A PROFILE OF THE SOUTH AFRICAN ESSENTIAL OILS MARKET VALUE CHAIN

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1. DESCRIPTION OF THE ESSENTIAL OILS' INDUSTRY

An essential oil is a liquid that is generally distilled (most frequently by steam or water) from the leaves, stems, flowers, bark, roots, seeds, fruits or other organs of a plant. Using the different technologies available essential oils are sourced from over 3,000 plants of which approximately 300 are of commercial importance. Most flowers contain very little volatile oil and their chemical components are too delicate and easily denatured by the high heat used in steam distillation.

A solvent such as hexane or supercritical carbon dioxide is used to extract the essential oils. Extracts from hexane and other hydrophobic solvents are called concretes, which is a mixture of essential oil, waxes, resins, and other lipophilic (oil soluble) plant material. The majority of essential oils are usually obtained from agricultural plants but a number of oils are collected from wild sources including trees.

The strengths of essential oils

- They are antibacterial, antiviral, antifungal, and antimicrobial.
- Essential oils by-pass the digestive system so they are beneficial for people with poor digestion/assimilation.
- They require no refrigeration and require very little storage space.
- They have the longest shelf life of any plant known to man.
- Essential oils are highly oxygenating.
- They are very cost-effective because they are one of the few substances that the more you use them, the less you need them.
- They are suitable for babies since they cannot swallow tablets and capsules thus essential oils provide a solution as they only come in liquid form.

Weakness of the Essential Oils industry (Production Constraints)

- Production of essential oils requires highly focused farm practices and field maintenance for high quality yield.
- Requires more technical support, including the production inputs and most effective plant material for new plantings.
- There are high entry barriers, which include fencing, cuttings, distillation plants and land preparation.

1.1 Production and Production Areas

The major producers of essential oils across the world are Brazil, China, USA, Egypt, India, Mexico, Guatemala, Morocco and Indonesia. All of them with the exception of USA are developing countries with low cost, peasant type economies. It is estimated that about 65% of world production emanates from developing countries. The major consumers are the USA (40%), Western Europe (30%) and Japan (7%). While the EU as a whole dominate world trade (exports and imports), no individual country from this bloc features in the list of major producers. Most of the major producing

countries have large populations with huge internal appetite for essential oils. Table 1 below shows the projected hectares under essential oil crops given by provinces in South Africa in 2016.

Table 1: The projected hectare (ha) under essential oil crops in 2016 as given by Provinces.

Province	Species	TOTAL ha
Mpumalanga	Vetiver, Citronella, Lippia, Eucalyptus, Artemisia, Rosemary, Geranium, Lemon grass	942
Free State	Tagete, Artemisia, Lavendin	71
Northern Cape	Marjoram, Rosemary, Lavendin	44
North West	Geranium, Rosemary, Lavendin, Chamomile	39
Eastern Cape	Geranium, Rosemary, Lavender	220
Western Cape	Eriocephalus, Lavender, Lavandin, Buchu, Rosemary	78
Limpopo & Machado	Lippia, Geranium, Rosemary, Lavendin, Tea tree	92
Gauteng	Lavendin, Rosemary, Artemisia	83
KwaZulu-Natal	Lavendin, Rosemary Eucalyptus, Geranium, Tea tree, Lemon tea tree, Spear Mint, Lemon grass, Artemisia, Melissa, Thyme	425
TOTAL		**1 994**
These estimates exclude wild harvesting and community projects in progress		

Source: South African Essential Oil Producer Association (SAEOPA)

The table above shows that in the Mpumalanga Province, the projected hectares planted with essential oils crops are at 942 ha in 2016, followed by KwaZulu-Natal Province with 425 ha and Eastern Cape with 220 ha.

The estimated total hectares devoted to essential oil crops by all the provinces in 2016 were about 1 994 ha. However, of all the total species estimated, Geranium, Lavendin and Rosemary were the most projected species to be planted in all provinces in 2016. Throughout South Africa, Mpumalanga and KwaZulu-Natal provinces were projected to be the major producers of most kinds of essential oil species than the other provinces during 2016. Table 2 indicates different types of essential oils and the estimated values of primary production in 2016 marketing season, with more value expected from major oils and eucalyptus.

Table 2: Estimated Production Statistics for certain selected Essential Oils 2016.

OIL TYPES	ESTIMATED VALUE OF PRIMARY PRODUCTION
Major Oil (Citrus) and Eucalyptus)	**R7 444 526.00**
Minor Oils (e.g. Chamomiles, Jasmine, Lavenders, Tea Trees, Mints)	**R2 237 169.75**
Minor Oils-FRIDGE Study - Specified	
Geranium (Pelargonium Graveolens Roseum)	**R541 666.67**

OIL TYPES	ESTIMATED VALUE OF PRIMARY PRODUCTION
Buchu (Betulina, Crenulata)	R500 000.00
Chamomile – Roman (Anthemis nobilis)	R24 305.56
Rosemary (Rosmarinus Officinalis)	R15 000.00
Lemon Grass (Cymbopogon Citratus)	R7 777.78
Lemon balm (Melissa officinalis)	-
Lippia (Lippia javanica)	-
Rose Damascene (Rosa Damascene)	-

Source: Institute of Natural Resources

Table 3 below indicates the most utilized essential oil products and their major producers during the 2016 marketing season.

Table 3: The most utilized essential oils and major producers during 2016

Product	Country
Orange	Australia, Brazil, Dominican Republic, Israel, Italy and USA
Corn mint	Brazil, China, India, Japan, North Korea, Paraguay, Taiwan and Thailand
Eucalyptus (cineole-type)	Australia, Austria, Brazil, China, India, Paraguay, Portugal, South Africa and Spain
Citronella	China, India and Vietnam
Peppermint	Australia, China, Italy, Japan and USA
Lemon	Argentina, Australia, Brazil, Greece, Spain, Italy, USA and Peru
Clove leaf	Brazil, Indonesia, Madagascar, Sri Lanka and Tanzania
Cedar wood	USA and China
Litsea cubeba	China
Sassafras	Brazil and USA
Lime	Brazil, China, Cuba, Ghana, Haiti, Ivory Coast, Jamaica, Mexico and Peru
Spearmint	Argentina, Australia, Brazil, Bulgaria, China, Egypt, France, Hungary, Japan, Korea, Morocco, New Zealand, Paraguay, Romania, Russia, Taiwan, UK, USA and Yugoslavia

Source: South African Essential Oil Producer Association (SAEOPA)

1.1.1 Overview of the essential oils market and its composition

Production data for essential oils are hard to find, as it is very difficult to do an exhaustive compilation covering the broad spectrum of all the essential oils produced. The essential oil industry is dynamic with tastes and preferences of consumers changing by the day. The top 10 crops in terms of production account for about 80% of the total world market for essential oils. One of the most important things to do for farmers who want to be involved in essential oils production is selecting the right seed or plant material for sowing. It is recommended that this be obtained from a reputable supplier. Farmers should also be knowledgeable on weed control and

management as this will affect the quality of the end product. If weeds are harvested and distilled with the crop, the oil from weeds can contaminate the desired oil, which would compromise quality. These would lead to a total rejection of the crop's oil which will have a negative impact on the farm income.

1.1.2 Identification of Products

Given the appropriate equipment, essential oils can be fractionated and components sold individually. Alternatively, at home industry level, essential oils can be used in scented candles, soaps, and hand creams. Some authors are of the view that massaging oils into the human skin as in aromatherapy is of little therapeutic value, although it may induce a sense of sensual well being. However, in spite of the lack of a scientific basis for aromatherapy, it remains a viable component of the market for the South African essential oils industry.

There are numerous ways to create value added products through the use of essential oils.

Based on information gathered from a brief overview of the essential oil sub sector map and value chain, it has been decided that the following value added products will be investigated further, completing each investigation with a sub sector map for that product. The products are; Soaps, Scented candles, Bath salts, Aromatherapy creams and lotions and Potpourri.

It has been determined that each of these identified products are relatively simple to make, thus making use of the home based production units, and have a viable market within South Africa, and particularly, the Eastern Cape. Each of these products will be discussed in detail.

2. HARVESTING OF ESSENTIAL OILS

2.1 Harvesting

It must be noted that the essential oils can be harvested as either plants or seeds. For the plants the proximity of the steam distillation plant is important. If the period between harvesting and distillation is too long the oil from the plant can evaporate or decline in quality. The quality of the oil is volatile. It changes as the crop grows, this means that a farmer should ensure that the crop is harvested at the right time.

2.2 Essential Oils Marketing Activities

The marketing structure of essential oils is not different from other most products. The traditional structure begins with the producer who sells to the flavor and fragrance industries. Fragrance houses may or may not embark on value adding to the product, they then sell it to the end users. At times system has been supplemented by traders, agents and brokers who use their knowledge to market niches and buy directly from producers and sell directly to the flavor houses or end users. Although it is very difficult to enter into the essential oils industry from either side, as producers or end users, there is always an opportunity for small players. The reason for the difficulty in gaining entry is that once end users have developed a product using specific oil they do not want to change that oil or the supplier as they may fear a compromise in quality. Small scale

farmers may enter the market and target small industries such as Aromatherapy and Massage for their product market.

3. EXPORTS VOLUMES

Figure 1 below indicates export volumes of essential oils (terpeneless or not, from South Africa to the world between 2007 and 2016.

Figure 1: Export volumes of essential oils (terpeneless or not) to the World

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Africa	148	146	129	56	3	0	0	0	0	0
Americas	16	3	10	15	0	0	0	0	0	0
Asia	18	6	5	1	0	0	0	0	0	0
Europe	161	144	170	102	0	0	0	0	0	0
Oceania	61	60	42	0	0	0	0	0	0	0

Period (years)

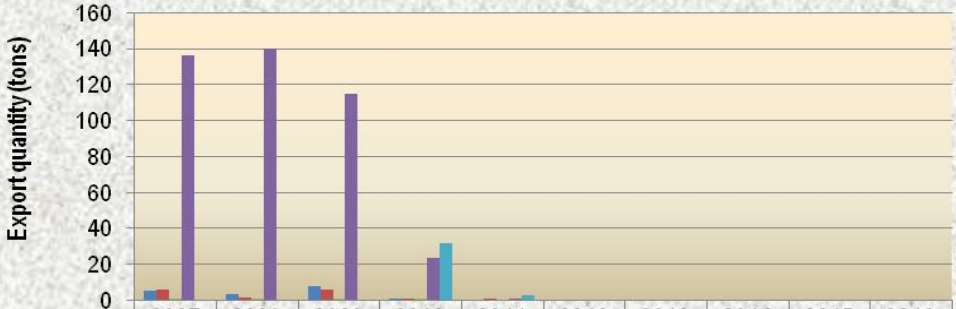
Source: Quantec EasyData

The major export market for essential oils (terpeneless or not) from South Africa to the world was Europe, followed by Africa, Oceania, Americas and Asia. Exports to Europe attained a peak in 2009 at approximately 170 tons. Exports to Africa increased in 2007 to levels of approximately 148 tons, attaining a peak at 148 tons. Exports to Oceania also peaked in 2007 at approximately 61 tons. The demand for essential oils (terpeneless or not) from South Africa to the Americas and Asia was less as compared to what South Africa exported to Europe, Africa and Oceania between 2007 and 2016. Exports to Europe and Africa declined from 2007 to 2008 and later increased in 2009 to approximately 170 tons. There was no growth (0.00%) in exports of essential oils (terpeneless or not) from South Africa to Europe in 2016 as compared to 2015.

Figure 2 depicts export volumes of essential oils (terpeneless or not) from South Africa to Africa between 2007 and 2016. The major market for essential oils (terpeneless or not) from South Africa to Africa was SADC, followed by low volumes of essential oils (terpeneless or not) to SACU, Eastern Africa and Western Africa during the ten year period. Exports to SADC reached a peak of approximately 140 tons in 2008. During the first half of ten year period (2007-2011), South Africa exported high volumes of essential oils (terpeneless or not) to SADC. Export volumes of essential oils (terpeneless or not) from South Africa to Eastern Africa attained their peak in 2009 at approximately 8 tons. Western Africa had low levels of exports of essential oils (terpeneless or not) from South Africa of approximately 1 ton and Middle Africa had very low levels of exports of essential oils (terpeneless or not) from South Africa of not more than 6 ton per annum. The

demand for essential oils (terpeneless or not) from South Africa to Western Africa, Middle Africa and Eastern Africa was less as compared to what South Africa exported to SADC between 2007 and 2016. Between 2012 and 2016 of the period under scrutiny, there were no export volumes of essential oils (terpeneless or not) from South Africa to all the African regions.

Figure 2: Export volumes of essential oils (terpeneless or not) to Africa



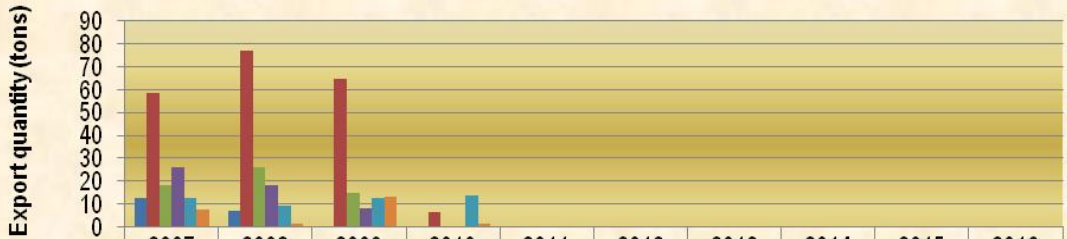
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Eastern Africa Rest	5	3	8	0	0	0	0	0	0	0
Middle Africa Rest	6	2	6	0	0	0	0	0	0	0
Western Africa	0	1	0	0	0	0	0	0	0	0
SADC (excluding SACU)	137	140	115	24	0	0	0	0	0	0
SACU (Excluding RSA)	0	0	0	32	3	0	0	0	0	0

Period (years)

Source: Quantec EasyData

Figure 3 below illustrates export volumes of essential oils (terpeneless or not) from South Africa to SADC member states between 2007 and 2016.

Figure 3: Export volumes of essential oils (terpeneless or not) to SADC



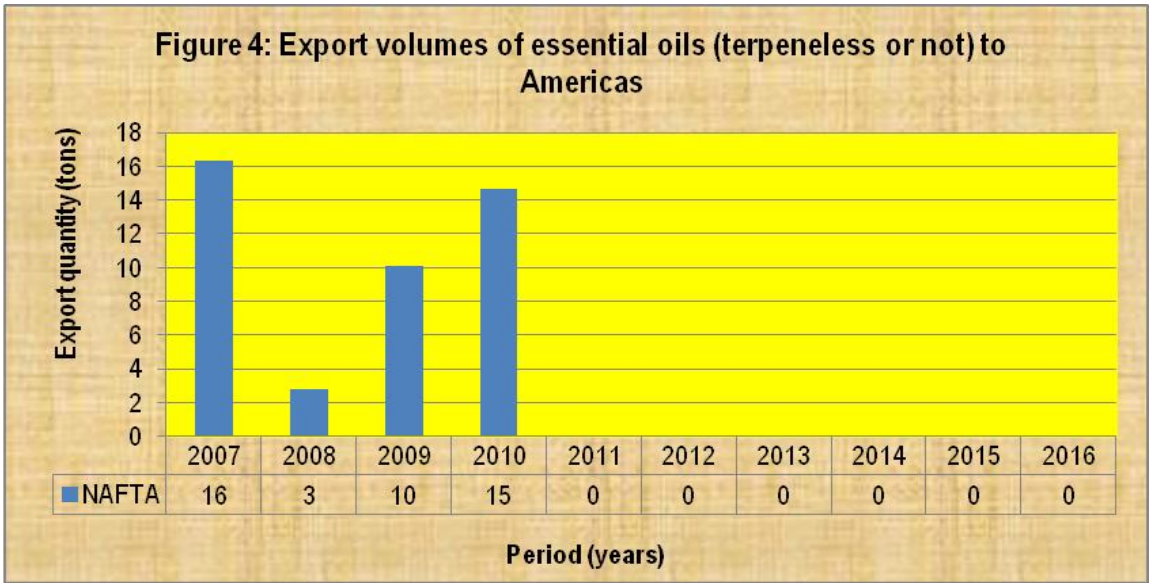
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Angola	13	7	0	0	0	0	0	0	0	0
Mauritius	58	77	64	7	0	0	0	0	0	0
Malawi	18	26	15	0	0	0	0	0	0	0
Mozambique	26	18	8	1	0	0	0	0	0	0
Zambia	13	10	13	14	0	0	0	0	0	0
Zimbabwe	8	1	13	1	0	0	0	0	0	0

Period (years)

Source: Quantec EasyData

The major attractive market for essential oils (terpeneless or not) from South Africa to SADC was Mauritius, followed by Malawi and Mozambique over the past decade (2007-2016). Exports to Mauritius started to decrease substantially in 2007 with approximately 58 tons, followed by a notable increase in 2008 of approximately 77 tons. The level of exports of essential oils (terpeneless or not) from South Africa to Mauritius attained a peak in 2008 at approximately 77 tons. Malawi attained a peak in 2008 at approximately 26 tons while Mozambique attained a peak in 2007 at approximately 26 tons. South Africa exported very low volumes of essentials oils (terpeneless or not) to Angola, Democratic Republic of Congo and United Republic of Tanzania of not more than 13 tons per annum. In 2016, there was no growth (0.00%) in export volumes of essential oils (terpeneless or not) from South Africa to SADC region as compared to 2015.

Figure 4 below depicts export volumes of essential oils (terpeneless or not) from South Africa to the Americas between 2007 and 2016.

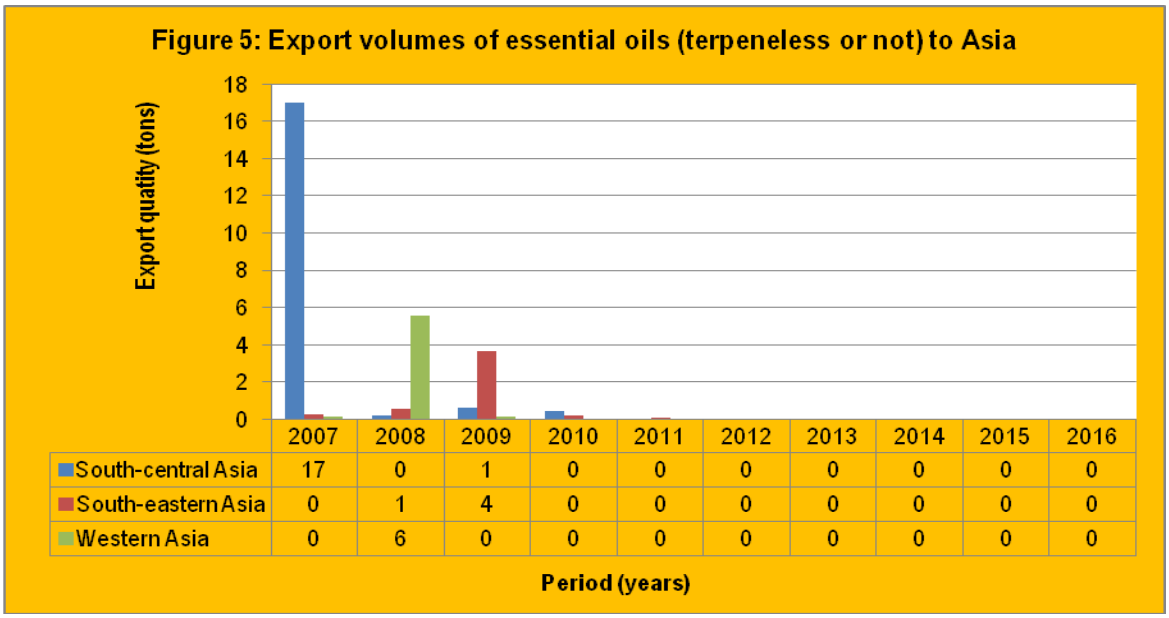


Source: Quantec EasyData

The most attractive market for essential oils (terpeneless or not) exports from South Africa to the Americas was NAFTA between 2007 and 2016. Essential oils (terpeneless or not) exports from South Africa to NAFTA attained a peak in 2007 at approximately 16 tons. It is generally clear that essential oils (terpeneless or not) exports from South Africa to NAFTA were from a high base during the first half (2007-2011) of the ten year period as compared to the second half (2012-2016) of the ten year period. Between 2011 and 2016 of the period under scrutiny, there were no essential oils (terpeneless or not) exports from South Africa to NAFTA. There was no growth (10.00%) in export volumes of essential oils (terpeneless or not) from South Africa to NAFTA in 2016 as compared to 2015.

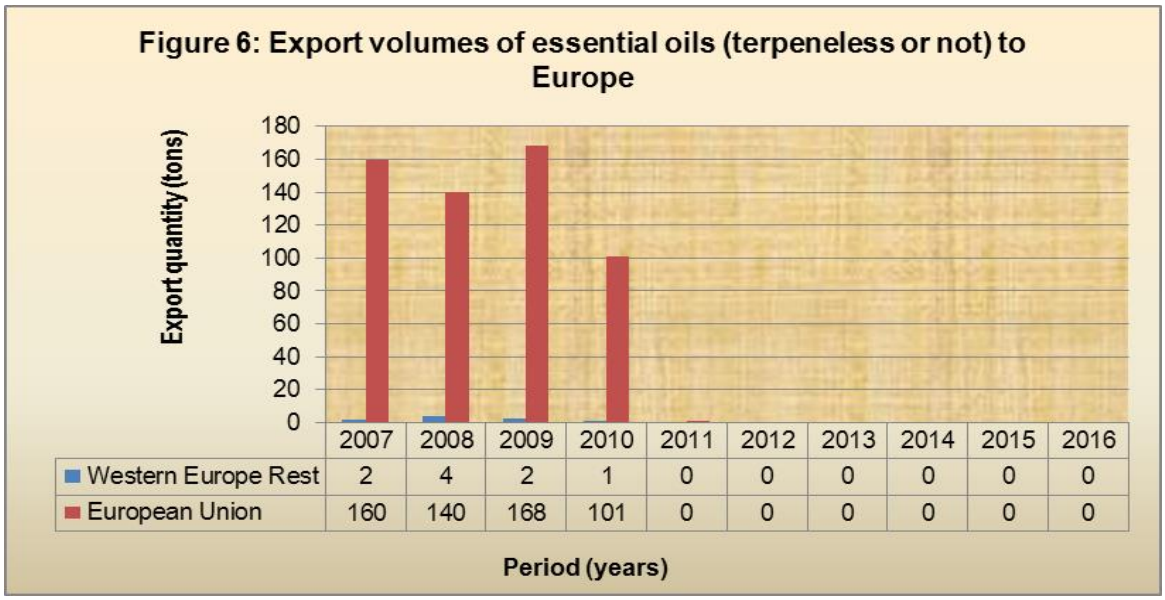
Figure 5 below indicates export volumes of essential oils (terpeneless or not) from South Africa to Asia between 2007 and 2016. The major export destination for essential oils (terpeneless or not) from South Africa to Asia was South-central Asia, followed by Western and South-eastern Asia over a ten year period. Exports to Western Asia and South-eastern Asia were below 7 tons per annum over the past decade (2007-2016). Exports to South-central Asia started with 100%

increase, which occurred in 2007 and at the same time a peak was also attained at 17 tons. Exports to South-central Asia attained a peak of 4 tons in 2009. During 2016, there was no growth (0.00%).



Source: Quantec EasyData

Figure 6 below depicts export volumes of essential oils (terpeneless or not) from South Africa to Europe between 2007 and 2016.



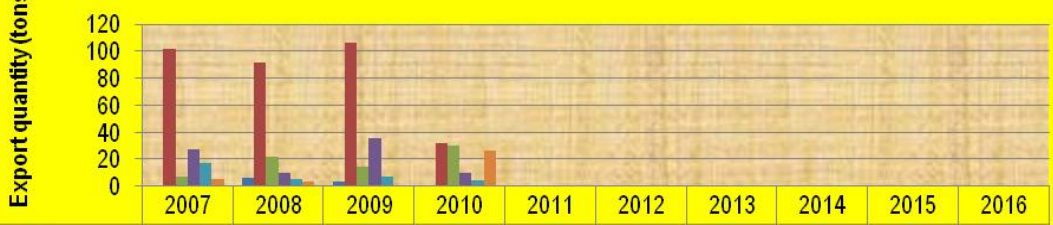
Source: Quantec EasyData

Over the past decade, the major export destination for essential oils (terpeneless or not) from South Africa to Europe was the European Union, followed by very low export volumes of essential oils to Western Europe. Exports to the European Union started at approximately 160 tons, followed

by a decline in 2008 of approximately 140 tons. Exports to the European Union increased significantly and attained a peak of approximately 168 tons in 2009. South Africa was exporting low volumes of essential oils (terpeneless or not) to Western Europe from 2007 to 2010 of not more than 4 tons. During 2016, there was no growth (0.00%) in export volumes of essential oils (terpeneless or not) from South Africa to the European Union as compared to 2015.

Figure 7 illustrates export volumes of essential oils (terpeneless or not) from South Africa to the European Union between 2007 and 2016.

Figure 7: Export volumes of essential oils (terpeneless or not) to European Union.



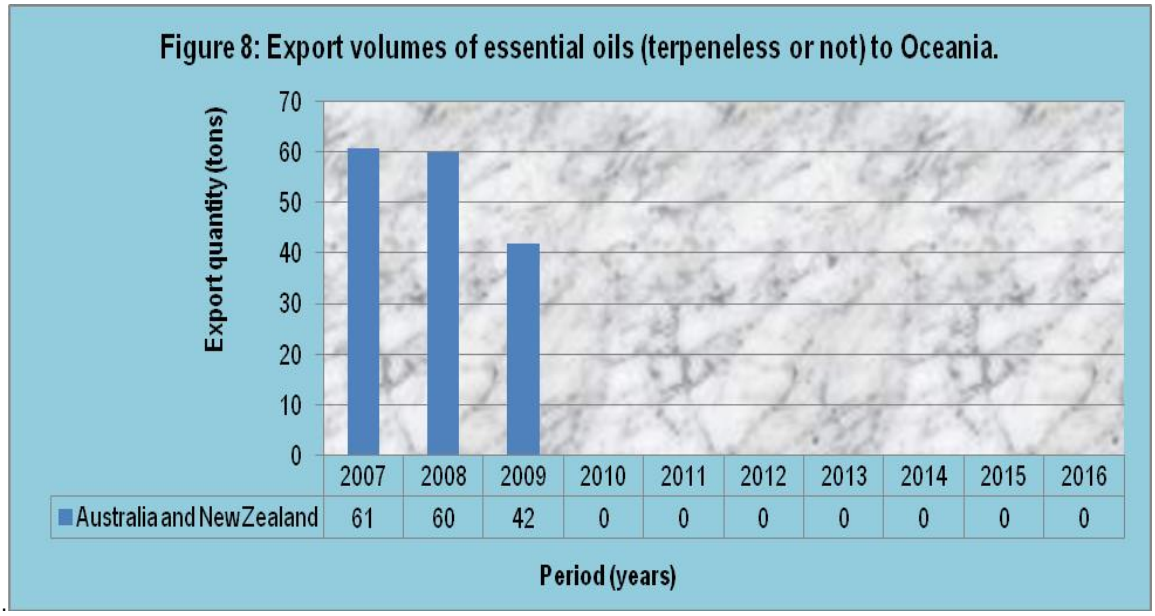
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Belgium	0	6	3	0	0	0	0	0	0	0
Germany	102	92	107	32	0	0	0	0	0	0
Spain	8	21	15	30	0	0	0	0	0	0
France	27	9	35	10	0	0	0	0	0	0
United Kingdom	17	5	7	4	0	0	0	0	0	0
Netherlands	6	4	1	26	0	0	0	0	0	0

Period (years)

Source: Quantec EasyData

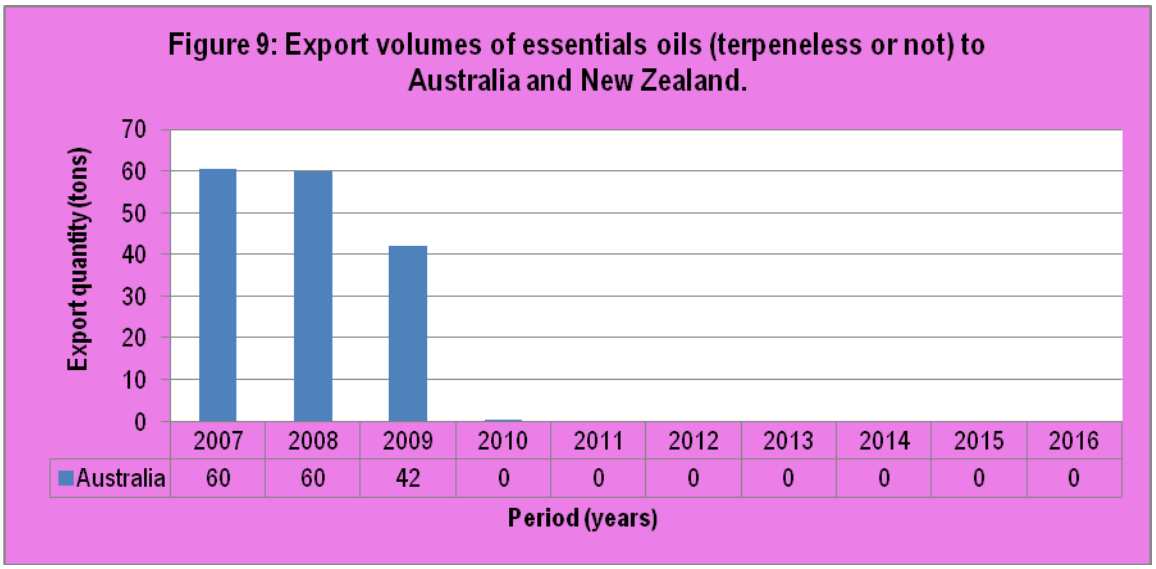
The major export destination for essential oils (terpeneless or not) from South Africa to the European Union was Germany, followed by low exports to France and Spain between 2007 and 2016. The Netherlands, United Kingdom and Belgium imported very low volumes of essential oils (terpeneless or not) from South Africa of not more than 26 tons per annum over the same period. Exports to Germany started at approximately 102 tons, followed by a slight decrease in 2008 of 92 tons, and later attained a peak in 2009 at 107 tons. In 2016, there was no growth (.000%) in export volumes of essential oils (terpeneless or not) from South Africa to Germany as compared to 2015.

