producer concentrations is the relationship between all the parties and not the relationships inside them. In other words, as illustrated, it was the

relationship between the small scale growers, the agri-processors, the support service providers, importers and so on (the vertical and horizontal linkages) that defined a cluster.

Figure 4: Illustration of the ideal agriculture value network



Source: Gálvez-Nogales, 2010, p. 5

The literature listed some producer concentrations and showed differences between these and clusters. These differences are tabulated below. Not all industry agglomerations are clusters. Zeng (2012) illustrated that clusters were best formed organically, as this provided buy-in and sustainability. In the developing world, however, there was evidence that government support in terms of policy clarity or infrastructure provision could be an essential catalyst for speeding cluster establishment. However, such intervention needed to be sustained (Gálvez-Nogales, 2010).

Table 2 below provides a list of some of the producer concentrations and how, according to the literature, these differ from clusters.

Table 2: Differences between clusters and some of the similar concepts

Related concept	Difference from a cluster
Special Economic Zones (SEZ)	Top down initiatives, usually formed by government; while clusters are usually formed in an organic (bottom-up) fashion by the community. SEZs often operate under more liberal laws than the country, and are usually in technology and capital intensive sectors; while clusters usually operate in low technology and labour intensive sectors (Zeng, 2012).
Agribusiness complex	Unlike clusters, these do not have an explicit geographical dimension. Clusters are also broader, as they include support structures such as universities, which are not directly involved in production (Gálvez-Nogales, Agro-based clusters in developing countries: staying competitive in a globalized economy, 2010).
Subnational innovation system (SIS)	SIS have fixed administrative boundaries and focus only on innovation potential. Clusters have no fixed boundaries despite being concentrated in one geography, and look at other benefits of collocating such as external economies of scale (Gálvez-Nogales, Agro-based clusters in developing countries: staying competitive in a globalized economy, 2010).
Agro-industrial parks/Agri-food parks	Created for the purpose of providing shared infrastructure without necessarily providing the other benefits, such as knowledge transfer, of clusters (Gálvez-Nogales, Agro-based clusters in developing countries: staying competitive in a globalized economy, 2010).
Agri-export zones	Set up by government, where the production of an agriculture product earmarked for exports is supported through various fiscal incentives and financial means (Gálvez-Nogales, Agro-based clusters in developing countries: staying competitive in a globalized economy, 2010).
Co-operatives	A co-operative is “an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise” (International Co-operative

	Alliance, n.d.). In clusters there is no joint ownership. Co-operatives are therefore fully fledged private enterprises in which the member-based component or "association of persons" takes precedence over the entrepreneurial one (Roelants, Dovgan, Eum, & Terrasi, The resiliance of the cooperative model, 2012). In clusters, the entrepreneurial needs are the reason for existence.

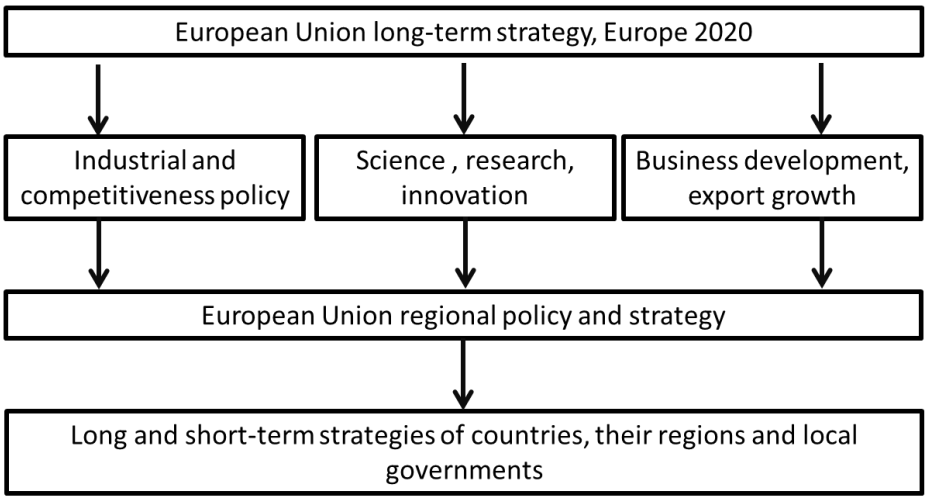
2.2.7. Role of government policy (in cluster formation) and co-ordination across departments

Wolman and Hincapie (2015) recommended that government intervention should focus more on encouraging information exchange among cluster members. Public policy must be concerned with addressing shared cluster problems (e.g. skills development and building roads) rather than focusing on individual company needs (e.g. subsidies and tax breaks) (Wolman & Hincapie, 2015).

Sull, Homkes and Sull (2015) suggested that one of the reasons strategy derails is poor coordination efforts across departments. In resource depleted developing economies, the coordination of activities across government departments therefore appears crucial for optimal results.

The integration of government efforts across various departments was reported as one of the reasons for success in the European Union (EU) (Garanti, Zvirbule-Berzina, & Yesilada, Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus, 2014). Cluster theory was at the heart of strategy and policy in the European Union (EU) (Garanti, Zvirbule-Berzina, & Yesilada, Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus, 2014). Similar to the South African NDP, Europe's 2020 strategic document expresses a vision of the EU as a "…smart, sustainable and inclusive" economy. It further stated that "these three priorities should help the EU and member states deliver high levels of employment, productivity and social cohesion". (European Commission, 2015). Unlike South Africa's NDP, the implementation of this national strategy was elucidated in regional policy documents as illustrated below.

Figure 5: Policy making in the European Union



Source: Adapted from Garanti et al. (2014, p. 132)

The regional level interpretation of this EU level smart economy strategy was the identification of core competencies which helped regions increase competitiveness. For example, the Industrial and Competitiveness Policy (European Commission, 2010a) promoted the formation of "smart specialization clusters" (p. 14) which strengthened the links between business and research institutions in select industries, resulting in enhanced global competitiveness.

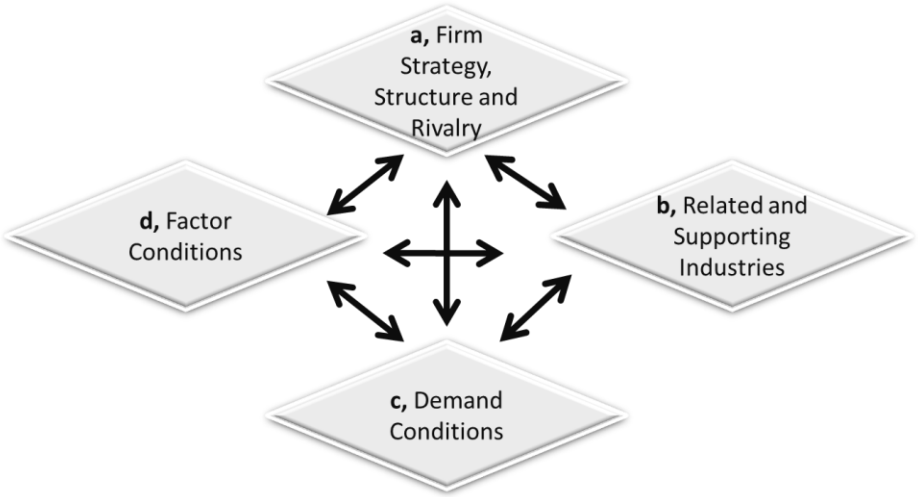
Simultaneously, innovation clusters were set up to respond to the same strategy (European Commission, 2010a). Those innovation clusters acted as innovation "hot spots" (European Commission, 2013). The third tier was provided by policies that smoothed trade and encouraged exports from the clusters (Garanti, Zvirbule-Berzina, & Yesilada, Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus, 2014). These policies integrated and created a framework for the formation of clusters which provided the infrastructure for innovation and cooperation necessary for driving growth. Most importantly, cluster policy was integral to national, regional and local level policies. It was not a separate element of policy but was central to various industrial and development policies (Garanti, Zvirbule-Berzina, & Yesilada, Cluster concept in policy planning documents: the cases of Latvia and Northern Cyprus, 2014).

2.2.8. How do clusters work – enablers or components

Modern day cluster theory understanding was helped by Michael Porter's diamond model (Porter, 1990). Unlike Garanti, Zvirbule-Berzina and Yesilada (2014) or Zeng (2012) who discussed cooperation and competition, Porter (1990) supported by the work of Kamath, Agrawal and Kris (2012), more recently, credited cluster development and economic growth to competition, and proposed ways in which these diamond factors drove competition (Figure 2.2). Criticism of Porter's diamond model is provided towards the end of this literature review.

The first factor which was strategy, structure and rivalry related to the national context, culture as well as government policies within which management had to operate (Porter, 1990). Porter (1990) posited that government's role should be largely facilitative, non-intrusive and one where policies were created to provide companies with a competitive advantage. The author raised warnings about government policies stating that they should not be short term (politically motivated) policies such as mergers, subsidies and protection, as these retarded innovation. Rather, policies that improved productivity (education, healthcare and basic infrastructure provision) and the implementation of strict quality and environmental standards, which forced companies to improve their performance, were favoured (Porter, 1990).

Figure 6: Determinants of National Competitiveness



Source: Adapted from Porter, 1990, p.77

Kamath, Agrawal & Kris (2012) went further in their integrated model of cluster development, called the General Economic Management Systems (GEMS) model, and demonstrated that

in successful cluster this aspect of the diamond model was the most important (Kamath, Agrawal, & Kris, 2012). In their empirical global study, Kamath et al. (2012) found that cluster managers pointed to the importance of a "business-friendly commercial and socio-political climate … with well-defined property rights…, low crime rates and corruption…, the presence of a labour force with the appropriate skills" (p. 206), as the most important factors in facilitating clustering.

The second most important factor in facilitating cluster operations, according to Kamath et al. (2012), was the availability of infrastructure whether publicly or privately provided. The study described "clusters as eco-systems where the availability of finance, suppliers and complementary service firms" were key to success (Kamath, Agrawal, & Kris, 2012, p. 209).

A discerning market which constantly demanded superior quality products and services from the suppliers was reported to cause firms to upgrade and differentiate their products, drive costs down and generally become competitive at home as well as internationally. This was the third factor that explained how clusters work.

The fourth element addressed factor or input conditions, which included the quantity and quality of human resources, administrative support, natural resources, technological support, and research and development. According to Porter (1990), nations become successful in those industries where they are good at factor creation or where they have established a competitive advantage. Kamath et al. (2012) found that while input factors had a role to play, they were not as important as the first two factors. Engel (2015), writing on the lessons from Silicon Valley, backed this up pointing to the role of government and supporting institutions as having been at the forefront to the success of Silicon Valley (Engel, 2015).

Porter (1990) credited cluster economic growth to competition, most scholars (Bersimisa, Chalkiasband, & Anthopoulou, 2013; Engel, 2015; Zeng, 2012) highlighted the benefits of horizontal and vertical linkages and the coorperation that they encourage. Where it was well managed and free of collusion, cooperation among industry players allowed the players to come up with common solutions to industry problems and provided for a lobbying force with government (SALGA, 2015). It was this balance between competition and cooperation that was believed could be a contributor to successful clusters in South Africa. The research sought to determine if these behaviours existed in an agriculture cluster in South Africa.

2.2.9. How do clusters work –behaviours of clusters

Engel (2015) singled out five behaviours that were of equal importance to the components that enable clusters as described above. These behaviours formed the social glue that was integral for clusters to function. A description of these behaviours was deemed crucial in light of the fact that this study aimed to determine the existence of these qualities in a South African cluster. The behaviours are listed in Table 3.

Table 3: Cluster behaviours and their manifestations

Behaviour	Description
Linkages between the cluster members	The presence of "weak ties". These "bridges" provided members of one small network with access to information from other social networks (Granovetter, 1973).
	The presence of "durable bonds" or strong vertical and horizontal linkages. Vertical linkages, for example, were those that existed between a farmer and his input materials supplier or between the farmer and his customers. Horizontal linkages, on the other hand, described the relationship between the farmers themselves (Gálvez-Nogales, Agro-based clusters in developing countries: staying competitive in a globalized economy, 2010).
Mobility of resources	Trained people moved around at will between the cluster components and at the same time they accumulated know-how.
	Knowledge was shared freely within the cluster both formally and informally.
Entrepreneurial conduct	Technology commercialization, experimentation with the business model and the creation of new markets denoted an entrepreneurial mind set.
Global strategic perspective	Evidence of looking abroad for new markets and resources was seen as an illustration of this quality.
Alignment of interests	Evidence of cooperation between the various cluster members as they sought to come up with solutions to a shared challenge.

Source: Adapted from Engel (2015)

2.2.10. Can clusters stimulate rural development?

Clusters have been shown to stimulate rural development (Bersimisa, Chalkiasband, & Anthopoulou, 2013). It was recognised that a key component in China's rapid growth was the establishment of clusters, some of which were in rural communities (Mottaleb & Sonobe, 2013; Zeng, 2012). These clusters developed organically but in recent times government policies have stimulated their growth.

Clusters in rural communities worked due to various factors. In their discourses, scholars discuss social trust as being instrumental to successful clusters (Zeng, 2012). Kamath et al. (2012) refer to linkages or the social glue as being a key factor that leads to cluster success. Monkam (2014) singled out citizen participation; government that was close to the people and which could increase their engagement, as key for local community productivity (Monkam, 2014). According to Zeng (2012), it was also important to have a working understanding of the local context and in what the people excelled. The aim of this research was to determine what social glue could be leveraged to create successful clusters within South Africa.

FAO recognized South Africa's wine cluster as an example of a true agricultural cluster (Gálvez-Nogales, 2010). This cluster was developed with the assistance of the apartheid government. This included the state-funded Nietvoorbij Institute of Viticulture and Oenology of the Agriculture Research Council (ARC) (Gálvez-Nogales, 2010). Which institution provided research and development (R&D) support, while the Co-operative Viniculture Organisation (better known by the Afrikaans acronym, KWV), established quality standards, set production quota, determined prices and provided exposure to the export market.

This state funded technical and commercial support catapulted the industry from an insignificant player of the nineteenth century to a player with 13.7% export market volume share in 2010 (Gálvez-Nogales, 2010), that—by 2013—employed 289 151 people and contributed R36 billion to the South African economy (Conningarth Economists, 2015). This example demonstrated what could be achieved with the same level of support and focus for small-scale farming in present day South Africa.

2.2.11. Criticism and/or why ACs might not work in SA

Apart from education challenges, social trust could be an issue. In China, transaction cost reduction and speed of execution were achieved through informal transactions. Transactions were carried out on the basis of verbal agreements, finance was raised from friends or relatives and trade credits were obtained from firms within the supply chain. South Africa, on the other hand, had a history of social mistrust coming from its apartheid legacy (Maroun, Coldwell, & Segal, 2014). Addressing South Africa's unemployment challenge was identified as one way of creating the inclusive society with lower levels of mistrust (National Planning Commission, 2012). The cluster model might therefore be a solution that policy makers could use to stimulate the economic performance of predominantly Black rural small-scale farms.

Gálvez-Nogales (2010, p. 12) stated that “clusters in developing countries like South Africa are usually dominated by “small-scale” firms, are organized in an informal manner, have weaker links among actors, face more difficulty achieving critical mass of firms and have been specialized in lower value niches…” For this reason, ACs in developing countries need more support.

