Market survey of plant based-fragrances in Ghana

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1 Abstract

The main focus of this paper is the description of the existing domestic market for plant-based fragrances in Ghana. Ghana's personal care and household market is shared by a few multinational companies, who together sell most of this survey's target products, such as: soaps, cosmetics, toiletries, etc. Some small and mid-sized entrepreneurs are working on the development of traditional soaps, shea and cocoa butter industries. Firms use a limited amount of local plant based essential oils to fragrance their products. If a rural network of collectors and distillers could guarantee steady supply at a competitive price, there would be scope for substitution. Both, multinationals and local entrepreneurs, share an interest in using a new, truly Ghanaian essential oil with an orange, lemon, or fruity scent. The niche markets in Ghana are for plant based fragrances that could complement the a) attala soap, shea butter and cocoa industries b) green and fair trade markets or that could be branded as '*truly Ghanaian'*. The development of these products and markets would require strengthening a rural essential oils cottage industry.

2 Introduction

In January 2003, William Hawthorne, researcher at the Plant Sciences Department, Oxford University, submitted the 'Scents for Conservation and rural livelihoods' proposal to the Forestry Research Programme. The project aims to investigate the essential oils potential from tropical forests in Ghana and Grenada by carrying out a 'scratch, chew sniff survey' – that may help find new local essential oils – combined with ecological, socio-economic and chemical surveys to help quantify the potential for producing such oils. (Hawthorne, 2002). The rationale is to find a new NTFP that can be produced in remote rural villages using appropriate technologies; this in turn will help the conservation of rainforest biodiversity.

FRP suggested that market survey should be carried out not as part of the project but rather as a tentative first step, before they would agree to fund 'Scents for conservation'. The main objective of this preliminary market survey was to define the existing and potential market for the established plant-based oil and new essential oils that are expected as an output of the 'Scents for Conservation' proposal. This clearer definition includes, in the current report:

- A description of the current market in Ghana for the target products;
- A quantification of the essential oil ingredients in target products, specifying origin and type (synthetic or natural);
- A description of the socio-economic characteristics of the consumers;
- The identification of opportunities and potential niche markets for new essential oils;

While the focus of the survey was on finding the local market for a set of target products, listed in 'Schedule 1', the local use of plant-based essential oils was also observed closely.

The report is divided into three sections. Initially, the characteristics of the product are defined; this is followed by an overview of the global trade of essential oils. The third

section illustrates the macroeconomic context of Ghana, and the domestic market for essential oils there including: history and size of the natural product's market, supply and demand of plant based fragrances, market chains, willingness to pay. The last section analyses the potential niche markets, challenges and opportunities for novel oils, including the potential scenarios if it were to be introduced into the domestic fragrance market.

3 Methodology

The starting point was a literature review and a series of meetings with UK based academics, businessmen, consultants and professionals with an interest in NTFP, essential oils, and markets in our target countries; including a visit to Quest International, one of the top five global flavour and fragrance companies in the world. The list of interviewees can be found in Appendix 1. Quest's fragrance classes were used as the main criteria to subdivide the types of industries that use essential oils. Please refer to Table 2 for more details.

The second stage of the research focused on interviewing the main participants within the fragrance and flavour industry in the target countries, as well as local users of essential oils. In both cases, the use of the snowball technique proved useful: officials from the Ministries of Trade and Forestry provided the names of the most important firms who, in turn, gave us the names of their three main competitors and so on. It was not possible to find previous market research papers or even industry directories relevant to Ghana.

In order to find out the socio-economic status of consumers, visits were paid to markets, middle men (distributors) and retailers. This phase of the research was conducted through questionnaires, and one-to-one interviews when necessary. In Ghana the research was done in the three busiest markets in or within a close distance of Accra. These markets are trade centres for retailers & distributors, and end users alike. Kumasi market, the second largest in the country, was not visited due to lack of time. The fieldwork in Ghana was carried out with the support of Ms. Thelma Gyamfi, a translator and research assistant. Please refer to Appendix 2 for more details.

3.1 Limitations

The limitations of the report are varied:

- Fragrance formulas used in some of the target products are secret so it was impossible to quantify the ingredients in the target products; for example *'Pantene pro v'* has a particular fragrance that differentiates it from other types of shampoo; the likelihood that a firm would disclose the components within this fragrance's formula is very low.