Figure 8 below indicates export volumes of essential oils (terpeneless or not) from South Africa to Oceania between 2007 and 2016. Exports of essential oils (terpeneless or not) from South Africa to Oceania went to Australia and New Zealand during the period under scrutiny (2007-2016). Exports to Australia and New Zealand started to decrease in 2007 and at the same time attained a peak at 61 tons. During the second half of the ten year period (2012-2016), exports to Australia and New Zealand were from a low base reaching a maximum of not close to 1 ton per annum during the same period under examination. There were no exports of essential oils (terpeneless or not) from South Africa to Australia and New Zealand between 2010 and 2016 marketing seasons.



Source: Quantec EasyData

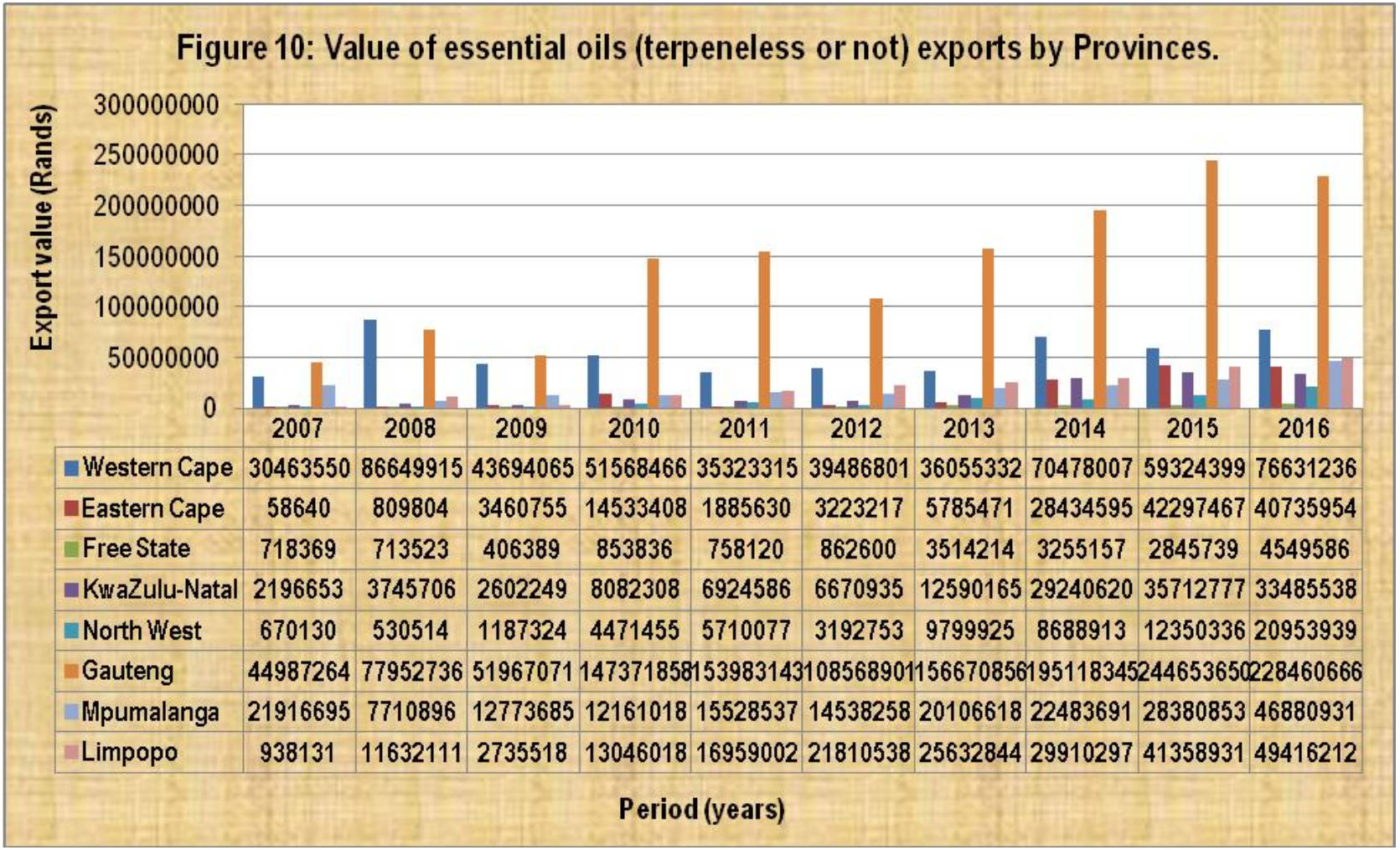
Figure 9 below shows export volumes of essential oils (terpeneless or not) from South Africa to Australia and New Zealand between 2007 and 2016.



Source: Quantec EasyData

The major export volumes of essential oils (terpeneless or not) from South Africa to Australia and New Zealand region went to Australia during the period under scrutiny (2007-2016). Exports to Australia started to increase in 2007 and at the same time attained a peak at approximately 60 tons, followed by a decrease in 2009 of approximately 42 tons. There was no growth (0.00%) in export volumes of essential oils (terpeneless or not) from South Africa to Australia in 2016 as compared to 2015.

Figure 10 below depicts values of essential oils (terpeneless or not) exports by provinces of South Africa to the world between 2007 and 2016.



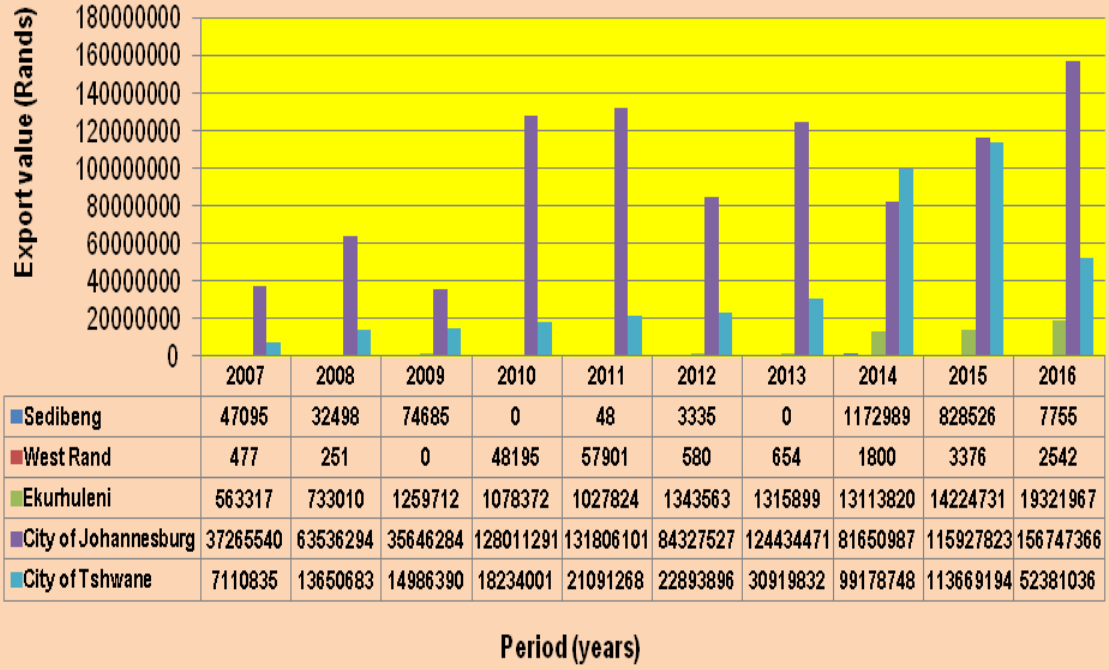
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Western Cape	30463550	86649915	43694065	51568466	35323315	39486801	36055332	70478007	59324399	76631236
Eastern Cape	58640	809804	3460755	14533408	1885630	3223217	5785471	28434595	42297467	40735954
Free State	718369	713523	406389	853836	758120	862600	3514214	3255157	2845739	4549586
KwaZulu-Natal	2196653	3745706	2602249	8082308	6924586	6670935	12590165	29240620	35712777	33485538
North West	670130	530514	1187324	4471455	5710077	3192753	9799925	8688913	12350336	20953939
Gauteng	44987264	77952736	51967071	147371858	153983143	108568901	156670856	195118345	244653650	228460666
Mpumalanga	21916695	7710896	12773685	12161018	15528537	14538258	20106618	22483691	28380853	46880931
Limpopo	938131	11632111	2735518	13046018	16959002	21810538	25632844	29910297	41358931	49416212

Source: Quantec EasyData

The major supplier of essential oils (terpeneless or not) from South Africa to the world was Gauteng province, followed by Western Cape, Mpumalanga and other provinces over the past decade. The Eastern Cape, KwaZulu-Natal, Limpopo, North West and Free State provinces had very intermittent exports over the same period. Export values of essential oils (terpeneless or not) from Gauteng province to the world started to increase substantially in 2010 at approximately R147 million until a peak was attained in 2015 at R244 million. Export values of essential oils (terpeneless or not) from the Western Cape province attained a peak in 2008 at approximately R86.7 million, while Mpumalanga province attained a peak in 2015 at approximately R46.8 million. There was a 6.6% decline in export value of essential oils (terpeneless or not) from Gauteng Province to the world in 2016 as compared to 2015.

Figure 11 below indicates export values of essential oils (terpeneless or not) from Gauteng province to the world between 2007 and 2016.

Figure 11: Value of essential oils (terpeneless or not) exports by Gauteng Province



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sedibeng	47095	32498	74685	0	48	3335	0	1172989	828526	7755
West Rand	477	251	0	48195	57901	580	654	1800	3376	2542
Ekurhuleni	563317	733010	1259712	1078372	1027824	1343563	1315899	13113820	14224731	19321967
City of Johannesburg	37265540	63536294	35646284	128011291	131806101	84327527	124434471	81650987	115927823	156747366
City of Tshwane	7110835	13650683	14986390	18234001	21091268	22893896	30919832	99178748	113669194	52381036

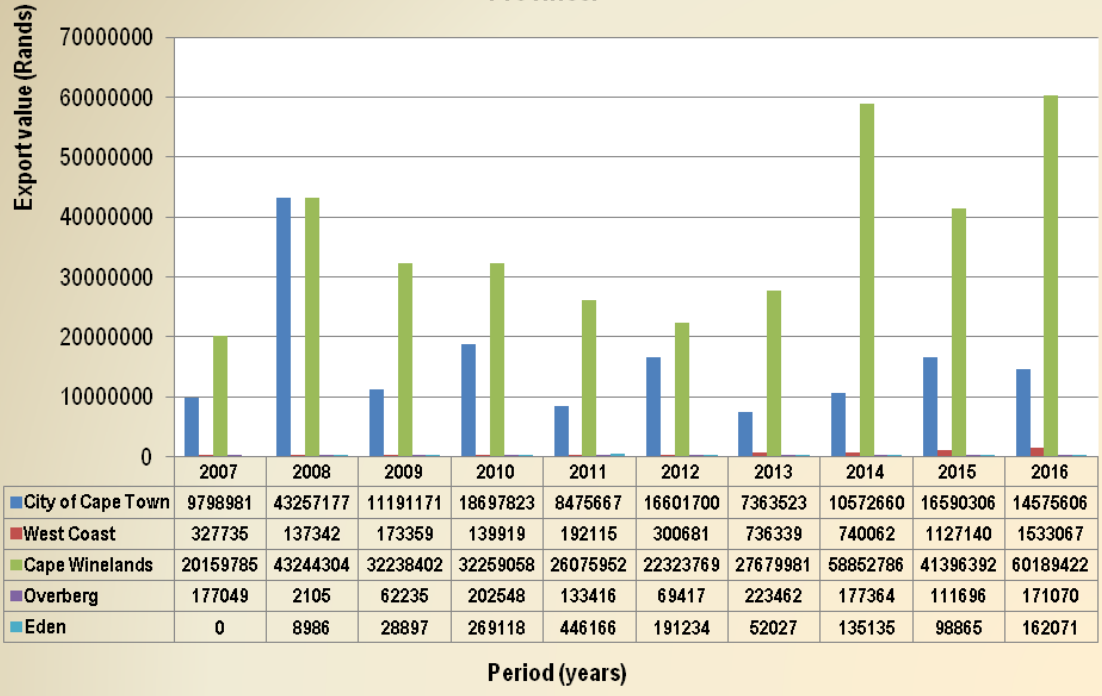
Source: Quantec EasyData

The major supplying market for essential oils (terpeneless or not) from Gauteng province to the world was the City of Johannesburg Metropolitan Municipality, followed by the City of Tshwane Metropolitan Municipality and West Rand District Municipality over the past decade. Exports by the City of Johannesburg Metropolitan Municipality to the world were from a low base during the first half of the ten year period (2007-2011), attaining higher levels of about R131.8 million in 2011. Export values of essential oils (terpeneless or not) by the City of Johannesburg Metropolitan Municipality to the world were from a high base during the second half of the ten year period (2012-2016), attaining higher levels and a peak in 2016 of about R156.7 million. Export values from the

City of Tshwane Metropolitan Municipality to the world attained a peak in 2015 at approximately R113 million. Sedibeng, West Rand District Municipalities and Ekurhuleni Metropolitan Municipality had very low export values of essential oils (terpeneless or not) to the world during the period under examination of not more than R2 million per annum. There was a 53.9% decline in export values of essential oils (terpeneless or not) from the City of Johannesburg Metropolitan Municipality in 2016 as compared to 2015.

Figure 12 shows export values of essential oils (terpeneless or not) from Western Cape province to the world between 2007 and 2016. The major exporter of essential oils (terpeneless or not) from Western Cape province to the world was the Cape Winelands District Municipality, followed by the City of Cape Town Metropolitan Municipality between 2007 and 2016. Exports from the Cape Winelands District Municipality were from a low base during the first half of the ten year period (2007-2011) and a peak was attained in 2008 at approximately R43 million. In 2010, a peak in export values of essential oils (terpeneless or not) from the City of Cape Town Metropolitan Municipality was also attained at approximately R18 million. During the second half of the ten year period (2012-2016), exports from Cape Winelands attained a peak of approximately R60 million in 2016. Exports from the West Coast District Municipality attained a maximum of about R1.5 million in 2016. There was a 45.4% increase in export values of essential oils (terpeneless or not) from Cape Winelands District Municipality in 2016 as compared to 2015.

Figure 12: Value of essential oils (terpeneless or not) by Western Cape Province.



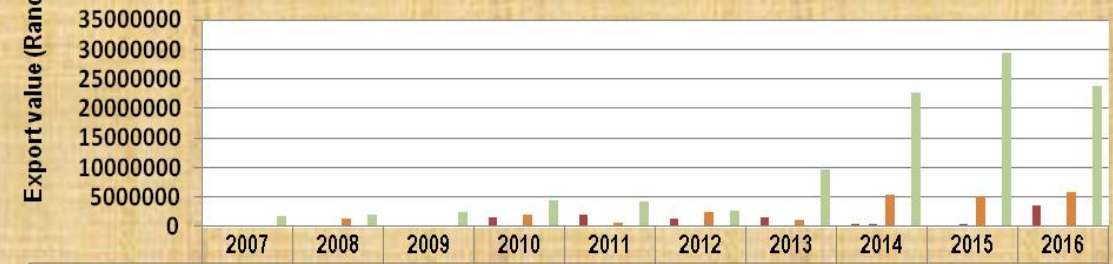
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
City of Cape Town	9798981	43257177	11191171	18697823	8475667	16601700	7363523	10572660	16590306	14575606
West Coast	327735	137342	173359	139919	192115	300681	736339	740062	1127140	1533067
Cape Winelands	20159785	43244304	32238402	32259058	26075952	22323769	27679981	58852786	41396392	60189422
Overberg	177049	2105	62235	202548	133416	69417	223462	177364	111696	171070
Eden	0	8986	28897	269118	446166	191234	52027	135135	98865	162071

Source: Quantec EasyData

Figure 13 depicts export values of essential oils (terpeneless or not) from KwaZulu-Natal province to the world between 2007 and 2016. The major exporter of essential oils (terpeneless or not) from KwaZulu-Natal province to the world was eThekwini Metropolitan Municipality, followed by UMgungundlovu and UThungulu District Municipalities over the past decade. Zululand, UThukela, Sisonke and Ugu District Municipalities exported low levels of essential oils (terpeneless or not) to the world over the same period. Exports from eThekwini Metropolitan Municipality to the world were from a low base during the first half of the ten year period (2007-2011), attaining a minimum peak in 2010 of approximately R4.5 million. During the second half of the ten year period (2012-2016), exports from eThekwini Metropolitan Municipality were from a high base, attaining a maximum peak of about R29 million in 2015. Exports from UMgungundlovu District Municipality to the world

attained a peak in 2016 of approximately R3.5 million, while exports from UThungulu District Municipality attained a peak in 2016 of approximately R5.9 million. There was a 19.4% decline in export value of essential oils (terpeneless or not) from eThekwini Metropolitan Municipality in 2016 as compared to 2015.

Figure 13: Value of essential oils (terpeneless or not) by KwaZulu Natal Province

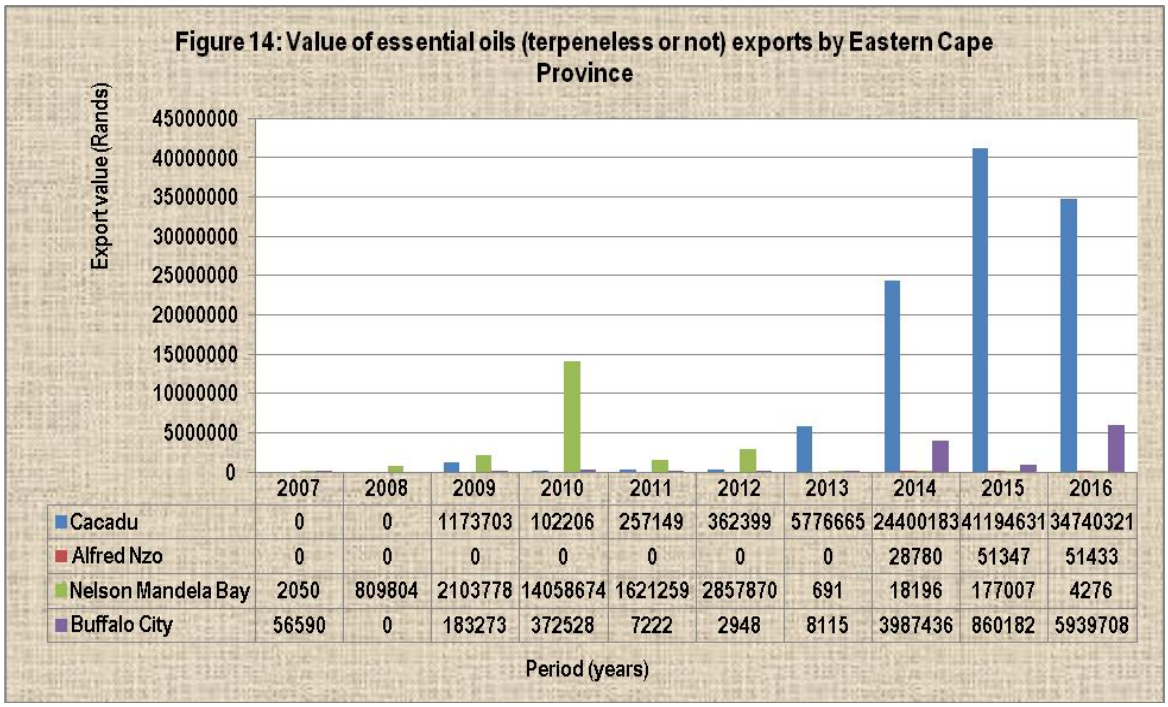


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ugu	0	0	16693	0	11300	0	0	0	0	0
UMgungundlovu	59055	238180	465	1532997	1991830	1381549	1505292	454899	320761	3510587
Uthukela	0	0	0	0	0	0	0	139498	314323	0
Zululand	0	170228	0	42237	0	143591	220071	498996	435797	240041
Umkhanyakude	0	0	0	0	0	0	0	0	0	6298
Uthungulu	274268	1251482	53814	1934809	568522	2373920	1184627	5338640	5070737	5917397
iLembe	20	0	0	0	0	0	0	37587	47709	3600
Sisonke	0	0	0	0	0	0	0	1950	1750	0
eThekwini	1863310	2085817	2531277	4572265	4352934	2771590	9680176	22766965	29521037	23806359

Period (years)

Source: Quantec EasyData

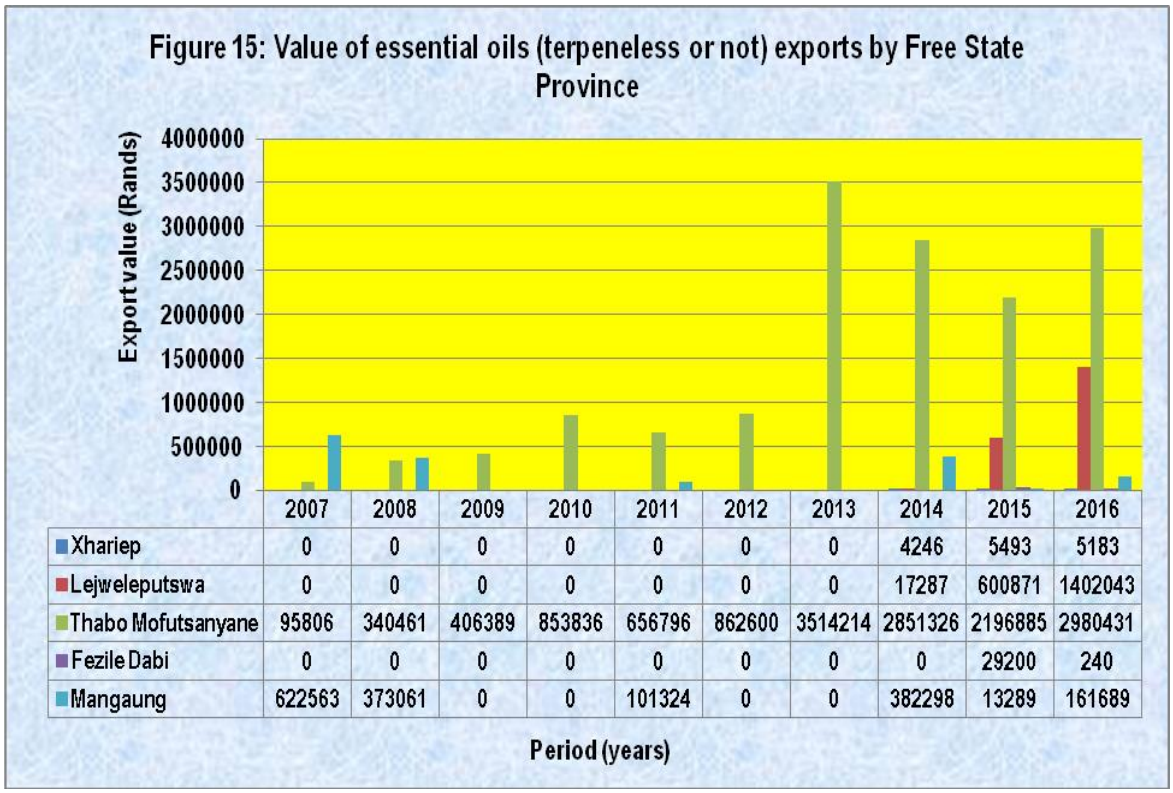
Figure 14 indicates export values of essential oils (terpeneless or not) from Eastern Cape province to the world between 2007 and 2016. The major exporter of essential oils (terpeneless or not) from the Eastern Cape province was Cacadu District Municipality, followed by low export volumes from Nelson Mandela Metropolitan Municipality, Buffalo City Metropolitan and Alfred Nzo District Municipality over the past ten years (2007-2016). There were no exports of essential oils (terpeneless or not) in Alfred Nzo Municipality between 2007 and 2013 due to shortages in the domestic market. Exports from the Nelson Mandela Metropolitan Municipality started to increase substantially in 2010 and at the same time attained a peak at approximately R2.8 million. Essential oils (terpeneless or not) exports from Buffalo City Metropolitan Municipality to the world attained a peak in 2016 at approximately of R5.9 million, and Alfred Nzo District Municipality attained a peak also in 2016 of approximately R51 433. Exports from Cacadu District Municipality to the world started to increase substantially in 2015 and at the same time attained a peak at approximately R41 million. There was a 15.7% decline in export value of essential oils (terpeneless or not) from Cacadu District Municipality to the world in 2016 as compared to 2015.



	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cacadu	0	0	1173703	102206	257149	362399	5776665	24400183	41194631	34740321
Alfred Nzo	0	0	0	0	0	0	0	28780	51347	51433
Nelson Mandela Bay	2050	809804	2103778	14058674	1621259	2857870	691	18196	177007	4276
Buffalo City	56590	0	183273	372528	7222	2948	8115	3987436	860182	5939708

Source: Quantec EasyData

Figure 15 below illustrates export values of essential oils (terpeneless or not) from Free State Province to the world between 2007 and 2016.



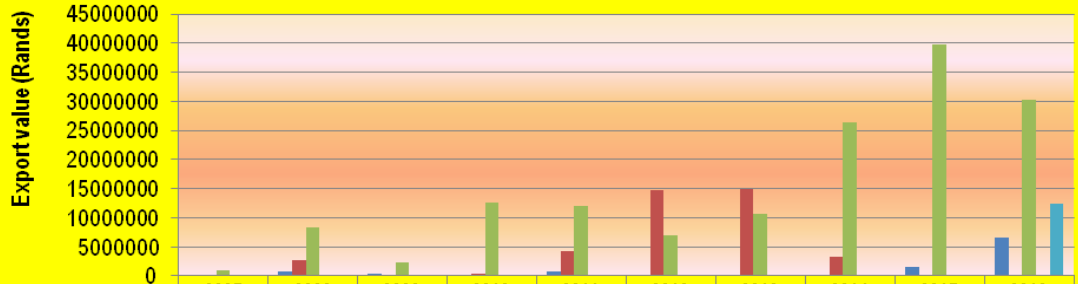
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Xhariep	0	0	0	0	0	0	0	4246	5493	5183
Lejweleputswa	0	0	0	0	0	0	0	17287	600871	1402043
Thabo Mofutsanyane	95806	340461	406389	853836	656796	862600	3514214	2851326	2196885	2980431
Fezile Dabi	0	0	0	0	0	0	0	0	29200	240
Mangaung	622563	373061	0	0	101324	0	0	382298	13289	161689

Source: Quantec EasyData

Thabo Mofutsanyane District Municipality was the major exporter of essential oils (terpeneless or not) from Free State province to the world, followed by Mangaung District Municipality over the past decade. Exports from Thabo Mofutsanyane District to the world started with low exports in 2007 of approximately R95 806. However, from 2008 to 2010, the value of essential oils exports increased substantially and attained a peak in 2013 at R3.5 million. Exports from Mangaung District Municipality attained a peak also in 2007 of approximately R622 563. Exports from Fezile Dabi District Municipality attained a peak in 2015 at R29 200. There was a 35.7% increase in export value of essential oils (terpeneless or not) from Thabo Mofutsanyane District Municipality to the world from 2016 as compared to 2015.

Figure 16 below shows export values of essential oils (terpeneless or not) from Limpopo province to the world between 2007 and 2016.