Integration of government departments or policies could be an issue. We have seen in the case of the EU how the various departments are aligned in their effort to facilitate the formation and working of clusters (Garanti, Zvirbule-Berzina, & Yesilada, 2014). While the NDP was silent on the subject of clusters or how its vision would be realised, it did raise intergovernmental inconsistencies as a potential risk to its implementation (National Planning Commission, 2012). The South African Presidency acknowledged that Government’s intergovernmental coordination system (ministerial “clusters”) was not delivering the required synchronization (Impact Economix, 2014).

The cut throat price competition (race to the bottom) which resulted from the low levels of product differentiation in clusters has been criticised as a potential weakness of the model (Zeng, 2012). Cluster driven economies are exposed to global market fluctuations as well as stringent environmental laws set by industrialised countries. Clusters are therefore forced to focus on the quality rather than quantity of their growth. This could be a challenge for a developing country like South Africa, which has short term (political) employment challenges, which require quantity, and education challenges, which might not be able to deliver quality, (National Planning Commission, 2012).

While it is clear that successful clusters developed organically from the region’s comparative advantage, and that policymakers should facilitate this by developing policies that leverage these strengths (Delgado, Porter, & Stern, 2014), this is not always easy where the industry nucleus is not well defined (Zeng, 2012). In the case of South Africa, political pressure to resolve the inequality and inclusive economic growth issues indicated that the decades required for the organic establishment of clusters did not exist (Zeng, 2012). However, in light of the overwhelming body of evidence that a coordinated cluster approach delivered long lasting results, it would appear that this model is still relevant for consideration as a way of supporting predominantly Black, small-scale farmers.

The risk of diminishing returns in clusters that have minimal specialization has been well documented (Delgado, Porter, & Stern, 2014). Delgado et al. (2014) showed however that the presence of complementary activity through vertical (e.g. relationship with upstream suppliers of fertilizers and downstream agro-processors) and horizontal (e.g. between the

farmers themselves) linkages stimulated innovation and knowledge spill-overs and hence drove growth.

2.2.12. Conclusion

The review of literature revealed that in order to increase employment, South Africa needed to stimulate small enterprise and in particular labour absorbing industries, such as small-scale agriculture; instead of expecting existing business to create employment (Leshoro, 2013; Muzindutsi & Maepa, 2014). According to Ajmi et al. (2015), South Africa's GDP could increase as a result of increasing exports. GDP would further increase if land use was efficient. This could be achieved through support and clear government policies, such as the APAP, directed at small-scale farmers (Tonini & Jongeneel, 2006).

ACs have been shown to be successful in agglomerating players and transferring knowledge within the industry in a manner that increases quality and quantity of output. The literature review spelt out many of the behaviours and enablers that were instrumental in the success of many of the cluster studies (Engel, 2015; Gálvez-Nogales, 2010). This literature review also elucidated how clusters are formed and in particular the enabling role that government can play within the situation (Garanti, Zvirbule-Berzina & Yesilada, 2014; Wolman & Hincapie, 2015).

From the literature review, it appeared as though the cluster concept could provide some of the structure and focus that South Africa needed to stimulate small-scale farming in the impoverished and under employed rural communities. Several challenges were identified with regards to limited community interest, high levels of risk and stigma as well as low levels of trust within the communities. In the absence of employment opportunities being generated elsewhere plus given the success of the avocado and wine clusters in delivering growth, there is enough evidence to motivate for the exploration of this concept as a means of helping to support Black small-scale farmers in such a way that they can deliver sustainable growth.

Chapter 3

RESEARCH QUESTIONS

Restatement of the Research Problem

With unemployment levels ranging between 39.6% and 69.1% (Lehohla, 2002), South Africa's impoverished rural communities need urgent economic intervention. The purpose of this research is to understand how agriculture-based clusters (ACs) can support small-scale farmers to deliver sustainable growth and thus help address the unemployment challenge within their community.

This study addresses three specific questions:

3.1. Research Question 1

What factors make the South African wine cluster work?

This question sought to reveal the behaviours and enablers facilitating the operation of the FAO recognized South African wine cluster.

3.2. Research Question 2

How ready is the South African Government to encourage cluster formation?

Sub questions encapsulated in this question: Is there alignment between the various government departments in terms of cluster understanding? What policies are currently in place and under development? Is there alignment between the various government department policies?

3.3. Research Question 3

How could cluster implementation efforts be improved?

This question covers: What are the observed gaps, if any? What learnings can benefit emerging agriculture?

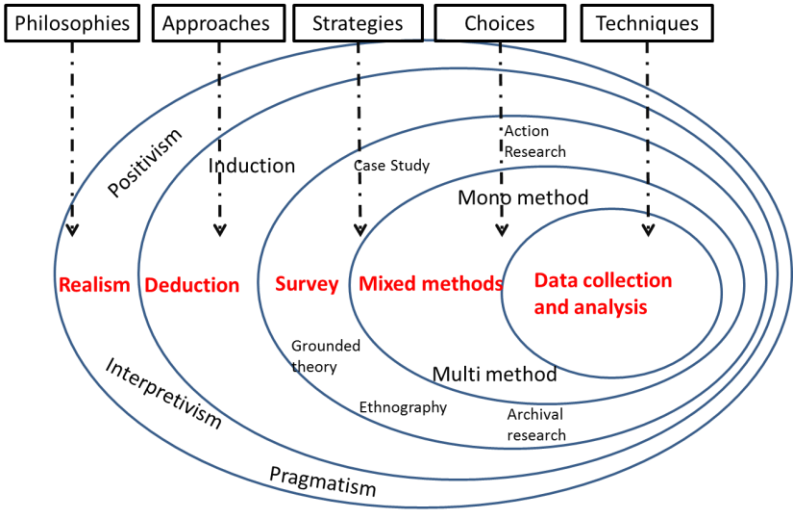
Chapter 4

RESEARCH METHODOLOGY

4.1. Introduction

The aim of this study was to understand how cluster theory could be applied to the rural agriculture sector in South Africa. Agriculture clusters are a new concept with limited application in South Africa (Gálvez-Nogales, 2010). The aim of this study was to understand the nuances and intricacies of how the concept works or how it could work; to test government understanding of the concept; and to evaluate the implementation steps policy makers are undertaking. This chapter details the methodology applied and outlines some of the limitations of the study. In this study Saunders and Lewis' (2012) research onion or route map (Figure 4.1) was used in charting the research process.

Figure 7: Research Onion/Route Map



Source: Adapted from Saunders & Lewis, 2012, p. 103

4.2. Philosophical approach

The study approach was that of critical realism, in that there was a need to study not just what was on the surface of clusters but what lay below the surface (Saunders & Lewis, 2012). In other words, while it was important to understand how clusters are structured and

what government policies are being developed to help support their establishment, it was also important to understand the complex deeper structures and relationships between various cluster participants as well as the relationships between government departments.

4.3. Research approach

Using an exploratory research strategy, a deductive (theory-to-data) study approach was used to test the application of cluster theory (Saunders & Lewis, 2012). Research questions were designed from the behaviours and enablers of clusters as defined in the literature (Bersimisa, Chalkiasband & Anthopoulou, 2013; Engel, 2015; Garanti, Zvirbule-Berzina & Yesilada, 2014). Using these behaviours and enablers, the research approach set out to validate the existence of these assets in a South African agricultural cluster and to determine the Government's efforts in encouraging these qualities.

An exploratory research strategy was used as it is suited to gathering general information about a topic that is not well understood or to gain insights into a new concept (Saunders & Lewis, 2012). According to Saunders and Lewis (2012), exploratory studies are well suited to qualitative studies such as interviewing.

4.4. Research design and measurement instrument

A qualitative survey-based design using semi-structured interviews was undertaken. The reasons for this method choice include:

- Given its limited application within South Africa, the number of people that could be interviewed on the topic was limited (Gálvez-Nogales, 2010). This design allowed for the collection of detailed information from this small number of people (Hofstee, 2013).
- According to Creswell (2014), a qualitative study is the best method of answering a "how" question and getting to the bottom of a complex subject.
- The use of open ended questions allowed the interviewee to elaborate on the subject matter and allowed for the interrogation of answers which further provided for the sharing of rich and insightful information (Creswell, 2014).
- The study method allowed for understanding opinions and attitudes to ACs (Hofstee, 2013).
- The semi-structured interview method allowed the interviewer to vary the order in which the themes or questions were covered. It also allowed for additional questions to be asked or irrelevant questions to be omitted—depending on the nature of the

conversation or how much information had already been shared (Saunders & Lewis, 2012).

Furthermore, a mixed-method or triangulation research design was used (Saunders & Lewis, 2012). Two independent data sources were accessed (wine cluster members and government employees), to gain deeper understanding of the level to which the concept was practised in South Africa. The authors state that triangulation is a way of corroborating or validating research findings and enhancing their credibility; this is due to the fact that information is gathered from two different perspectives instead of relying on just one (Saunders & Lewis, 2012). This was important in this case for the following reasons:

1. Cluster theory is new and has limited application in South Africa. On the one hand, one needed to validate its existence and relevance in a South African context.
2. On the other, one needed to understand the policy makers' interpretation, readiness and ability to provide an environment that enables national implementation of the concept.

4.5. Study population

Saunders and Lewis (2012) state that a population is the complete set of data sources that could have been available to participate in a study. These study results are applicable to all agricultural clusters in South Africa. These include the primary producers, processors, academics, support industry and government.

4.6. Study sample and reasons

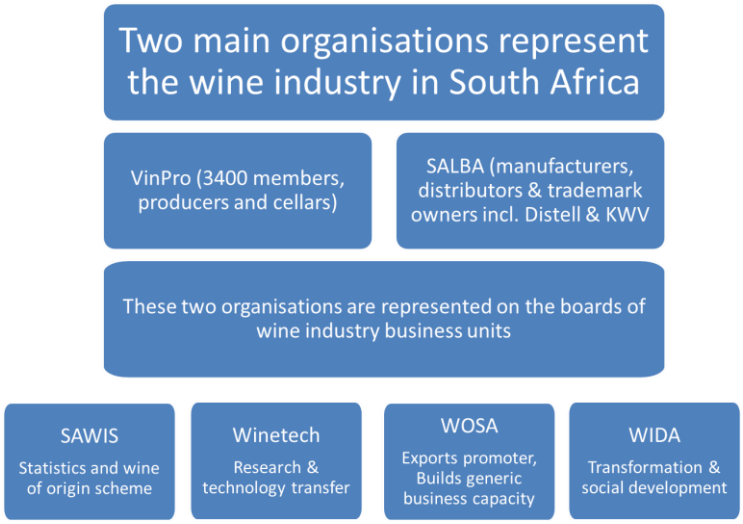
Two samples were used:

- The first group was made up of South African Government policy makers, from Department of Rural Development and Land Reform, Department of Agriculture, Forestry and Fisheries as well as the Department of Trade and Industry. These Government departments, and especially the chosen officials, were selected for their expressed awareness of the cluster concept. In certain cases the individual had gone some way in policy development (Department of Rural Development and Land Reform, 2014; Department of Trade & Industry, 2014; Mangole & Samuel, 2014).
- The second group was made up of representatives of the Western Cape Wine Cluster. This body was identified as a bona fide cluster by FAO (Gálvez-Nogales, 2010). Those interviewed included primary producers or farmers, processors

represented by the alcoholic beverage manufacturer, Co-operative Viniculture Organisation (KWV), support services being the SA Wine Industry Information and Systems (SAWIS) as well as VinPro (representative organisation for close to 3 400 South African wine producers and cellars).

Figure 8 below shows how these organisations are aligned.

Figure 8: Overview of the South African wine industry



Source: VinPro documents

Finally, knowledge institutions such as the Agricultural Research Council and University of Stellenbosch were also study participants. These players were identified by FAO as the elements that were crucial for the functioning of the Western Cape Wine cluster (Gálvez-Nogales, 2010, pp. 57 - 58). The object of interviewing these individuals was to understand their role in the cluster functioning and success. It was also to understand from them how they saw small-scale farmers benefit from clusters.

Winetech, WOSA and WIDA were not included in the study for the following reasons:

- Winetech – The academic perspective was given by the University of Stellenbosch as well as the Agriculture Research Council (ARC). These institutions were identified by FAO as being integral to the formation and continued functioning of the wine cluster (Gálvez-Nogales, 2010). For this reason, the researcher saw the need to interview representatives from these two establishments and not another academic organization.
- WOSA – This body is largely responsible for the international marketing of SA wines. It was felt that this perspective constituted a higher order and perhaps the

next layer of cluster benefits. For the purposes of this study, the researcher felt the need to focus on primary benefits and behaviors as well as the essentials of cluster formation.

- WIDA – the scope of this research did not cover transformation and therefore the researcher saw no need to include this organization in this study.

4.6.1. Sampling technique

The sampling method employed was non-probability purposive with a snowball strategy (Palinkas, et al., 2013, p. 3).

Representative organisations from a FAO-recognised-cluster were purposively targeted for interviews (Gálvez-Nogales, 2010). This technique is best suited to situations where the researcher is working with a small sample size or where the respondents are considered to be particularly informative (Saunders & Lewis, 2012). Saunders and Lewis (2012) further state that this sampling style is used when one needs to understand what is happening so that generalisations can be made. Purposive sampling is not considered to be statistically representative of the total population (Palinkas, et al., 2013). Given the nature of the study which was to gain directional insights, this was considered to be an acceptable trade-off (Boyce & Neale, 2006).

Once the cluster organisations and Government departments were purposively selected, a snowball sampling strategy was used to identify the actual individuals within these organisations for the interviews. This sampling strategy is best suited to situations where candidates are difficult to get hold of (Saunders & Lewis, 2012; Palinkas, et al., 2013). Candidates provided references for the next candidates and so on, like a snowball.

In light of the fact that snowball sampling was utilised, the sampling process was homogeneous focusing on one subgroup in which the members shared a qualifying characteristic and philosophy. This could also be a study limitation in that similar minded people were researched. Once again this was considered to be an acceptable trade-off as the nature of the information sought was directional (Saunders & Lewis, 2012).

4.6.2. Sample selection

Access into the cluster was obtained via the Head of Global Marketing and Sales at KWV. He was initially approached over the telephone, and presented with the study rationale as well as a request for an interview. This was further supported with a motivational e-mail (Appendix 9.1). Although he was unable to provide an interview, he provided full access to the company's senior personnel in Supply Chain, Global Marketing and Viticulture.

The KWV Viticulturist provided access to the farmers. The Viticulturist and Marketing Manager further provided links to the support organisation VinPro as well as the University of Stellenbosch; while the lead to the Agriculture Research Council was provided by one of the farmers. Access to SAWIS was provided by an official at VinPro.

Sampling of the Government officials was also non-probability purposive – officials from the departments of DAFF, DTI and DRDLR were deliberately targeted for the role that these departments play in agriculture but also because they had an established understanding of the subject—given that they have written on the topic or had presented papers at conferences on cluster theory (Department of Rural Development and Land Reform, 2014; Mangole & Samuel, 2014). These officials were initially sent e-mails (Appendix 9.2), which were, where needed, followed up with telephone calls. One of the DRDLR Government officials interviewed, the Chief Director of Policy Research and Legislation Development, is a relative of the researcher but—due to the status he holds—needed to be a subject in the study for one to gain a full picture of Department of Policies at the DRDLR.

Table 4.1 shows the list of decision makers that were interviewed across the cluster member organisations and Government.