- A very important limitation is the inaccurate classification of essential oils within national trade statistics. Sometimes, formulas of fragrances are imported, and the essential oils that they contain are not quantified separately. Due to this inaccuracy, it is harder to evaluate the contribution of the industry to the national economy, etc.

- Due to time limitations the core of the research was focused on the fragrance industry, deeper research into the beverages, food and flavour industries is strongly recommended.

4 Characteristics of the plant-based essential oils

4.1.1 Definition

The scented chemicals, and therefore the fragrances, of most aromatic plants are due to a class of volatile oils known generally as essential oils. They can also be called aromatic (or volatile) oils, and can be extracted from the plants by a lengthy distillation of plant leaves, flowers, seeds, bark, roots and fruits. Essential oils are obtained from wild or cultivated plants or are synthesised from other raw materials, for instance as by-products of a other chemical industries. A volatile oil is the steam volatile component of any aromatic material. (interviewee 24). Essential oils are potent (e.g. strong-smelling) and therefore are generally diluted with other, often less aromatic oils before use. They are extracted commonly from over 3,000 plants, out of which 300 are heavily traded on the world market (Iqbal, 1993, interviewee 1).

Table 1: Application of essential oils

Industry	Application
Fragrances	Combined with other ingredients or sold on their own to make potpourri, cosmetics, Aromatherapy oils, fragrances, toiletries and perfumes and industrial cleaners.
Flavours	Cooking and flavouring of food and beverages
Cosmo-ceutical	Cosmetic products with a functional action: e.g. dietary supplement
Complementary medicine	Oils that have an added medicinal value that helps alleviate pain.
Industrial use	Bactereocides*.
Other uses	Insect repellents, medicinal, etc.

* Such as tea tree oil, used in air conditioning to prevent legionella.

Perfumers use a combination of plant-based, synthetic or semi-synthetic oils in the preparation of their mostly secret formulas. The use of an essential oil depends largely on the other components the fragrance may be mixed with in order to create an end product. The potential use of an essential oil is narrowed down as products become more 'aggressive'. A table detailing perfumer's criteria follows:

Table 2: Quest's classification system: end use of the essential oils

Product	Approximate proportion of essential oils which can be used for this type of product
High class toiletries	100%
Personal care products (e.g. shampoos) & Highly functional & household products (e.g. a three in one shampoo or dishwashing liquid)	60%
Aggressive cleaning (bleaches/ bathroom cleaning products)	5%

4.1.2 Industrial interest in any new essential oil

There are limitations to the long-term interest of a new essential oil by worldwide fragrance companies such as Quest, Firmenich, Lucy, IFF, etc.;

- The synthetics industry can replicate, pretty accurately, almost any new scent after maybe a few months' or years' research
- Other limitations include uncertainty in supply and price stability of plant-based fragrances. (Interviewees 1 & 2)

If a worldwide company were to agree on the use of a novel plant-based essential oil they would ask for a guaranteed supply at least three years. They would probably also demand one or more of the following characteristics:

a) The new essential oil resembles another smell and but can be bought at a cheaper price (or perhaps because the other oil is in short supply);

b) Chemistry: The new fragrance has the same scent as another essential oil, but has a different chemical composition which may be suitable for different products;
c) The new scent is truly unusual and interesting, and the company can predict broad appeal
d) The new oil is from a greener source.

4.1.3 Manufacture methods

Natural Essential oils are extracted in four different ways, depending on the quality of the oil that is present in the raw material and the stability of the aromatic components. The methods of extraction are:

- Hydro or water distillation;
- Water and steam distillation;
- Direct steam distillation;
- Solvent extraction;
- Direct distillation.

5 World market

5.1 Essential oils trade classification under the harmonized commodity code system[i]

The harmonized commodity code system is an international six-digit commodity classification developed to facilitate the analysis of world trade. Import and export figures for essential oils can be found under Chapter 33: *Essential Oils and Resinoids; Perfumery, Cosmetics or Toilet Preparations*. Of the VI section of the code: *Products of the Chemical or Allied Industrie*s.

5.2 Global natural products market

According to the Chemical and Engineering news, the industry forecast for the world market of flavour and fragrance sector is expected to top USD$ 18.4 billions in 2004. It has been reported that a trend within this industry is the 'growth in natural care and cosmetics markets (which) is global,with Asian, Latin American, European, Australian, US and other consumers seeking out therapeutic and natural products' (Kate & Laird, 1999, pp 264). Another prediction is that the demand for essentials oils and natural extracts will keep growing and may surpass the demand for synthetic aroma chemicals over the next years.(Chemical and Engineering news, 2002).