Figure 16: Value of essential oils (terpeneless or not) exports by Limpopo Province



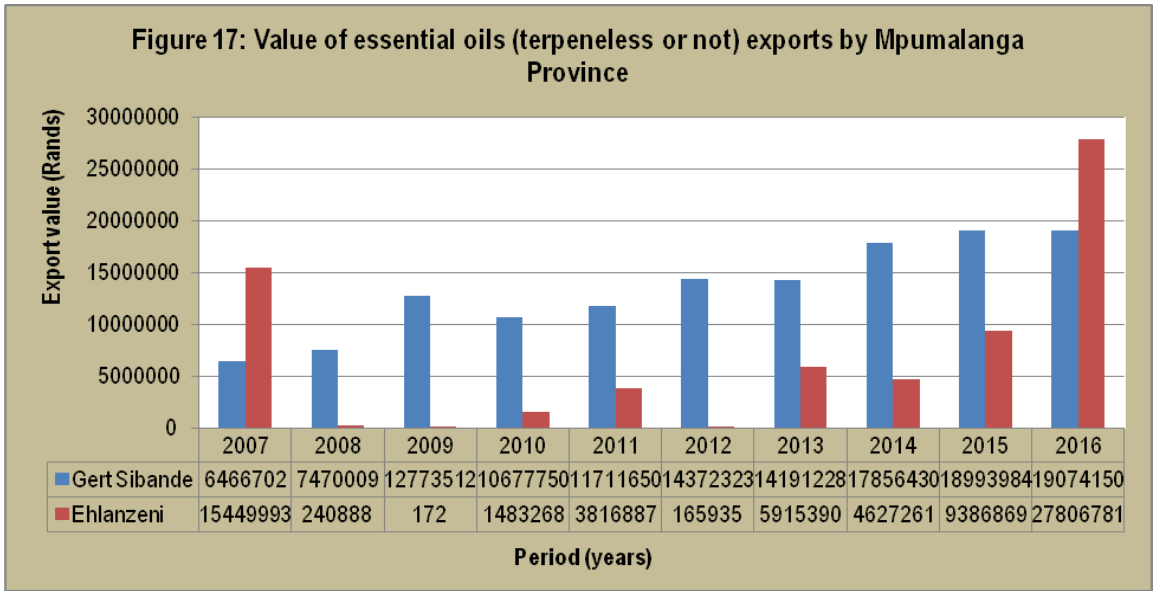
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Mopani	0	734773	364805	0	751032	1933	7673	1409	1484311	6575569
Vhembe	0	2608824	2763	464250	4274835	14784856	14991704	3338076	20015	36947
Capricorn	938131	8288514	2367949	12581768	11933135	7023749	10633467	26425787	39725840	30343770
Waterberg	0	0	0	0	0	0	0	145025	126739	31476
Greater Sekhukhune	0	0	0	0	0	0	0	0	2026	12428449

Source: Quantec EasyData

The Capricorn District Municipality was the main exporter of essential oils (terpeneless or not) from Limpopo province to the world during the period under scrutiny. In 2007, only Capricorn District Municipality exported the product at a value of R938 131 to the world, while there were no exports of essential oils (terpeneless or not) from Vhembe, Waterberg, Mopani and Greater Sekhukhune District Municipalities in 2007. Exports from Capricorn District Municipality to the world attained a peak in 2015 of approximately R39 million. Exports from Mopani District Municipality to the world attained a peak in 2016 at approximately R6.5 million and export value of essential oils from Vhembe District Municipality to the world attained a peak in 2013 of approximately R14.9 million. There was a 23.6% increase in export values of essential oils (terpeneless or not) from Capricorn District Municipality to the world in 2016 as compared to 2015.

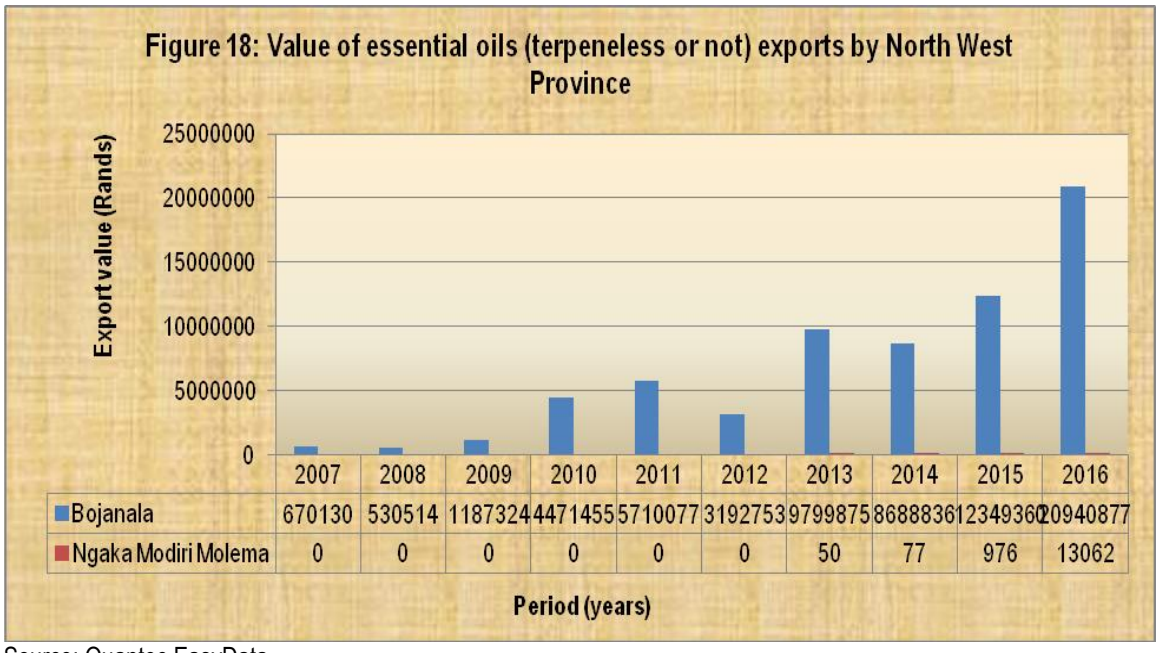
Figure 17 shows export values of essential oils (terpeneless or not) from Mpumalanga Province to the world between 2007 and 2016. Exports of essential oils (terpeneless or not) from Mpumalanga province to the world were mainly from Gert Sibande District Municipality, followed by Ehlanzeni District Municipality during the past ten years. Exports from Gert Sibande District Municipality to the

world started to increase in 2007, until a peak was attained in 2015 at approximately R19 million. Exports from Ehlanzeni District Municipality attained a peak in 2016 at approximately R27.8 million. There was a 0.4% increase in export values of essential oils (terpeneless or not) from Gert Sibande District Municipality in 2016 as compared to 2015.



Source: Quantec EasyData

Figure 18 below illustrates export values of essential oils (terpeneless or not) from North West Province to the world between 2007 and 2016.



Source: Quantec EasyData

Exports of essential oils (terpeneless or not) from North West province to the world originated mainly from the Bojanala District Municipality over the past decade. Low levels of exports were

achieved from Ngaka Modiri Molema District Municipality over the same period. Between 2007 and 2012, there were no exports of essential oils (terpeneless or not) from Ngaka Modiri Molema Municipalities. Export value of essential oils (terpeneless or not) from Bojanala District Municipality to the world started to increase in 2007 and attained a peak in 2016 at approximately R20.9 million. Between 2009 and 2013, the value of exports of essential oils (terpeneless or not) from Bojanala District Municipality increased to approximately R5 million as compared to low production levels that occurred in 2007 at approximately R670 130. There was a 69.6% increase in export values of essential oils (terpeneless or not) from Bojanala District Municipality to the world in 2016 as compared to 2015.

4. SHARE ANALYSIS

3.1 Share Analysis

Table 4 below indicates that Gauteng province commanded the greatest market share of essential oils (terpeneless or not) exports to the world between 2007 and 2016, followed by Western Cape province. The trend indicate that the greatest percentages of essential oils (terpeneless or not) exports were recorded as originating from both Gauteng and Western Cape provinces whereas other provinces recorded small percentages between 2007 and 2016.

Table 4: Share of provincial essential oils (terpeneless or not) exports to the total South African essential oils exports (%)

Years / Provinces	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Western Cape	29.9	45.7	36.8	20.5	14.9	19.9	13.3	18.2	12.7	15.3
Eastern Cape	0.1	0.4	2.9	5.8	0.8	1.6	2.1	7.3	9.1	8.1
Free State	0.7	0.4	0.3	0.3	0.3	0.4	1.3	0.8	0.6	0.9
KwaZulu-Natal	2.2	2.0	2.2	3.2	2.9	3.4	4.7	7.5	7.6	6.7
North West	0.7	0.3	1.0	1.8	2.4	1.6	3.6	2.2	2.6	4.2
Gauteng	44.1	41.1	43.7	58.5	65.0	54.7	58.0	50.3	52.4	45.6
Mpumalanga	21.5	4.1	10.7	4.8	6.6	7.3	7.4	5.8	6.1	9.4
Limpopo	0.9	6.1	2.3	5.2	7.2	11.0	9.5	7.7	8.9	9.9

Source: Calculated from Quantec

Table 5 below indicates that in the Western Cape province, the greatest market share of essential oils (terpeneless or not) exports occured mainly through the Cape Winelands District Municipality over the past decade.

Table 5: Share of the district essential oils (terpeneless or not) exports to the total Western Cape Province essential oils (terpeneless or not) exports (%)

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
City of Cape Town	32.2	49.9	25.6	36.3	24.0	42.0	20.4	15.0	28.0	19.0

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
West Coast	1.1	0.2	0.4	0.3	0.5	0.8	2.0	1.1	1.9	2.0
Cape Winelands	66.2	49.9	73.8	62.6	73.8	56.5	76.8	83.5	69.8	78.5
Overberg	0.6	0.0	0.1	0.4	0.4	0.2	0.6	0.3	0.2	0.2
Eden	0.0	0.0	0.1	0.5	1.3	0.5	0.1	0.2	0.2	0.2

Source: Calculated from Quantec

Table 6 below illustrates that in the Eastern Cape province, essential oils (terpeneless or not) exports occurred mainly in the Nelson Mandela Metropolitan Municipality during the period of ten years.

Table 6: Share of district essential oils (terpeneless or not) exports to the total Eastern Cape Province essential oils (terpeneless or not) exports (%)

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cacadu	0.0	0.0	33.9	0.7	13.6	11.2	99.8	85.8	97.4	85.3
Alfred Nzo	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Nelson Mandela Bay	3.5	100.0	60.8	96.7	86.0	88.7	0.0	0.1	0.4	0.0
Buffalo City	96.5	0.0	5.3	2.6	0.4	0.1	0.1	14.0	2.0	14.6

Source: Calculated from Quantec

Table 7 below indicates that in Limpopo province, exports of essential oils (terpeneless or not) originated mainly from the Capricorn District throughout the period under review.

Table 7: Share of district essential oils (terpeneless or not) exports to the total Limpopo Province essential oils (terpeneless or not) exports (%)

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Mopani	0.0	6.3	13.3	0.0	4.4	0.0	0.0	0.0	3.6	13.3
Vhembe	0.0	22.4	0.1	3.6	25.2	67.8	58.5	11.2	0.0	0.1
Capricorn	100.0	71.3	86.6	96.4	70.4	32.2	41.5	88.4	96.1	61.4
Waterberg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	0.1
Greater Sekhukhune	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.2

Source: Calculated from Quantec

Table 8 below illustrates that in KwaZulu-Natal province, essential oils (terpeneless or not) exports originated mainly from eThekwini Metropolitan Municipality with menial exports from other districts over the past ten years.

Table 8: Share of district essential oils (terpeneless or not) exports to the total KwaZulu-Natal essential oils (terpeneless or not) exports (%)

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Ugu	0.0	0.0	0.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0
UMgungundlovu	2.7	6.4	0.0	19.0	28.8	20.7	12.0	1.6	0.9	10.5
Uthukela	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.9	0.0
Zululand	0.0	4.5	0.0	0.5	0.0	2.2	1.7	1.7	1.2	0.7
Uthungulu	12.5	33.4	2.1	23.9	8.2	35.6	9.4	18.3	14.2	17.7
iLembe	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
eThekwini	84.8	55.7	97.3	56.6	62.9	41.5	76.9	77.9	82.7	71.1

Source: Calculated from Quantec

Table 9 below shows that in North West province, exports of essential oils (terpeneless or not) originated mainly from the Bojanala District Municipality throughout the period under review.

Table 9: Share of district essential oils (terpeneless or not) exports to the total North West Province essential oils (terpeneless or not) exports (%)

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bojanala	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9
Ngaka Modiri Molema	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

Source: Calculated from Quantec

Table 10 below depicts that in Gauteng province, exports of essential oils (terpeneless or not) originated mainly from the City of Johannesburg Metropolitan Municipality throughout the period under review.

Table 10: Share of district essential oils (terpeneless or not) exports to the total Gauteng Province essential oils (terpeneless or not) exports (%)

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sedibeng	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.3	0.0
Ekurhuleni	1.3	0.9	2.4	0.7	0.7	1.2	0.8	6.7	5.8	8.5
City of Johannesburg	82.8	81.5	68.6	86.9	85.6	77.7	79.4	41.8	47.4	68.6
City of Tshwane	15.8	17.5	28.8	12.4	13.7	21.1	19.7	50.8	46.5	22.9

Source: Calculated from Quantec

Table 11 below indicates that in Mpumalanga province, Gert Sibande District Municipality commanded the greatest share of essential oils (terpeneless or not) exports over the past decade.

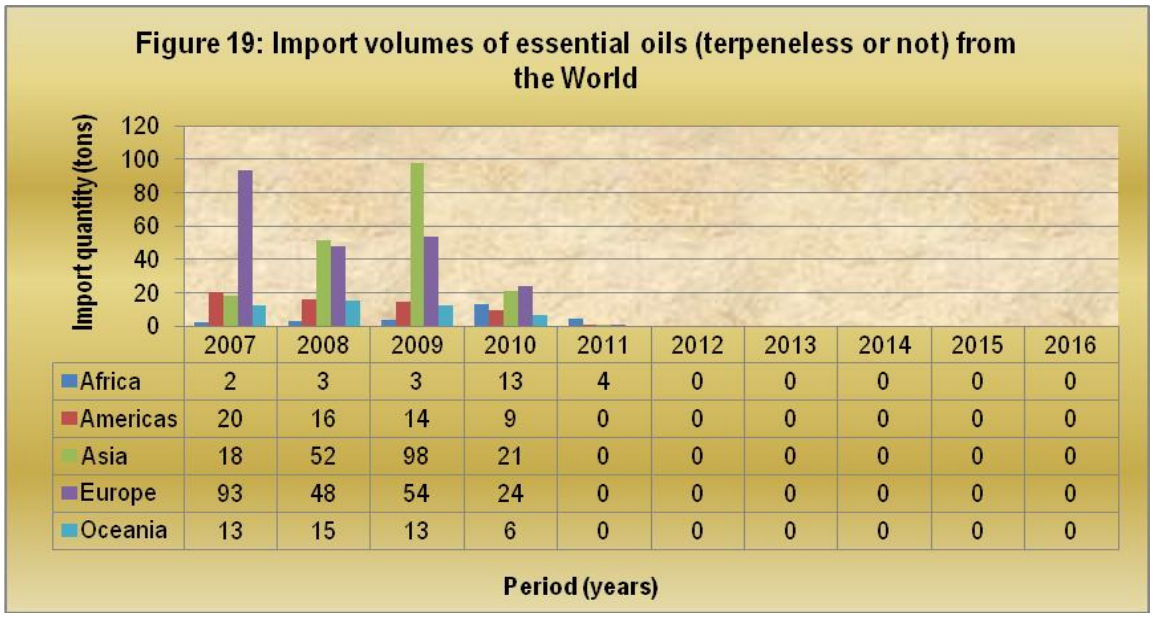
Table 11: Share of district essential oils (terpeneless or not) exports to the total Mpumalanga Province essential oils (terpeneless or not) exports (%)

Years / Districts	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Gert Sibande	29.5	96.9	100.0	87.8	75.4	98.9	70.6	79.4	66.9	40.7
Ehlanzeni	70.5	3.1	0.0	12.2	24.6	1.1	29.4	20.6	33.1	59.3

Source: Calculated from Quantec

5. IMPORTS VOLUMES

Figure 19 shows import volumes of essential oils (terpeneless or not) from various regions of the world to South Africa between 2007 and 2016.

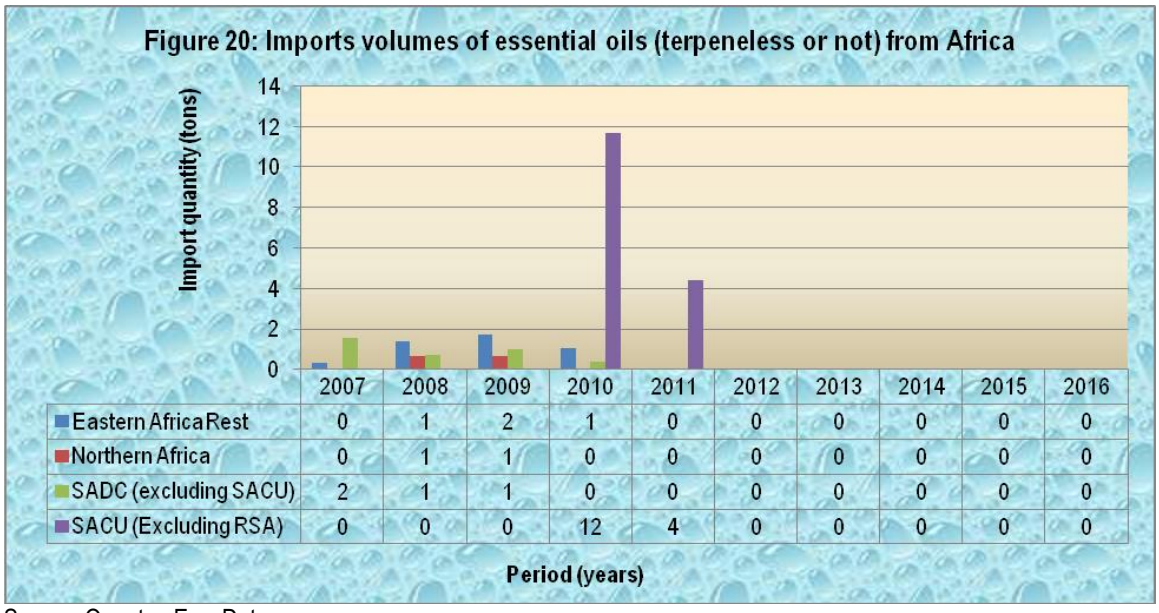


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Africa	2	3	3	13	4	0	0	0	0	0
Americas	20	16	14	9	0	0	0	0	0	0
Asia	18	52	98	21	0	0	0	0	0	0
Europe	93	48	54	24	0	0	0	0	0	0
Oceania	13	15	13	6	0	0	0	0	0	0

Source: Quantec EasyData

The major import source for essential oils (terpeneless or not) from various regions was Europe, followed by Asia and Americas between 2007 and 2016. Imports from Europe into South Africa were from a high base during the first half of the ten year period (2007-2011), attaining a peak in 2007 of approximately 93 tons. During the second half of the ten year period (2012-2016), imports from Europe into South Africa were less than 1 ton. Imports from Asia into South Africa attained a peak in 2009 of approximately 98 tons, while imports from the Americas into South Africa attained a peak in 2007 of approximately 20 tons. Africa and Oceania had very low levels of imports of essential oils (terpeneless or not) to South Africa over the same period under review of not more than 15 tons per annum. In 2016, there was no growth in imports of essential oils (terpeneless or not) from Europe into South Africa as compared to 2015.

Figure 20 below indicates import volumes of essential oils (terpeneless or not) from Africa into South Africa between 2007 and 2016.

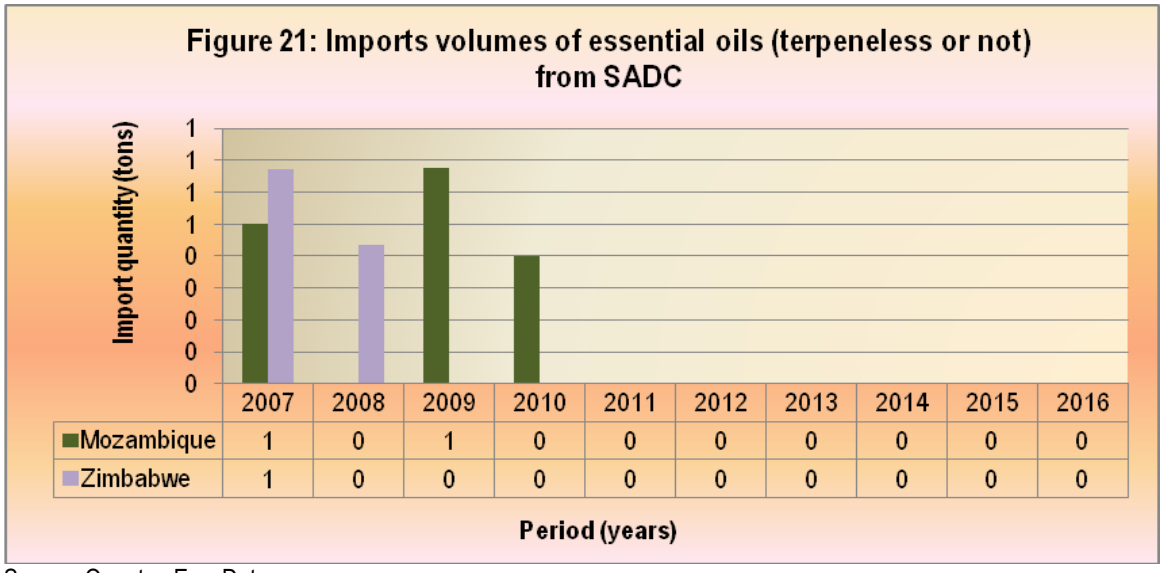


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Eastern Africa Rest	0	1	2	1	0	0	0	0	0	0
Northern Africa	0	1	1	0	0	0	0	0	0	0
SADC (excluding SACU)	2	1	1	0	0	0	0	0	0	0
SACU (Excluding RSA)	0	0	0	12	4	0	0	0	0	0

Source: Quantec EasyData

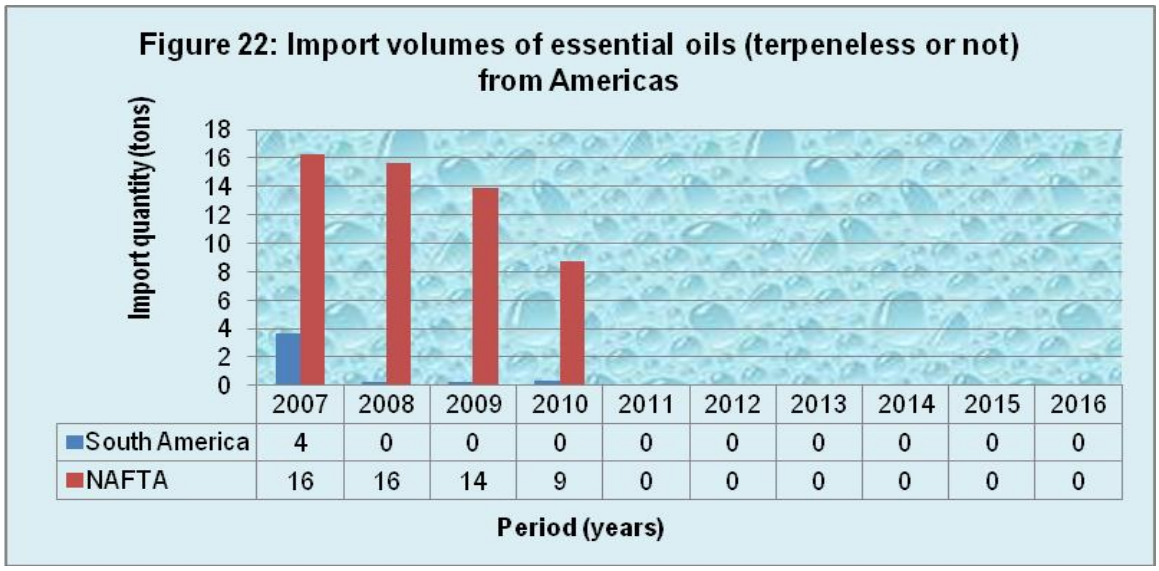
The major import source for essential oils (terpeneless or not) from Africa into South Africa was SACU region during the past decade. Eastern Africa, SADC and Northern Africa provided very minimal imports of essential oils (terpeneless or not) over the same period. Imports from SACU region into South Africa started in 2010 and reached a peak of approximately 12 tons in 2010. Imports from SADC region into South Africa started to increase in 2007 and attained a peak of approximately 2 tons in 2007. The demand for essential oils (terpeneless or not) from SADC into South Africa was far less as compared to what Eastern Africa exported to South Africa between 2008 and 2010. There was no growth in imports of essential oils (terpeneless or not) from SACU region into South Africa in 2016 as compared to 2015.

Figure 21 below depicts import volumes of essential oils (terpeneless or not) from the SADC region into South Africa between 2007 and 2016. The suppliers of essential oils ((terpeneless or not) from the SADC region into South Africa were Mozambique, followed by minimal imports from Zimbabwe between 2007 and 2016. There was no growth in imports of essential oils (terpeneless or not) from Mozambique and Zimbabwe into South Africa during the period under review.



Source: Quantec EasyData

Figure 22 below illustrates import volumes of essential oils (terpeneless or not) from the Americas into South Africa between 2007 and 2016.



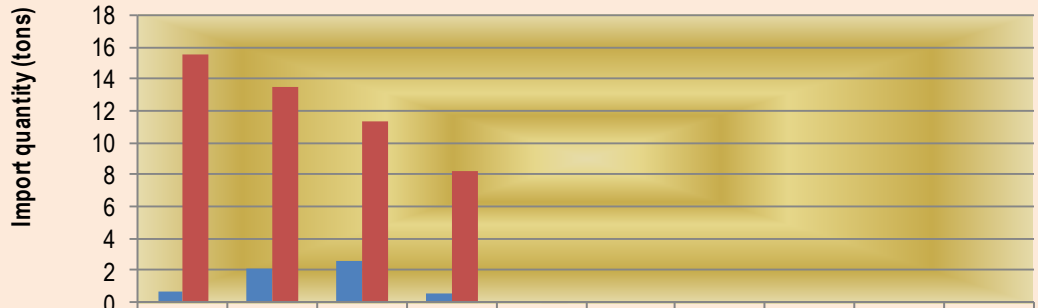
Source: Quantec EasyData

Figure 22 illustrates that over the past ten years, the major import sources for essential oils (terpeneless or not) from the Americas into South Africa was NAFTA, followed by South America. Imports from NAFTA into South Africa started to increase in 2007 and attained a peak at approximately 16 tons, while import volumes of essential oils (terpeneless or not) from South America into South Africa attained a peak in 2007 of approximately 4 tons. The consistent decline in essential oils imports from South America from 2007 and 2016 to approximately 4 and 0 tons respectively was as a result of shortage of supply from the world market against high demand for the product. Between 2008 and 2016, there were no import volumes of essential oils (terpeneless

or not) from South America into South Africa. There was no growth (0.00%) in import volumes of essential oils (terpeneless or not) from NAFTA into South Africa in 2016 as compared to 2015.

Figure 23 below shows import volumes of essential oils (terpeneless or not) from NAFTA into South Africa between 2007 and 2016.