Table 4: List of Interviewees – names deleted for confidentiality

Government Department	Title
DAFF	Chief Director: Food Security
DAFF	Director: Programme Development Support
DRDLR	Chief Director: Economic and ICT Infrastructure
DRDLR	Chief Director, Policy Research and Legislation Development
DTI	Chief Director: Regional Industrial Clusters
DTI	Deputy Director
Cluster Entity	**Title**
Agriculture Research Council	Chief Researcher
University of Stellenbosch	Senior Lecturer Department of Viticulture and Oenology
Farmer 1	Owner Voorgroeneberg Nursery & Farm
Farmer 2	Farm manager (Olyvenboom Farm)
SAWIS	Executive Manager
SAWIS	Information Manager
KWV	Chief Viticulturists
KWV	Global Marketing Manager - wines
KWV	Manager - Cetral Procurement
VinPro	Viticulturist & Training Officer

4.6.3. Sample size

Qualitative research is concerned with meaning as opposed to generalised hypothesis. As a result, qualitative study samples are generally smaller than quantitative study samples (Mason, 2012). “One occurrence of the data is potentially as useful as many in understanding the process behind the topic” (Mason, 2012). Furthermore, there is a point of diminishing returns with qualitative research, as the study goes on no new information is unearthed (Mason, 2012). Supporting this thinking, Boyce and Neale (2006) advance that once one starts to get the same themes, issues or topics raised by the study participants, then one has reached the right sample size.

The sample size for this study was 10 subjects for the cluster organizations and six for Government. At this point, the same themes started to emerge. A total of 16 people were interviewed. Two participants were interviewed from each department or cluster member organization. This way more than one viewpoint was obtained from each organization. In two cases, one in Government and one within the cluster, the interviewees requested to be interviewed together. The total number of recordings was therefore 14 but input was sought from 16 individuals.

4.7. Data collection

The data was collected in three interview stages between August and September 2015. In the first stage, two pilot interviews were conducted. The first was a pilot interview conducted over the telephone, using semi-structured interview questions that had been constructed based on the behaviours and enablers of clusters as defined in the theory (Engel, 2015). A second pilot interview was conducted face-to-face with a government official in Johannesburg. Feedback from both interviews allowed for minor adjustments to the interview technique.

Turner (2010) recommends holding interviews in a location in which the interviewees are comfortable, as this increases the chances of them sharing their stories. For this reason, the second stage of data collection, which involved the use of semi-structured interview guides (Appendix 9.3), took place in the Western Cape Wine Cluster at the offices of the cluster participants. Likewise, the third stage, which entailed the use of a specially designed semi-structured interview guide for Government officials (Appendix 9.4) took place in Pretoria at the offices of the Government representatives. Because of respondent availability issues, two of the government and two of the cluster interviews were telephonic.

4.8. Unit of analysis

Baxter and Jack (2008, p. 546) define the unit of analysis as, that which the study sets out to analyse. The study set out to analyse four factors:

- The presence of cluster enablers and behaviors especially horizontal and vertical linkages.
- The readiness with which policy makers can roll out the concept in South Africa.
- The learnings that could be transferred to emerging agriculture.

The measurement instrument/interview guide questions were structured to aid the interrogation of these factors.

4.9. Data preparation and analysis

Interviews conducted face to face and by telephone were recorded in audio format. They were transcribed with the help of a third party agent. The quality of the transcripts was checked against the notes that had been taken during the interviews and through random checks of the transcripts against the audio recordings. The qualitative data was then analysed manually in response to each of the research questions.

4.10. Research limitations

Limitations include the following:

- The non-random, purposive sampling technique used together with the homogenous sample achieved via the use of the snowball sampling strategy makes this study statistically non-representative of the total population. The research findings provide useful insights but are only directional (Saunders & Lewis, 2012).
- The study looked at one established South African cluster in the agricultural sector. This is due to the fact that this is a new concept in South Africa and there are not many established and world recognised clusters in the country (Gálvez-Nogales, 2010).
- The study assumed that learnings from an established AC could be taken into an emerging agriculture environment. The literature shows that this might not be the case as the benefits of clustering would appear to be specific to certain industries at different maturity stages (Wolman & Hincapie, 2015). This research provides directional insights which can be quantified in follow-up studies.
- One of the Government respondents is related to the researcher. Care was taken to validate all his contributions with those of a fellow respondent from the same department. The reason he was interviewed is that he is the Chief Director in charge of policy development at the DRDLR and his understanding of the Cluster Theory is therefore integral to this study.

Chapter 5

RESULTS

Introduction

In this chapter the research data gathered through the semi-structured interviews is analysed. Two sets of interviews were conducted with the support of two interview guides (Appendices 9.3 and 9.4). The first set of interviews was conducted with members of the wine cluster in the Western Cape, while the second was conducted with officials from three South African Government Departments, namely: Department of Rural Development and Land Reform (DRDLR), Department of Agriculture, Forestry and Fisheries (DAFF), and Department of Trade and Industry (DTI). In all, 16 interviews were conducted; 10 in the cluster and 6 with Government officials. A deductive study method was used to test the application of cluster theory in South Africa.

The purpose of this study was to understand how agriculture based clusters (ACs) could be used to support small-scale farmers to deliver sustainable growth which would help address South Africa's unemployment challenge.

The objectives of the study were to:

1. List the factors that make agriculture clusters operate successfully in South Africa.
2. Identify some implementation gaps which if addressed could help increase the speed of AC execution in South Africa.

The study sought to answer three specific questions:

1. What factors make the South African wine cluster work?
   This question sought to understand the behaviours and enablers that have facilitated the workings of the FAO recognized South African wine cluster.
2. How ready is the South African Government to encourage cluster formation?
   The sub-questions encapsulated in this question were:
   Is there alignment between the various government departments in terms of cluster understanding?
   What policies are currently in place or under development?
   Is there alignment between the various government department policies?

3. How could cluster implementation efforts be improved?

   This question covers:

   What are the observed gaps, if any?

   What learnings can benefit small-scale farmers and emerging Black farmers?

Table 5: The list of participants interviewed, by designation

Government Department	Title
DAFF	Chief Director: Food Security
DAFF	Director: Programme Development Support
DRDLR	Chief Director: Economic and ICT Infrastructure
DRDLR	Chief Director, Policy Research and Legislation Development
DTI	Chief Director: Regional Industrial Clusters
DTI	Deputy Director
Cluster Entity	**Title**
Agriculture Research Council	Chief Researcher
University of Stellenbosch	Senior Lecturer Department of Viticulture and Oenology
Farmer 1	Owner Voorgroeneberg Nursery & Farm
Farmer 2	Farm manager (Olyvenboom Farm)
SAWIS	Executive Manager
SAWIS	Information Manager
KWV	Chief Viticulturists
KWV	Global Marketing Manager - wines
KWV	Manager - Cetral Procurement
VinPro	Viticulturist & Training Officer

The results of this study are presented in sections headed by the three questions and sub-questions presented above. Direct quotes are used to illustrate the feedback received from the respondents.

The assessment of the presence of typical cluster behaviours is presented in Sections 5.1.1 to 5.1.5, while section 5.1.6 presents the evaluation of the cluster enablers.

5.1. Can clustering work in South Africa's farming sector?

5.1.1. Is there evidence of linkages between the various cluster members?

5.1.1.1. Is there evidence of vertical linkages?

Vertical linkages are the relationships that are established between cluster members. For example, these could be relationships with upstream input providers, such as suppliers of seed for the farmers, as well as relationships with downstream participants or output recipients, such as agro-processors. As seen in the literature review, in clusters these relationships need to be very strong (Gálvez-Nogales, 2010; Kamath, Agrawal & Kris, 2012).

There was overwhelming evidence of very strong vertical networks between the cluster members. The table below shows the number of unprompted mentions received by organizations from participants in other cluster companies as listed below. Note that the mentions below exclude repeat mentions in the same sentence or in an adjacent sentence. These mentions were top of mind mentions and the interviewees were not prompted with the names of the cluster members.

Table 6 shows that the Agriculture Research Council mentioned the University of Stellenbosch 7 times and mentioned farmers or growers 5 times. This would have been in response to a question such as:

"What organisations or associations do you interact with daily? Please list them and explain how they facilitate your operation."

Furthermore, VinPro and WineTech appear to be the agencies that all cluster entities interact with daily, as they received a very high level of mentions and were mentioned by all the respondents.

Table 6: Cluster member "top of mind" mentions in interviews

	Unprompted mentions in interviews						
Cluster member	ARC	Stellenbosch	Producers/ farmer/ growers	SAWIS	Wine Tech	KWV/manufacturers	VinPro
Agriculture Research Council	-	7	5	1	7		1
University of Stellenbosch		-	3		6	3	2
Producers	3	2	-		2	14	2
SAWIS			3	-	2	6	4
KWV		4	12	4	2	-	17
VinPro		2	1	1	1		-

Source: Interviews conducted by researcher between the August and September 2015

Verbatim comments on the subject of vertical links within the cluster included:

Respondent 1a

"So that's kind of my day to day. I'm also part of the wine making team academy so I'm the link between the growers and the winery and between the vineyard and the wine makers."

"… we have a growers' association called VinPro. And they have a large role to play in the wine industry. So I mean they are the wine industry representatives of producers and sellers and things like that. So they play a role engaging with the government and engaging on a whole host of different levels on behalf of the wine industry".

"… then obviously there's the university itself. I mean, I have good relationships with the professors of wine, the professors of viticulture and engage with them regularly".

"So there are bunch of ***these bodies that are mainly all connected****. There is IPW which is the Integrated Production of Wine Scheme which basically governs our sort of environmental, basically good farming practices if you will. So that's guidelines and it's a self-audit system and most farms get audited every three years. So they are also a very important part of the larger picture. So* ***these things all stitch together****".* [Researcher's emphasis added.]

Respondent 6a

"…xxx is situated at the nursery and also he is a consultant for grape farmers and he is also a wine farmer. So the middle man between us is an organization called WineTech so that is the central point between us. I conduct the research for Wine Tech and WineTech disseminate to the farmers".

Respondent 3a

"I think 85 to 90% of our grapes go to KWV and the others go to DGB (Douglas Green Bottlers) *and Nedeberg ... I think…we are actually privileged to take our grapes to KWV… My boss's grapes go to co-ops and they have to wait up to two and a half years for their money. We get our money within 30 days after delivery. That helps with our cash flow and our planning".*

5.1.1.2. Is there evidence of horizontal linkages?

Horizontal linkages are those that exist between natural competitors such as between farmers or between the wine cellars.

Respondents were asked about organisations or businesses that they measured themselves against and the impact those organisations had on their operations. From their response there was evidence of horizontal linkages which benefitted the cluster members through benchmarking of quality standards and general performance. This is reflected in the following quotes:

Respondent 2a

"…we benchmark ourselves against I would say, Spier and Nederberg, as brands. And companies, it's a tricky one because Distell is obviously a very big player but they play beyond wine and brandy".

"…from the marketing perspective it would be in terms of the quality products they're putting out so the full mix. So what is their intrinsic like at the price point versus our products? What is their packaging strategy, how have they "premiumized" and this is incredibly important for us".

Respondent 7a

"So I relate myself to the other farms also selling grapes to the other companies I want to do better than them ... On the other hand I have to see that I have the correct cultivars to sell which they can't do, on the technical side I have different cultivars which will give me an edge in the market above the other guys".

Respondent 7a

"…they call it Wine Block Competition …. These areas include the Wellington, Paarl and Swartland and I was the winner of this area this year for the wine block competition".

Respondent 1a

"So I have viticulture study groups that are very important to me. So I have a study group with a bunch of other viticulturists from wine estates and we meet once a month. We invite speakers in and we exchange a lot of information with one another there. So it's a study group, I mean it's very formal but we're units of people with exchange of ideas".

"the big company is Distell. They are the largest company in the wine industry of South Africa. So we do look at what they're doing and probably ensure that we're not falling behind.

We're trying to be ahead of the game… In terms of wine style and quality and awards. It's kind of an awards driven business so we're entering a lot of competitions and those are also ways of benchmarking. We do a formal amount of benchmarking ourselves with products as well. That we do in-house. We literally do blind tasting and benchmark at different price points all the different product ranges against both local and international wines. Obviously because we need to be, we need to understand what's going on in the market. So there's a lot of that going on".

5.1.2. Is there evidence of resource mobility?

5.1.2.1. Is there evidence of knowledge transfer?

There was an overwhelming amount of knowledge transfer in the wine cluster, as illustrated by the number of ticks in Table 7. During the interviews, the respondents volunteered that they got information from a range of sources. An "x" in the table below does not indicate that the source was not used but rather that it was not referred to.

Table 7: Knowledge transfer in the wine cluster

Cluster behaviour	Observed behaviour	Respondent									
		1	2	3	4	5	6	7	8	9	10
Knowledge transfer	Seeking advice from experts	√	√	√	√	√	√	√	x	√	√
	Consulting documents from VinPro/ SAWIS/ Wine Tech	√	√	√	√	√	√	√	√	√	√
	Attending events (expert and peer)	√	√	√	√	√		√	x	√	√
	Use of Internet	x	√	x	√	√	√	x	√	x	√
	Receiving knowledge (from experts and peers)	√	√	√	√	√	√	√	x	√	√
	Imparting knowledge	√	x	x	√	√	√	√	√	x	√

Source: Interviews conducted between August and September 2015

All the respondents felt that knowledge was integral to the workings of the industry with some going so far as to state that without knowledge transfer the industry would not exist.

Respondent 2a

"I think knowledge is power in this industry and I've never seen an industry that has been so obsessed with reading and writing. The list of publications across the industry is incredibly

vast. And so you've got sort of international magazines constantly talking about the South African wine industry, we have internal magazine. So VinPro has a magazine called Wineries Magazine in which people share some best in class stories and it's also very objective, that magazine. And then more than that seminars and sharing is far more evident in this industry than others".

There is extensive use of the internet for information sharing and access.

"…internally we have invested in a product called Market IQ. So every morning when I get to my desk, it simulates every story on the web or in print that has mentioned either KWV, either any of our brands or any of our competitors or any words starting with South African Wine Industry. So every morning when I start my day, I can have a snap shot of everything that's been talked about on the previous day".

Respondent 1a

"…knowledge transfer is probably considered now the most important thing in our industry. It's what keeps us alive. I mean without it we'd die. With that we can move forward and improve and without it we won't. And I think most role players in the industry understand that".

Scientific information is translated into a language that can best be understood by the farmers and it is widely distributed through a magazine that is accessed by the cluster community.

Respondent 6a

"…the research we do is obviously scientifically based and the scientific outcomes of the research must be transferred to the local industry. That mainly happens in different language so we would publish our work as scientific articles but then convey the same results in a different way, in popular way to the wine industry through…we have a journal which is called… WineLand. And then within that they have a sub-section which is dedicated to knowledge transfer to organisations and farmers".

The technical organisations see themselves as part of the industry. The industry needs the information they provide in order to function. Furthermore service providers in the cluster take it upon themselves the package information in a manner that is easy to assimilate and they believe it is their role to keep the farms in business.

Respondent 4a

"SAWIS being one of the units within the industry … is tasked with the information components. Business intelligence, information statistical data".

Respondent 1a

*"So again it's about understanding always, improving my understanding or ensuring that I'm up to date in terms of research … understand how to take that principle and implement in terms of practice that I can package all together for a grower. Because the grower is not going to read research, he's just isn't going to do it." "….**they are busy with the day to day operations. So somebody has to read the research, digest it** and then understand how that impacts our world, package it and then bring it to them. So what we call technical transfer. So that's a relatively large part of the job because with that we're engaging not only on the technical side but also on economic side. So we understand how to keep the guy on the farm, how to improve his profitability, how to improve yield but also quality, how to change the management of vineyard that is perhaps not making its quality or not making any money and try to make the adjustments so that it becomes profitable or at the very least not loss making".* [Researcher's emphasis added.]