6 International regulatory framework

There are a series of international bodies that set standards to monitor the quality and trade of essential oils. A widely recognized body is the International Organization for Standards (ISO). Trade associations include the international Federation of Essential Oils and Aroma Traders (IFEAT), an International association that monitors the toxicity and safety of compounds in raw materials. The Flavour and Extract Manufacturers Association in the US is also a widely recognized body. (Iqbal, M.,1993)

6.1 Legislation for new essential oils

Introducing a new essential oil into the international market would require compliance with a set of toxicity and health and safety tests within the EU and the US. New essential oils to be used in Europe would need to be registered in the European List of New Chemical Substances (ELINCS), (interwee22). In the US, it would have to comply with The Toxic Substances Control Act (TSCA) act of 1976, that 'authorizes the Environmental Protection Agency to secure information on all new and existing chemical substances and to control any of these substances determined to cause an unreasonable risk to public health or the environment' (EPA, 1990). The prices of safety tests for a new essential oil can vary from USD $500,000 for use in the Flavour industry to $1,000,000 for use within the Fragrance industry. (Interviewees 2 & 22). See Appendix 4 for more information on EU Directives for new essential oils.

6.1.1 Convention on Biological Diversity

The CBD was one of the key agreements adopted following Rio 1992. It has three main goals: 'the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources' (CBD, 1992).

Article 15.1 addresses access to Genetic Resources, recognizing 'the sovereign rights of States over their natural resources, the authority to determine access to genetic resources rests with the national governments and is subject to national legislation' (CBD, 1992). National governments have drawn from the convention by drafting national Bills for the protection of plant varieties that are aimed at establishing clear property rights for the use of local flora & fauna. Research undertaken within the field of new essential oils would therefore necessarily have to comply with national regulations and policy processes. In the case of Ghana, the first draft of the bill of 'The legal protection for plant breeders rights and regulation of biological resources' is currently under revision (Ministry of Lands and forestry, 2002) Appendix 5.

7 Country profile: Ghana

7.1 Context

Ghana is a democratic republic that lies on the Gulf of Guinea and covers a total of 238,500 sq km. The capital city is Accra; other major towns are Kumasi, Tamale, Cape Coast, Tema and Takoradi. The official language is English while over 100 native languages are spoken. It has a population of over 2.1millions (WB, 2002) with an average growth of 2.2% per year. The life expectancy of an average Ghanaian is 54 (higher than the 44 years of an individual from the Sub Saharan Africa region).

According to the World Bank's criteria, Ghana is a 'moderately indebted' low-income country. In comparison with other countries within Sub Saharan Africa, Ghana can be considered to be well off. However, statistics show that up to 34% of the population have no access to an improved water source, and approximately one in four adults are illiterate. Ghana has a mixed economy, with a GDP[ii] of 5.7 billion USD in 2002 (the UK's GDP amounted to 1.6 trillion in the same year) - a slight decrease from 7.5 billion in 1998.

While the main economic sectors are agriculture and industry, their share of the economy has shifted considerably in the last twenty years. Agriculture's contribution to the GDP decreased from 53.1% in 1981 to 35.9% in 2001; the industrial sector has grown from 9.2% to 25.2% in the same period. The manufacturing and services areas have stayed roughly the same, with an increase of 6% to 9.2% and 37.8% to 38.9% respectively.

Cocoa and timber are the main exports; fuel and energy are the main imports. With a negative balance of payments, Ghana spent $ 1,103 million USD more than it exported in 2002. In the same year, Foreign Direct Investment amounted to 89.3 million USD; aid per capita was an average of 33 USD.

8 Characteristics of the Market

As mentioned in the Methodology section, most of the information presented in this section was gathered through oral accounts, as there are no directories or previous surveys with information on the industry, (Appendix 12)Visits to Government Ministries, Technoserve, Unilever Ghana, PZ Cussons, Johnson's Wax, Getrade, etc. helped illustrate the characteristics of the Ghanaian market for the target products and plant based fragrances.