Figure 23: Import volumes of essential oils (terpeneless or not) from NAFTA

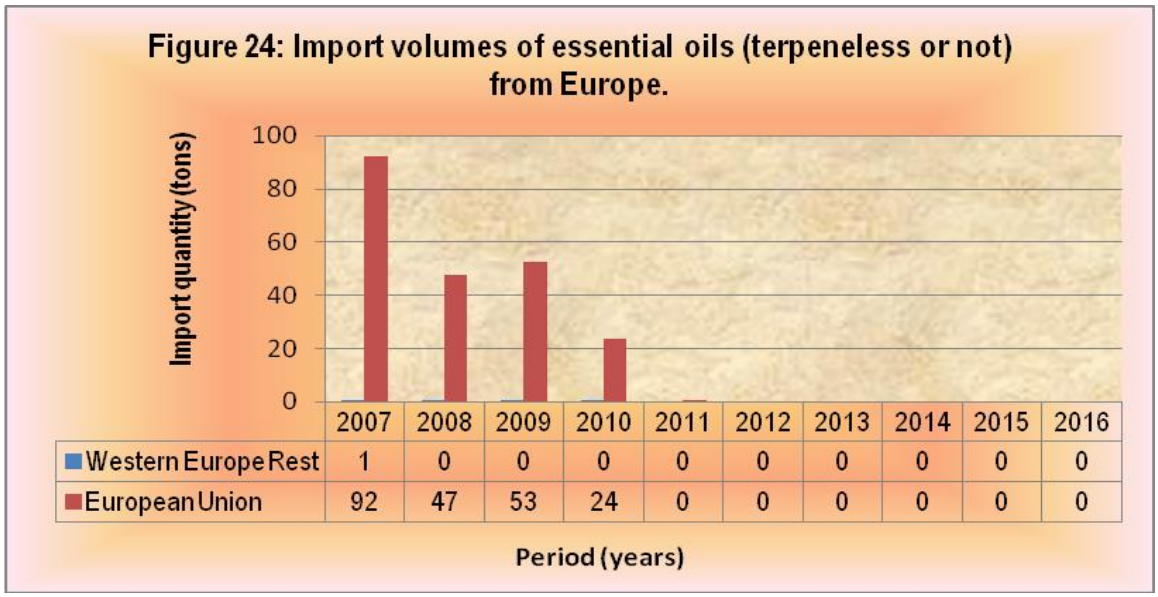


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Canada	1	2	3	1	0	0	0	0	0	0
United States	16	14	11	8	0	0	0	0	0	0

Source: Quantec EasyData

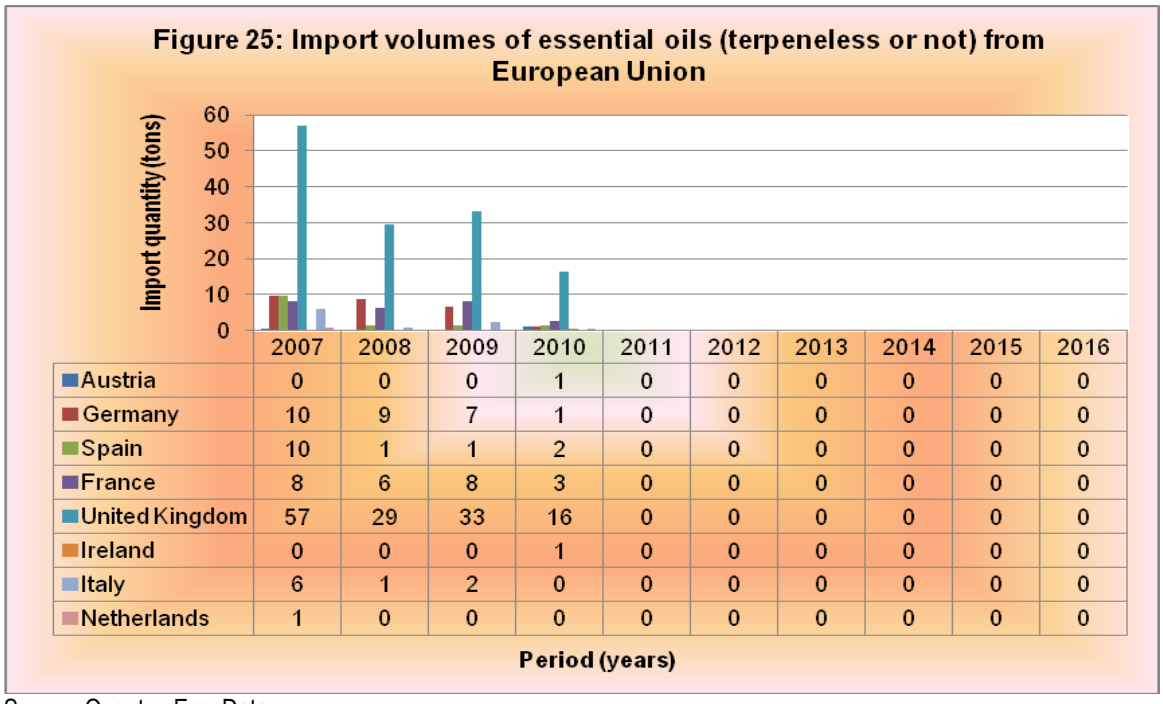
The major import source for essential oils (terpeneless or not) from NAFTA into South Africa was United States of America over the past ten years. Imports from the United States into South Africa attained a peak at 16 tons in 2007, followed by consistent decrease from 2008 to 2010 to lower levels of about 8 tons in 2010. Imports from United States into South Africa declined consistently from 2007 to 2016 until the lowest levels less than 1 ton were experienced in 2011. The reason for that was due to stringent tariff agreements between United States and South Africa. Canada had very low or intermittent volumes of essential oils (terpeneless or not) imports into South Africa during the period under scrutiny of not more than 3 tons per annum. There was no growth in imports of essential oils (terpeneless or not) from the United States of America into South Africa in 2016 as compared to 2015.

Figure 24 depicts import volumes of essential oils (terpeneless or not) from Europe into South Africa between 2007 and 2016. The European Union was the major import source of essential oils (terpeneless or not) from Europe into South Africa in the past ten years. The European Union commanded the greatest market share in terms of import volumes of essential oils (terpeneless or not) from Europe into South Africa with no competition from its counter parts over the same period. Imports from the European Union into South Africa started to increase in 2007 and attained a peak of approximately 92 tons. Between 2008 and 2014, there was consistent decline in imports of essential oils (terpeneless or not) from the European Union into South Africa due to increasing demand for Asian essential oils products. There were no imports of essential oils (terpeneless or not) from the European Union into South Africa between 2011 and 2016.



Source: Quantec EasyData

Figure 25 below illustrates import volumes of essential oils (terpeneless or not) from the European Union into South Africa between 2007 and 2016.

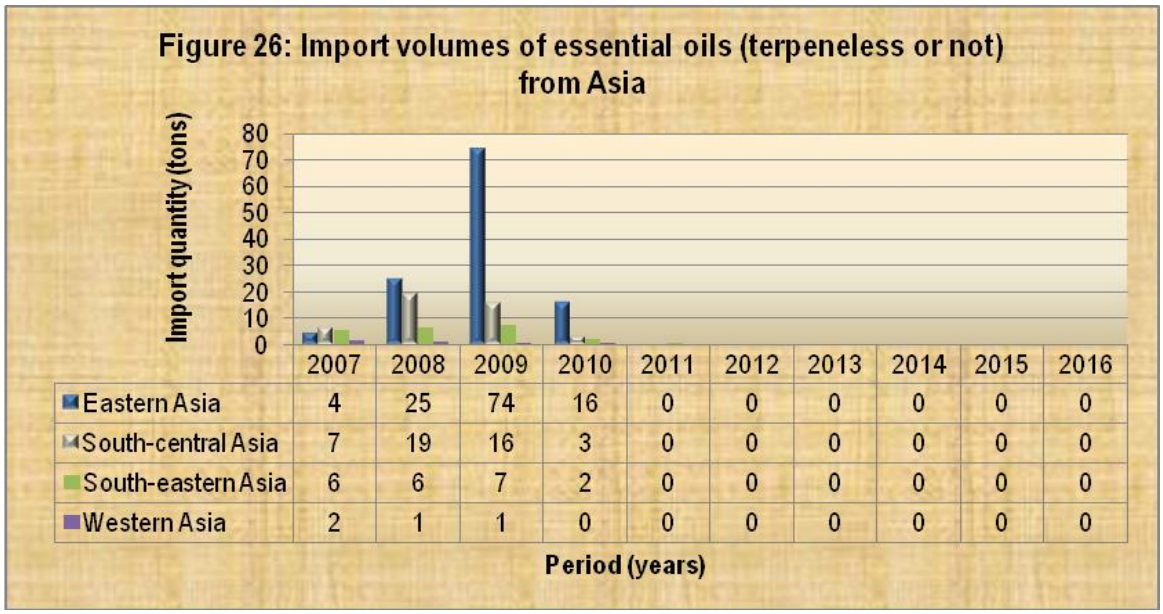


Source: Quantec EasyData

The major import market for essential oils (terpeneless or not) from the European Union into South Africa was the United Kingdom, followed by Spain, Germany and France over the past decade. The United Kingdom commanded the greatest market share in terms of imports of essential oils (terpeneless or not) from the European Union into South Africa with less competition from the other

EU counter parts. Imports from United Kingdom into South Africa started to increase in 2007 and attained a peak in 2007 of approximately 57 tons.

Figure 26 below indicates import volumes of essential oils (terpeneless or not) from Asia into South Africa between 2007 and 2016.

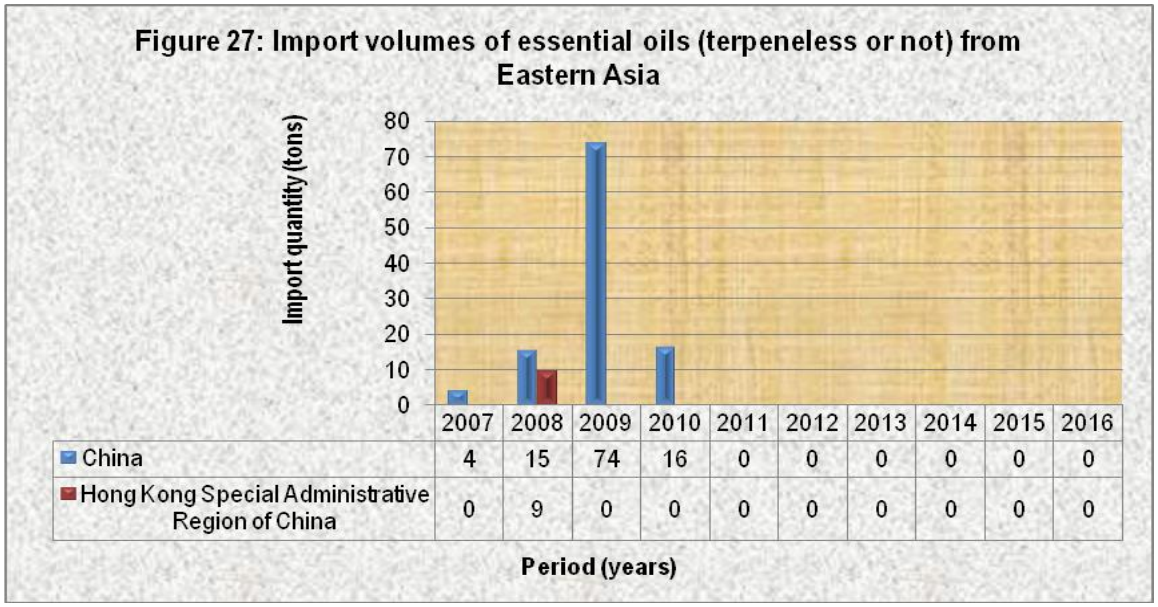


	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Eastern Asia	4	25	74	16	0	0	0	0	0	0
South-central Asia	7	19	16	3	0	0	0	0	0	0
South-eastern Asia	6	6	7	2	0	0	0	0	0	0
Western Asia	2	1	1	0	0	0	0	0	0	0

Source: Quantec EasyData

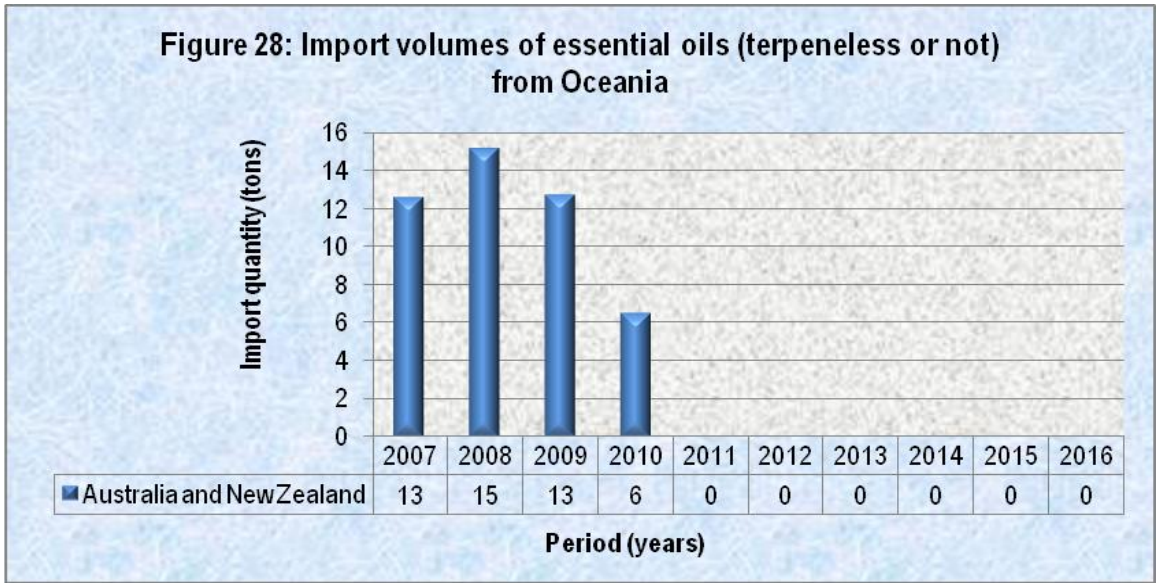
The major import source for essential oils (terpeneless or not) from Asia into South Africa was Eastern Asia, followed by South-central Asia and minimal import volumes from South Eastern and Western Asia over the past decade. Imports from Eastern Asia into South Africa started to increase substantially in 2008 to approximately 25 tons and a peak was attained in 2009 of approximately 74 tons. Imports from South-central Asia into South Africa attained a peak in 2008 at approximately 19 tons and followed by decline in 2009 of approximately 3 tons. Imports from Western and South-eastern Asia into South Africa were very low and not more than 8 tons per annum during the period under scrutiny.

Figure 27 below shows import volumes of essential oils (terpeneless or not) from Eastern Asia into South Africa between 2007 and 2016. The major import source for essential oils (terpeneless or not) from Eastern Asia into South Africa was China, followed by very small volumes of essential oils from Hong Kong over the past decade. Imports from China into South Africa started with a slight decline between 2007 of approximately 4 tons. In 2008, import volumes of essential oils (terpeneless or not) from China into South Africa experienced a slight increase of approximately 15 tons until a peak was attained in 2009 of approximately 74 tons. Imports from Hong Kong into South Africa attained a peak in 2008 of approximately 9 tons. Between 2011 and 2016, there was a 100% decline in import volumes of essential oils (terpeneless or not) from China into South Africa as compared to 2010.



Source: Quantec EasyData

Figure 28 below depicts import volumes of essential oils (terpeneless or not) from Oceania into South Africa between 2007 and 2016.



Source: Quantec EasyData

The major import sources for essential oils (terpeneless or not) from Oceania into South Africa were Australia and New Zealand over the past ten years (2007 to 2016). Imports from Australia and New Zealand into South Africa started at 13 tons in 2007. In 2008, there was a substantial increase in imports of essential oils (terpeneless or not) from Australia and New Zealand into South Africa until a peak was attained in 2008 at approximately 15 tons. Imports from Australia and New Zealand into South Africa experienced a consistent decline between 2009 and 2010 to lower levels of about 6 tons in 2010. There was a 100% decline in imports of essential oils (terpeneless or not) from Australia and New Zealand into South Africa between 2011 and 2016 as compared to 2010.

5. USES OF ESSENTIAL OILS

- Most essential oils are used for cooking, potpourri, crafting, cosmetics, massage, aromatherapy and other uses.
- Other essential oils are used to repel insects and other arthropods that are pests of humans, livestock, and pets (mosquitoes, fleas, ticks, etc).
- There are four broad sectors in which the oils are also used, including the flavor, pharmaceutical, personal care and industrial.

It is important to note that essential oils are not the same as perfume or fragrance oils. Where essential oils are derived from true plants, perfume oils are artificially created fragrances or contain artificial substances and do not offer the therapeutic benefits that essential oils offer. With so many plant species from which essential oil products are sourced it is even more problematic to accurately classify which plant belongs to which plant family or species. However, among the plants notable for their essential oils are members of the following plant families: carrot, ginger, heath, laurel, mint, myrtle, olive, orchid, pulse, rose and rue.

Table 12 below shows the list of common uses for selected essential oils in different industries. There are various numbers of uses for essential oils in general with some of those uses mentioned above. The table indicates that most of the essential oils are used interchangeably in all segments, with most of them being used mainly in the food flavoring.

Table 12: Common uses of selected essential oils

Essential oils	Common uses
Citrus	Industrial solvent, fragrance for cleaning products, flavoring
Spearmint	Toothpaste, mouthwash, confectionery flavoring
Peppermint	Toothpaste, mouthwash, chewing gum, food flavoring, cosmetics, and tobacco
Lavender/ Lavendin	Fragrances and toiletries
Eucalyptus	Cough/cold remedies, solvents, cleaning agents, flavoring
Tea tree	Toiletries, insect repellents, germicides, cosmetics
Boronia	Food flavoring, fragrance
Blackcurrant bud	Food and beverage flavoring

Source: South African Essential Oils Producers Association (SAEOPA)

Table 13 shows the overview of the end user sector markets for different kind of essential oils. It is indicated that most essential oils are mainly used in three sector markets namely: cosmetic industry, food industry and pharmaceutical industry. The essential oils of orange and patchouli are

used in both the cosmetic industry and in the pharmaceutical industry, followed by the use of essential oils of orange in the food and pharmaceutical industry. These indicate that the essential oils can perform different functions or uses in different industries at any given time.

Table 13: Overview of end-user sectors markets

Sectors	Segments	Essential oils
Cosmetic industry	Personal care Soap and detergent Dental care	• Lemon • Peppermint • Orange • Patchouli • Rosewood • Mint • Spice • Eucalyptus and derivatives
Food industry	Soft drink Confectionery Tobacco Candy Processed and canned food products Chewing gum	• Citrus • Spice oleoresins • Vanilla • Flavor and floral oils • Oleoresins • Peppermint
Pharmaceutical industry	Homeopathy Health-care products Aromatherapy	• Orange • Citrus • Patchouli • Lavender • Geranium

Source: South African Essential Oils Producers Association (SAEOPA)

6. QUALITY AND MAINTANANCE OF ESSENTIAL OILS

Over and above the barriers to entry alluded to above there is also the issue of quality. Entering lucrative industries such as the rose and boronia can be difficult as they have exceptionally rigid quality standards which require sophisticated equipment to attain/extract from the plants. Above the general quality requirements, storage of the product is also highly important as it can compromise quality. Storage materials should be solid and should be glass bottles; aluminum bottles and drums (used mostly for expensive essential oils), lacquered and lined steel drums, and plastic drums in high density polyethylene, which are less expensive than lined steel drums.

Before essential oils are stored for shipment oils should be dried by filtration or the use of anhydrous calcium sulphate. Head space should be filled with nitrogen gas although carbon dioxide is cheaper and easier to source in developing countries. The danger with using carbon dioxide though, is that it might react with residual moisture to form carbonic acid, which may react with essential oil ingredients.

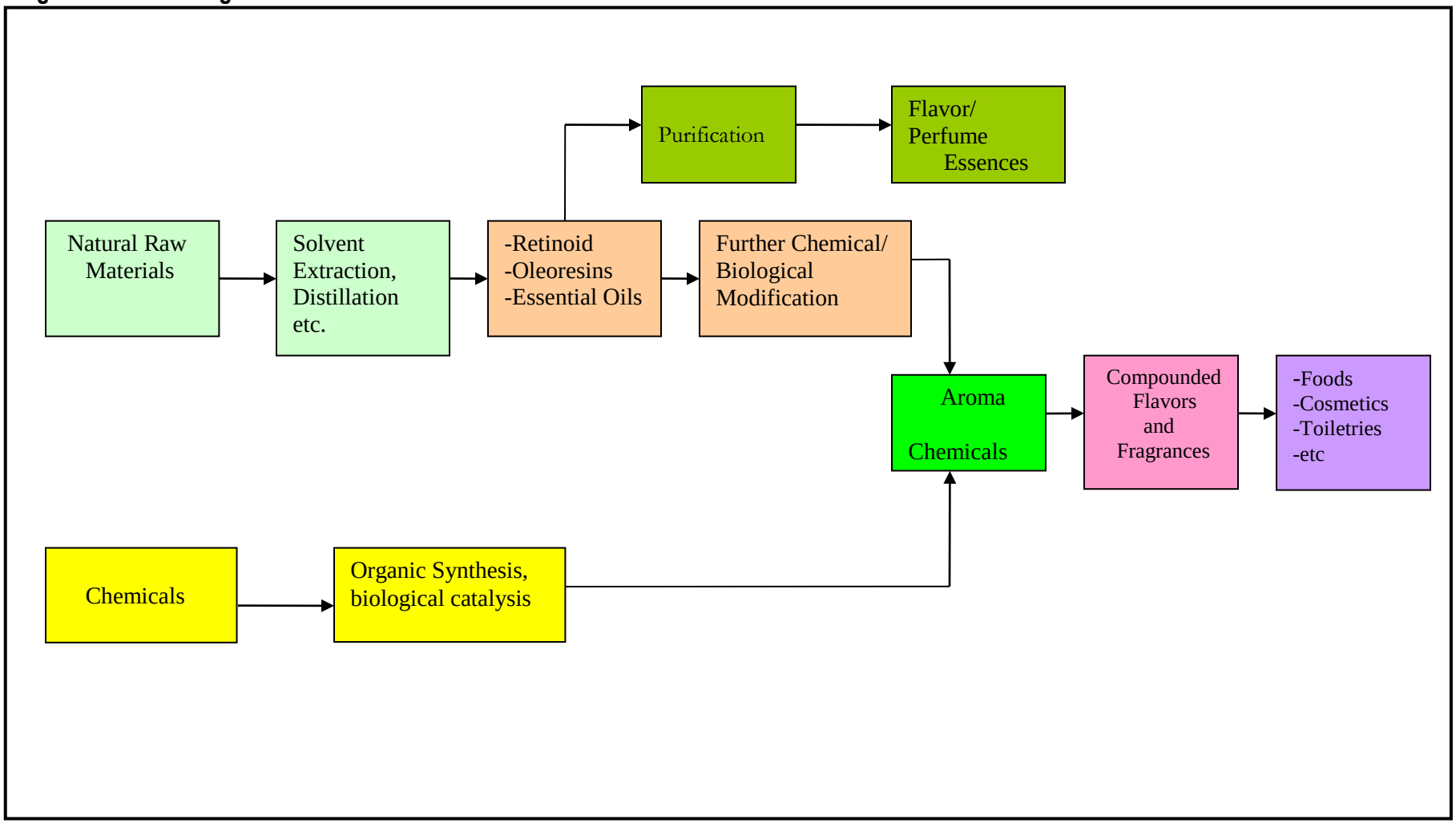
7. ESSENTIAL OIL VALUE CHAIN ANALYSIS

Essential oils in the value chain are generally used 'as is' when dealing with the flavor and fragrance industry, especially with the minor or smaller oils, such as rose geranium. Only some oils are further processed and made into synthetic chemicals.

It is also important to know the different role players that are a part of this value chain. One of the main organizations is the South African Essential Oils Producers Association (SAEOPA). SAEOPA was formed in 2000 as an alternative to the council for Scientific and Industrial Research, as a source of information about current and potential producers. It is a voluntary association and has an objective to support its members, who primarily comprise producers of essential oils. The organization (SAEOPA) supports its members throughout the value chain, beginning with the sharing of information on agricultural issues and ending with marketing matters.

The other role players in the essential oils value chain can be identified as: Growers, Distillers, Researchers, Government, Marketers and also the Consumers or Buyers. The value chain for essential oils is illustrated in Diagram 1 below.

Diagram 1: Processing of essential Oils



Source: SAEOPA (South African Essential Oil Producer Association)

The value chain of essential oils basically follows the pattern identified in Diagram 2 below.

Diagram 2: Value chain pattern of the Essential oils

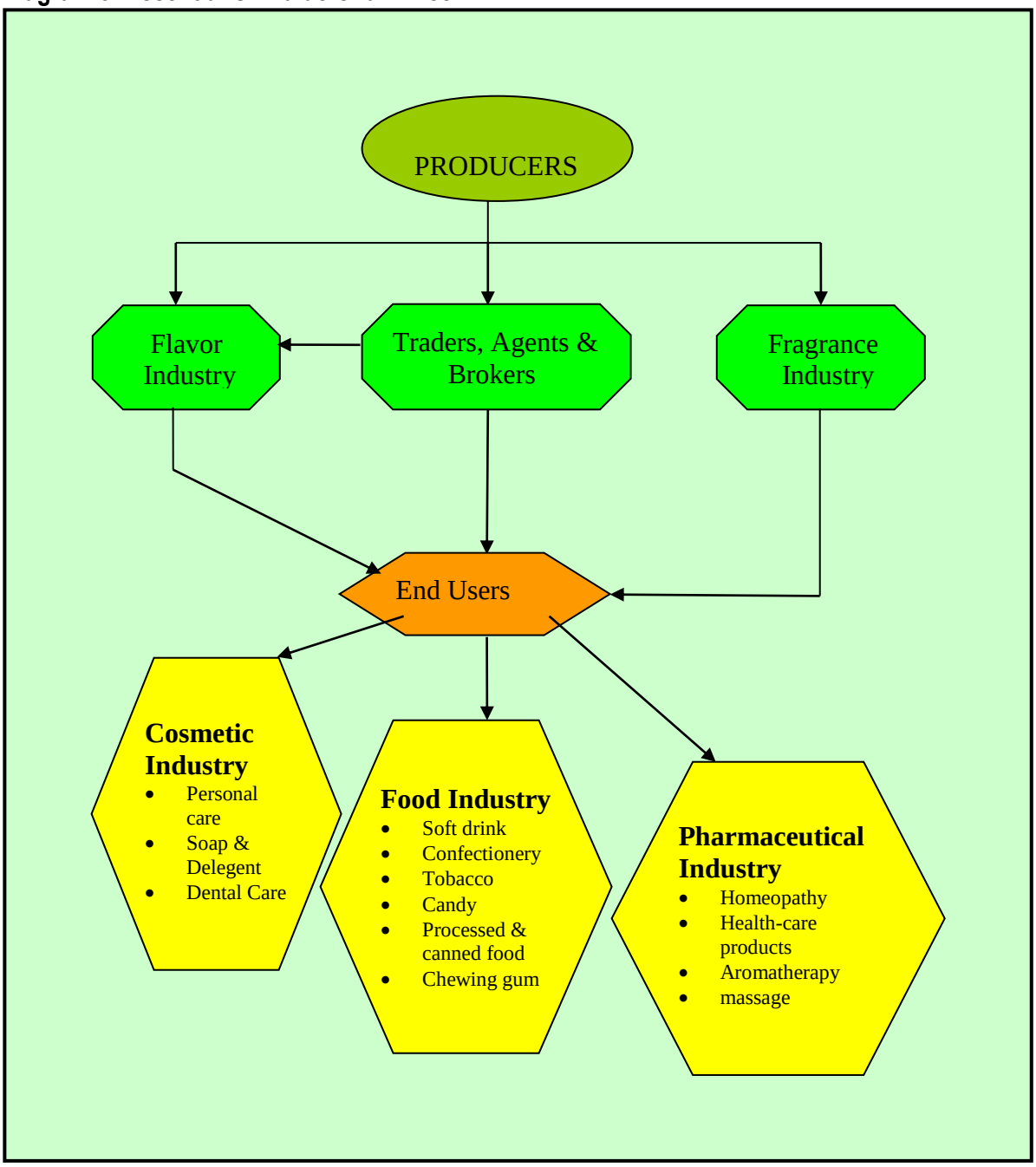
The value chain at farm gate and wholesale levels vary greatly across products such that it is impossible to develop stylized value chains. Diagram 2 represents the general essential oils' value chain summarized in seven stages, which can be described as follows:

- The crop selection stage provides knowledge about the local soil, climate, correct genotype and potential markets.
- Crop cultivation stage which gives the sourcing of plant material (seeds or seedling), planting, crop management (pests and irrigation) and harvesting;
- Input Supply stage which provides information about the correct measure and application of different inputs according to the crop requirements.
- Primary processing stage shows the application of drying, distillation, quantities (economic yields), qualities (chemical and sensory qualities) and certification.
- Further beneficiation involves rectification, fractionating and formulations; and
- Sales and marketing inform about the market knowledge, reputation and market access.

It is difficult to quantify costs of essential oils from farm gate to wholesale/retail levels. It is estimated that harvesting costs make up between 10 to 35% of farm gate costs, with an average of 22%. Pest, weed and disease management costs are about 11 to 37%, with a mean of 22%. Nutrition, which includes irrigation and fertilizers are about 10% of grower costs. At wholesale level, there is even greater variability as it depends on the extent of refinement and processing of the oil. Extraction costs are estimated to range between 60 to 75% of processor costs.

Diagram 3 below represents the various industries that are fully playing a part in the use of essential oils. Farmers can produce essential oils and sell directly to the fragrance industry, flavor industry and to the traders who can also supply the flavor industry. The fragrance industry and traders may also buy the product directly from the producer and supply the end users, and after which the products reached the end users, is then supplied to the three different industries specifically, the cosmetic, food, and the pharmaceutical industry.