For the farmers knowledge transfer is mainly through word of mouth, through study forums and informal meetings. There is a general sense of community and support for one another, which also benefits those that are new to the cluster.

Respondent 5a

"WineTech has funded a project that has formally looked at the way information is being transferred in the industry… on the production side or direct production side... And the result from the study was that they use one another. From the study groups … they don't read that's the interesting thing. They read less and less material and they share more because they've got a lot of these tasting forums and we've also got study groups, viticulture study groups and they are a huge source of information for us that's also for new people in the industry".

Respondent 3a

"There is sometimes wine days that you can go to of course and they give information on pruning and suckering and that kind of stuff…"

5.1.2.2. Is there evidence of people mobility?

There was no consistency of opinion on this factor. While there was some evidence of human capital mobility within the industry, this seemed to be limited to certain functions. In the main, there did not seem to be much human capital movement. One of the reasons quoted is the challenge of transformation. Black people do not get opportunities readily and therefore are reluctant to move around once they are in a position.

Respondent 10a

"I think it's difficult for our culture to find jobs in the industry but there's a lot of programs running. For example, the prodigy programs, they serve as mentors to students, to work at top wineries and top wine makers, to get exposed and also to find jobs in the wine industry here. And ***not all of producers are for transformation****… **So I think it's difficult for certain people to move in the industry**".* [Researcher's emphasis added.]

Respondent 9a

"…there's lot of Distell people here and people here going to Distell…I think people can learn a lot. I've only seen the benefit of it I haven't seen any harm. I have seen people bring in their knowledge, the harm is they would be working in that organisation for their whole life but don't bring any learning. That's the harm".

Respondent 7a

"…on the ground level with workers. There's a huge exchange…What happens is, you have a team come and prune for you of 30 people and next year it's 15 different people and 15 of the same people...There's a quite a big exchange on that level…".

Respondent 1a

"There's definitely a high level of movement in the marketing…sales and marketing functions. There's a very high degree of movement there. It's really rather regular…There's less movement on the factory side if you will. So in terms of cellar workers and bottling line or bottling operator, warehousing and dispatching that seems to be more stable if you will. Including quality control personnel and production management… looks to me to be quite stable. Viticulturists move around a bit but not too much. Viticulturists tend to remain in place relatively long. Wine makers tend to move around quite a bit maybe because they're trying to become the cellar master, maybe they want to be the top wine maker. So especially under the age of 40 they tend to move around quite a lot".

5.1.3. Is there evidence of an alignment of interests?

Asked if they ever cooperated with traditional competitors as a way of addressing shared challenges, several respondents reported that this was integral to the way they worked in the cluster. Examples of cooperation were in areas such as information gathering, combating disease, handling capacity issues or excess inventory.

Respondent 9a

"…we also bottle outside if we don't have capability…So we use Paarl Valley Bottling… when we run new products, we like to work through industrialization and manufacture ability with them and vice versa. And they will also get to share or pool the resources, experience and knowledge in new products…Even though that they do … bottling for competitors there's a lot of learning still".

"…we have a supplier partnering program with our packaging suppliers and then we share industry knowledge. So the pending waste management tax draft is something that we share… We had a session where we invited all our suppliers here, we went through what we'd gathered and then shared information… belief in collaboration, above the board collaboration, where we support the industry also".

"For example, I have surplus glass supply I would phone DGB and ask them if they are interested in extra glass otherwise I have to write it off".

Respondent 2a

"So with WOSA…they've agents within each of the different markets and we are freely allowed to use those resources. So if we wanted to find out an ad-hoc question as in, Is French Rosé growing in China? We can ask them for that information…They do a lot of research. They need to know all the trends of each of the markets. They are experts in their own field. …next week I'm attending an event that they have invited us all to understand China, understand the market. So those are sort of readily available. However a lot of it is relationship building. So it's kind of what you ask you get. So we work closely with them to get as much out of them…".

Respondent 7a

"It's quite often that I have a surplus of root stocks and other guys have a shortage and I have a surplus then I exchange with my competitors. It's with my competitors but we exchange".

"We do exchange information obviously but it's more like, if there's a disease we come together and discuss what can we do about that disease and how can we combat it with the researchers. How and what can we do with that?"

5.1.4. Is there evidence of entrepreneurship?

Respondents were asked if people in the industry were willing to try new ways of working. The views on this topic were inconsistent. In some quarters, there was a willingness to commercialise technological advances and to create new markets. There was no mention of business model experimentation. Risk aversion, which is fuelled by recent economic pressures, seems to prohibit innovation. Furthermore, because it takes such a long time for the effects of true innovation to be seen, there was a low uptake in certain quarters.

Respondent 2a

"… being a smaller player we believe that our competitive edge will come from innovation. So really spearheading new wine making techniques which we did last year, we launched a product that …is naturally safe and preservative free. And it's because we used Rooibos and honey bush wood in the fermentation process. So it's naturally safe and preservative free. And that was a real innovation for us and again, in line with our strategy of premiumizing our portfolio. So we really get a lot of motivation in terms of innovation I think. That's really where we're focused".

"I would say… it's definitely more evident in smaller wineries. I think the big companies are stuck in the fact that a lot of their business has been the same for the last 50 years".

Respondent 1a

"I think in viticulture as viticulturists there's a lot of innovation and they are very prepared to try new things and new concepts and new ideas".

"The reality is we work in agriculture… in agriculture it takes approximately 20 years from the time that something has been determined by research to say, that this is X, until X becomes a common practice is 20 years. So that's for agriculture per se across the world. So it takes a long, long time because people are very set in their ways. And for viticulture the longer

they have been in one place, the longer they have been doing one thing the same way, the more difficult it is to move them".

Respondent 6a

"It is in a way quite traditional because many people inherit farms so sometimes they just do things because their father did it and his father did it because his grandfather did it. So I think there's quite obstacles in many ways. Sometimes it's also added to our knowledge but it is, in general people are quite hesitant. I mean, it's because of maybe financial implications. So if they make a mistake they can have a total crop loss problem".

Respondent 5a

"It's a bit difficult to answer that in the recent 2-3 years because the industry has been really in a bad space in terms of economic pressure as you might know. So in that case, innovative thinking, I would say cannot be on top of their priority aspect. If I look at the main players, they really try to get new…for instance, in my domain innovative systems tend to be more productive without really taking more money out".

Respondent 7a

In general I shall say, the bigger farmers are more innovative and they change… the small farms they are more conservative, they don't change that quickly. Why? … I think they are afraid to take risks. Our profit levels are very low in this industry and they can't take risks basically that's why …".

5.1.5. Is there evidence of a global strategic perspective?

The respondents were asked who they benchmarked themselves against. There was overwhelming evidence that the cluster had a global outlook. From its inception KWV was tasked with finding an international market for South African wines. Today that marketing function is performed by WOSA, while a body like SAWIS has the role of certification; hence it protects the image of South African wines in the local and international markets. There was also evidence of benchmarking to international markets.

Respondent 4a

"(SAWIS') *second function has to do with the wine of origin scheme… That is your assurance from a consumer perspective that all the claims on that label has been verified and it's retraceable…we have the best traceability system in the world".*

*"So the objective of this WISE (*Wine Industry Strategic Exercise*) exercise is to ensure that the wine industry is competitive… Now one of those projects was to actually go and do market and consumer analysis. So we actually commissioned Wine Intelligence which is a UK based company. Wine Intelligence has extensive knowledge of the wine market, they also have…a consumer panel which then run in countries, so … for example, we did China one now. They go to about 1000 consumers within the China market who actually consume imported wine and then they ask certain questions to those consumers. And in asking them questions, they then start processing the data for us, for the South African wine industry".*

Respondent 8a

"…all wine producing countries you have a similar body to promote the industry, to do research in the statistical environment. They need to know what is produced locally, they need to know what the vineyard status is, they need to know what the exports are, market rates. So there are 3 very basic components in any industry where they need to gather the information. We just have a lead in terms of the extent and the scope or the range of information that we gather… Often you will find that there's references made to the South African wine industry as a model".

Respondent 2a

"WOSA do not work in South Africa. WOSA builds brand South Africa in all our other markets…South Africa represents 3% of the international wine world…Their role is to see the needle move on South African wine regardless of which producer that that comes from".

"So we (KWV) *regulated all exports. So every single bottle of wine that left South Africa went through our cellar and then got sent out. So we handled all the logistics, all distribution. Every single bottle of wine that was exported came through us".*

"… premiumize … consumers to drinking wine and spirits that we're able to make profit from and also to enhance the image of South Africa, we need to premiumize the category".

Respondent 9a

"…the wine teams … move around a lot internationally as well. Different awards that they attend and also that we visit a lot of suppliers or industries. For example, 2 years back I was with a group of local wine makers to Japan and to the Italian areas of MCC to talk but with…

5.1.6. Cluster enablers - The role played by government in the cluster?

From a strategic perspective there appears to no role played by the South African Government in the Western Cape Wine cluster. Cluster members reported that they did not feel supported by Government, especially in terms of their exposure to the global often subsidised market. Policy uncertainty was reported as a challenge that has resulted in the scaling down of operations, with a negative impact on employment. Some respondents reported that there was some financial support provided by Government for research, and they also played a role in the wine of origin certification.

Respondent 7a

"It's just the interpretation of the legislation changes from year to year. We don't have standard regulation. This year we can do this… next year it's a new thing…so it is such a sensitive thing that we have to stop our exports which is worth millions of Rand of income from overseas, we stopped it now. The risk is too high unfortunately…we supplied work to lots of people; we have to scale it down now. It's just the risk for us is too high. We can't do it".

Respondent 3a

"I don't think they do really too much. I think the market is open for wine industry outside South Africa but I think they can do more in terms of subsidizing farmers for…with all this labour…"

Respondent 5a

"…funding is not easy for us because…to be frank, our demographics are not right for some of these funding programs and we're struggling in the industry and that's why the work we're doing, it is very important for us. We're struggling to get people from disadvantageous background to study viticulture technology".

"I have a view that it's not like in some countries where they get industry subsidies and on research and on operational level it's subsidized".

Respondent 6a

"…farmers contribute via levy which they pay as tax to the government and government channels funds towards WineTech which is an organization prioritize the research needs working in the entire industry".

Respondent 4a

"On a strategic decision level there's no involvement from government. From a working perspective, there is government involvement in the sense that we work with DAFF… So there's very close involvement there. And of course there's in spirit because on Wine and Spirit Board (Wines of origin) *there are government representatives… that would be an indirect involvement of government but otherwise none whatsoever".*

"…from the SAWIS' point there's no government involvement at all. But from the fact that we apply for statutory levy, so that's the only…we look to them in terms of a improving that. So there's no government involvement…".

5.2. How ready is the South African government to encourage cluster formation?

5.2.1. Testing cluster theory understanding among government employees

Asked for their views on the cluster concept and to share their experience of them, respondents displayed a difference in the level of understanding as well as their interpretation of the concept. In most cases, they related network concepts and not true clusters. However the respondents demonstrated buy-in into clustering as a means of improving agricultural output and creating jobs.

Respondent 2b

This respondent's interpretation was that clusters needed to be centrally controlled.

"The cluster concept is very broad and from a South African perspective, it would work across sectors, across business sizes but basically the cluster concept that we are looking at is that it brings different firms together and allows them to collaborate and compete. What we have centred it around because we've got a lot of small and emerging businesses as well that we need to bring into the frame. ***We are looking at supporting the management of cluster management organisations****. So we see that as the core or the heart of the cluster because within the cluster management organisation you have somebody who will have the*

capacity to support firms that are members of the cluster. But…at the same time we try and pull in those that have been left out". [Researcher's emphasis added.]

Differentiating between clusters and co-operatives, terms that had been used interchangeably in the interview, the respondent gave the following definition:

"In terms of registration of course there will be differences. The co-operatives … tend to have a joint business ... So it's voluntary. The policies of the clusters and the policies of co-operatives differ. The cluster is more formal, the cluster is based on individual businesses running their own separate businesses and then coming together for shared value."

The respondent classifies clusters in three categories. For better understanding, the respondent referred the researcher to the Department's concept document for cluster development which states that:

"Clusters, based on the type of sector activity, can be arranged as vertical, horizontal or mixed Clusters. A vertical cluster includes the supply chain and has a strong buyer-seller relationship. The horizontal cluster includes enterprises at the same level in the value chain. A mixed cluster would therefore comprise a combination of the former two". [Not referenced for reasons of confidentiality].

The respondent also shared his understanding of the differences between clusters and Agri-parks.

"…Agriparks, those are parks. Clusters, they are more registered, they have a stronger focus. Agri Hubs or the industrial parks are mainly a concentration of location so it's more geographic than anything else. With the clustering, it does not necessarily have to be boundary bound geographic, there's no boundary to it. And then it has other elements that bring the members together. It's more member focus than geographic focused. You see an industrial park is a location; it's a zoned area, Special Economic Zone".

Respondent 1b

This respondent perceived clusters as the same as co-operatives and pointed to agglomeration as the reason for cluster formation.

a. *"My understanding is that the concept of clusters or primary co-operatives as I call them is very important for the purposes of addressing the challenge with regards economies of scale… If a group of poultry farmers who can only turn out 50,000 chicks a day and Rainbow chicken who dominate the industry is selling …*

100,000…that is what I mean by economies of scale."

b. *"…the way we've implemented clusters has been problematic. Because we call a cluster of 5 small business or 5 farmers a co-operative. Technically speaking that could have been correct but strategically it doesn't serve the purpose functionally."*
c. *"The way we have been forming co-operatives has been too small to address the challenges* (of economies of scale) *faced by small business."*

Respondent 3b

The respondent touched on the concept of vertical linkages within a hub and mentioned cluster enablers in the context of providing market certainty.

"…the cluster process is not unique to South Africa. It's something that's been happening internationally. Countries like the Netherlands have been leading in this innovative way of really ***bringing the primary production process and the processing process and all the management and logistics components*** *into one area and what we call a hub with areas with farms outside within a given radius.*

It has a lot of advantages in terms of focusing skills, in terms of creating jobs, in terms of tapping into value along the value chain, in terms of targeting markets, crafting huge relationships with buyers, maybe departments within the country. You must remember that the ruling party manifesto committed 30% of Government offtake to small producers, small SMEs etc. If you look from a perspective of agriculture, in 2011, it was estimated to be about R8 billion. Take 30% of R8 billion say that's going to be targeted to small producers and then you can do the math upwards to what's the value to this particular stage in time. So the advantage for a developmental stage framework is that like with any business and it maybe the killer assumption, ***it provides market certainty for small producers****".* [Researcher's emphasis added.]

Respondent 4b

The respondent differentiated between clusters and Agriparks highlighting the infrastructural component of Agriparks.

"Agripark is like a Farmer Mall, you know a mall. Big building, Agripark is something like that and Cluster is farmers farming or it can be cluster of other activities not necessarily farming. So I was saying clusters are not necessarily linked to Agriparks".

Respondent 5b

In this respondent's understanding, clusters can be viewed as clusters of the individual parts, e.g. you could have farmer cluster or processor cluster. Further, in the respondent's opinion that there were business and social clusters. The respondent raises issues of trust and agglomeration benefits.