8.1 Demand

8.1.1 Multinational firms

Unilever Ghana, (formerly Lever Brothers) has up to 83% of the detergents and highly functional products market, and 70% of the high-class toiletries and personal care markets. Their products are targeted at the average Ghanaian, 'everybody has to buy soap at some point' Mr. Nsarkoh remarked. Unilever estimates show that the company contributes to approximately 2% of the GDP; their expected turnover for 2003 is 1 trillion cedis, just below 115 million USD (Interviewee 11).

PZ Cussons accounts for 20% of the high-class toiletries market; their products are targeted at 'the affluent, middle class woman who cares about beauty'; their key brands are Imperial Leather and Lux soaps. They have a different strategy for the laundry detergents sector, where they retail Elephant and Jet in sachets that range from 15g. - 10kg. The logic being that the poorest people will spend little money often while better off people will buy bulk (interviewee 23). PZ Cusson's turnover in 2002 was 150 billion cedis, approximately 17 million USD. They were unable to provide detailed figures on the volume of essential oils used. Jhonson's Wax is another important company, with a reported turnover in Ghana of 10,000,000 USD in 2002. Their share of the insecticides market is approximately 50%, which generated ninety percent of their profits in 2002. Their best-known brand is Raid, a domestic insecticide. On an average year, Johnson's spends up to 500,000 USD on essential oils (Interviewee 17).
These three companies, which together have a significant share of the personal care, household, and insecticides market, import 100% of their essential oil formulas from central depots in the European Union (Interviewees 23, 11, & 17). Another company to look at in the future is Carssons, reportedly a big player in the personal care sector.

8.1.2 Market share of multinational companies that use essential oils

The importance of the companies we interviewed in Ghana's wider economy is illustrated in the table below. Unfortunately, these companies did not agree to share previous market surveys nor the figures of volume of trade per product. A list of products provided by Unilever, (Appendix 9) and Jhonson's Wax (Appendix 11) and Getrade (Appendix 12) can be found at the end of this report. PZ Cussons, did not provide a list of products at all (Appendix 10).

Table 3: Contribution of the multinationals to Ghana's GDP

Firm	Reported turnover USD*	Contribution to GDP** (%)
Unilever	115 million (expected turnover for 2003	2.01%
PZ Cusson's	17 million (turnover 2002)	0.29%
Jhonson's Wax	10 million (turnover 2002)	0.175%
Total	**142 million**	**2.47%**

* The firm's turnover is the only indicator at hand that can help us have an idea of the contribution that each firm makes to the Ghanian economy.
** According to World Bank figures, Ghana's GDP amounted to US$ 5.7 billion in 2002.

8.1.4 Local companies

An interesting finding was 'Atalla soap' a by-product of Ghana's strong cocoa industry. This is made at a village level from the dried and burnt leftovers of the cocoa pod. The remaining ashes are then mixed with palm kernel oil at high temperatures. In its 'normal' state it resembles a big sponge. The soap is made in rural villages, where individual traders buy it in order to trade in the main markets. It is estimated that about 30% of the population buy this traditional soap (Interviewee 11).

Research into Ghanaian companies led to Getrade, a firm that specializes in the industrial manufacture of the 'Alatta' artisan soap. Getrade has taken Alatta into the mainstream by bottling it and adding a (cheap) fragrance. The product is targeted at the 'sophisticated, urban, Ghanaian lady that likes to take on the idea of using traditional products' (Interviewee 17). Getrade has up to 70% of the sophisticated Alatta soap market - brands such as Village Fresh are often found in retailer's stalls, among with Uniliver's, PZ Cusson's products. Getrade's turnover for the year 2002 amounted to $1,000,000 USD.

Getrade gets 90% of its essential oils from Lucy, a Swiss company, and 10% from rural cooperatives based in Ghana. Their total expenditure on essential oils was up to 100,000 USD; therefore they spent up to 10,000 USD p.a. on Ghanaian plant based essential oils (citrus type smells). The firm specializes in personal care products, but it is also producing and exporting plant-based oils to The Body Shop, under their 'Community Trade' programme. The Body shop buys 'primarily vegetable oils including shea butter and cocoa butter' from Ghana (interviewee 3).

Visits to retailers and distributors also indicated that there is a thriving black market, with products from the Far East predominating.

8.1.3 Quality control

In terms of quality standards and monitoring and evaluation, companies use their own certification systems. Multinational companies are often evaluated by audits from central offices; Unilever Ghana reported that they have been accredited with ISO 14001 the international environmental certification standard. All companies declared that they comply with national food and flavours regulations.