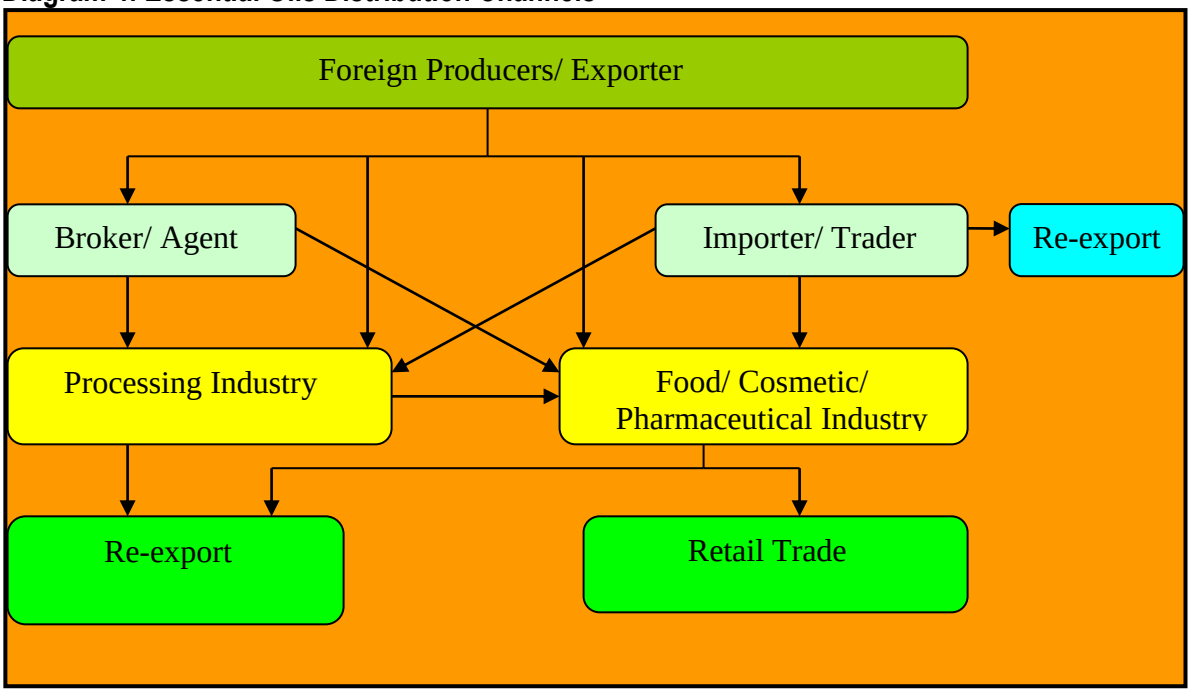
Diagram 3: Essential Oil Value Chain Tree



8. ESSENTIAL OILS DISTRIBUTION CHANNELS

International trade for the bulk of essential oils (like citrus) takes place on a large scale. Shipments may be diverted to neighboring countries, and there is a substantial re-export business. Most of the leading traders in the European Union supply several countries. The re-exports are important, as they can reduce the effect of supply irregularities and domestic imbalances in supply and demand caused by the vagaries of climate, crop disease, inadvertent overstocking or unexpected peaks in demand. Some producers will bargain directly with major end-users. Other producers will sell through independent traders (importers) or sales agents. Diagram 4 below shows the various distribution channels for essential oils.

Diagram 4: Essential Oils Distribution Channels



There are four major types of business partners for exporters of essential oils, i.e. Agents, Importers or Traders, the processing industry (processing importer), and the end product manufacturers. The trade structure illustrated in Diagram 4 changes constantly and the distribution channels and the specific functions mentioned are not as clear-cut as they might seem. However, sixty to eighty percent (60-80%) of the essential oils trade goes directly from producers or exporters to processing importers such as the multinational flavor houses. An advantage of processing importers is that they can create a total flavor composition and give excellent service. This can facilitate co-operation with end-product manufactures in the food or cosmetic industries. Many end-product manufacturers do not usually purchase essential oils directly from producers. The essential oil market is somewhat fragmented between the following end-user market sectors: aromatherapy, natural personal care and pharmaceutical, flavor and fragrance, cosmetics and beverages.

8.1 Value Adding in South Africa

The production process and people involved vary depending on the type and end use of the product. Common stages of production include growing and harvesting the crop, extraction, further processing and the oil, increasing its suitability for end use. Value adding in the form of products such as creams, bath salts, candles, potpourri, and gifts has proved more profitable for producers in South Africa. The booming tourism industry has contributed to the success and survival of producers in difficult times.

9. MARKET ACCESS

Table 14 below shows tariffs that are applied by various countries to the exports of essential oils (terpeneless or not) originating from South Africa to African countries in 2016.

Table 14: Tariffs applied by various countries to exports of essential oils originating from South Africa to African countries

COUNTRY (IMPORTERS)	PRODUCT DESCRIPTION	TRADE REGIME DESCRIPTION	APPLIED TARIFFS 2016	ESTIMATED TOTAL *AD VALOREM* EQUIVALENT TARIFF 2016
Zimbabwe	Ess oils, whether or not terpeneless, incl concretes.	MFN duties (Applied)	5.00%	5.00%
	Ess oils, whether or not terpeneless, incl concretes.	Preferential tariff for South Africa	0%	0%
Malawi	Ess oils, whether or not terpeneless, incl concretes.	MFN duties (Applied)	10.00%	10.00%
	Ess oils, whether or not terpeneless, incl concretes.	Preferential tariff for South Africa	0%	0%
Mozambique	Ess oils, whether or not terpeneless, incl concretes(excl. those of citrus fruit & mint)	MFN duties (Applied)	2.5%	2.5%
	Ess oils, whether or not terpeneless, incl concretes(excl. those of citrus fruit & mint)	Preferential tariff for South Africa	0.00%	0.00%

Source: ITC Market Access Map

Countries such as Zimbabwe, Malawi and Mozambique applied tariffs that ranged between 0.00% and 10.00% to essential oils (terpeneless or not) originating from South Africa in 2016. Mozambique, Malawi and Zimbabwe have common trade agreement with South Africa under Southern African Development Cooperation (SADC), which makes these African countries to maintain a preferential tariff of 0.00% for South African products.

Table 15 above illustrates tariffs that are applied by Oceania countries to the exports of essential oils of lemon from South Africa during the 2016. The table further illustrates that Australia had free trade with South Africa in 2016.

Table 15: Tariffs applied by Oceania to the exports of essential oils of lemon from South Africa in 2016

COUNTRY (IMPORTERS)	PRODUCT DESCRIPTION	TRADE REGIME DESCRIPTION	APPLIED TARIFFS 2015	ESTIMATED TOTAL AD VALOREM EQUIVALENT TARIFF 2015
Australia	Oils of lemon whether or not terpeneless, incl. concretes and absolutes.	MFN duties (Applied)	0.00%	0.00%

Source: ITC Market Access Map

Table 16 shows the level of tariffs applied by Asian countries to essential oils (terpeneless or not) and essentials oils of peppermint originated from South Africa in 2016. Asian countries such as China, Republic of Korea and Japan charged South Africa tariffs between 3.20% and 20.00% when South Africa exports the essential oils (terpeneless or not) in 2016. There was no tariff barrier for South African essential oils (terpeneless or not) exports from South Africa to Chinese Taipei.

Table 16: Tariffs that are applied by Asian countries to the exports of essential oils (terpeneless or not) and essential oils of peppermint originating from South Africa in 2016

COUNTRY (IMPORTERS)	PRODUCT DESCRIPTION	TRADE REGIME DESCRIPTION	APPLIED TARIFFS 2016	ESTIMATED TOTAL AD VALOREM EQUIVALENT TARIFF 2016
Japan	Oleos essenciais (desterpenados ou nao), incl. os chamados (concretos) ou.	MFN duties (Applied)	3.20%	3.20%
	Oleos essenciais (desterpenados ou nao), incl. os chamados (concretos) ou.	Preferential tariff for GSP countries	0.00%	0.00%
China	Oils of peppermint Mentha piperita, whether or not terpeneless, incl concretes & absolutes	MFN duties (Applied)	20.00%	20.00%
Chinese Taipei	Terpeneless oils of peppermint “Mentha piperite”, incl. concretes & absolutes	MFN duties (Applied)	0.00%	0.00%
Republic of Korea	Oils of peppermint Mentha piperita, whether	MFN duties (Applied)	5.00%	5.00%

	or not terpeneless, incl concretes & absolutes			

Source: ITC Market Access Map

Table 17 depicts tariffs that are applied by various countries to the exports of essential oils (terpeneless or not) of lemon and terpeneless oils of clove originating from South Africa in 2016. South Africa and the EU had a free trade agreement which led to 0.00% tariffs applied by Italy, Austria, United Kingdom and France to the exports of essential oils (terpeneless or not), essential oils of lemon and terpeneless oils of clove originating from South Africa in 2016. Countries such as the United Kingdom and Austria applied tariffs between 2.90% and 4.40% to exports of various essential oils in 2016. It is also important to note that South Africa apply 0.00% import tariffs to different products of essential oils originating from various European and world countries.

Table 17: Tariffs that are applied by European countries to the exports of essential oils (terpeneless or not), terpeneless oils of clove and essential oils of lemon from South Africa in 2016.

COUNTRY (IMPORTERS)	PRODUCT DESCRIPTION	TRADE REGIME DESCRIPTION	APPLIED TARIFFS 2016	ESTIMATED TOTAL *AD VALOREM* EQUIVALENT TARIFF 2016
Italy	Ess oils of lemon, whether or not terpeneless, incl concretes.	MFN duties (Applied)	0.00%	0.00%
France	Ess oils, whether or not terpeneless, incl concretes.	MFN duties (Applied)	2.90%	2.90%
	Ess oils, whether or not terpeneless, incl concretes	Preferential tariff for South Africa	0.00%	0.00%
Austria	Ess oils, whether or not terpeneless, incl concretes	MFN duties (Applied)	2.90%	2.90%
	Ess oils, whether or not terpeneless, incl concretes	Preferential tariff for South Africa	0.00%	0.00%
United Kingdom	Terpeneless oils of clove, niaouli & ylang-ylang, incl concretes & absolutes.	MFN duties (Applied)	2.90%	2.90%
	Terpeneless oils of clove, niaouli & ylang-ylang, incl concretes & absolutes.	Preferential tariff for South Africa	0.00%	0.00%

Spain	Ess oils (terpeneless or not), including concretes & absolutes, resinoids, extracted oleoresins, concentrates of ess oils in fats.	MFN duties (Applied)	0.00%	0.00%
Germany	Terpeneless oils of clove, niaouli & ylang-ylang, incl concretes & absolutes.	MFN duties (Applied)	0.00%	0.00%

Source: ITC Market Access Map

Table 18 depicts tariffs that are applied by American countries to the exports of essential oils (terpeneless or not), essential oils, whether or not terpeneless, incl. concretes and absolutes (excl. those of citrus fruit and mint) originating from South Africa in 2016. The table shows that the United States of America charged tariffs of 1.00% to the South African exports of essential oils (terpeneless or not) and essential oils, whether or not terpeneless, incl. concretes and absolutes (excl. those of citrus fruit and mint). South Africa and United States of America had an agreement which led to 0.00% tariffs applied under the Generalized System of Preferences (GSP).

Table 18: Tariffs that are applied by American countries to the exports of essential oils (terpeneless or not), terpenic oils of clove and terpenic oils of sweet and bitter orange from South Africa in 2016

COUNTRY (IMPORTERS)	PRODUCT DESCRIPTION	TRADE REGIME DESCRIPTION	APPLIED TARIFFS 2016	ESTIMATED TOTAL *AD VALOREM* EQUIVALENT TARIFF 2016
United States of America	Essential oils, whether or not terpeneless, incl. concretes and absolutes (excl. those of citrus fruit and mint)	MFN duties (Applied)	1.00%	1.00%
	Essential oils, whether or not terpeneless, incl. concretes and absolutes (excl. those of citrus fruit and mint)	Preferential tariff for AGOA countries	0.00%	0.00%
	Essential oils, whether or not terpeneless, incl. concretes and absolutes (excl. those of citrus fruit and mint)	Preferential tariff for GSP countries	0.00%	0.00%
Canada	Terpenic oils of clove, niaouli & ylang-ylang, incl concretes & absolutes.	MFN duties (Applied)	0.00%	0.00%

Source: ITC Market Access Map

10. MARKET INTELLIGENCE

Table 19 indicates the list of importing markets (countries) for essential oils (terpeneless or not) exported by South Africa to the world in 2016. South Africa exported a total of 2 577 tons of essential oils (terpeneless or not) to the world, with greater volumes being exported to the United States of America, Netherlands and Germany. South Africa was a net exporter of essential oils (terpeneless or not) in 2016. The United States of America as the leading import market commanded the greatest share of essential oils (terpeneless or not) exports from South Africa of 28.2% share, followed by Netherlands with share of 13.4% while Germany commanded 9.1% share of essential oils (terpeneless or not) exports from South Africa during 2016.

Table 19: List of importing markets for essential oils (terpeneless or not) exported by South Africa in 2016

Importers	Trade indicators						Average tariff (estimated) faced by South Africa (%)
	Value exported in 2016 (USD thousand)	Share in South Africa's exports (%)	Quantity exported in 2016	Growth in exported value between 2012-2016 (%, p.a.)	Growth in exported quantity between 2012-2016 (%, p.a.)	Growth in exported value between 2015-2016 (%, p.a.)	
World	34124	100	2577	7	-8	22	
United States of America	9627	28.2	341	15	5	91	
Netherlands	4564	13.4	338	31	12	78	0
Germany	3111	9.1	159	10	11	37	0
United Kingdom	2789	8.2	179	13	2	80	0
Swaziland	2537	7.4	156	26	13	-62	0
France	1896	5.6	23	20	-21	235	0
Lesotho	1670	4.9	570	-5	2	72	0
Spain	924	2.7	34	47	60	136	0
Australia	828	2.4	43	2	-5	50	
Zimbabwe	719	2.1	179	-30	-38	69	0
Japan	645	1.9	62	1	-5	106	
Namibia	521	1.5	101	-23	-29	-33	0
China	492	1.4	37	-25	20	453	18.7
Botswana	375	1.1	120	-24	-24	-27	0
Canada	372	1.1	17	4	-19	313	
Hong Kong, China	343	1	15	103	91	-26	0
Malawi	339	1	45	18	31	-32	

Source: ITC Trade Map

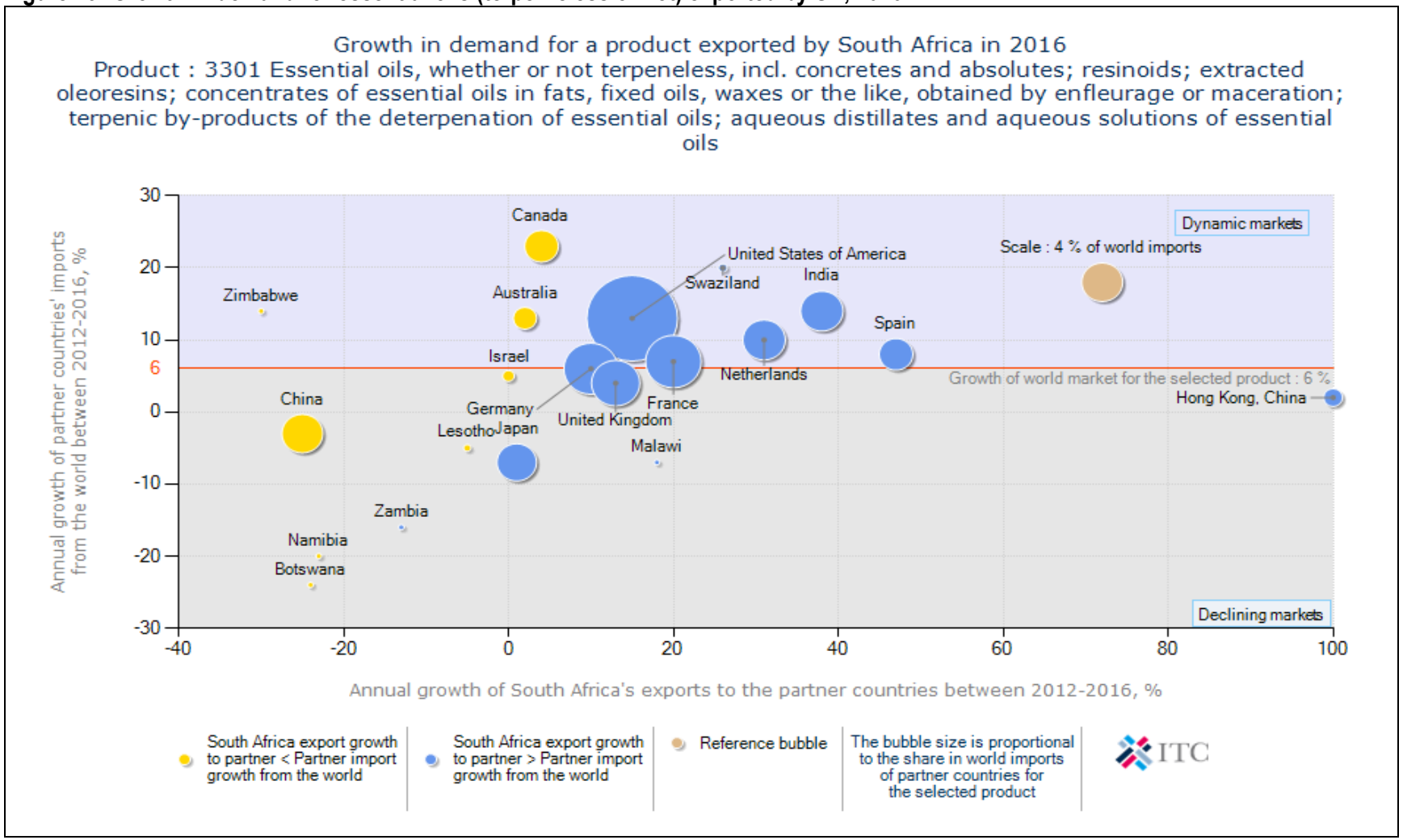
Exports of essential oils (terpeneless or not) from South Africa to the United States of America experienced growth or increase of 15% in value and 5% in quantity, while exports of essential oils (terpeneless or not) from South Africa to Netherlands experienced an increase of 31% in value and increase of 12% in quantity between 2012 and 2016. Between 2015 and 2016, the United States of America has increased its import value of essential oils (terpeneless or not) from South Africa by 91%. South Africa's exports of essential oils (terpeneless or not) to the United States of America in value between 2015 and 2016 were higher than the world average exports of 22%.

Hong Kong, China was one of the most competitive import markets for essential oils (terpeneless or not) during 2016, because the export growth value is reasonably higher although their share in South Africa's exports was low at 1.4%. Exports of essential oils (terpeneless or not) from South Africa to Hong Kong, China experienced an increase of 103% in value between 2012 and 2016. Hong Kong, China has increased its exported growth in quantity of essential oils (terpeneless or not) imports from South Africa by 91% between 2012 and 2016. It is also important to note that China applied a tariff of 18.7% to essential oils originating from South Africa during the period under review.

Figure 29 shows that China, Canada and Australia were the biggest import markets for essential oils (terpeneless or not) exported by South Africa to the world in 2015. Hong Kong, China was the most competitive in terms of growth in demand for essential oils (terpeneless or not) exports from South Africa with an increase of 103% annual growth of South Africa's exports of essential oils between 2012 and 2016, and it was a potential growing market. Spain was the second most competitive in terms of growth in demand for essential oils (terpeneless or not) exports from South Africa with an increase of 47% annual growth of South Africa's exports of essential oils between 2012 and 2016. The annual growth of South Africa's exports to Spain during the period 2015 and 2016 experienced an increase about 136%. The annual growth of China's imports of essential oils (terpeneless or not) from the world between 2012 and 2016 experienced a decrease of 25% in a declining market.

Countries such as Spain, France and Lesotho increased their share of essential oils (terpeneless or not) imports to the total South Africa's exports growth and increased their annual growth of imports from the world between 2012 and 2016.

Figure 29: Growth in demand for essential oils (terperneless or not) exported by SA, 2016

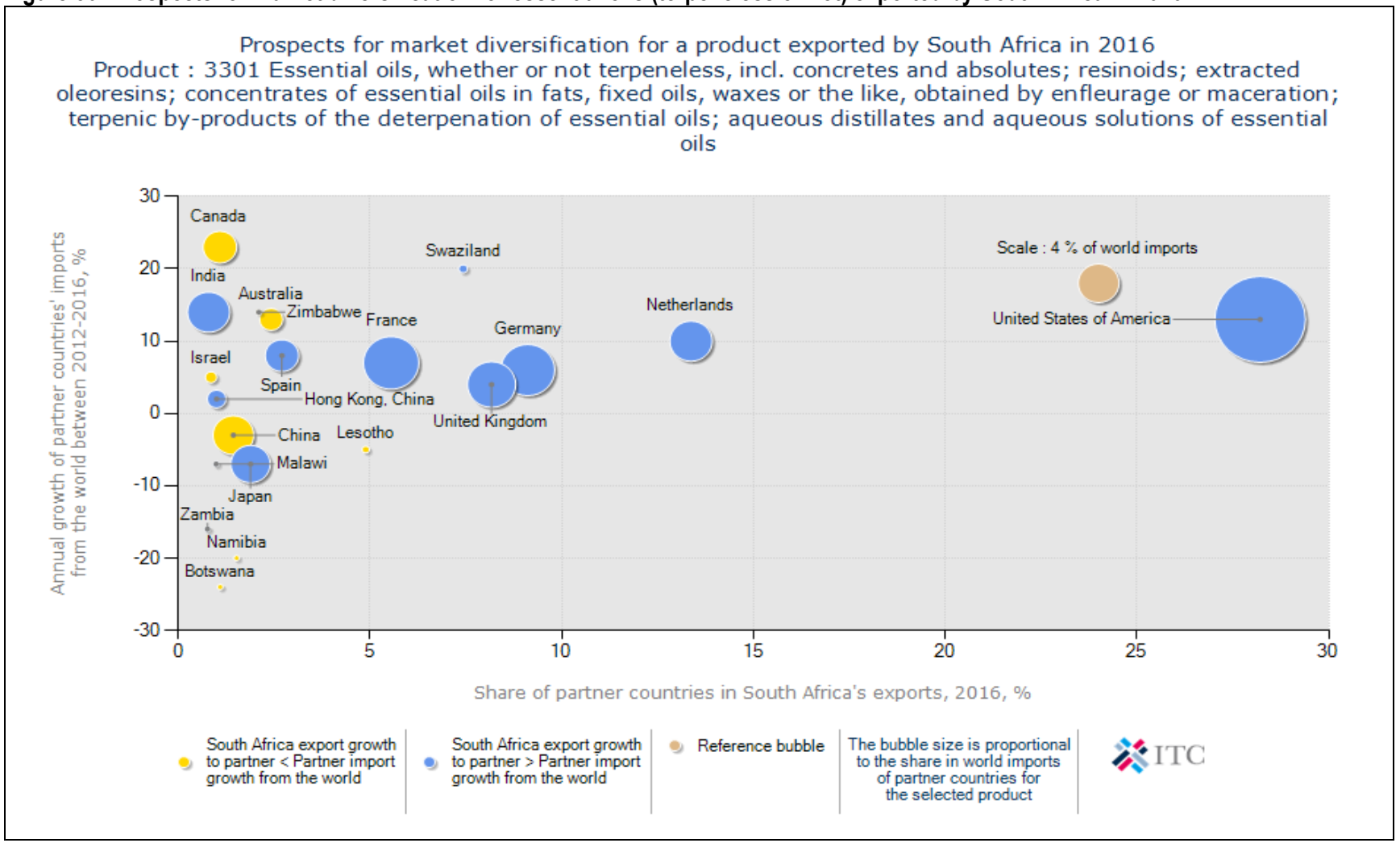


Source: ITC Trade Map

Figure 30 depicts the prospects for market diversification of essential oils (terpeneless or not) exported by South Africa to the world in 2016. The bubble graph depicts that China, Canada and Australia were the main markets for essential oils (terpeneless or not) exported by South Africa in 2016. The United States of America commanded the greatest share in South Africa's exports in 2016 at approximately 28.2%.

If South Africa was to look for alternative options in terms of export markets for essential oils (terpeneless or not), the small but attractive markets exist in Swaziland, Israel and Lesotho. The same small markets (countries) of essential oils (terpeneless or not) mentioned above were importing less essential oils (terpeneless or not) from South Africa and less essential oils (terpeneless or not) from the world between 2012 and 2016.

Figure 30: Prospects for market diversification for essential oils (terpeneless or not) exported by South Africa in 2016



Source: ITC Trade Map

Table 20 illustrates the list of supplying markets for essential oils (terpeneless or not) imported by South Africa from the world in 2016. South Africa imported a total of 1 011 tons of essential oils (terpeneless or not) from the world during 2016. South Africa was a net exporter of essential oils to the world during 2016. India was the biggest importing supplier of essential oils (terpeneless or not) into South Africa in terms of value of approximately US$ 6 149, followed by the United States of America by value of approximately US$3 971 and United Kingdom at value of approximately US$ 1 340. South Africa's imports from India decreased by 5% in value terms as compared to imports from the United States of America that increased by 3% in value during 2016.

During 2016, India, the United States of America and United Kingdom were the major suppliers of essential oils (terpeneless or not) imported by South Africa, with India commanding the greatest share of 28.9% in South Africa's essential oils (terpeneless or not) imports, followed by United State of America with 18.7% share and United Kingdom with 6.3% share.

Table 20: List of supplying markets for essential oils (terpeneless or not) imported by South Africa in 2016

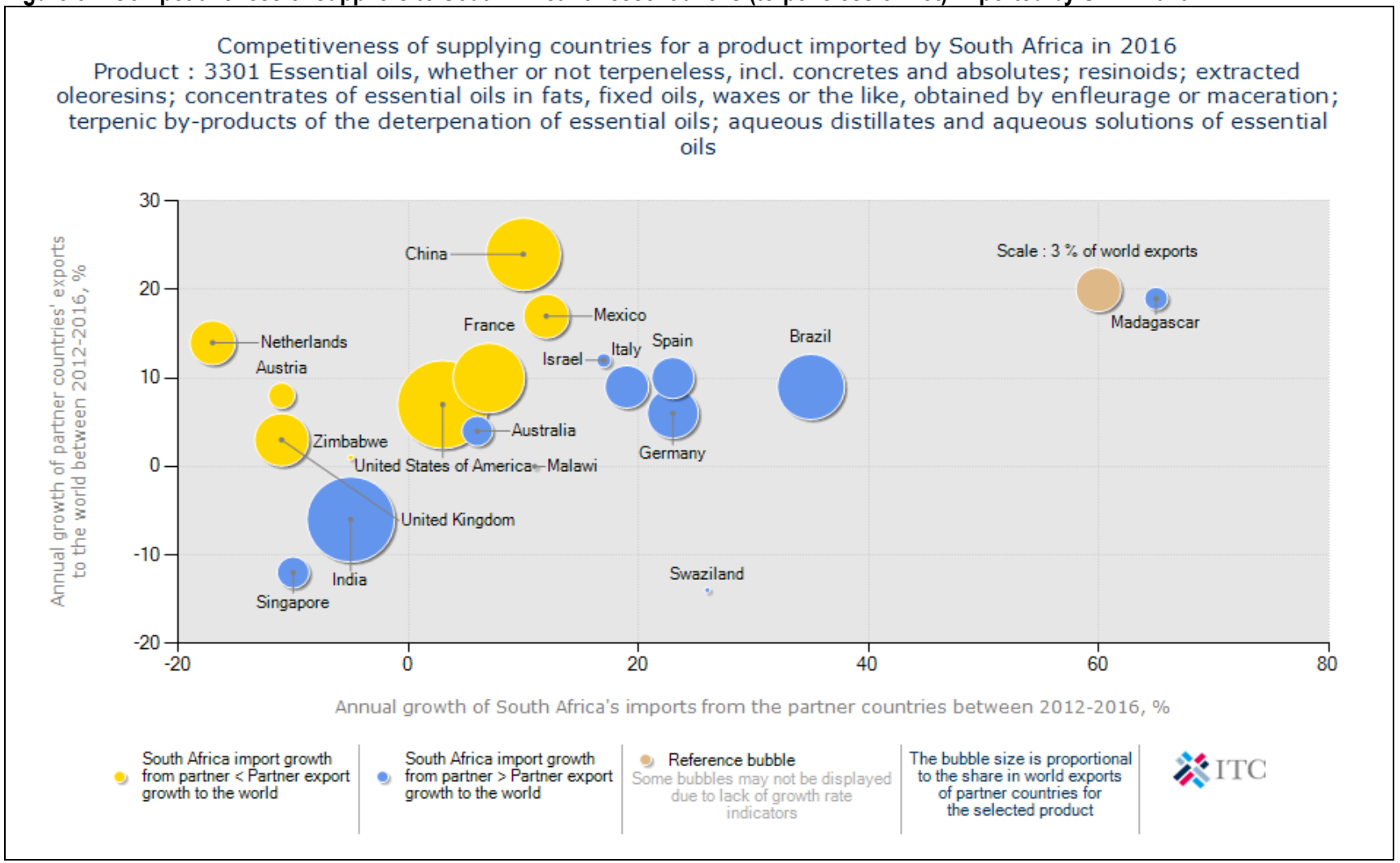
Exporters	Trade indicators						Average tariff (estimated) applied by South Africa (%)
	Value imported in 2016 (USD thousand)	Share in South Africa's imports (%)	Quantity imported in 2016	Growth in imported value between 2012-2016 (%, p.a.)	Growth in imported quantity between 2012-2016 (%, p.a.)	Growth in imported value between 2015-2016 (%, p.a.)	
World	21254	100	1011	2	5	38	
India	6149	28.9	228	-5	-3	39	3.9
United States of America	3971	18.7	105	3	-7	4	3.9
United Kingdom	1340	6.3	41	-11	-14	-32	0
Germany	1175	5.5	77	23	33	59	0
China	1116	5.3	76	10	17	14	3.9
Australia	839	3.9	23	6	4	34	3.9
Spain	775	3.6	73	23	42	182	0
France	722	3.4	27	7	12	150	0
Swaziland	652	3.1	91	26	19	126	0
Brazil	640	3	65	35	20	1233	3.9
Italy	626	2.9	25	19	27	66	0
Israel	613	2.9	34	17	47	858	3.9
Netherlands	308	1.4	8	-17	-26	-26	0
Mexico	284	1.3	8	12	5	492	3.9
Malawi	279	1.3	14	11	63	9200	0
Zimbabwe	188	0.9	23	-5	-20	135	0

Source: ITC Trade Map

Figure 31 depicts the competitiveness of suppliers to South Africa for essential oils (terpeneless or not) imports from the world in 2016. The bubble graph depicts that the United States of America, China and France were the biggest suppliers of essential oils (terpeneless or not) imported by South Africa in 2016.