"It depends what you're clustering. I mean, you can be clustering one industry, you can be clustering commodities, …and obviously in a value chain there's clustering that can happen. You can cluster the farmers, you can cluster input providers,… for us clustering is basically about the nexus of contracts. How do people leverage business from each other? One person's output is another person's input; somebody's waste is somebody else's input etc.

So that's one business kind of clustering, but you also get this other kind of clustering, social clustering - co-operatives, CPAs, trusts. That's an organisational kind of clustering… the business clustering works very well but the failure is that in the organisational clustering, people don't trust each other, they fall out of harmony with each other, they fight and all these things".

Respondent 5b referred to Agriparks (AP) a lot in his interview and defined them as: *"a networked innovation system of agro-production, processing, logistics, marketing, training and extension services, located in district municipalities. As a network it enables a market-driven combination and integration of various agricultural activities and rural transformation services. The AP will comprise of three basic units:*

1. *The Farmer Production Support Unit (FPSU). The FPSU is a rural outreach unit connected with the Agri-hub. The FPSU does primary collection, some storage, some processing for the local market, and extension services including mechanisation.*
2. *Agri-Hub Unit (AH). The AH is a production, equipment hire, processing, packaging, logistics and training (demonstration) unit.*
3. *The Rural Urban Market Centre Unit (RUMC). The RUMC has three main purposes:*
    - i. *Linking and contracting rural, urban and international markets through contracts.*
    - ii. *Acts as a holding-facility, releasing produce to urban markets based on seasonal trends.*

iii. *Provides market intelligence and information feedback, to the AH and FPSU, using latest Information and communication technologies."*

Respondent 6b

Trust was seen as essential to clusters but it was reported to take long to generate. The respondent introduced a requirement for a minimum number of members for a cluster to be recognised as such.

a. *"…important thing about the clusters…is the element of trust which takes a long time for the firms to start trusting".*
b. *"…once we've got the 5 members then we'd have a cluster as far as the xxx is concerned…what informs 5 members? Like I said, we would also want to create the situation of clubbing. So I think on practical terms we would want to see that minimum number of members coming together but you can understand if we were to say 2 members can form a cluster and it becomes pretty much a joint venture. So we would want to run away from what is ordinarily known as well".*

5.2.2. Perceived benefits of clustering

All the respondents listed several benefits to cluster formation. Some respondents spoke of job creation and food security as being key benefits.

Respondent 3b

"…there are multiple outcomes because you can create the jobs, that's a one challenge. You can deal with food insecurity, that's another challenge we're facing. You can deal with the problem of skills and poor education in a very focused and trade related area, you can build in both social and the technical, the managerial components to it over time".

Respondents 6b

The respondent pointed to two benefits, market certainty and agglomeration.

a. *"We have assisted them to do processing. However small it is but then at least their output as in fresh milk is then processed into different products. So in that way they are no longer relying on who is going to take my product away from me".*
b. *"Since these members are small…what they've identified as a hurdle is that they*

had to travel longer distance to …collect (fresh milk) from fellow members in order to consolidate and sell as a cluster or sell to a particular processor because also remember, if you don't have a certain quota in your farm the truck will not come from the cooperates to come and collect from you. And then you have that small (amount of milk) that you have produced, how are you going to get it across town? How are you going to get it to the communities that you're selling directly to? So you needed to have the capacity to do that and therefore you don't have but when you come together as a cluster and identify that we needed refrigerated trucks, maybe to do certain routes that will then belong to the cluster. Then we're at least creating that value-add to them".

Respondent 2b

A challenge and ultimately a benefit is that of being able to address South Africa's trust issues. The respondent also discussed agglomeration benefits.

a. *"…the biggest hurdle is the issue of trust.* (Its impact is)*…double because there's this historic element that we have to overcome and then we have to deal with the business … element as well. The trust in business is the race trust and then the trust in business. It becomes a little bit more difficult than what's happening from a global perspective".*
b. *"Remember they are collaborating and competing…yet in business you just focus on competing. So that, how can I collaborate with my competitor?"*
c. *"If you look…at our website…the cluster development program, it talks to 3 key areas. One is the establishment of the* ***cluster management organization*** *which is really the engine which keeps it going. And then the other one is the* ***access to shared infrastructure****… mainly targeting machinery, equipment or whatever that you find that a business doesn't fully utilize but if you share it, it's then better utilized…You can't afford it and you don't really need it. But if it's on a shared basis, you use it… In other industries there's machinery to make prototype design. You design once and then boom, you don't need to design again….and the other is* ***business development services*** *which is your feasibilities, your branding, dye, IP registration and things like that".* [Researcher's emphasis added.]

Respondent 5b

Clusters are seen as a way of addressing South Africa's rural economic issues.

"Agriparks is the way we're going to bring about rural transformation as xxx. But what we realized is that we have to work within rural economic transformation and what is the main driver there, it's probably agriculture if you don't know it yet. We don't have like big industries that allow big matrix areas... You've got all the unemployed people living out there. There's a few issues, firstly, you've got labour issues of farm labourers, you have land issues, you have a lot of homeland areas that are underdeveloped and probably, they will remain so, but they have to get better services".

Respondent 4b

This respondent spoke of knowledge sharing and the development of strong ties as a cluster benefit. Again the words "cluster" and "co-operative" were used interchangeably.

"…the outcome of that was that, groups became friends. For instance around KZN, Msinga, they just organically became close… the cluster management agent would now and then call them together so that he/she can check …what are their challenges and so on. So by sharing information in that manner they got to know each other better. So some of them, not all, have now requested to be assisted to become a cooperative".

Respondent 1b

According to this respondent, the key benefit was agglomeration:

"…is very important for the purpose of addressing the challenge with regards to economies of scale".

5.2.3. Understanding Government's role in cluster creation

Respondents were asked who they believed was responsible for setting clusters up. There were differing views with some of the respondents saying that this function should fall to the Government, while others believed that Government's role was largely facilitative. Most believed facilitation was Government's responsibility due to the cost and ability to bring the stakeholders together.

Respondent 4b

"I think that should be part of Government's function…clusters should organically develop themselves but Government should just play a facilitation role. Because…we have the ability

in terms of the little resources that we have because it can be difficult to coordinate this because it can have cost implications to coordinate this activity…Just to link them as well. It's part of facilitation linking them with other possible opportunities such as markets and input suppliers. So that is some of the functions that Government can actually do".

Respondent 6b

Government's role is awareness generation and facilitation, once the community has decided to create a cluster.

"You're not taking the lead, you're not…I'm not the cluster manager or representative. I'm xxx; I'm the facilitator of the cluster itself to develop… Yes (create) *awareness and then give them an enabling environment so that they can then look into that concept is it viable for them to come up with the cluster. That's what we then look at facilitating".*

Respondent 2b

Cluster formation is the responsibility of the private sector but government has a responsibility to create awareness of the concept.

"…essentially the private sector. The firms themselves have to recognize the need to form a cluster. So the firms come together and they feel this is something that could work for us but the important thing is for them to know the concept. So that's what xxx does. xxx works with the firms out there. xxx would say, "Guys, there's this…you could actually do this".

Respondent 1b

This respondent sees the farmers/cluster members taking the lead with Government playing a facilitating role.

"I think the farmers; they are the drivers of the system. I think Government can play a facilitating role".

5.2.4. Policies currently under development

Two of the three Government Departments had established policy or were actively involved in policy development.

Respondent 5b

There is evidence of policy development that is informed by international experience. There has been a presidential declaration to implement Agriparks in keeping with the AGRI Policy Action Plan (APAP). The respondent shared a detailed plan of how the Agri-park would be used by small-scale and commercial farmers. There is clear role delineation between national government, provinces and districts. The concept was launched in by the DRDLR in January 2015 and therefore has not as yet achieved the required traction.

a. *"We looked into actually 17 different countries…they all work very differently…we've tried to create a common terminology. So even among government departments and where we're taking business plans and planning, we trying to say, do you understand what farmer production support unit is and what it's supposed to do? Do you understand what an Agri Hub does and what it's supposed to do? Do you understand what a Rural Urban Market Centre is and what it is supposed to do? And do you understand that all three of those components together make an Agripark? An Agripark can't be just a site with buildings".*
b. *"There's one Agripark per district, farmer controlled, there must be a catalyst around which you can do Rural Industrialization".*
c. *"… if you think, in January this year there wasn't even a word of Agriparks and we're in August".*
d. *"Provinces will do policy design and tender, districts will do implementation. So it's strategy and policy top down. Project identification and design bottom up... So we're busy rolling this structure out now"*.
e. *"So there are 27 areas in the country that government has given priority to, those are the areas with homeland areas. The 27 of them. And that's where the President SONA* (State of the Nation Address) *in 2015 said that he wants to concentrate on Agriparks. And when he said Agriparks he also said in line with APAP, the AGRI Policy Action Plan".*
f. *"We think we can do about 90,000 of those* (required jobs) *through the Agriparks in 44 districts in the next 5 years".*
g. *An Agripark includes commercial farming, smallholder farmer plus any co-operatives…small holder farmers would register here to get support. Now this support would be input support, mechanization support, logistic support, training, banking all that….a commercial farmer…can participate at any stage…same with the small holder farmer. Once you've ended here as a farmer production support,*

some of your goods will go to Agri Hub and some of your stuff will go straight to your rural urban market centre for holding before. …It's about how you maximize value for the farmer".

Respondent 4b

Mentions of collaboration with DAFF and DTI by DRDLR were not corroborated by these partner departments.

"…we're working on the National Policy on Food and Nutrition Security for the country … we're working on the implementation thereof… we did it in collaboration with Department of Health and Department of Basic Education…Then we had a Strategic Plan for Smallholder Support, which we are reviewing now".

Respondent 1b

This respondent indicated that policy formulation for small business had moved to a central location within the South African Government and that the Department of Small Business was the custodian of this function. And that preferential procurement and legislation that favours small business is also currently being reviewed. There was no mention of Agriparks.

"…at policy level it's really the newly formed Small Business Department that has taken up that space. But what we are negotiating is how do incentive programs … run by DTI, that incentivize mainly big business, like your Pick and Pays of this world and so on. So what we're saying, how do those incentive programs, which is R10 billion a year, that we start adding conditions that those companies that get the incentives start procuring from small business… And so for clustering it becomes an important and in a significant way of overcoming those challenges. And so to incentivize clustering, we are discussing whether the DTI could add to the condition of the incentive programs to support small businesses".

Respondent 2b

This respondent shared that they were piloting a cluster formulation and funding model.

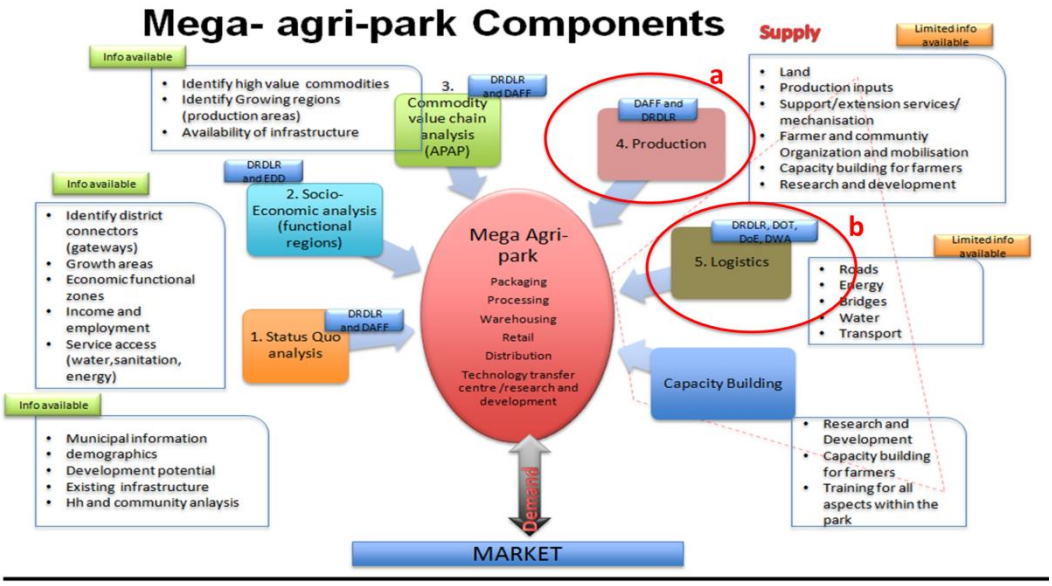
"…we've done the concept; we've done the framework as well. The Framework looked at the country, looked at what the possibilities are out there in the country. And through the CDP

(cluster development plan) *we're now piloting the funding of the clusters. Now once we've gotten input from that we will then be in a position to actually implementation…".*

5.2.5. Is there alignment between the various departments?

There was evidence of some co-operation or intended co-operation between the Government Departments. Figure 9 illustrates the envisaged collaboration between those, as shared by Respondent 5b. Section (a) indicates an area of collaboration between DRDLR and DAFF, while Section (b) indicates an area of collaboration between DRDLR and Department of Transport (DOT), Department of Education (DOE), and Department of Water Affairs (DWA) in the establishment and support of Agriparks. However, DAFF made no reference to working with DRDLR on policy development.

Figure 9: Illustrating potential cross functional efforts across government departments in Agriparks



Respondent 5b continued as follows:

"Everybody (Government departments) *is involved with Agriparks. This is a Presidential project. So we've got agriculture on board, DTI on board, small business on board".*

However, the awareness of the situation is still limited and is still in the concept stage of realisation. Therefore, the Departments in regard to small business still function independently.

"Nobody has an Agripark unit and that's the whole thing is that within your silos everybody does their little thing but how do you reorganize government? So we've tried to say, under our Outcome 7, … Agriparks fits under there… we have our minister that drives Outcome 7 and then there's a number of deputy ministers that have been given responsibilities for every sub-outcome. So each of them then will be appoint a deputy director general to drive that sub outcome. But each Sub outcome actually contributes to the Agripark".

The structures are in place but it appears as though commitment from stakeholders is wanting.

"…yesterday we had MINTEC, we had…13 districts out of the 44, which wasn't great;… all provinces were represented and Departments of Agriculture and Rural Development, DST was there, IDC was there, Land Bank was there, commodity groups, - we have a standing working group with them - so Agri SA is there. Everybody was involved in the Agripark program at the moment".

Respondent 1b

Focus appeared to be on incentive programs for small business. There was no mention of Agriparks. Despite the relative newness of the Agriparks concept, the researcher had expected the concept to be high priority for all the Government Departments involved in this study, given their role in rural agriculture.

"And so to incentivize clustering, we are discussing whether the DTI could add to the condition of the incentive programs to support small businesses".

Respondent 2b

There is some collaboration reported but none of it was corroborated by DAFF; and there was no mention of DRDLR. The desired outcome for the respondent was for any Department that was using the cluster concept to incorporate it into the sectors. They did not envision a situation in which several Government Departments were working on the same cluster.

(We are working with) *"Science and Technology; we've had some engagements with them. We have talked to Agriculture; we are actually trying to influence the Fisheries for them to use the clustering concept as well. So yes, there is collaboration. With DAFF, I actually think they did buy in and I think their policy might talk to it. I haven't seen it yet but I think DAFF have actually taken it on…".*

Interviewer: What is your desired outcome? So say, they take it on. How do you see your interaction with them? Do you see them working in the same clusters or do you see them just adopt concept?

"The idea would be to adopt the concept and be able to use it in different operating sectors".