8.2 Supply

The main Non Timber Forest Products (NTFPs) from Ghana are nuts, chew sticks, canes, medicinal plants, spices, dyes and building materials. Shea nuts and cola (*Cola nitida*) are believed to be the main exported NTFP, followed by medicinal plants, gums and mushrooms. While there is limited literature available that documents the importance of NTFPs to self-consumption or trade, the existence of a thriving NTFP trade is evident, in the local markets (Keita, J.D., 1993). Falconer (1992) described the importance of many NTFPs in the local Southern Ghanaian markets, but more than a decade ago.

Technoserve have characterized the natural products domestic industry as 'thriving and unregulated' where the main actors include 'a loose network of collectors/farmers, agents, subagents, manufacturers, distributors and exporters'; they also estimate that the market for natural products can reach up to $11 million[iii] USD (interviewee 21).

There is little documentation on essential oils trade. The outputs of the Canadian Institutional Development Agency programme, which gave financial assistance to establish a citronella oil industry in Togo, Benin and Ghana in 1996 have not been recorded (Blao, 1998). However, it is thought that the essential oils manufacturing industry nose-dived because it couldn't compete with cheaper products from Mexico and Brazil (Interviewees 18, 24, & 15).

Mr. Lechiman, Managing Director of Flavour and Fragrances International, a company specializing in the manufacture of lime oil (based nr. Cape Coast, Ghana), reported that his main competitors are based in Mexico and Brazil, rather than Ghana. His company is currently working only at 5% of its full capacity, producing a total 3,540 kilograms of lime oil per year, which is exported in its totality to the UK. This figure is not recorded in Ghana's HCC 3301140000 export record, Table 8. Due to the lack of a directory of manufacturers and re-processors it was not possible to communicate with other manufacturers.

8.3 Market chain

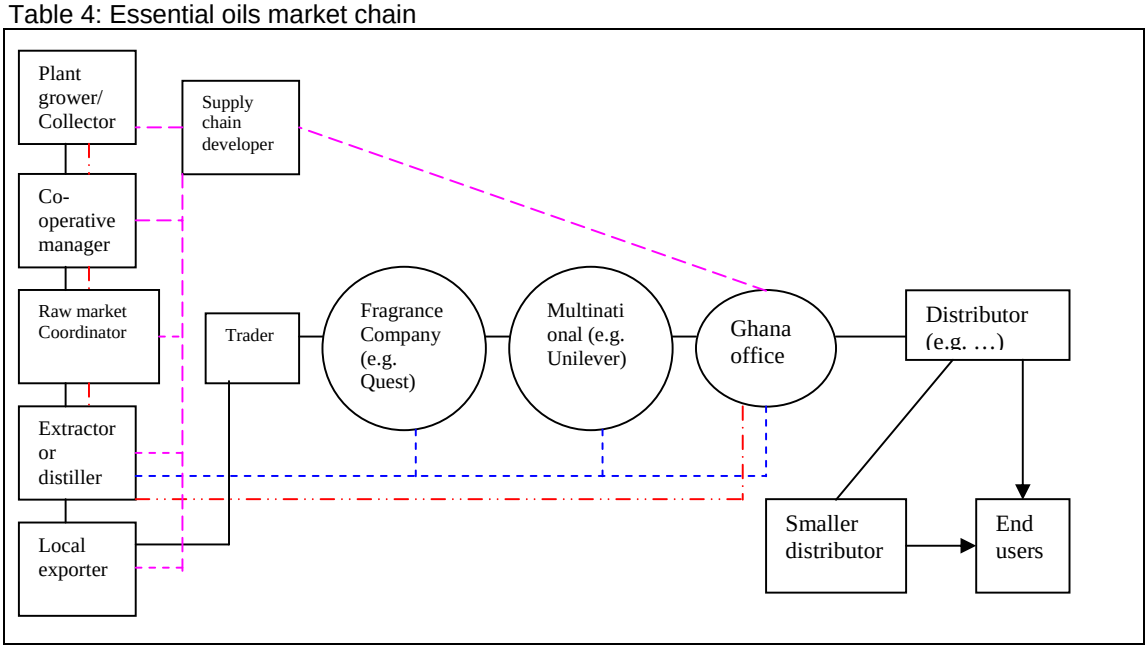
As mentioned earlier, multinationals such as Procter &Gamble, Nestle, Unilever, etc. have to maintain both quality and branding standards throughout the world. The fragrances that are used in their key products have formulas that are mixed and created by a central fragrance company in Europe (effectively a central supplier) and are to a large extent, sacrosanct (interviewee 1). *This is a crucial factor in the global fragrance trade, because it reduces the potential for local supply* .