The bubble graph further depicts that Madagascar, followed by Brazil and Swaziland (even though they are small potential markets) were the most competitive suppliers of essential oils (terpeneless or not) to South Africa. Madagascar had an annual import growth in value of approximately 65% between 2012 and 2016, followed by Brazil with 35% and Swaziland with import annual growth of 26% between 2012 and 2016.

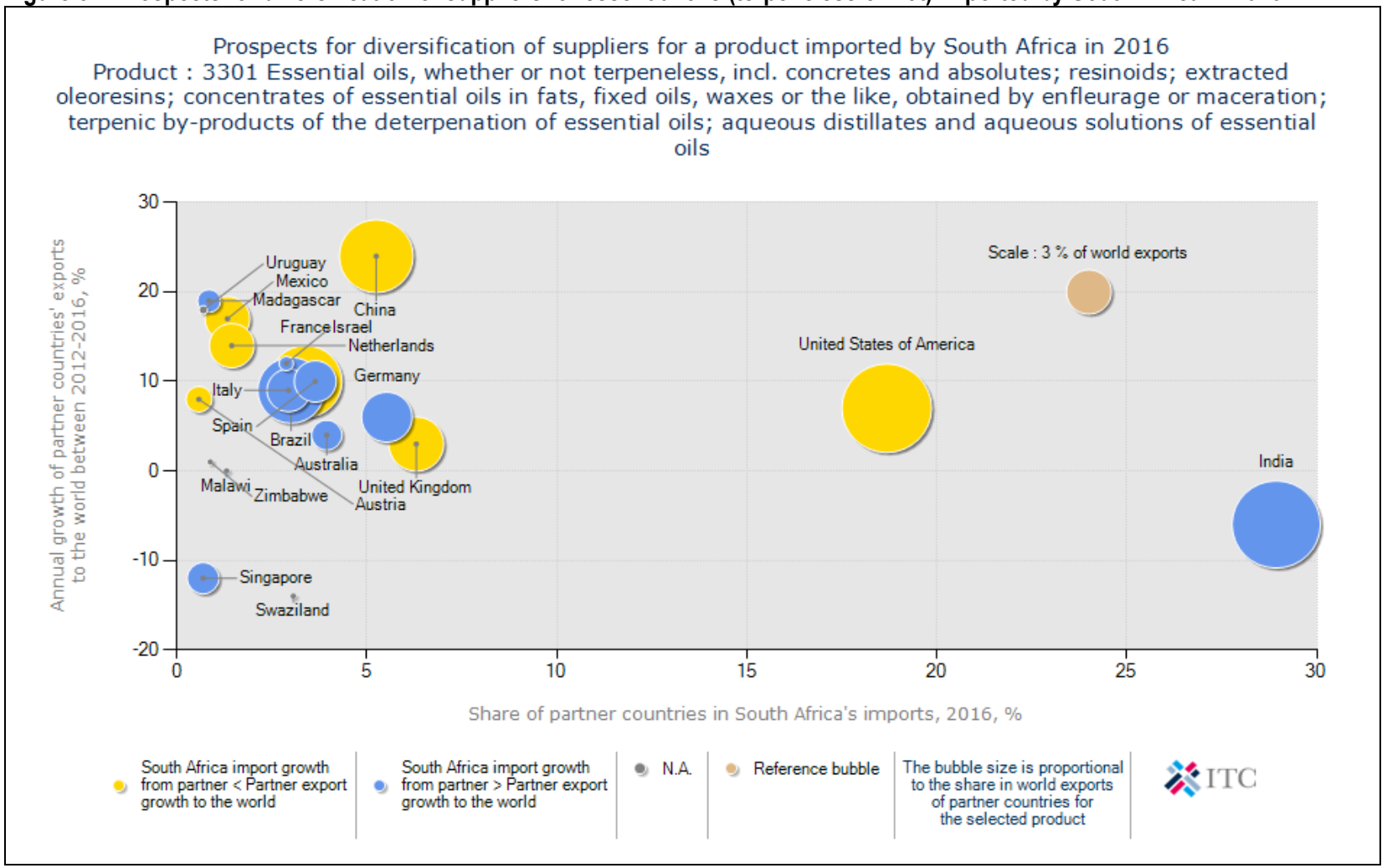
Figure 31: Competitiveness of suppliers to South Africa for essential oils (terpeneless or not) imported by SA in 2016



Source: ITC Trade Map

Figure 32 shows the prospects for diversification of suppliers for essential oils (terpeneless or not) imported by South Africa from the world in 2016. The bubble graph shows that the United States of America, China and France were the biggest suppliers of essential oils (terpeneless or not) to South Africa in 2016. The bubble graph also shows that if South Africa had to broaden the horizons of its suppliers of essential oils (terpeneless or not), small and attractive markets exist in Germany with 5.5% share in South Africa's imports, followed by Australia with share of 3.9%, and Swaziland with share of 3.1%.

Figure 32: Prospects for diversification of suppliers for essential oils (terpeneless or not) imported by South Africa in 2016



Source: ITC Trade Map

Table 21 depicts the list of importing markets for perfumes and toilet waters exported by South Africa to the world in 2016. The biggest importing markets for perfumes and toilet waters was Namibia, followed by Botswana and Swaziland in 2016. South Africa exported 1 761 tons of perfumes and toilet waters to the world in 2016. Namibia imported 362 tons of perfumes and toilet waters, while Botswana imported 209 tons of perfumes and toilet waters in 2016. South Africa's exports of perfumes and toilet waters to Namibia increased by 55% and 35% in value and quantity respectively between 2012 and 2016. South Africa's exports of perfumes and toilet waters to Swaziland decreased in value by 3% and in quantity by 16% as compared to the increase of 12% and 6% of the world average in value and quantity respectively between 2012 and 2016. Namibia also had the highest share in South Africa's exports of perfumes and toilet waters of about 50.9% as compared to Botswana with 19.8% share and Swaziland with 10.5% share.

Table 21: List of importing markets for perfumes and toilet waters exported by SA in 2016

Importers	Trade indicators						Average tariff (estimated) faced by South Africa (%)
	Value exported in 2016 (USD thousand)	Share in South Africa's exports (%)	Quantity exported in 2016	Growth in exported value between 2012-2016 (%, p.a.)	Growth in exported quantity between 2012-2016 (%, p.a.)	Growth in exported value between 2015-2016 (%, p.a.)	
World	20652	100	1761	12	6	27	
Namibia	10506	50.9	362	55	35	45	0
Botswana	4092	19.8	209	21	8	42	0
Swaziland	2173	10.5	167	-3	-16	-15	0
Lesotho	752	3.6	161	-3	-2	148	0
Mozambique	705	3.4	296	48	60	-21	
Zambia	359	1.7	49	7	19	-19	0
Algeria	338	1.6	243	46	57	154	30
Zimbabwe	229	1.1	43	-33	-28	15	15
United Kingdom	227	1.1	30	2	11	932	0
Singapore	187	0.9	41		76	-25	0
Angola	186	0.9	30	-38	-10	-40	
Malawi	149	0.7	34	67	73	-14	
United Arab Emirates	110	0.5	11	21			
Congo, Democratic Republic of the	90	0.4	32	-25	-16	-57	20
Netherlands	88	0.4	1	-26	0	2833	0

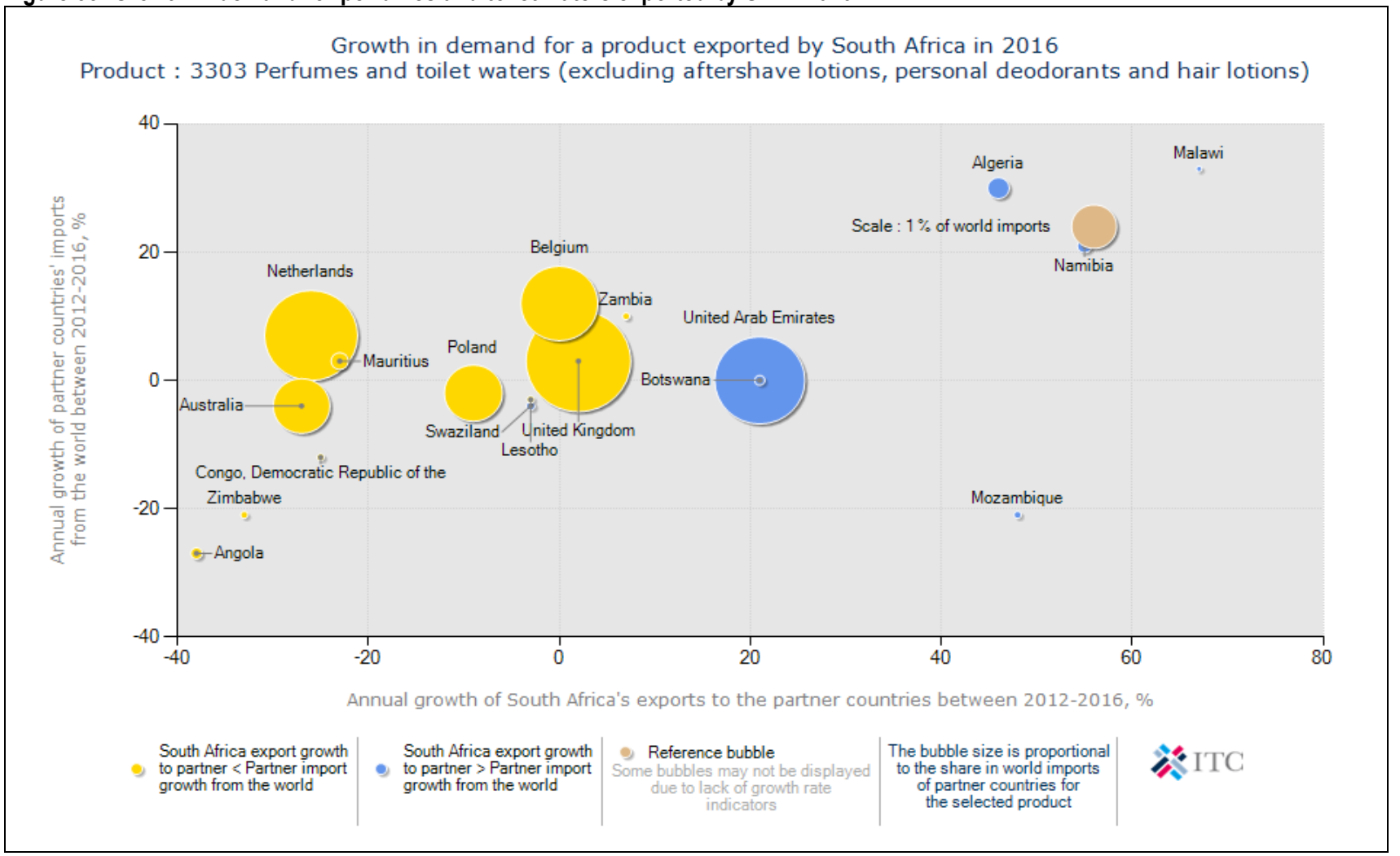
Source: ITC Trade Map

Figure 33 shows growth in demand for perfumes and toilet waters exported by South Africa to the world in 2016. Namibia was the biggest import market for perfumes and toilet waters exported from South Africa between 2012 and 2016. South Africa's exports value of perfumes and toilet waters to

Botswana grew by 21% and South African exports value of perfumes and toilet waters to Mozambique grew at about 48% between 2012 and 2016

Malawi was the most attractive in potential markets for exports of perfumes and toilet waters from South Africa with an annual growth of 67%, while Namibia was in a dynamic market (in world terms) with an annual growth of approximately 55% between 2012 and 2016.

Figure 33: Growth in demand for perfumes and toilet waters exported by SA in 2016

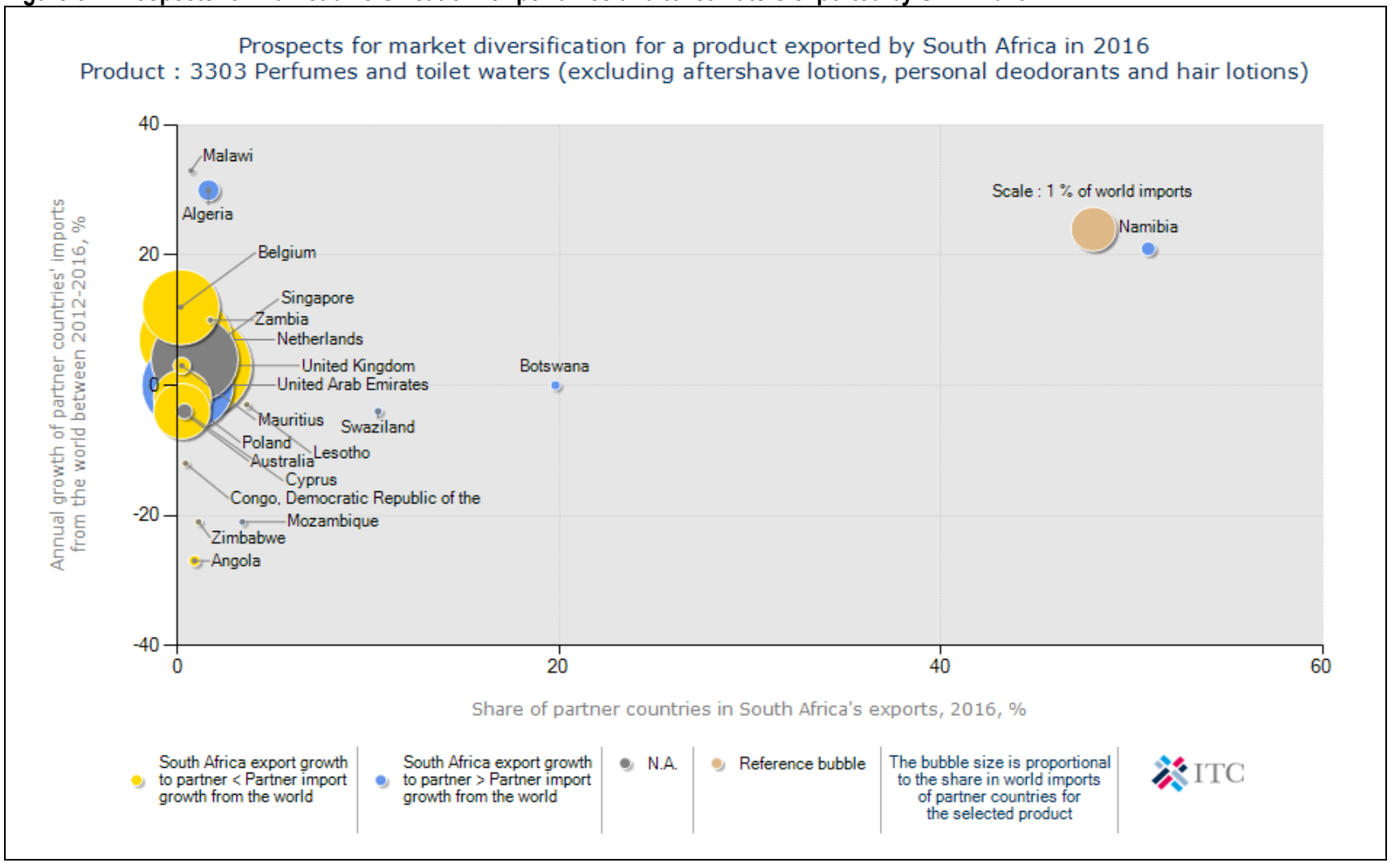


Source: ITC Trade Map

Figure 34 shows the prospects for market diversification for perfumes and toilet waters exported by South Africa to the world in 2016. Namibia was the biggest export market of perfumes and toilet waters from South Africa to the world in 2016. The bubble graph also shows that if South Africa had to diversify its markets of perfumes and toilet waters, potential export markets exist in Malawi.

The bubble graph further shows that Namibia's share in South Africa's exports of perfumes and toilet waters increased to approximately 50.9% share, Botswana at 19.8% share and Swaziland at 10.5% share.

Figure 34: Prospects for market diversification for perfumes and toilet waters exported by SA in 2016



Source: ITC Trade Maps

Table 22 depicts the list of supplying markets for perfumes and toilet waters imported by South Africa from the world in 2016. South Africa imported a total of 3 636 tons of perfumes and toilet waters from the world in 2016. This is due to the fact that South Africa was a net exporter of perfumes and toilet waters between 2012 and 2016. In world terms, France, followed by Poland and United Kingdom commanded the greatest export market shares for perfumes and toilet waters to South Africa during 2016. In 2016, South Africa's imports of perfumes and toilet waters from France decreased in value by 4% and increased in quantity by 6%. Poland's exports of perfumes and toilet waters also decreased in value by 1% and increased in quantity by 11%. Most importantly, South Africa's imports from the United Kingdom also decreased in value by 6%% and in quantity by 13% between 2012 and 2016.

The table further depicts that France had 44.4% share in South Africa's imports of perfumes and toilet waters, while Poland had 13.9% share in South Africa's imports of perfumes and toilet waters and the United Kingdom had 11.5% in South Africa's imports of perfumes and toilet waters between 2012 and 2016.

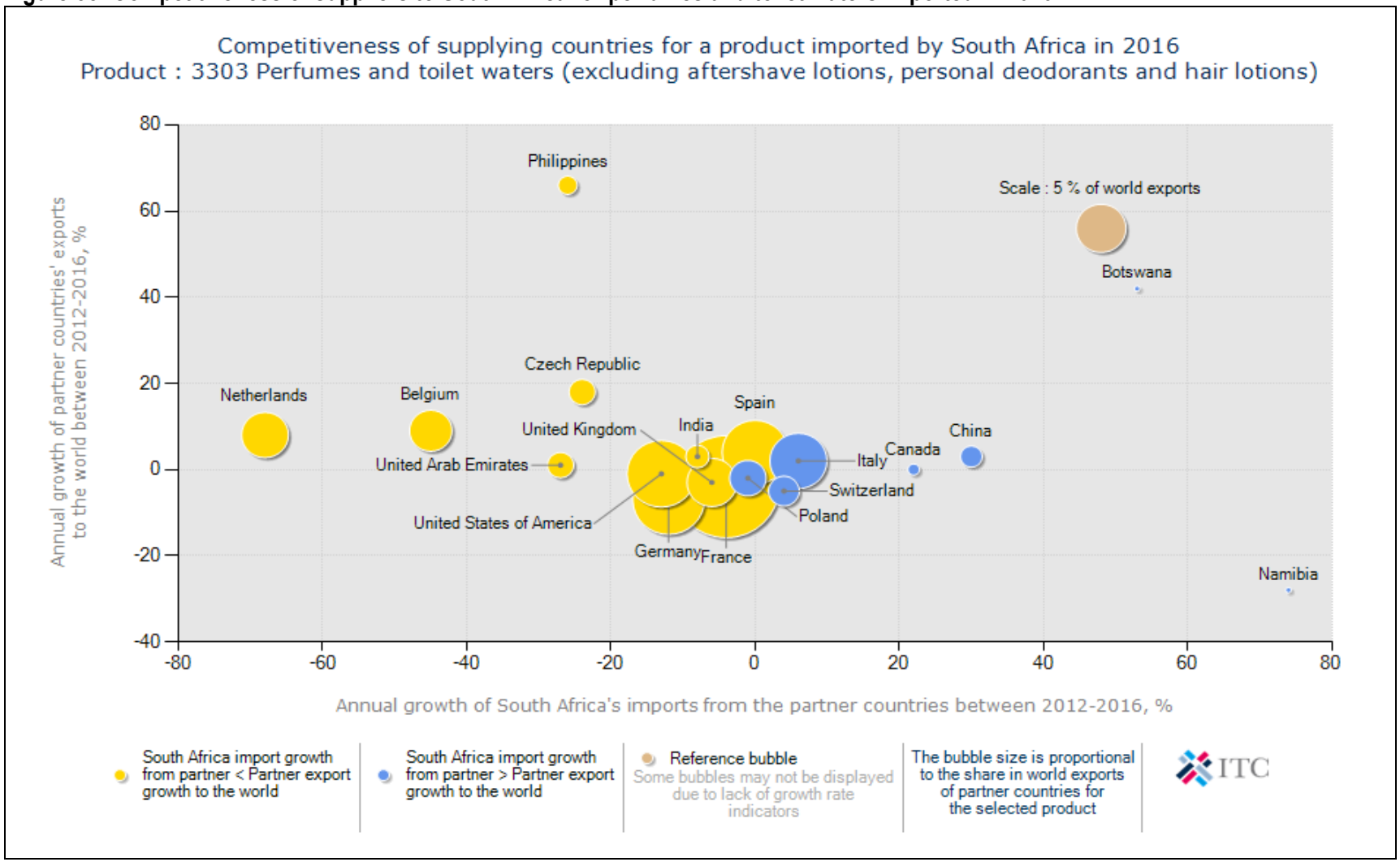
Table 22: List of supplying markets for perfumes and toilet waters imported by SA in 2016

Exporters	Trade indicators						Average tariff (estimated) applied by South Africa (%)
	Value imported in 2016 (USD thousand)	Share in South Africa's imports (%)	Quantity imported in 2016	Growth in imported value between 2012-2016 (%, p.a.)	Growth in imported quantity between 2012-2016 (%, p.a.)	Growth in imported value between 2015-2016 (%, p.a.)	
World	76872	100	3636	-4	3	-3	
France	34182	44.5	822	-4	6	-5	0
Poland	10655	13.9	1332	-1	11	73	0
United Kingdom	8868	11.5	211	-6	-13	-32	0
United States of America	6462	8.4	259	-13	-8	21	20
Italy	5613	7.3	149	6	8	53	0
Spain	4785	6.2	219	0	10	-13	0
Switzerland	3326	4.3	125	4	13	-17	0
Germany	1313	1.7	43	-12	1	-5	0
China	439	0.6	248	30	27	-69	20
Philippines	252	0.3	48	-26	-33	-86	20
United Arab Emirates	161	0.2	97	-27	-4	-7	20
Belgium	127	0.2	6	-45	-25	2017	0
Luxembourg	126	0.2	1				0
Czech Republic	120	0.2	4	-24	41		0
Namibia	101	0.1	2	74		621	0

Source: ITC Trade Map

Figure 35 illustrates the competitiveness of suppliers to South Africa for perfumes and toilet waters imported from the world in 2016. France, Germany, United States of America and United Kingdom were the biggest suppliers of perfumes and toilet waters between 2012 and 2016. Namibia and Botswana were the most competitive suppliers of perfumes and toilet waters with South Africa's annual growth of imports from these countries being 74% and 53% respectively between 2012 and 2016.

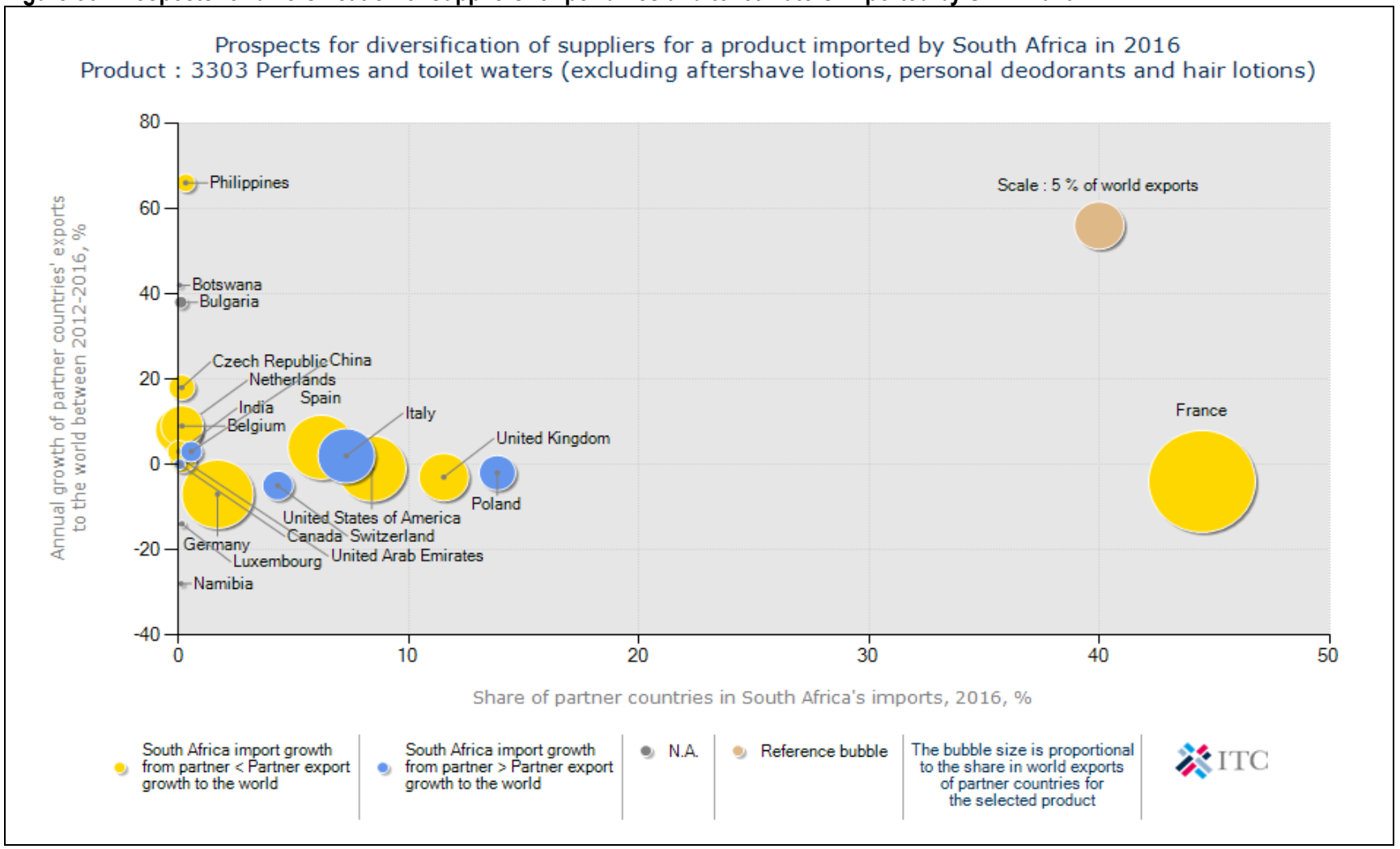
Figure 35: Competitiveness of suppliers to South Africa for perfumes and toilet waters imported in 2016



Source: ITC Trade Map

Figure 36 indicates the prospects for diversification of suppliers for perfumes and toilet waters imported by South Africa from the world in 2016. France, followed by Poland and United Kingdom commanded the greatest market share of perfumes and toilet waters imported by South Africa between 2012 and 2016. If South Africa wants to diversify its markets of perfumes and toilet waters during this period, potential suppliers of perfumes and toilet waters are available in Italy, Switzerland and China with market shares of 7.3%, 4.3% and 0.6% respectively.

Figure 36: Prospects for diversification of suppliers for perfumes and toilet waters imported by SA in 2016



Source: ITC Trade Maps

Table 23 illustrates the list of importing markets for beauty, make-up and skincare preparations; sunscreen, manicure or pedicure exported by South Africa to the world in 2016. South Africa exported a total of 47 618 tons of beauty, make-up and skincare preparations; sunscreen, manicure or pedicure to the world in 2016. In world terms, Namibia, followed by Botswana and Zimbabwe commanded the greatest import market shares for beauty, make-up and skincare preparations; sunscreen, manicure or pedicure from South Africa between in 2016. In 2016, South Africa's exports of beauty, make-up and skincare preparations; sunscreen, manicure or pedicure to Namibia increased by 3% in value and by 11% in quantity. South Africa's to Botswana decreased in both value and quantity by 9% and 11% respectively between 2012 and 2016, while Zimbabwe decreased in value by 1% and increased quantity by 4% between 2012 and 2016.