5.2.5.1. Is there a vehicle through which developments are shared?

When asked how they found out about initiatives in other Government Departments the respondents offered a variety of responses. There appears to be no consistent communication mechanism or information exchange structure. There is an expectation that the departments keep abreast of developments in other areas of government and information exchange is happening informally (Table 8).

Table 8: Inter-Departmental Knowledge Transfer

Respondent	How do you find out about initiatives in other departments
1b	*"…the interface is poor but it's mostly through the extension officers in agriculture".*
2b + 6b	*"…the economic cluster … where different ministers meet and share information."*
3b	*"…the annual plans and on the estimates of national expenditure reports…"* *"…it's really chapter 3 of the constitution, cooperative governance. It's expected of but it's a bit of a difficult one but it's expected of (*us*)"*
4b	*"We work with other government departments, we collaborate with them in meetings, have discussions. So we don't necessarily …have a signed working relationship".*
5b	Working committees and ministerial commissions

5.3. How can cluster implementation efforts be improved?

5.3.1. What are the observed gaps?

Using the cluster behaviours and enablers discussed in the literature review, a few gaps were observed in the manner in which the government employees were approaching cluster creation (Table 9).

Table 9: Observed Gaps in Cluster Formation

Cluster behaviour or enabler	Observed gap
Linkages and creating an enabling environment	There appears to be weak linkages between the various Government Departments and almost no linkage to the established clusters in the country. • Two of the Departments are working on cluster policies in the agriculture area but these are not aligned. • Only one respondent mentioned the established Western Cape clusters unprompted..
Information exchange	Although required in the constitution, there appears to be very little cooperation between the various Departments. **Respondent 3b:** *"…it's really chapter 3 of the constitution, cooperative governance. It's expected of but it's a bit of a difficult one but it's expected of (*us*)".* The absence of a common language. The definition of clusters and even Agriparks differed across Government Departments and in some cases there appeared to be scant appreciation for the Agripark concept despite its Presidential support (as stated in Respondent 5b interview "…that's where the President in SONA 2015 said that he wants to concentrate on Agriparks"). a. **Respondent 4b:** *"Agripark is like a Farmer Mall, you know a mall? Big building? Agripark is something like that and Cluster is farmers farming…"* b. **Respondent 2b:** *"…Agriparks, those are parks. Clusters, they are more registered, they have a stronger focus.*
Alignment of interests	The respondents were aligned in their desire to grow the agriculture sector and create jobs but their approaches differed. c. **Respondent 5b** *"We think we can do about 90,000 of those* (required jobs) *through the Agriparks in 44 districts in the next five years".* d. **Respondent 2b** *We are looking at supporting the management of cluster management organisations".*

5.3.2. What learnings can benefit emerging agriculture?

In this section feedback from the cluster members is reviewed.

Depending on the flow of the conversation, the respondents were asked either one of the following questions:

- What specific elements need to be copied from the wine cluster in order to set up a cluster for emerging agriculturalists?
- What recommendations do you have for people planning to set up an agriculture cluster?
- How would you go about setting up a cluster of small-scale farmers?

The majority of respondents identified knowledge transfer as the single most important ingredient for the success of a cluster.

Respondent 7a

"So there are 3 of us. We'll sit together every week, a meeting. I shall organize that myself because that works. Here I work like that. We are 5, we have meeting once a month to discuss our problems and deal with it."

"…There you must not be competitors cause then we're an island".

Respondent 1a

"…I think a strong information and technical transfer organisation is probably the biggest and most important element of that. Both agricultural and economic information and benchmarking as well, as well as technical transfer. And ***as a service to emerging farmers, that's probably the most vital thing is that they have access to expertise****. That's not necessarily going to cost them an arm and a leg because they don't naturally have the money to pay for it. And* ***that's probably where the government would need to support. I think the support is going to be on that side because it's about expertise in farming.*** *It doesn't matter what you're farming; you need to know what you're doing. I mean, it's a professional exercise, the days of the old gentleman farmer, where you fiddle about on the land and whatever comes, comes. That's gone. You can't survive like that anymore. It needs to be set up in a way that you can maximize your production and quality and minimize or be in control of your cost structure otherwise it's game over.*

So I think a lot of the information, technical transfer, expertise and availability of expertise. We may not have all the answers but at least in our industry we kind of know where to go looking for it." [Researcher's emphasis added.]

Respondent 2a

"…the sharing of information, sharing of techniques, the training up of people who are previously disadvantaged, people who don't have the sort of background. If there was one or two independent boards that gave an objective resource, I think there would be … incredible growth from that perspective."

Chapter 6

DISCUSSION OF RESULTS

6.1. Introduction

The aim of the research was to investigate the possibility of using cluster theory as a mechanism for providing the required support to predominantly Black small-scale farmers in South Africa. The theoretical problem that agriculture clusters (ACs) in developing countries often face is one of weak linkages among the actors (Gálvez-Nogales, 2010). By studying an established AC, the researcher sought to better understand the linkages that could be strengthened.

The unit of analysis or that which the study set out to analyse (Baxter & Jack, 2008), comprises the following:

1. The presence of cluster enablers and behaviours especially horizontal and vertical linkages.
2. The readiness with which policy makers can roll out the concept in South Africa.
3. The learnings that could be transferred to emerging agriculture.

The aim of the research was addressed by means of three research questions. These were:

1. What factors make the South African wine cluster work?
2. How ready is the South African Government to encourage cluster formation?
3. How could cluster implementation efforts be improved?

The results are discussed under the heading of the three research questions.

6.2. Discussion of Research Question 1: What factors make the South African wine cluster work?

This question sought to understand the behaviours and enablers that have facilitated the workings of the FAO recognised South African wine cluster.

6.2.1. Presence of cluster behaviours

The literature review highlighted the presence of certain behaviours as being integral to the sustained functioning of clusters. These behaviours included the presence of strong linkages (Gálvez-Nogales, 2010) and weak ties (Granovetter, 1973), the mobility of resources,

entrepreneurial conduct, the presence of a global strategic perspective and an alignment of interests among the players (Engel, 2015).

Of these five behaviours, four were observed as shown in Chapter 5 (pp. 40 - 49) (1) There was a phenomenal amount of knowledge transfer in the wine cluster. This was palpable or in the air as described in the original work on cluster theory by Marshal (1890). (2) There was a very strong network among the various players. (3) There was a clear alignment of interests, and (4) there was a global outlook. Each one of these observations is discussed below.

6.2.1.1. Presence of strong linkages and weak ties

Section 5.1.1.1 (p. 40) illustrates a network of strong vertical linkages between all the cluster members; in other words, the producers, processors, research authorities and industry representative bodies. As shown in Table 6 (p. 40), without prompting, each interviewee mentioned at least four other cluster members as being crucial to their everyday functioning. **Respondent 1a** captured the sentiment in these statements: *"there are a bunch of these bodies that are mainly all connected"* and *"these things stitch together"* - referring to the strong bonds within the cluster.

Furthermore, according to Table 6 (p. 40), VinPro and WineTech, which are advisory bodies, appear to be at the heart of the cluster as they received unprompted mentions from all the cluster respondents.

There were also strong horizontal linkages between competitors who constantly benchmark against one another and push one another to success (Porter, 1990). This competitive spirit is upper most in the minds of the cluster members and there was a conscious drive towards it. Evidence of this competitive spirit and of the horizontal linkages is provided in section 5.1.1.2 (p. 42) by **respondent 7a** who stated that *"I have different cultivars which will give me an edge in the market above the other guys".* It is also provided by **respondent 1a** who said that "*"the big company is Distell. They are the largest company in the wine industry of South Africa. So we do look at what they're doing and probably ensure that we're not falling behind. We're trying to be ahead of the game…".*

Respondent 2a in Section 5.1.1.2 (p. 42) stated that *"…from the marketing perspective it would be in terms of the quality products* (the competition have) *so the full mix. So what is their intrinsic like at the price point versus our products? What is their packaging strategy, how have they "premiumized" and this is incredibly important for us".*

Observing how the competition reacts to these demand conditions and improving the quality of the product on offer to meet these conditions, as demonstrated by responded 2a is aligned to the third factor of Porter's diamond model (Porter, 1990).

There was also evidence of weak ties in the cluster. Weak ties serve as "bridges" which provide members of one small network with access to information from other social networks. In clusters, weak ties stimulate innovation while old social networks stimulated groupthink and reinforce old behaviours (Wolman & Hincapie, 2015). This was provided by contacts such as WOSA, who provided an information bridge with international markets as illustrated in Section 5.1.3 (p. 47). In the comments of **Respondent 2a** who states that "…*WOSA…they've agents within each of the different markets and we are freely allowed to use those resources. So if we wanted to find out an ad-hoc question as in, Is French Rosé growing in China? We can ask them…"*

These findings support the literature which states that the competitiveness of ACs is brought about by strong horizontal links, vertical links and strong relationships with support industries, such as research institutions, which generate vital information that encourages constant innovation (Gálvez-Nogales, 2010; Couture, 2015).

6.2.1.2. Mobility of resources – knowledge transfer

As illustrated in Section 5.1.2.1 (p. 43), each and every one of the respondents felt that knowledge transfer was integral to their own success and to that of the cluster. **Respondent 1a** shared that without knowledge transfer the industry would not exist. Table 7 (p. 43) illustrates the knowledge transfer in the cluster and shows that each one of the respondents listed multiple sources of information both experts and peers, informal and formal.

This has value in that the various perspectives create a richer understanding of the information, allow the actors to interact and engage with several facts or circumstances in different settings, plus it provides a way for the cluster to process opposing and even conflicting viewpoints (Study guides and strategies, 2012). This constant interaction with information that benefits the individual and the cluster provides for shared experiences, builds stronger bonds, and helps establish trust within the cluster (Gálvez-Nogales, 2010; Wolman & Hincapie, 2015).

Knowledge was mostly exchanged informally. In Section 5.1.2.1 (p. 45) **Respondent 5a** shared that the cluster members learn from one another and less so by reading. Information is exchanged during tasting forums and study groups.

These findings are in keeping with the literature. Wolman and Hincapie (2015) stated that knowledge spill-over clusters were based on interpersonal relationships and trust, and that information exchange happened mainly through interaction in the resultant informal networks.

There was also a general sense of community and support, which is self-perpetuating in that it also benefits new members—as can be seen in the following quote from **Respondent 5,** "*viticulture study groups … are a huge source of information for us that's also for new people in the industry".*

A further observation in the cluster was that members felt a shared responsibility for the survival of the cluster. This is demonstrated in Section 5.1.2.1 (p. 45) in the quotation from **Respondent 1a** which states that "*Because the grower is not going to read research, he's just isn't going to do it…. they are busy with the day to day operations. So somebody has to read the research, digest it… So we understand how to keep the guy on the farm, how to improve his profitability, how to improve yield but also quality…try to make the adjustments so that it becomes profitable or at the very least not loss making".*

Again, this is in keeping with the literature and Wolman and Hincapie's definition of a knowledge cluster which states that knowledge clusters result from a "concentration of many people working on problems in a similar or related set of industries,…produce a widely shared understanding of the problem and its workings" (Wolman & Hincapie, 2015, p. 138).

6.2.1.3. Mobility of resources – human capital

Human capital mobility did not appear to be a key factor in the successful functioning of the Western Cape Wine cluster. In the literature Kamath, Agrawal, & Kris (2012) show that factor conditions, the fourth diamond factor (Porter, 1990), of which the quality and quantity of human resources is one, are not as important as the first two diamond factors which are firm strategy, structure and rivalry as well as the presence of related and supporting industries. Human capital mobility is normally a means for knowhow migration in a cluster (Engel, 2015). The fact that knowledge is readily transferred in the wine cluster makes human capital migration in this cluster less important for information exchange.

6.2.1.4. Alignment of interests between cluster members

While there was clear competition between peers, there was also cooperation wherever it was felt that this would further the interests of their enterprises. This was shown in Section

5.1.3 (p. 47) in the quotations from **Respondent 9a**, *"…we also bottle outside if we don't have capability… Even though they…* bottle *for competitors there's a lot of learning still".* The respondent went on to share the following *"For example,* (if) *I have surplus glass supply I would phone DGB* (Douglas Green Bottlers) *and ask them if they are interested in extra glass otherwise I have to write it off".*

As outlined in the literature, this cooperation is often to address a shared challenge (Engel, 2015). This was observed in the cluster as illustrated in Section 5.1.3 (p. 48) in the quotation from **Respondent 7a**, *"We do exchange information…if there's a disease we come together and discuss what can we do about that disease and how can we combat it with the researchers?"*

Zeng (2012) highlighted that in clusters strong horizontal and vertical linkages encourage a healthy balance between competition and cooperation; which is illustrated in Section 5.1.3 (pp. 47 - 48).

6.2.1.5. The presence of a global strategic outlook

In the literature, evidence of looking abroad for new markets is seen as one of the drivers of sustainable cluster economic growth (Engel, 2015). As illustrated in Section 5.1.5 (pp. 49 - 51) this is a prevalent behaviour in the wine cluster. Bodies such as WOSA (Wines of South Africa), which is an independent body tasked with building brand "South Africa" internationally, WISE (Wine Industry Strategic Exercise), which gathers market information about international markets, and SAWIS, which administers the wine of origin scheme, not only provide much needed information to the cluster about international opportunities but provide the required credibility for international competitiveness.

6.2.1.6. Entrepreneurial conduct

The final behaviour observed by Engel (2015) as being a driver for cluster success is experimentation with the business model, the commercialization of technology findings, and the creation of new markets. This was not seen in the wine cluster. There was a high level of risk aversion, especially among the farmers, and respondents appeared discouraged by the length of time it takes for the results of true innovation come become evident.

6.2.2. Conclusion

Gálvez-Nogales (2010:11) stated that promoting ACs in developing markets is usually complicated by to the "weak linkages that exist among actors". In South Africa's wine cluster strong linkages were observed, which is probably the reason this cluster continues to employ approximately 290 000 people and contribute R36billion to South Africa's GDP (Conningarth Economists, 2015). This as well as the tangible knowledge transfer, aligned interests among the players, and a global strategic outlook are all behaviours that make the wine cluster a recognised agriculture cluster.

These observations are in line with the literature. Gálvez-Nogales (2010) credited collective actions in increasing export sales as well as support from the Agriculture Research Council in the WHO report for the wine cluster success. The absence of an entrepreneurial spirit or the limited human capital mobility indicate that not all behaviours need to be present for a cluster to be successful but that the presence of most of the behaviours can be adequate.

6.3. Discussion of Research Question 2: How ready is the South African government to encourage cluster formation?

Sub-questions encapsulated in this question were: Is there alignment between the various government departments in terms of cluster understanding? What policies are currently in place or under development? Is there alignment between the various government department policies?

A key learning that emanated from the analysis reported on in Chapter 5 is that there is willingness and a determination in some quarters to establish networks of some form. There is broad misalignment in understanding and the approach of establishing these networks. This leads one to believe that Government cluster endeavours will not achieve the success they potentially could, at least not in the short term. Below follows the evidence that has led to this conclusion.