The market chain of fragrances that are used in our target products is a good example of the complexity of free trade. The story begins when plant growers and leaf, bark or flower collectors sell their products to a cooperative manager, who will, in turn, sell the raw material to a raw market coordinator. The raw materials are then taken to the distillery, and sold through a local exporter[iv]. The local exporter has contacts abroad, usually fragrance traders, who supply fragrance companies directly.

The fragrance companies will mix up the essential oils in order to create a formula. The formulas are in turn delivered in bulk to the multinational, which distributes them to their regional offices where end products are manufactured. Traditionally in Ghana, there is a middleman, or distributor who works on a commission basis. The distributor usually has a shop in a market where he may sell only in bulk, or to end costumers as well. (Interviewees 23, 11, & 17)

Below is a table of a supply chain that takes into account the business as usual and alternative scenarios in case a rural essential oils industry is promoted.

Table 4: Essential oils market chain



8.4 Prices

An economically active Ghanaian spends on average $7.3 USD per year on personal care products (Interviewee 11); prices of soap range from anything within the region of 5,000 cedis (approximately £. 90p) to 2,500 cedis, (£0.15) for the traditional Alatta soap, the cheapest one. There are about 16 million economically active Ghanaians.

8.5 Socio economic characteristics of consumers

While most of the Ghanaian population is a client of the biggest multinational companies, research was carried out in order to find out the socio economic characteristics of consumers that buy in the three main markets located in the vicinity of Accra. The main objective of the questionnaire was to identify consumer preferences in terms of: gender, age, ethnicity, and area of residency. The questionnaires were conducted there because markets have a double function: they house both distributors and retailers. Unfortunately, none of the companies that were visited had reports or papers on the socio-economic characteristics of their consumers, so in the short time available, a few questionnaires were applied to 3 distributors and 3 small retailers in the three main markets.

Results from these 18 questionnaires showed that costumers are mainly: both male and female, aged between 20-50 years, from Ewe, Gas, and from other Ghanaian tribes, as well as foreigners: Liberians from neighbouring refugee camps, Togoles that buy the products to sell them in their own country and on a smaller scale, tourists. Costumers are from rural and urban backgrounds alike. The most popular products are: lotions, cosmetics, ointments and soap. Washing powder, detergents, and laundry detergents are also heavily traded.

8.6 Essential oils: origin and volume of trade

A list of the main products sold in the markets follows, specifying the origin of the fragrances that are found in them. For a list full list of products please refer to Appendixes 9-13.

Table 5: Origin of essential oils in products sold within the domestic market

Company	**PC**	**HF & H**	**AC**	**Other**	**Name**	**Origin of essential oils within the product**
Unilever Ghana Ltd.	X				Dove, Lux, Rexona, Geisha	EU - Fragrance company
		X			Key soap, Omo	
PZ Cussons Industries Ghana Ltd.	X				Imperial leather, Venus	EU – Fragrance company
		X			Duck soap, Elephant, ZIP & Jet detergents,	
S.C. Jhonson Wax Ltd.				Insecticide	Raid	Switzerland – Fragrance company
			X		Toilet duck, crusade disinfectant	
Getrade	X				Village Fresh	Ghana (90%), Switzerland (10%)
Products from East Asia	X				Harmony	Unknown
Rural Producers	X				Alatta, traditional soap	No scent

PC: Personal care, HF & H: Highly functional and household, AC: Aggressive cleaning

8.6.1 Official trade figures

Ghana's total trade of HCC 33 (see Section 5.1): *Essential Oils and Resinoids; Perfumery, Cosmetics or Toilet Preparations* is detailed below; figures indicate that there is a negative balance of trade, due to excess in imports as compared to exports.