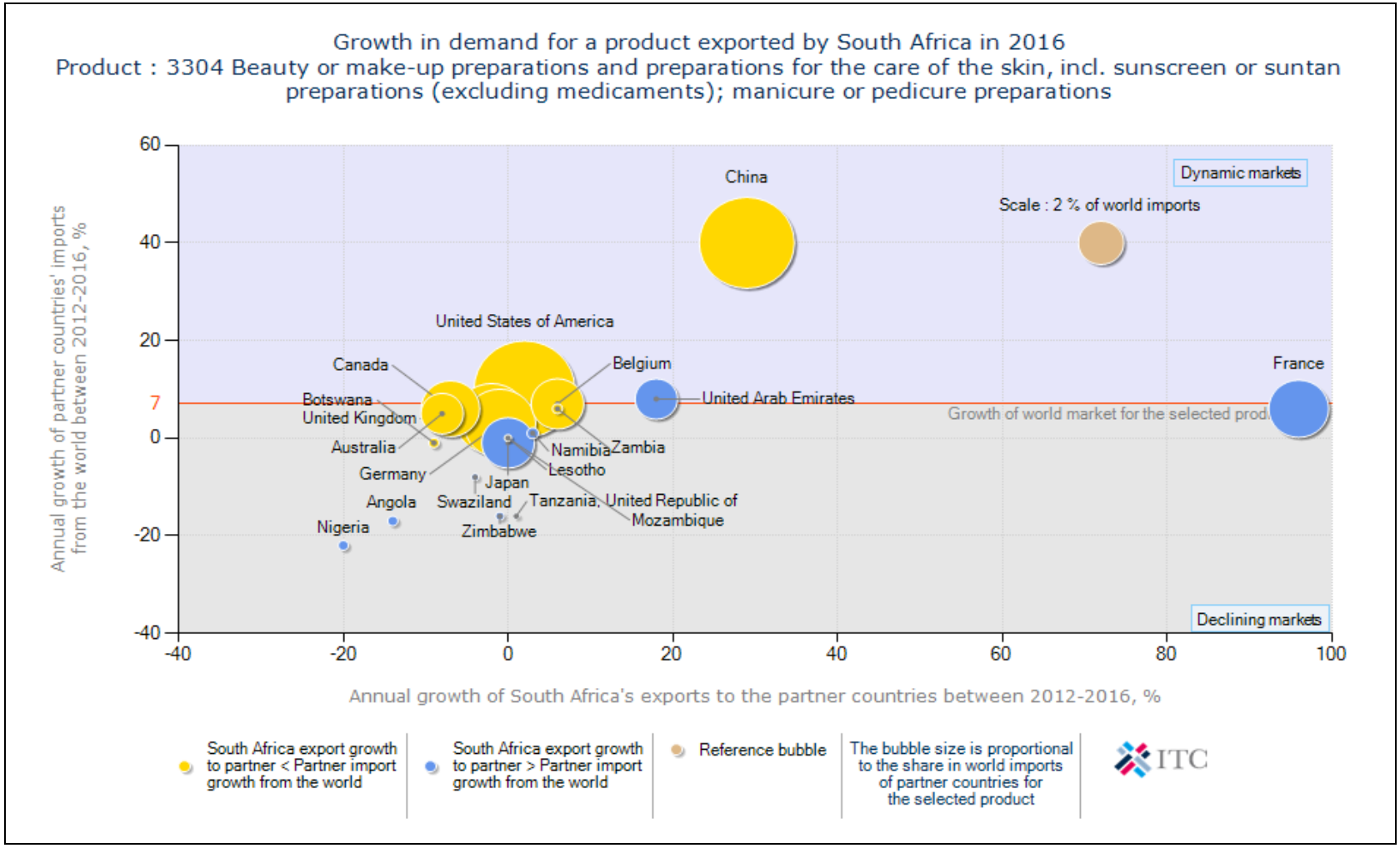
Table 23: List of importing markets for beauty, make-up and skincare preparations; sunscreen, manicure or pedi exported by SA in 2016

Importers	Trade indicators						Average tariff (estimated) faced by South Africa (%)
	Value exported in 2016 (USD thousand)	Share in South Africa's exports (%)	Quantity exported in 2016	Growth in exported value between 2012-2016 (%, p.a.)	Growth in exported quantity between 2012-2016 (%, p.a.)	Growth in exported value between 2015-2016 (%, p.a.)	
World	229089	100	47618	0	4	2	
Namibia	31097	13.6	5809	3	11	-17	0
Botswana	19310	8.4	5175	-9	-11	31	0
Zimbabwe	17393	7.6	7919	-1	4	-2	9.2
United Kingdom	16069	7	1143	-2	10	-7	0
United States of America	13388	5.8	933	2	38	98	
Zambia	12525	5.5	5265	6	20	74	0
Japan	9253	4	98	0	2	-20	
Australia	6942	3	231	-8	0	15	
France	6821	3	215	96	120	-17	0
Angola	6123	2.7	2902	-14	-8	-22	
Swaziland	5824	2.5	1194	-4	-8	13	0
United Arab Emirates	5514	2.4	1948	18	13	-57	
Lesotho	5187	2.3	1519	0	2	-23	0
Germany	4853	2.1	168	-1	2	24	0
Tanzania, United Republic of	4450	1.9	1814	1	7	-1	

Source: ITC Trade Maps

Figure 37 depicts the growth in demand for beauty, make-up and skincare preparations; sunscreen, manicure or pedi exported by South Africa to the world in 2016. The United States of America, China and United Kingdom were the biggest import markets of beauty, make-up and skincare preparations; sunscreen, manicure or pedi exported by South Africa in 2016. South Africa's exports of beauty, make-up and skincare preparations; sunscreen, manicure or pedi to the United States of America increased by 2% annually. The bubble graph further depicts that France and Belgium were growing and attractive markets for beauty, make-up and skincare preparations; sunscreen, manicure or pedi from South Africa, with an annual growth of South Africa's exports of 98% and 18%, respectively.

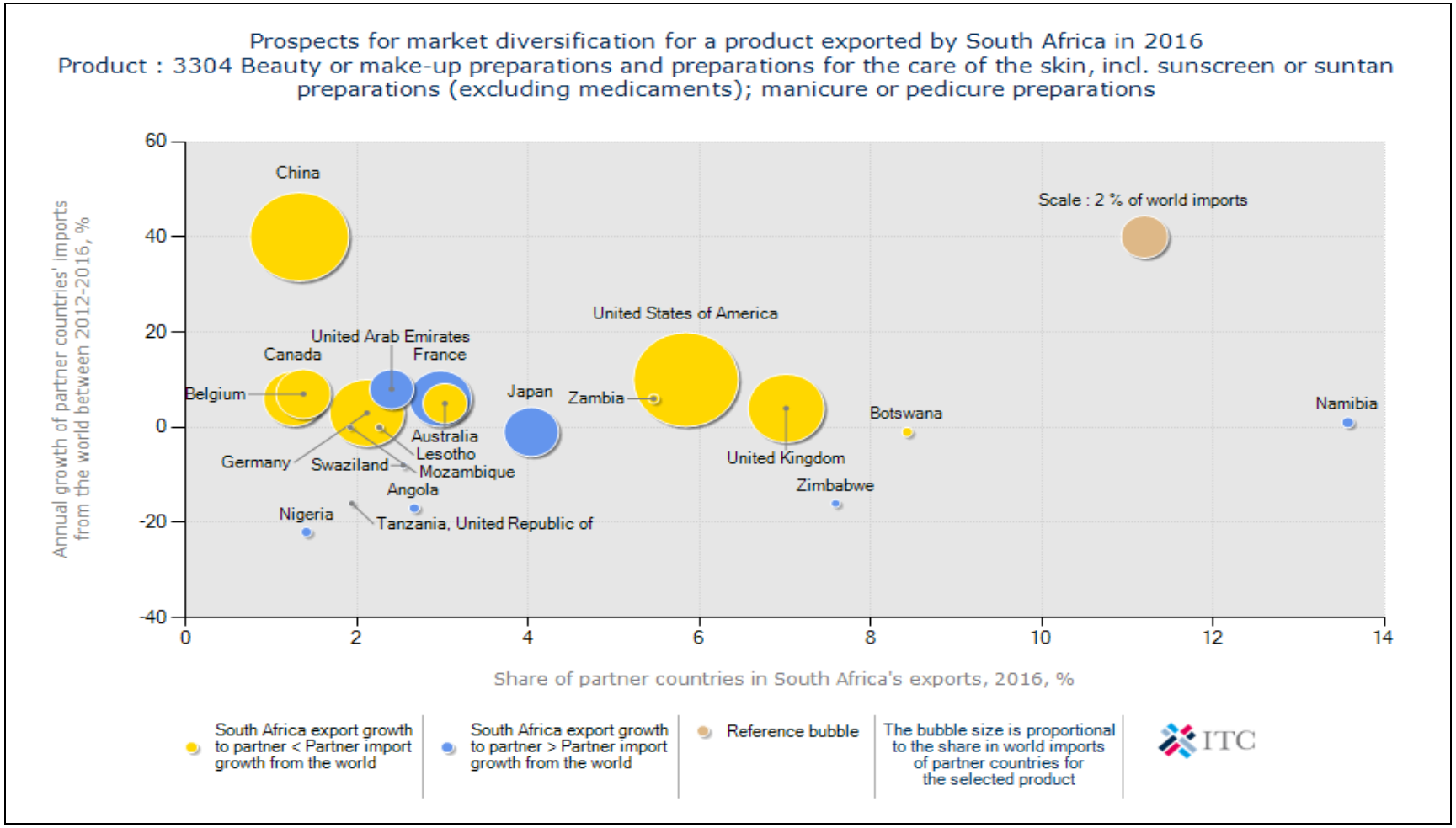
Figure 37: Growth in demand for beauty, make-up and skincare preparations; sunscreen, manicure or pedi exported by South Africa in 2016



Source: ITC Trade Map

Figure 38 shows the prospects for market diversification for beauty, make-up and skincare preparations; sunscreen, manicure or pedi exported by South Africa to the world in 2016. The bubble graph shows that the United States, China, United Kingdom as well as Germany were the biggest import markets of beauty, make-up and skincare preparations; sunscreen, manicure or pedi from South Africa to the world in 2016. If South Africa had to diversify its markets of beauty, make-up and skincare preparations; sunscreen, manicure or pedicure, attractive and potential markets exist in Zimbabwe, Namibia and Botswana in 2016.

Figure 38: Prospects for market diversification for beauty, make-up and skincare preparations; sunscreen, manicure or pedi exported by SA in 2016



Source: ITC Trade Map

Table 24 illustrates the list of supplying markets for beauty, make-up and skincare preparations; sunscreen, manicure or pedi imported by South Africa from the world in 2016. South Africa imported a total of 23 900 tons of beauty, make-up and skincare preparations; sunscreen, manicure or pedi from the world in 2016. The reason for South Africa to import less beauty, make-up and skincare preparations; sunscreen, manicure or pedi (23 900 tons) was that South Africa was a net exporter of beauty, make-up and skincare preparations; sunscreen, manicure or pedi (47 618 tons) in 2016. In world terms, the United States of America, followed by France and Germany commanded the greatest export market shares of 21.7%, 13.9 and 10.2% of beauty, make-up and skincare preparations; sunscreen, manicure or pedi, respectively to South Africa in 2016.

South Africa's imports of beauty, make-up and skincare preparations; sunscreen, manicure or pedi from the United States of America increased in both value and quantity by 5% and 4% respectively between 2012 and 2016. South Africa's imports from France decreased in value by 4% and increased in quantity by 6% respectively between 2012 and 2016. South Africa's imports growth in value to Germany decreased by 3% and the growth in quantity increased by 2% between 2012 and 2016. Between 2012 and 2016, the world average growth saw a decrease of 1% in value and an increase of 4% in quantity.

Table 24: List of supplying markets for beauty, make-up and skincare preparations; sunscreen, manicure or pedi imported by SA in 2016

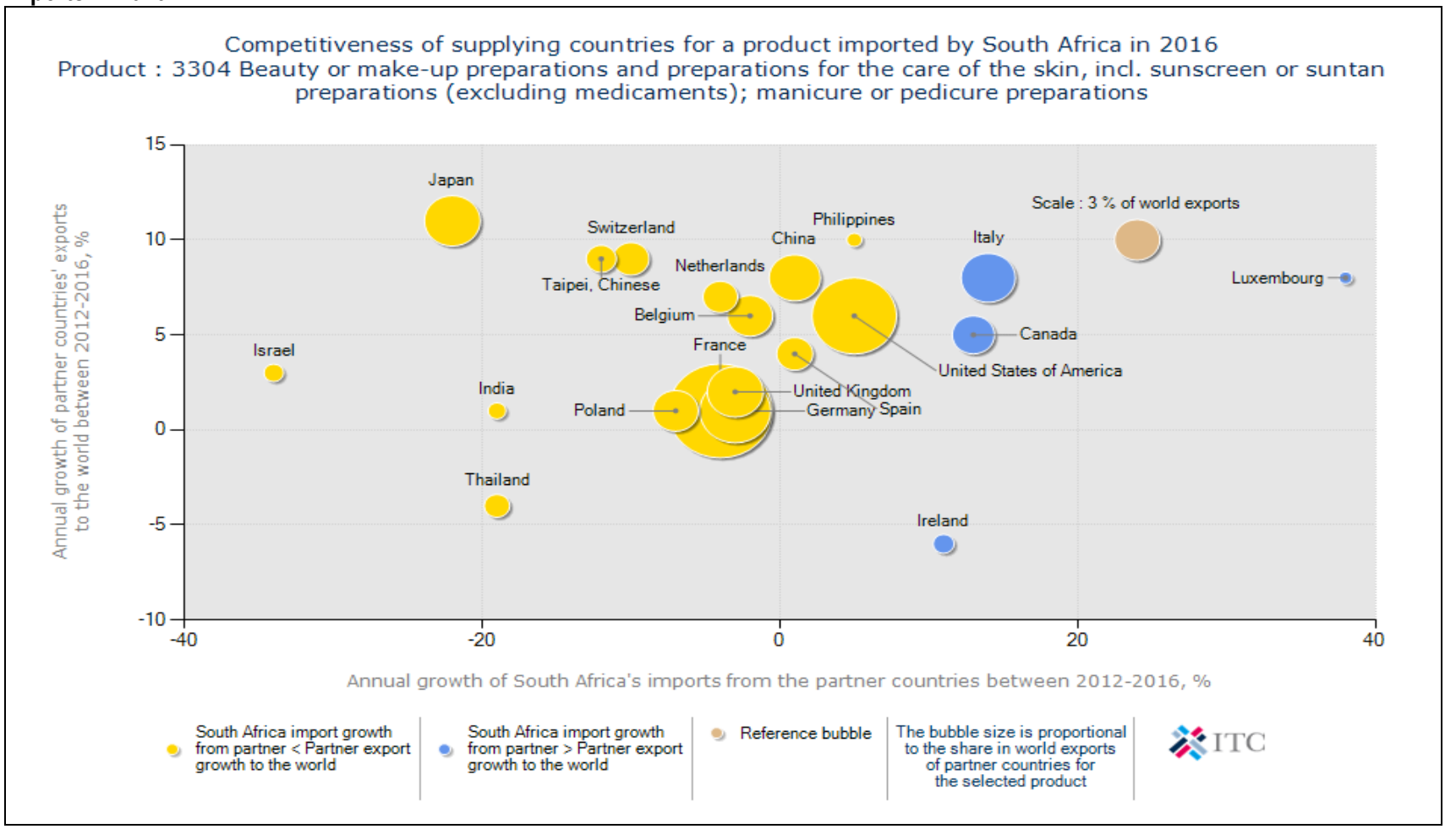
Exporters	Trade indicators						Average tariff (estimated) applied by South Africa (%)
	Value imported in 2016 (USD thousand)	Share in South Africa's imports (%)	Quantity imported in 2016	Growth in imported value between 2012-2016 (%, p.a.)	Growth in imported quantity between 2012-2016 (%, p.a.)	Growth in imported value between 2015-2016 (%, p.a.)	
World	179342	100	23900	-1	4	9	
United States of America	38943	21.7	1759	5	4	-14	20
France	24921	13.9	1197	-4	6	15	0
Germany	18230	10.2	2992	-3	2	44	0
Poland	17927	10	3561	-7	4	24	0
Spain	15407	8.6	6894	1	11	4	0
China	13719	7.6	3493	1	10	0	20
Italy	12359	6.9	1130	14	35	6	0
United Kingdom	9546	5.3	584	-3	0	-2	0
Canada	3657	2	112	13	11	2	20
Belgium	3640	2	122	-2	-9	63	0
Thailand	3097	1.7	267	-19	-19	18	20
Ireland	2099	1.2	115	11	67	85	0
Switzerland	1965	1.1	82	-10	-34	-27	0
Luxembourg	1887	1.1	120	38	75	31	0

Exporters	Trade indicators						Average tariff (estimated) applied by South Africa (%)
	Value imported in 2016 (USD thousand)	Share in South Africa's imports (%)	Quantity imported in 2016	Growth in imported value between 2012-2016 (%, p.a.)	Growth in imported quantity between 2012-2016 (%, p.a.)	Growth in imported value between 2015-2016 (%, p.a.)	
India	1581	0.9	309	-19	-14	60	20
Netherlands	1337	0.7	28	-4	-1	268	0

Source: ITC Trade Map

Figure 39 indicates the competitiveness of suppliers to South Africa for beauty, make-up and skincare preparations; sunscreen, manicure or pedi imported from the world in 2016. The United States of America, France and Germany were the biggest suppliers of beauty, make-up and skincare preparations; sunscreen, manicure or pedi imported by South Africa in 2016. Luxembourg, followed by Italy and Canada were the most competitive suppliers of beauty, make-up and skincare preparations; sunscreen, manicure or pedi with annual growth of South Africa's imports at about 38%, 14% and 13% respectively between 2012 and 2016.

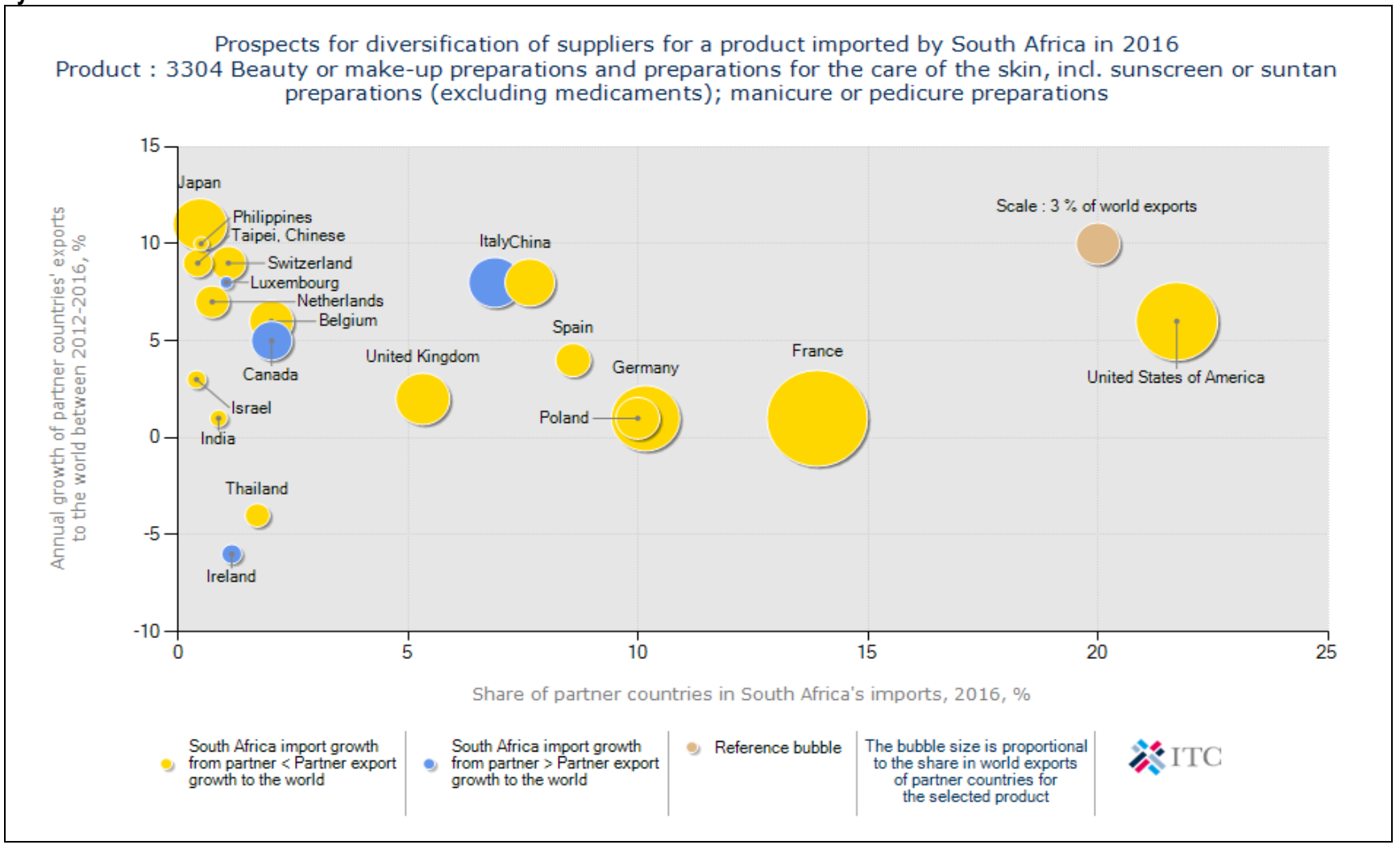
Figure 39: Competitiveness of suppliers to South Africa for beauty, make-up and skincare preparations; sunscreen, manicure or pedi imports in 2016



Source: ITC Trade Map

Figure 40 depicts the prospects for diversification of suppliers for beauty, make-up and skincare preparations; sunscreen, manicure or pedi imported by South Africa from the world in 2016. The bubble graph depicts that United States of America, France and Germany, commanded the greatest market shares for beauty, make-up and skincare preparations; sunscreen, manicure or pedi imported by South Africa in 2016. If South Africa had to diversify its import markets of beauty, make-up and skincare preparations; sunscreen, manicure or pedi, potential and attractive markets are available in Italy, Canada and Ireland because between 2012 and 2016 they had import growth in both value and quantity. Italy increased its import value by 14% and quantity by 35%. Canada increased its value by 13% and its quantity by 11% and Ireland increased its value by 11% and its quantity by 67% between 2012 and 2016.

Figure 40: Prospects for diversification of suppliers for beauty, make-up and skincare preparations; sunscreen, manicure or pedi imported by SA in 2016



Source: ITC Trade Map

Table 25 indicates the list of importing markets for oral and dental hygiene preparations exported by South Africa to the world in 2016. Mozambique was the biggest import market for oral and dental hygiene preparations from South Africa with 2 472 tons in 2016. In 2016, South Africa exported 15 505 tons of oral and dental hygiene preparations to the world, comprising 2 259 tons to Botswana and 1 402 tons to Namibia. South Africa's exports of oral and dental hygiene preparations to Mozambique declined in both value and quantity by 12% and 4% per annum respectively, and the exported growth in value between 2015 and 2016 decreased by 23%. Mozambique commanded the greatest share of oral and dental hygiene preparations exports of about 14.6% as compared to Botswana's share of 12.8% and 12.6% of Namibia during the period under scrutiny.

The Democratic Republic of Congo and Congo imposed a tariff of 20% on the imports of oral and dental hygiene preparations from South Africa during the period under review.

Table 25: List of importing markets for oral and dental hygiene preparations exported by South Africa in 2016

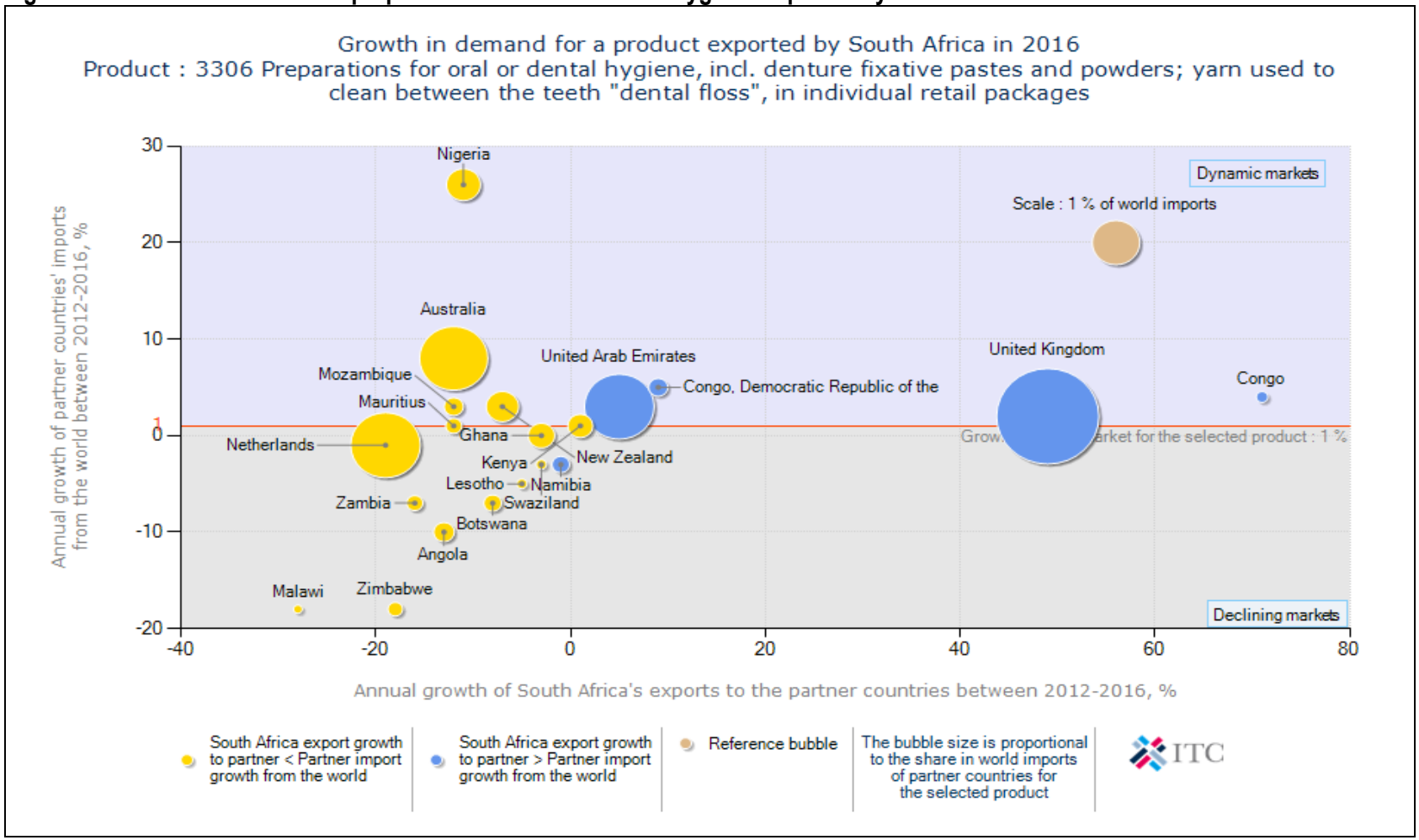
Importers	Trade indicators						Average tariff (estimated) faced by South Africa (%)
	Value exported in 2016 (USD thousand)	Share in South Africa's exports (%)	Quantity exported in 2016	Growth in exported value between 2012-2016 (%, p.a.)	Growth in exported quantity between 2012-2016 (%, p.a.)	Growth in exported value between 2015-2016 (%, p.a.)	
World	40114	100	15505	-7	0	-34	
Mozambique	5848	14.6	2472	-12	-4	-23	
Botswana	5153	12.8	2259	-8	0	22	0
Namibia	5046	12.6	1402	-1	-5	-20	0
Zambia	2645	6.6	930	-16	-11	-44	0
Congo, Democratic Republic of the	2505	6.2	1057	9	34	-13	20
Zimbabwe	2314	5.8	723	-18	-16	-75	13.1
Australia	2293	5.7	1241	-12	3	-61	
Angola	1890	4.7	866	-13	11	-22	
United Kingdom	1693	4.2	475	49	49	-73	0
Lesotho	1377	3.4	654	-5	15	6	0
Swaziland	1270	3.2	334	-3	-13	3	0
Nigeria	919	2.3	266	-11	-8	699	
Mauritius	696	1.7	369	-12	1	55	0
Kenya	662	1.7	196	1	7	-35	
Congo	617	1.5	274	71	98	-47	20

Importers	Trade indicators						Average tariff (estimated) faced by South Africa (%)
	Value exported in 2016 (USD thousand)	Share in South Africa's exports (%)	Quantity exported in 2016	Growth in exported value between 2012-2016 (%, p.a.)	Growth in exported quantity between 2012-2016 (%, p.a.)	Growth in exported value between 2015-2016 (%, p.a.)	
New Zealand	616	1.5	322	-7	7	-44	
Ghana	504	1.3	168	-3	3	-46	
Netherlands	427	1.1	175	-19	88		0

Source: ITC Trade Map

Figure 41 illustrates the growth in demand for oral and dental hygiene preparations exported by South Africa to the world in 2016. The bubble graph illustrates that the Netherlands, followed by Australia and Nigeria were the biggest markets for oral and dental hygiene preparations exports from South Africa in 2016. Exports of oral and dental hygiene preparations from South Africa to the Netherlands declined by 19% between 2012 and 2016. Mozambique had a greater market share of 14.6%, followed by Botswana with a share of 12.8% and Namibia with 12.6%. The growth in demand or potential markets for oral and hygiene preparations exist in Congo, United Kingdom and Democratic Republic of Congo.