6.3.1. Cluster understanding

All respondents had bought into the concept of clustering as a means of improving agriculture output and creating jobs. As illustrated in Section 5.2.1 (pp. 52 - 56), differences were displayed in the following areas:

Definition of clusters varied - **Respondent 1b** perceived clusters to be the same as co-operatives. **Respondent 2b** classified clusters as vertical, horizontal and mixed. **Respondent 5b** spoke of Agriparks which were defined as *"a networked innovation system of agro-production, processing, logistics, marketing, training and extension services, located in District Municipalities."* Some of the respondents were dismissive of the Agriparks concept e.g. **Respondent 4b** "*Agripark is like a Farmer Mall, you know a mall? Big building, Agripark is something like that and a Cluster is farmers farming or it can be cluster of other activities not necessarily farming. So I was saying clusters are not necessarily linked to Agriparks"*. This is despite this being a directive from the presidency as stated in Section 5.2.4 (page 60) by **Respondent 5b**.

Envisioned cluster structure – as illustrated in some of the respondent quotes from Section 5.2.1 (pp. 52 - 56), the respondents differed in their vision for clusters. **Respondent 2b** shared the following: "*What we have centered it around because we've got a lot of small and emerging businesses as well that we need to bring into the frame. We are looking at supporting the management of cluster management organisations. So we see that as the core or the heart of the cluster because within the cluster management organisation you have somebody who will have the capacity to support firms that are members of the cluster."*

Respondent 6b had a minimum membership expectation, as illustrated in the following statement: *"…once we've got the 5 members then we'd have a cluster as far as the xxx is concerned…what informs 5 members? Like I said, we would also want to create the situation of clubbing".*

Wolman and Hincapie (2015) and Zeng (2012) warned against such interventions. This is due to the perception of choosing and supporting winners resulting in limited community buy-in.

Respondent 5b envisioned clusters or Agriparks which he stated were comprised of three individual parts. The farmer production support unit is a rural outreach unit connected to the Agrihub, which provides the infrastructure and training; *"the Agri-hub unit is a production, equipment hire, processing, packaging, logistics and training (demonstration) unit*". Thirdly, the rural urban market centre unit which links producers to markets, acts as a holding facility and provides market intelligence.

This vision goes a little further than the definition of agro-industrial parks provided in the literature. Gálvez-Nogales (2010) stated that agro-industrial parks are created with the aim of providing shared infrastructure, without necessarily providing the other benefits such as knowledge transfer that clusters provide.

Respondent 5b's vision provides all the cluster benefits of agglomeration and knowledge transfer, as defined in the literature (Wolman & Hincapie, 2015). There are a few problems with it though.

Firstly, it cannot be taken in parts as envisioned by the respondent in his quote from Section 5.2.1 (p. 55) "*You can cluster the farmers, you can cluster input providers…"* According to the literature, an AC is a "concentration of producers, agribusiness and institutions that are engaged in the same agricultural or agro-industrial subsector, and interconnect and build value networks when addressing common challenges and pursuing common opportunities" (Gálvez-Nogales, 2010:p. x).

Secondly, Zeng (2012) stated that successful clusters grow organically from the bottom up and therefore have their community's buy-in. Engel (2015) shared that "the reason why efforts to transplant the ecosystem of Silicon Valley to other locations have not been successful is that the local context—key players, economic strengths and weaknesses, political realities, and cultural norms—have been ignored rather than incorporated." Kamath et al. (2012) also showed that the first and second factors in Porter's diamond model were key enablers for successful clusters. These are a business-friendly and socio-political climate, plus the availability of infrastructure.

While it is important for Government to provide support and market certainty to ACs, as argued for by Gálvez-Nogales (2010), the nature of this support should be to improve the weak linkages which the author states are prevelant in small scale farming. The support should focus more of defining the region's comparative advantage or nucleus which can then be leveraged bottom-up (Delgado, Porter, & Stern, 2014; Zeng, 2012).

Government role – as can be seen in Section 5.2.3 (pp. 58 - 59), the majority of respondents felt that the South African Government's role in cluster formation should be largely facilitative, due to the resources required to bring cluster members together. Some of the respondents believed that this role should fall to the private sector or even the farmers themselves. Wolman and Hincapie (2015) stated that there was no set formula for how clusters should form. Gálvez-Nogales (2010), however, recommended that ACs in developing countries need more government intervention as agricultural practice in these countries is largely informal, with limited networking and minimal specialisation. As discussed above, the nature of this intervention is key, as it needs to have cluster buy-in and support the community in identifying its competitive advantage

6.3.2. Policies in place or under development and their alignment

As seen in Section 5.2.4 (p. 59 - 62), two of the three South African Government Departments participating in this research are actively involved in policy development or are in the process of implementing their policies, which were informed by international experience. The President of South Africa has also called upon his ministers to implement Agriparks. One of the Government Departments was indeed in the process of launching its agriparks concept, while the other had developed a cluster funding framework. These facts are illustrated in the following quotations, which can be seen in Section 5.2.4 (pp. 60 - 61); **Respondent 5b** "*We think we can do about 90,000 of those* (required jobs) *through the Agriparks in 44 districts in the next 5 years.",* and from **Respondent 2b** "*The Framework looked at the country, looked at what the possibilities are out there in the country. And through the CDP* (cluster development plan) *we're now piloting the funding of the clusters."*

Wolma and Hincapie (2015) add that public policy should focus on addressing shared cluster problems such as skills development and the building of roads as opposed to addressing individual company needs such as subsidies and the provision of tax breaks. This therefore goes against the grain of that to which Respondent 2b alludes.

Most importantly, a chief reason strategies fail is poor coordination across government departments (Sull, Homkes, & Sull, 2015). Feedback, as seen in Section 5.2.4 (pp. 59 - 62) shows that the South African Government strategies face this very risk. While policies are indeed being developed, they are not being developed in a coordinated way across departments; and while collaboration is envisaged, as illustrated in Figure 9 (p. 62), this was not corroborated by the other departments. This could be due to fact that these policies are all very new, e.g. Agriparks were only launched in 2015 and have therefore not gained traction. One of the respondents, as seen in Section 5.2.4 (p. 61) reported that policy formulation for small business has been moved to the new small business development ministry. Perhaps the central location will improve focus as well as coordination and hence deliver policy alignment across various departments akin to what was seen in the European Union, as reported in Figure 5 (p. 21) of the literature review (Garanti, Zvirbule-Berzina, & Yesilada, 2014).

Information exchange mechanism - Section 5.2.5.1 (p. 64) shows that there is no consistent way in which information is gathered by the various government departments. In fact, there appear to be weak linkages between the departments. It appears from the information provided in section 5.2.5.1 that there are ministerial clusters and commissions but nothing at middle management level with the next interface at the level of extension officers. There is

also an expectation for all officials to apprise themselves of developments in other departments but this does not often happen as expressed by **Respondent 3b** *"…it's really Chapter 3 of the (South African) Constitution, Cooperative Governance. It's expected of* (us) *but it's a bit of a difficult one but it's expected of (*us*)"*. This is a weakness that has been acknowledged by the Presidency (Impact Economix, 2014).

6.3.3. Conclusion

There is overwhelming acceptance by the South African Government Departments that participated in this research of the cluster concept as a means of providing support to small-scale farmers and as a way of empowering them to deliver sustainable growth. Given that the cluster concept rests on strong linkages (Gálvez-Nogales, 2010), there are incredibly weak linkages in evidence in the Government Departments that formed the subjects of this study. There is also an inconsistency in understanding of what clusters are and how they should be implemented. Further to this, there was no alignment in terms of policy development or implementation. This leads the researcher to conclude that the South African Government is not ready to implement clustering within the country.

6.4. Discussion of Research Question 3: How could cluster implementation efforts be improved?

This question covers: What are the observed gaps, if any? What learnings can benefit small-scale farmers and emerging Black farmers?

6.4.1. Identified gaps

Using cluster behaviours and enablers, gaps were identified in the area of linkages between Government Departments, information exchange and alignment of interests. These gaps are detailed in Section 5.3.1 (p. 65) The issue of linkages was discussed above but information exchange and alignment of interests are discussed below.

Information exchange

A key theme that came out of the wine cluster is that it is driven by knowledge transfer. This was not observed in Government. Having a common language would help drive this process. The fact that the various Government Departments use different language for clusters and that there is little regard for the President's chosen route of Agriparks, as shown in the following quotes from Section 5.3.1 (p. 65), could be debilitating; **Respondent 4b**,

"Agripark is like a Farmer Mall, you know a mall? Big building? Agripark is something like that."; and from **Respondent 2b**,*"Agriparks, those are parks. Clusters, they are more registered, they have a stronger focus."*

Without a common vocabulary, there is little chance of information on clusters being found if it is available under the subject of agriparks or even co-operatives. Information exchange could also be helped by having stronger linkages or a means of information exchange.

Alignment of interests

The following statements from Section 5.3.1 (p. 65) paint a disconnected picture, when the fundamental desire is one of supporting small-scale farmers.

Respondent 5b, *"We think we can do about 90,000 of those* (required jobs) *through the agriparks, in 44 districts in the next five years".*

Respondent 2b, *"We are looking at supporting the management of cluster management organisations".*

Again, coordination of efforts as argued by Sull, Homkes and Sull (2015) would deliver better results.

6.4.2. What learnings can benefit small-scale farmers?

As seen in Section 5.2.1 (p. 52) and Section 5.2.4 (p. 59), all the Government respondents identified agglomeration as a need and a benefit of cluster formation. The policies that are currently under development also deliver this benefit. The only exception is the Agriparks concept discussed above, which has elements of agglomeration and knowledge transfer. Contrary to this and as seen above, knowledge transfer is the foundation upon which the wine cluster is formed. This route has benefits that last for generations. In the words of Marshall (1890) in his seminal work on clusters, "mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously" (p. 156).

When asked about the learnings that they could share with small-scale farmers who wanted establish a cluster, the wine cluster respondents identified knowledge transfer as the most important ingredient. Their feedback is shared in Section 5.3.2 (pp. 66 - 67) but one quote is worth repeating:

Respondent 1a, "*It doesn't matter what you're farming; you need to know what you're doing. I mean, it's a professional exercise; the days of the old gentleman farmer, where you fiddle about on the land and whatever comes, comes. That's gone. You can't survive like that*

anymore. It needs to be set up in a way that you can maximize your production and quality and minimize or be in control of your cost structure otherwise it's game over".

However knowledge transfer takes time to deliver results. There are pressing challenges that the South African Government must be seen to address. These include issues of land ownership and the acute level of unemployment (Black & Gerwel, 2014; National Planning Commission, 2012). Scholars warn against government policies that are politically motivated and which deliver short term results (examples of which are subsidies, tax breaks, mergers and protection); which they view as innovation retarding (Porter, 1990). They recommend rather policies with longer term benefits, such as the improvement of productivity through better education and improved healthcare. South Africa's situation is more urgent and requires a healthy balance between these two approaches.

Learnings from the past can be incorporated into today's thinking. The wine cluster developed under strict Government control, which stabilized prices. It also benefited from the efforts of the Government funded Nietvoorbij Institute of Viticulture and Oenology, of the ARC (Gálvez-Nogales, 2010). This indicates a combination of both short term and long term benefit yielding intervention mechanisms. Silicon Valley was also founded on the basis of a mixed strategy, delivering both knowledge transfer from the University of Stanford and the American Government providing market certainty in terms of military contracts (Engel, 2015).

The role Government can play in an AC

Asked what role Government played in the cluster, the wine cluster respondents were critical of the strategic role played by government. Government was not seen to provide policy certainty. This feedback can be seen in Section 5.1.6 (pp. 51 - 52). Quotations from two respondents are repeated below:

Respondent 7a, *"It's just the interpretation of the legislation changes from year to year. We don't have standard regulation. This year we can do this… next year it's a new thing…so it is such a sensitive thing that we have to stop our exports which is worth millions of Rand of income from overseas, we stopped it now".*

Respondent 4a, *"On a strategic decision level there's no involvement from Government. From a working perspective, there is Government involvement in the sense that we work with DAFF… So there's very close involvement there."*

The role that government can play in terms of ACs is therefore that of giving policy certainty and providing strategic direction. This is a fundamental cluster enabler, the first and most important factor in Porter's diamond model (Kamath, Agrawal, & Kris, 2012). Policy certainty and providing strategy direction is key to assisting small-scale farmers to use land efficiently (Tonini & Jongeneel, 2006).

Trust as an issue – According to Wolman and Hincapie (2015), knowledge spill-over networks are based on interpersonal relationships and trust. Zeng (2012) reported that social trust was the reason for successful clusters in China. South Africa on the other hand has a history of mistrust, which is rooted in its apartheid legacy (Maroun, Coldwell, & Segal, 2014).

As illustrated in Sections 5.2.1 (p. 55),and 5.2.2 (p. 57) several respondents raised the issue of social trust as a concern. **Respondent 2b** stated that: *"…the biggest hurdle is the issue of trust.* (Its impact is)*…double because there's this historic element that we have to overcome and then we have to deal with the business … element as well".* While **Respondent 5b** shared that *"the failure is that in the organisational clustering, people don't trust each other, they fall out of harmony with each other, they fight and all these things".*

According to the NDP addressing South Africa's unemployment issues and creating an inclusive society is one way of reducing the extreme levels of mistrust (National Planning Commission, 2012). Intervention mechanisms in small-scale farming need to be cognisant of this failing, especially with regards to knowledge transfer. Using technology to create openness in otherwise geographically and socially divided communities could be possible way of creating community and building trust. Connectedness is part of Saville's "six pack" of factors that have led economic development in some leading countries over the last three decades, and appears to be essential for ACs (Cameron, 2014).

6.4.3. Conclusion

Among the government employees, gaps were identified in the areas of linkages, knowledge transfer and the alignment of interests. These are some of the behaviours that were identified as success drivers for the wine cluster. It appears important for this to be the starting point, if the winning formula from the wine cluster is to be rolled out to small-scale farmers with the help of the South African Government. The European Union achieved successful cluster theory implementation through aligned efforts across several departments (Garanti, Zvirbule-Berzina, & Yesilada, 2014).

The single learning that must be transferred from the wine cluster is the establishment of a knowledge transfer medium, such as the ARC. Most government efforts on the other hand lean towards agglomeration efforts or delivering infrastructure or financial support. For socio-political reasons—but not forgetting the sustainability of the industry—a healthy mixture of short term benefit efforts and longer term knowledge or quality enhancing efforts is required.

Chapter 7

CONCLUSIONS

7.1. Introduction

The purpose of this chapter is to reconfirm the importance of this study, review the major findings, make recommendations for various stakeholders and suggest topics for future research.

7.2. Research background and objective

South Africa has an unemployment problem which is skewed towards the rural community (Black & Gerwel, 2014; Yu, 2013). The country has been experiencing jobless growth (Kumo, 2012) and no explicit plan exists to impact unemployment going forward (Black & Gerwel, 2014). Gálvez-Nogales (2010) argued that the greatest potential for sustainable growth in developing countries like South Africa, was in agriculture clusters (ACs). Agriculture is the most labor-intensive sector of all (Pollin, Epstein, Heintz, & Ndikumana, 2006). This suits South Africa, in that it has a skills issue and agriculture does not typically require a high level of skills. Further, agriculture can have an impact right where the unemployment challenge is most prevelent—in the rural communities (Black & Gerwel, 2014).

However, in order to be efficient in their use of available arrable land, rural small-scale farmers require support and policy certainty (Tonini & Jongeneel, 2006). This study set out to determine how agriculture clusters can be used to provide this support and certainty to rural, mostly Black, small-scale farmers.

The research objectives were:

a) To list the factors that make agriculture clusters operate successfully in South Africa.
b) To identify some implementation gaps which—if addressed—could help increase the speed of AC execution within South Africa.

7.3. Major findings

Factors that make ACs work successfully in South Africa

The research findings show that the Western Cape Wine Cluster is a knowledge spill-over or MAR cluster. Its members are a concentration of people with various skill sets who come together to provide a shared understanding of a set of problems (Wolman & Hincapie, 2015). The presence in this cluster of key cluster behaviours was identified as a key success factor. The observed behaviours were the following:

- There was clear evidence of strong linkages within the cluster. These bonds took the form of vertical linkages or bonds which occur among all the cluster members, from suppliers to producers and service providers. There were strong horizontal linkages between peers, e.g. between supply chain buyers from competiting companies. Finally, there was evidence of weak ties which are bonds that link the cluster to entities outside the cluster such as the international market.
- There was an abundance of knowledge transfer, which occurred formally and informally. Information was sourced from both between peers and experts. According to Wolman and Hincapie (2015), in knowledge clusters information exchange happens mainly through interactions in informal networks and flows freely based on interpesonal relationships and trust.
- While competing, the cluster members cooperated where there was an aligned interest. Such a case was the rallying together to deal with a disease.
- There was a shared strategic global outlook, which drives sustainable cluster economic growth (Engel, 2015).

One of the five behaviours of successful clusters, entrepreneurship (Engel, 2015), was not observed in the wine cluster. Respondents were not eager to take risks and were discouraged by the slow speed with which true innovation results came to pass. However, that absence did not appear to be a deterrent for the wine cluster, which sustainably employs close to 290 000 people.

Implementation gaps that are inhibiting the pace of AC implementation in SA

Three of the cluster behaviours that were found in the wine cluster, knowledge transfer or information exchange, strong linkages and alignment of interests, were missing in the Government Departments that were part of this study. These behaviours are crucial for the success of clusters (Engel, 2015). The authorities charged with cluster support and implementation would be best served to practice them as seen in the EU (Garanti, Zvirbule-Berzina, & Yesilada, 2014).

- Government officals did not have the same language for clusters. Alignment at this primary level is vital for conversations of common interest to transpire.
- Government Departments were unaware of policies in place or under development by sister ministries. There appears to be no forum through which relationships are built with individuals that could be working in a similar or related area. The concept of the “cluster of ministers” does not appear to be duplicated further down the Government ranks; and much as officials are required to keep abreast of developments in other departments, they appear not to do that.
- In particular, two of the three Government Departments were working very hard to implement some network structure in support of small-scale farmers. However, neither one was aware of the other’s efforts, and they were thus not leveraging the gains made.

A coordination of efforts would deliver better results (Sull, Homkes, & Sull, 2015) and reduce effort duplication.

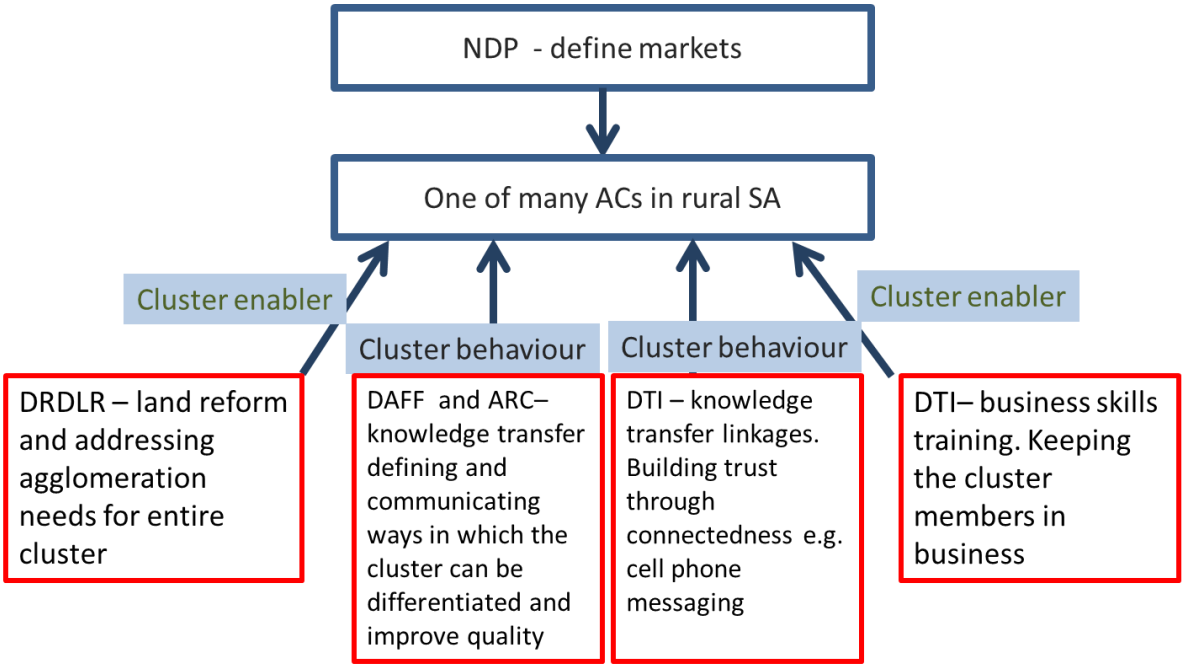
Additional learnings that could speed the pace of cluster implementation – these are cluster enablers

1. From the wine cluster a gap that was identified was that of policy certainty and strategy. This is an important requirement, if ACs are to utilise land made available to them effectively (Tonini & Jongeneel, 2006). The South African Government needs to help the small-scale farmers define their market and provide them with policy certainty.
2. Trust has been identified as an issue by those Government officials that are working on cluster implementation. Addressing this therefore becomes a priority of any AC implementation program. Creating openness and connectedness between communities where there is mistrust is one of Saville’s “six pack” of solutions to economies aiming to drive economic growth (Cameron, 2014).

7.4. Recommendation for government stakeholders

Influenced by the European Union multidepartmental interpretation of their national government development plan as well as the cluster enablers and behaviours seen in Chapter 2 (pp. 22 - 24), a proposal for a coordinated cluster implementation effort is shown in Figure 10.

Figure 10: AC structure proposal for South Africa



Starting from the top, this model shows that policy direction is set at a national level for interpretation by the departments that were the subjects of this study. The NDP defines the markets that the clusters should explore based on international opportunities, social preference and capabilities. Each department has a role to play in the operations of each and every AC.

The opportunity as identified in the study is that of knowledge spill-over or MAR cluster creation. Some of the cluster behaviours that are essential for ACs in South Africa as indicated by the wine cluster are strong linkages and knowledge transfer. Examples of how these could be encouraged in South Africa is illustrated in the middle section of Figure 10. Through DAFF, the ARC could be funded to extend the work it performs in the wine cluster and provide information that could help enhance product quality and improve

competitiveness.

The DRDLR, on the other hand, could help address one of the issues identified in Chapter 2 (p. 11), access to land and other enablers to the cluster.

The key to the model and to ACs implementation is cooperation between the various Government stakeholders.

7.5. Research limitations

The limitations related to the methodology used are discussed in Section 4.10 (p. 37). They are related to the subjectiveness of the methodology. In order to validate the findings, a more expansive study would need to be conducted. The findings of this research are directional and should be seen in this light.

The study was also conducted in one established cluster and the learnings extrapolated to a small-scale farming community where they might not be completely relevant, due to differences in contexts and development levels. Wolman and Hincapie (2015) advise that the benefits of clustering are specific to certain industries at different maturity stages. Again, the findings of this study should provide nothing more than thought starters for people involved in cluster development. These ideas can then be quantified with the use of larger studies.

The research was conducted in English, which—for most of the respondents—was a second language. This could have limited the level of candour and depth of insights shared.

Finally, one of the Government respondents is a relative of the researcher. However, care was taken to validate all his contributions with those of a fellow respondent from the same Department. The reason he was interviewed is that he is in charge of policy development and obtaining his views was therefore of great importance for this study.

7.6. Recommendations for future research

1. Virtual clusters – in today's digital world is there still a need for geographical clustering, in conformity with Porter's definition? Can knowledge transfer happen in a virtual manner? What benefits does geographical proximity deliver?
2. The literature provides little information on how clusters form or how they can be assisted through policy (Wolman & Hincapie, 2015). And even less information is

available about ACs in developing countries (Gálvez-Nogales, 2010).

3. If clustering benefits are relevant to specific industries and to different stages of the development cycle, what are the specific problems that small-scale farmers experience/what specific support do they require?
4. Kamath et al. 2012 provide a measure of the prioritisation of the cluster enablers; similar work on the behaviours would cast light onto which behaviours should initially be encouraged in resource trapped environments.

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APPENDICES

Appendix 9.1

Request for interview e-mail to cluster members

From: Toolo,Mpho,BRYANSTON,Dairy
Sent: 27 July 2015 11:06 AM
To: 'steenkampd@kwv.co.za'
Subject: MBA research assistance sought

Dear Mr Steenkamp, this follows our brief telephone conversation. I am a student at the Gordon Institute of Business Science, University of Pretoria. I am conducting research on clusters. FAO recognises KWV as one of the cluster members to the successful wine cluster that we have in South Africa. This is based on the network that you have established with suppliers, support industries, researchers, the University of Stellenbosch, and so on. I am trying to learn as much as I can about how the wine cluster functions and most importantly how we can transfer your experiences to the formation of clusters in the developing agricultural sector in our country. This, it is hoped, will help us albeit in a small way to address the issues identified in the NDP of unemployment and inequality.

It would be an honour if you could grant me a max. 1 hour interview or hand me over to at least two people who would be able to help my understanding of this concept.

Thanks in advance,

Mpho

Appendix 9.2

Request for interview e-mail to Government officials

From: Stieneke Samuel [mailto:SSamuel@thedti.gov.za]
Sent: 20 August 2015 01:16 PM
To: Toolo,Mpho,BRYANSTON,Dairy; Sarah Maleka
Subject: Re: Cluster Development

Dear Sarah,

Please set up a meeting as per the request below.

Regards

Stieneke

>>> "Toolo,Mpho,BRYANSTON,Dairy" <Mpho.Toolo@za.nestle.com> 8/20/2015 12:55 PM >>>

Dear Ms Samuel, I am a student at the Gordon Institute of Business Science, University of Pretoria and came across your name from my lecture who met you at the Sweden – South Africa round table on cluster development in 2014. I am conducting research on how we, in South Africa, can tap into this internationally successful model to help us achieve the aims of the NDP. Could you please honour me with a meeting to better understand your efforts as the DTI in this regard? The meeting should take a maximum of an hour.

I look forward to meeting with you at your convenience. Could you please advise by return mail or calling me on 082 802 5835 when this might be possible?

Best regards,

Mpho

Appendix 9.3

Interview Guide

i. Cluster Members

Introduction Key Components (Boyce & Neale, 2006)**:** • Introduction • Name • Purpose • Confidentiality • Duration • Opportunity to ask questions • Signature of consent	Thank you for meeting with me today. My name in Mpho Toolo. I am a student at GIBS business school. I am trying to learn as much as I can about how this wine cluster functions and most importantly how we can transfer the experiences here to the formation of clusters in the developing agricultural sector in our country. The interview should take less than an hour. I want to learn as much as I can from you today and as much as I will be taking notes, I will be recording our conversation so that I don't miss anything. I trust this is acceptable to you. Please know that all responses will be kept confidential and will only be used for research purposes. The information that you share with me will be included in my report but you will not be identified in any way. Remember that you don't have to discuss anything you do not feel comfortable discussing and you may end the interview at any time. Are there any questions you would like to ask at this point? Are you willing to participate in this interview?
Questions • Establish presence of cluster components and behaviours. • Establish the presence of horizontal and	i. What organisations of associations do you interact with daily? Please list them and explain how these facilitate your operation. ii. What organisations or businesses do you measure yourself against? iii. What impact do these organisations have on your operation? iv. Do you ever pool resources with organisations in the industry?

vertical linkages. • Determine learnings for emerging agriculture	v. How often do employees change jobs between suppliers, processors, distributors and such entities in your industry? vi. Would you say that there was a lot of knowledge transfer between the various players in your industry? vii. Would you say that people are willing to try new ways of working in this industry? viii. If so, what do you accredit this to? ix. What kind of support if any do you receive? Please provide detail. x. Is Government active in this industry at all and if so, what is their involvement? xi. What effect, if any, do you feel being part of the wine cluster has had on your company and the community that you work in? xii. Do you believe that emerging agriculture in South Africa could benefit from a set-up such as the one you have here in the Wine cluster? If so, what specific elements do you think need to be copied? xiii. What recommendations do you have for people planning to set up an agricultural cluster?
Closing comments • Additional comments • Next steps • Thank you	Is there anything you would like to add? I will be analysing the information that I have gathered over the next two months and will then write up the report. I will be happy to share a copy of it with you at that point if you are interested. Thank you for your time

Appendix 9.4

Interview Guide

ii. Government officials

Introduction Key Components: • Introduction • Name • Purpose • Confidentiality • Duration • Opportunity to ask questions • Signature of consent	Thank you for meeting with me today. My name in Mpho Toolo. I am a student at GIBS business school. I am trying to learn as much as I can about how clusters function and most importantly how we can transfer their experiences to the formation of clusters in the developing agricultural sector in our country. The interview should take less than an hour. I want to learn as much as I can from you today and as much as I will be taking notes, I will be recording our conversation so that I don't miss anything. I trust this is acceptable to you. Please know that all responses will be kept confidential and will only be used for research purposes. The information that you share with me will be included in my report but you will not be identified in any way. Remember that you don't have to discuss anything you do not feel comfortable discussing and you may end the interview at any time. Are there any questions you would like to ask at this point? Are you willing to participate in this interview?
Questions • Establish the understanding of the concept • Understand the role they see for themselves • Gain an understanding of the plans and	i. What are your thoughts about the cluster concept and what benefits if any can be derived from them? ii. Where in your experience have they worked well and do you think emerging agriculture in South Africa can learn from this? iii. Who do you think is responsible for setting clusters up? iv. What role if any do you see government playing?

policies currently under development • Understand if there are horizontal linkages with other government departments	v. What clusters are you currently supporting? vi. What policies, if any, are you currently developing towards the facilitation of clusters in emerging agriculture? vii. Are you aware of plans and policies currently under development in other Government departments? viii. Do you work with any other Government departments in this regard? ix. How do you find out about initiatives in other government departments?
Closing comments • Additional comments • Next steps • Thank you	Is there anything you would like to add? I will be analysing the information that I have gathered over the next two months and will then write up the report. I will be happy to share a copy of it with you at that point if you are interested. Thank you for your time

Appendix 9.5

Example of signed letter of consent

Informed Consent Letter

I am conducting research into clusters and how they work. Most importantly, I am trying to determine how the cluster concept can be used to grow the emerging agriculture sector in South Africa. The interview should take less than an hour. Your participation is voluntary and you can withdraw at any time without penalty. All data will be kept confidential. If you have any concerns, please contact my supervisor or me. Our details are provided below.

Researcher:	Mpho Toolo
E-mail	mpho.toolo@za.nestle.com
Phone	082 802 5835
Signature	
Research Supervisor:	Trevor Taft
E-mail	trevor@cihp.co.za
Phone	083 553 6318
Signature of participant:	Kerryn Leigh Lancaster
Date:	10 August 2015

Appendix 9.6

Ethics Clearance letter

Gordon Institute of Business Science
University of Pretoria

Dear Mpho Toolo

Protocol Number: **Temp2015-01530**

Title: **Business clusters: a model to stimulate South Africa's emerging agriculture sector**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

Adele Bekker