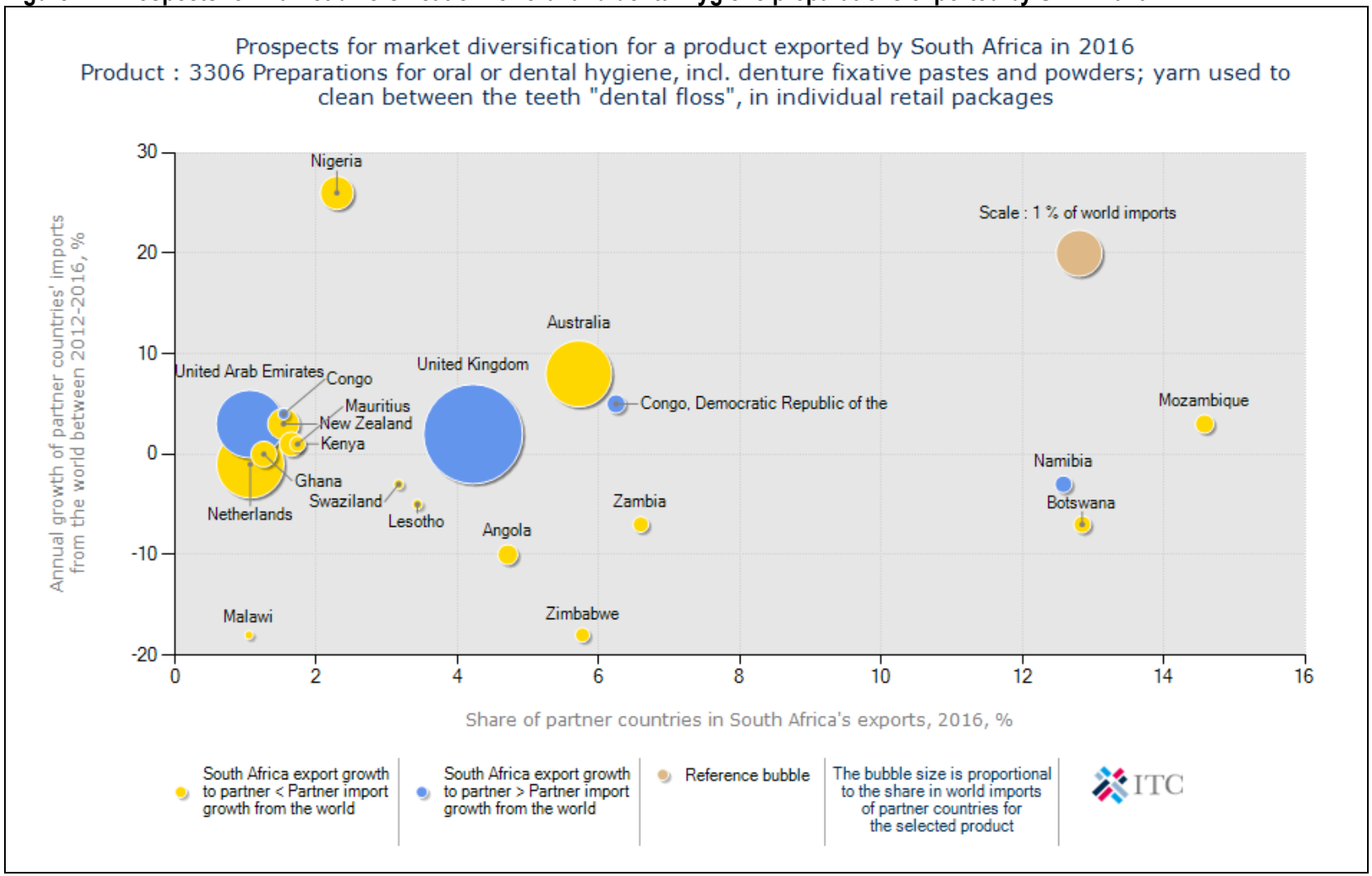
Figure 41: Growth in demand for preparations for oral or dental hygiene exported by SA in 2016



Source: ITC Trade Map

Figure 42 shows the prospects for market diversification for oral and dental hygiene preparations exported by South Africa to the world in 2016. The bubble graph shows that the Netherlands, Australia and Nigeria were the biggest export market for oral and dental hygiene preparations originating from South Africa during the period under examination. The bubble graph further shows that should South Africa want to diversify its markets of oral and dental hygiene preparations, small and attractive markets exist in Zimbabwe, Namibia, Mozambique and Botswana.

Figure 42: Prospects for market diversification for oral and dental hygiene preparations exported by SA in 2016



Source: ITC Trade Map

Table 26 illustrates the list of supplying markets for oral and dental hygiene preparations imported by South Africa from the world in 2016. China was the biggest supplier of oral and dental hygiene preparations into South Africa, followed by the United Kingdom during the period under review (2016). South Africa's imports of oral and dental hygiene preparations from India grew above the average exports from the rest of the world. The United Kingdom supplied South Africa with 1 688 tons out of 20 184 tons from the world. Although China was the biggest supplier of oral and dental hygiene preparations in 2016, India and Italy were the most competitive suppliers in terms of growth both in value and quantity at approximately 122% and 65% per annum and 365% and 190% per annum respectively between 2012 and 2016.

Table 26: List of supplying markets for oral and dental hygiene preparations imported by South Africa in 2016

Exporters	Trade indicators						Average tariff (estimated) applied by South Africa (%)
	Value imported in 2016 (USD thousand)	Share in South Africa's imports (%)	Quantity imported in 2016	Growth in imported value between 2012-2016 (%, p.a.)	Growth in imported quantity between 2012-2016 (%, p.a.)	Growth in imported value between 2015-2016 (%, p.a.)	
World	39189	100	20184	6	19	3	
China	13092	33.4	8732	30	34	-1	9.9
United Kingdom	6231	15.9	1688	6	30	-10	0
India	6001	15.3	4771	122	179	365	9.9
United States of America	2443	6.2	183	-5	-12	95	9.9
Poland	2140	5.5	732		208	168	0
Thailand	2107	5.4	1272	-31	-23	11	9.9
Ireland	1516	3.9	54	-8	-2	-50	0
Brazil	1404	3.6	873	-12	-2	-76	3
Viet Nam	1309	3.3	838	-6	-7	-4	9.9
Germany	792	2	103	53	51	-5	0
Italy	716	1.8	624	65	190	41	0
Mexico	340	0.9	58	9	-8		9.9
France	213	0.5	25	-17	-4	79	0

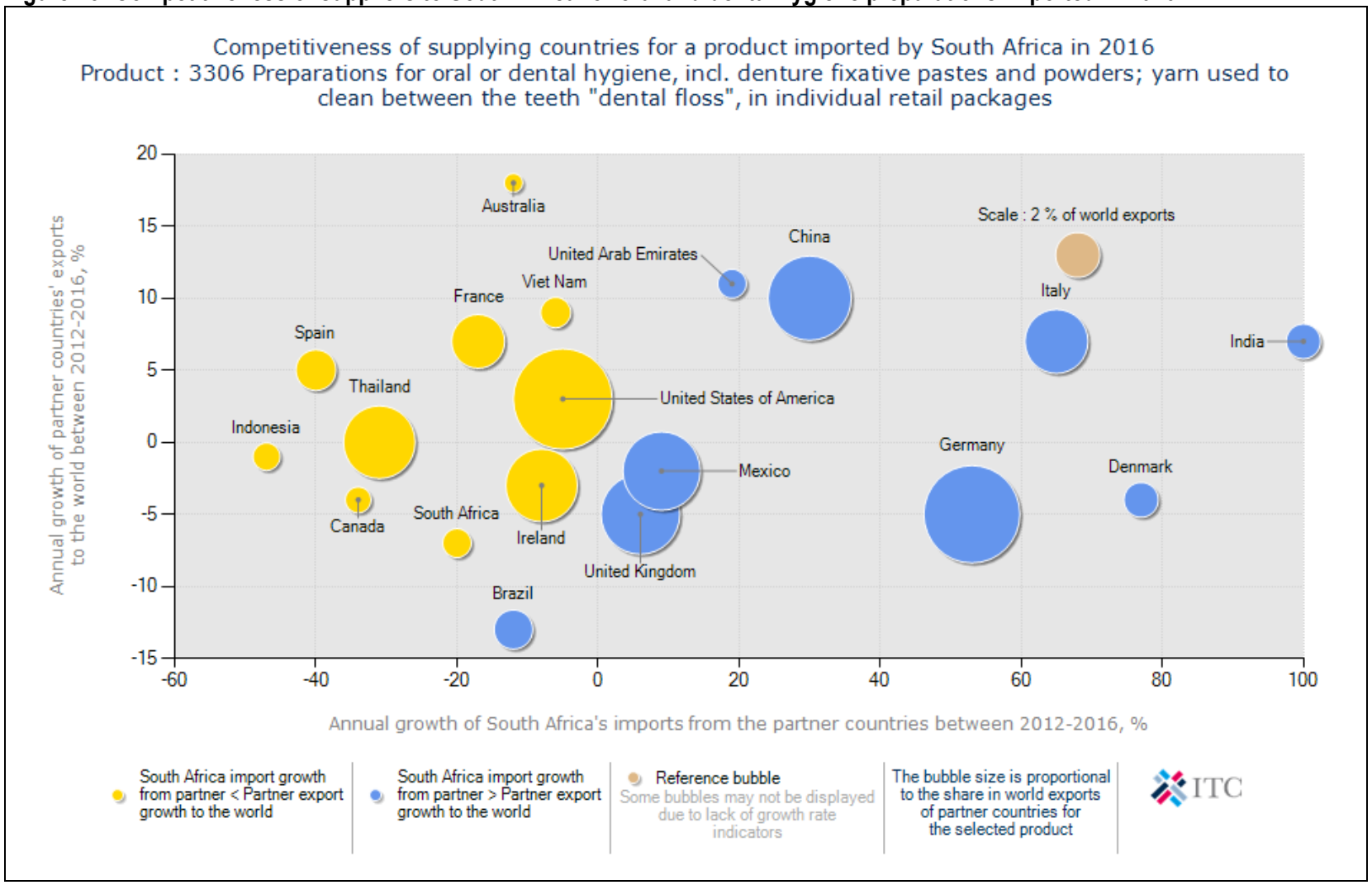
Source: ITC Trade

Figure 43 shows the competitiveness of suppliers to South Africa for oral and dental hygiene preparations imported from the world in 2016. The United States of America, followed by Ireland and Thailand were the biggest suppliers of oral and dental hygiene preparations imported by South Africa between 2012 and 2016. Italy followed by India, Denmark and Germany were the most

competitive suppliers of oral and dental hygiene preparations with an annual growth of South Africa's imports of about 179%, 77% and 53% respectively between 2012 and 2016.

South Africa's annual imports growth in value to the United States of America declined by 5% and 12% in value and quantity respectively between 2012 and 2016, while South Africa's annual imports growth in value to China grew by 30% and 34% in value and quantity respectively between 2012 and 2016 as compared to the world average of 6% in value and 19% in quantity.

Figure 43: Competitiveness of suppliers to South Africa for oral and dental hygiene preparations imported in 2016

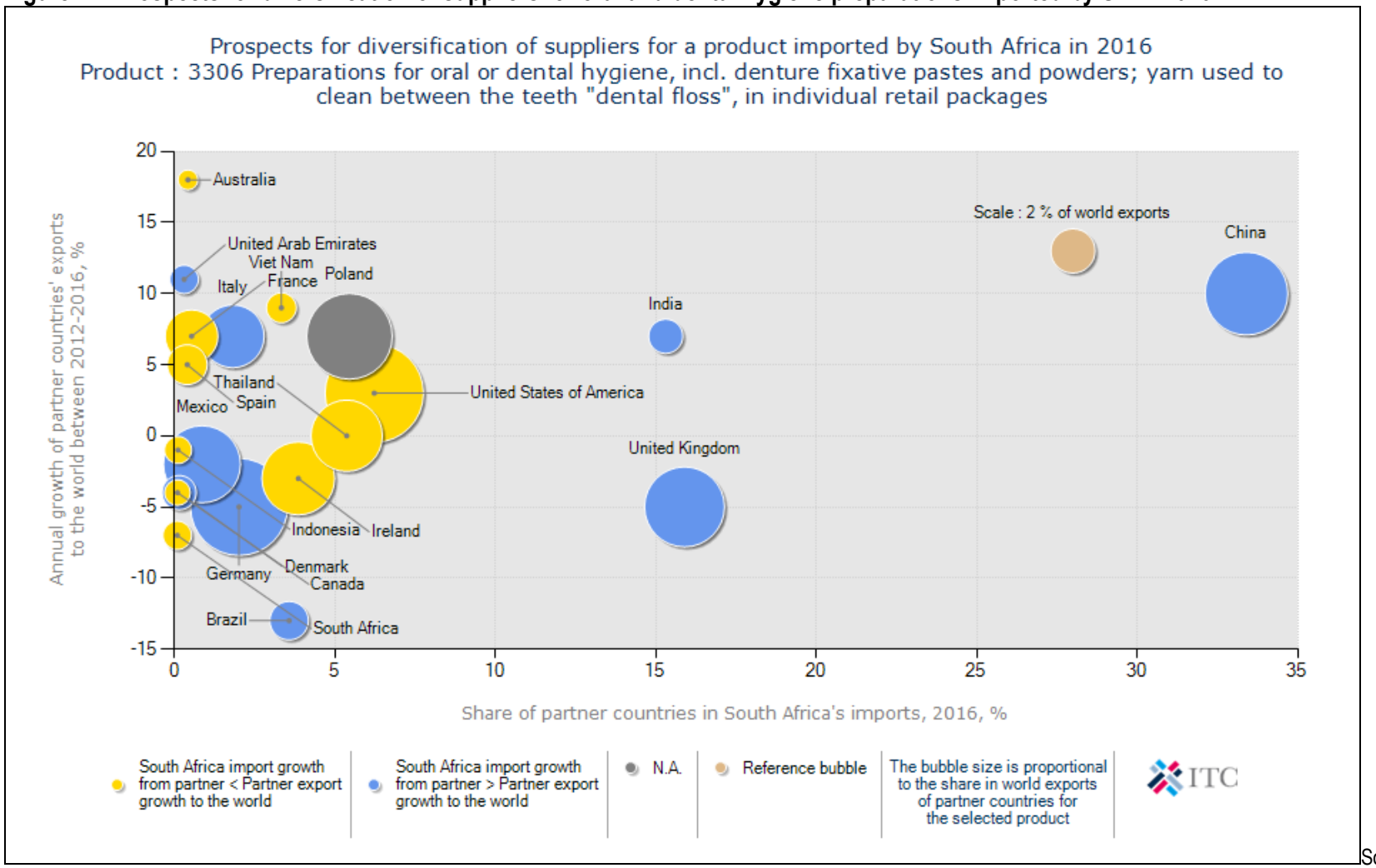


Source: ITC Trade Map

Figure 43 indicates prospects for market diversification for oral and dental hygiene preparations imported by South Africa from the world in 2016. The United States of America, followed by Thailand and Ireland were the biggest suppliers for oral and dental hygiene preparations to South Africa. Should South Africa want to diversify its markets of oral and dental hygiene preparations, small and attractive markets exist in China, United Kingdom and India.

China commanded approximately 33.4% share in South Africa's imports of oral and dental hygiene preparations, followed by United Kingdom with 15.9% and India with 15.3% in 2016.

Figure 44: Prospects for diversification of suppliers for oral and dental hygiene preparations imported by SA in 2016



Source: ITC Trade Map

11. THE ESSENTIAL OILS OF PEPPERMINT

11.1 Description of the herb peppermint

Mentha x *piperita* L. is a sterile, perennial herb originating from a hybridization between watermint (*Mentha aquatica*), and spear mint (*Mentha spicata*), and therefore must be propagated vegetatively. The entire plant has a very characteristic sharp, mint odor, because of the presence of the volatile oil. This is an easy growing perennial herb, growing up to 1 meter high, with underground runners and a distinctive menthol fragrance.

11.1.1 Properties of peppermint

Peppermint is a decongestant, cooling, fragrant and bitter herb that is anti-spasmodic, diaphoretic, digestive, antiseptic and slightly anesthetic. It contains a high amount of essential oil, which contains menthol, menthone, menthyl acetate and menthofuran.

11.1.2 Safety precautions and warnings

Peppermint essential oil must be used in moderation and the menthol contained in the oil may cause sensitizing to some individuals skin. It can irritate the mucus membranes if the dosage is too high. If used in pregnancy, very small amounts should be used and not recommended for infants.

11.1.3 Production levels in South Africa

Under irrigation and good management, peppermint yields 20 to 25 tons of plant material per hectare per year, at an oil recovery rate of 0.3 % or 60 to 75 kg essential oil per hectares.
Dry land production generally is less, but it depends entirely on the quantity of rainfall and its frequency throughout the season.

11.1.4 Major production Areas in South Africa

Peppermint can be grown in most parts of South Africa where rainfall of higher than 1 000 mm per annum occurs with long periods of sunlight and cool night temperatures. The latter are needed for the correct balance of high quality oil production and it limits the constituent menthofuran, which is undesirable in the oil. There are indigenous species growing in South Africa in the temperature zones and these are indicators of where the crop can be grown successfully.
The best areas are the escarpment of Mpumalanga, Gauteng, Eastern Free State, higher altitudes of KwaZulu Natal, and areas in the Eastern and Western Cape.

11.1.5 Stem, Leaves, and Flowers

Peppermint is a summer growing perennial with upright, usually purplish, smooth stems growing to one meter in height. The lance shaped leaf margins are finely toothed, their surfaces smooth, both above and beneath, or very slightly hairy (hardly visible), on the principal veins and midrib on the

underside. The whorled clusters of little reddish violet flowers are in the axils of the upper leaves, forming loose, interrupted spikes, and rarely bear seeds.

11.1.6 Essential part of peppermint

The whole plant is cut at flowering stage for steam distillation. The oil is found on the undersides of the leaves.

11.1.7 Post harvest handling

- **Sorting and Distillation**

The crop is steam distilled and the steam/oil vapor is condensed and separated. Condensing and separation equipment should be manufactured from stainless steel and a general processing hygiene followed to ensure no contaminants are present. The time for oil extraction varies, depending on the type of steam source, the herb weight, and the moisture content.

- **Grading**

The main chemical constituent of peppermint oils is menthol; however, it also contains menthyl acetate and isovalerate, menthone, cineol, pinene, limonene and other constituents. The quality of the oil is determined by the correct combination of chemical constituents, especially menthol and menthone and the absence of menthofuran.
Once the oil is separated, the product is relatively stable for many months, provided it is stored out of direct sunlight and away from heat. The odour and taste is a good indication of the quality of the oil.

- **Packaging and Storage**

Epoxy lined, fluorinated plastic and galvanized drums are used for bulk storage and transportation. Peppermint essential oil should be stored in a cool, dry area until it is used. Once opened, refrigeration and tightly closing the cap will prolong its shelf life.

- **Marketing**

The market for essential oils in South Africa is divided into local buyers and international buyers. The local buyers include marketing agents and companies from chemical and pharmaceutical, as well as food and flavoring industries. The international buyers are divided into flavor and fragrance houses, cosmetics and personal health care, aromatherapy and food manufacturers who buy in large quantities. The major market in the world for essential oils exists in the United States of America, followed by Japan and Europe. However, production continues to be concentrated in Europe, with seven of the world's largest essential oil processing firms. In the United States of America, the major users of essential oils are the soft drink companies.

11.1.8 The peppermint sale price

Price is largely regulated by the world supply and demand. Peppermint is presently being produced in countries with low labor costs such as China and India. This can make it difficult for South African farmers to compete, unless there is a fair degree of value adding applied. It is always in demand to grow organic peppermint oil and usually fetch better prices.

11.1.9 Essential oils of Peppermint Industrial Utilization

Peppermint essential oil is mainly used as flavoring in toothpaste, ice cream, confectionery, soft drinks, tobacco, chewing gum, and other varieties of foods. It can also be found in shampoos, soaps, balms and liniments. The oil has a cooling effect for fevers. Peppermint tea and tea blends are becoming more popular as natural food stuff. Peppermint tea is used for relief of palpitations of the heart and nausea.

11.1.10 Cosmetic Utilization

The therapeutic peppermint value lies in its ability to relieve flatulence, bloating and colic, inhibit the growth of certain bacteria, and can assist in smoothing and relaxing muscles when inhaled or applied to the skin. It increases sweating, stimulates secretion of bile, assists in curing ulcers. Peppermint eases nervous headaches and is used for aid in cases of cholera and diarrhea. Peppermint is used to disguise the taste of unpalatable drugs, as it imparts its aromatic characteristics to whatever prescription it enters into. In aromatherapy the essential oil is used to stimulate hot and verve endings and increase blood flow.

Table 27: Role players in the South African fragrance and flavor industry and essential oil trading

Company	Address	Contact Person	Telephone Number	Email
Comhan Products (Pty) Ltd	Box 413066, Craig hall 2024	Nathalie Jelonek	+27 (0) 11 325 6090	njelonek@comhan.co.za
Cranbrook Flavours	Po Box 1644, Edenvale 1610		011 398 6000	Support@CranbrookFlavours.com
Craetive Flavors International (Pty)Ltd	Box 302, Strubens Valley 1735	Adri Stander	+27(0) 11 760 1830	Adristander@ibi.co.za
Danlink Ingredients (Pty)Ltd	Box 3208, Cramerview 2060	Sambashni Govender	+27(0) 11 469 4508	sg@danlink.com
Deli Spices (Pty)Ltd	Box 611, Eppindust 7475	Robin Haller	+27(0) 21 505 2000	Robin.haller@delispices.co.za
Dunmustard Distributors	Box 1518, Westville 3630	Anthony Krijger	+27(0) 31 701 7734	Mustard@mweb.co.za
Firmenich (Pty)Ltd	P/Bag X113, Halfway House 1685	Dody Leijenaar	+27(0) 11 653 0700	Dody.leijenaar@firmenich.com
FlavourCraft (Pty) Ltd	Box 962, New Germany 3620	Ryan Ponquett	+27(0) 31 764 9760	ryanp@fcraft.co.za
Flavourome (Pty) Ltd	P/Bag X6, Kyalami 1684	David Wright	+27(0) 11 314 0219	davidw@flavourome.co.za
Foodspec Co (Pty) Ltd	Box 1783, Pinegowrie 2123	Jenal Harduth	+27 (0) 11 793 1333	jrharduth@foodspec.co.za
Fruition CC	Box 505, Wellington	Nick Schwerin	+27 (0) 21 873 6716	nick@fruition.co.za

Company	Address	Contact Person	Telephone Number	Email
	7654			
Frutarom South Africa (Pty) Ltd	Box 4449, Honeydew 2040	Darrell Gray	+27 (0) 11 794 1362	dgray@za.frutarom.com
Givaudan South Africa (Pty) Ltd	Box 83027, South Hills 2136	Antoine Nourrain	+27 (0) 11 406 8700	Antoine.nourrain@givaudan.com
Illovo Sugar Ltd	Post Office Sezela 4215	Charles Kruger	+27 (0) 39 975 8216	ckruger@illovo.co.za
International Flavors & Fragrances (SA)(Pty) Ltd	Box 40, Isando 1600	Levi Thamage	+27 (0) 11 922 8800	Levi.thamage@iff.com
Junnderee (Pty) Ltd	P/Bag X2025, Isando 1600	Chris Young	+27 (0) 11 974 7822	chrisy@jannderee.com
Letaba Citrus Processors (Pty) Ltd	Post Net Suite 100, P/Bag X 4019, Tzaneen, 0850	Carmen Sacco	+27 (0) 15 304 4000	Carmen.sacco@letaba.com
McCollum & Associates SA (Pty) Ltd	Box 880, Morningside 2057	Peter Harrison	+27 (0) 11 234 8470	pjh@maccallum.co.za
Mane South Africa (Pty) Ltd	Unit 1, Bertie Park, 12 Bertie Avenue, Eppindust	Mark Mulholland	+27 (0) 21 534 4422	Mark.mulholland@mane.co.za
McCormick South Africa (Pty) Ltd	P/Bag X 64, Halfway House 1683	Mike Palmer	+27 (0) 11 690 0311	mike@mccormick.co.za
Nicola-J Flavours & Fragrances (Pty) Ltd	Box 6837, Halfway House 1685	Jason Vlantis	+27 (0) 11 315 6582	jason@nicola-j.co.za
Petrow Food Ingredients (Pty) Ltd	Box 11172, Randhart 1457	Craig Taylor	+27 (0) 11 613 2702	craig@petrowfoods.co.za
Savannah Fine	Box 75864,	Colleen Maroun	+27 (0) 11 856 4500	Colleen.maroun@savannah.co.za

Company	Address	Contact Person	Telephone Number	Email
Chemicals (Pty) Ltd	Gardenview 2047			
Savoury Food Industries	Box 43028, Industrial, 2042	Harry Meyer	+27 (0) 11 309 1606	Hmeyer2@pioneerfoods.co.za
Sensarome (Pty) Ltd	P/Bag X 6, Kyalami, 1684	Themba Nghalaluma	+27 (0) 11 805 8294	themban@sensarome.co.za
Sensetek CC	Box 2598, Bedfordview 2008	Mike Capon	+27 (0) 11 608 4944	mikec@sensetek.biz
Sensient Colors South Africa (Pty) Ltd	Suite 173, P/Bag X 7, Northriding 2162	Dershana Jackison	+27 (0) 11 462 7150	dershanaj@sa-sensient.co.za
Sharon Bolel Chemical Marketing	Box 693, Edenvale 1610	Sharon Bolel	+27 (0) 11 454 5400	Sharon@sharonbolel.co.za
SK Chemtrade Services (Pty) Ltd	Box 5101, Meadowdale 1612	Vanessa Salt	+27 (0) 11 974 1124	vanessa@skchemtrade.co.za
Sunspray Food Ingredients (Pty) Ltd	Box 43057, Industrial 2042	Rene Cross	+27 (0) 11 473 6811	Rene.Cross@sunspray.co.za
Symrise (Pty) Ltd	Box 143, I sando 1600	Rudy McLean	+27 (0) 11 921 5600	Rudy.mclean@symrise.com
Unique Flavors	Box 9583, Centurion 0048	Johan Smith	+27 (0) 12 644 0334	johan@uniqueflavors.co.za
Val-U-Flavours (Pty) Ltd	Box 10053, Belhar 7507	Rurik McKaiser	+27 (0) 21 981 7892	rurik@vuf.co.za
Von Holy Consulting CC	Box 4449, Edenvale 1610	Corene Von Holy	+27 (0) 83 267 6004	vonholy@worldonline.co.za
Afriplex Flavours & Fragrances (Pty) Ltd	Box 3186, Paarl 7620	Grant Momple	+27 (0) 21 872 4976	grant@afriplex.co.za
Agrana Fruit South Africa (Pty) Ltd	Box 143, Bergvliet 7864	Philippe Gomez	+27 (0) 21 705 0210	Philippe.gomez@agrana.co.za
Bidfood Technologies	Box 37200, Chempet,	John Morris	+27 (0) 21 527 5020	John.morris@crownnational.co.za

Company	Address	Contact Person	Telephone Number	Email
(Pty) Ltd	7442			
Cargill Flavor Systems (RSA) (Pty) Ltd	Box 354, Table View 7439	Nicole Lombard	+27 (0) 21 556 1512	Nicole_lombard@cargill.com
Carst & Walker (Pty) Ltd	Box 87710, Houghton 2041	Gloria Ford	+27 (0) 11 489 3631	Gloria.ford@carst.co.za
Chemimpo SA (Pty) Ltd	Box 1378, Randburg 2125	Dawie S Maartens	+27 (0) 11 293 2000	Dawie.maartens@chemimpo.co.za
Claman (Pty) Ltd	Box 70667, Bryanston 2021	Clarissa Heyman	+27 (0) 11 704 5289	clarissa@claman.co.za
Clive Teubes (Pty) Ltd	Box 4919, Randburg 2125	Ron Allwright	+27 (0) 11 793 1207	ron@teubes.com
Coca Cola South Africa (Pty) Ltd	Box 9999, Johannesburg 2000	Karen Vokes	+27 (0) 11 644 0666	Kvokes@afr.ko.com
Soil	27 Musgrave Avenue, Durban, 4001	Nikki or Grant	+27 (0) 31 201 2778	nikki@soil.co.za grant@soil.co.za

Source: South African Association of the Flavour & Fragrance Industry (SAAFFI)

Table 28: Sector Organizations and Research Institutions Involved in the Essential Oils Industry.

Organization	Role
South African Essential Oils Producer Association (**SAEOPA**)	It provides knowledge for current and potential oil producers with information ranging from species selection, quality control etc.

Small Enterprise Development Agency (**SEDA**)	SEDA has been involved in setting up essential oil business incubation, which provide technical assistance in the Eastern Cape & North West Province
The Council for Scientific & Industrial Research (**CSIR**)	CSIR is active in developing production techniques and has developed various steam distillation techniques. It also provides technical consulting services.
Agricultural Research Council (**ARC**)	It introduced essential oil crops into selected rural communities and it also provides mentorship support to selected farmers of essential oils.
Department of Agriculture and Academic Institutions in South Africa	Conduct research and development of manuals to help growers.

Source: South African Essential Oils Producers Association (SAEOPA)

12. ACKNOWLEDGEMENTS

The following organizations are acknowledged:

Directorate: Economic Analysis & Statistics
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Tel: (012) 319 8453
Fax: (012) 319 8031
Website: www.daff.gov.za

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Karen Swanepoel
University of Zululand
Tel: 035 902 6359/ 082 785 8700
Fax: 035 902 6428
Website: http://safarmer.net/SAEOPA

South African Association of the Flavour & Fragrance Industry (SAAFFI)
Tel: +27 (0) 11 447 2757
Fax: 0866 203 723
E-mail: info@saaffi.co.za
Website: www.saaffi.co.za

ITC Market Access Map
Website: http://www.macmap.org/SouthAfrica

ITC Trade Map
Website: http://www.trademap.org.

Quantec Easy Data
Website: http://www.quantec.co.za/easydata/