Table 6: Ghana's HCC 33 Balance of trade

Year	Total exports	Total imports USD	Balance
1999	5,304,284	N/A	N/A
2000	4,103,407	16,645,002	-12,541,595
2001	4,669,927	10,949,126	-6,279,199
2002	N/A	29,629,985	N/A

Source: Ministry of Trade: Statistics Department, 2003

The below tables show trade of the essential oils specified under HCC 33 for the period of 1999-2001. The lack of a detailed classification system make it impossible to quantify the products that fall under the 'other essential oils', 'mixtures' and 'preparations' categories, or that may be contained within a finished product. A comprehensive list can be found attached to this report (Appendix 2)

Table 7: Detailed HCC33: import of pure essential oils

Import		2000		2001		2002		Total USD
HCC	**Name**	**Netmas (Kg)**	**Value USD**	**Netma (Kg)**	**Value USD**	**Netmas (Kg)**	**Value USD**	
3301130000	Essential oils of lemon	265	992	2,170	34,867	553	3,563	
3301240000	Essential oils of peppermint	3,395	41,717	8,248	40,755	4,323	47,240	
3301291000	Other essential oils of citronella	3,428	36,608	9,009	43,271	3,035	21,861	
3301190000	Essential oils of citrus fruit	742	6,269	1,088	9,408	2,385	20,946	
3301120000	Essential oils of orange	3,460	10,499	960	6,442	3,510	7,749	
3301250000	Essential oils of mint	295	849	300	1,856	N/A	N/A	
3301140000	Essential oils of lime	505	11,348	690	1,833	N/A	N/A	
3301110000	Essential oils of bergamot	17,527	25,056	N/A	N/A	29,400	32,316	
3301230000	Essential oils of lavender or lavendin	294,680	24,047	N/A	N/A	1,050	9,641	
Total value USD			157,385		138,432		143,316	**439,133**

Source: Ministry of Trade: Statistics Department, 2003

Table 8: Detailed HCC33: export of pure essential oils. Note that this must be a gross underestimate of the true value of exports

Exports		1999		2000		2001		Total USD
HCC	Name	Net Kg	Value USD	Net Kg	Value USD	Net Kg	Value USD	
3301130000	Essential oils of lemon	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3301240000	Essential oils of peppermint	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3301291000	Other essential oils of citronella	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3301190000	Essential oils of citrus fruit	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3301120000	Essential oils of orange	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3301250000	Essential oils of mint	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3301140000	Essential oils of lime	N/A	N/A	N/A	N/A	25	14	N/A
3301110000	Essential oils of bergamot	44	57	400	50 [sic!	N/A	N/A	N/A
3301230000	Essential oils of lavender or lavendin	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total value USD			57		50		14	**121**

Source: Ministry of Trade: Statistics Department, 2003

The comparison of both import and export figures shows that there is a negative balance in essential oils trade. The import figures are quite small, which indicates that the majority of essential oils are imported as: ready-made formulas, mixtures, or components of finished products. The export figures are almost non-existent; the manufacturers are either supplying a domestic demand, or the figures have not been recorded accurately (this must apply for the case of bergamot oil, for instance, where 400 kg of bergamot must be worth more than 50 USD, and it seems unlikely that Ghana produces any bergamot oil anyway!).

However sceptical one may be about the official trade statistics, It is reasonable to deduce that one of the causes of the weakness in trade of local essential oils is the strong presence of multinational companies who source abroad, as previously discussed.

8.6.2 Trends

Most interviewees seemed to agree that the future trade in essential oils is likely to be based around citrus-lemony smells (orange, lemon, fruity scents, etc.) This is because such fragrances are associated with cleanliness. Another predicted trend is that the future trade will be in either cheap or multipurpose fragrances, as Ghanaian consumers are mainly concerned with value for money. (Interviewees 11, 17, 23)

9 Analysis of opportunities

9.1 Niche markets

There is a clear niche market for plant-based oils that could potentially add value to the existing Shea (*Vitellaria (*old name *Butyrospermum) paradoxa*) and Cocoa industries. Technoserve, who are currently advising on the development of an environmentally sustainable certified shea butter cottage industry, have expressed their interest on using locally made fragrances in order to add value to their clients' products. Currently, there is a need for essential oils that have a pleasant fragrance or that can neutralize other odours, like the smoky scent in shea butter (Interviewee 14).

Another niche market is the creation of *a typically Ghanaian product*, i.e. the attala soap with a distinct Ghanaian scent, which could be sold in the national and regional markets. The Mexican government has a scheme, 'From Mexico to the world' that aims at branding and promoting non-traditional agricultural products (Interviewee 5).

A third cause for some hope for the future of an exportable Ghanaian fragrance can be seen in terms of the success of Fairtrade chocolate etc., in spite of the power of Cadburys in uk/Ghana. (The co-op Kuapa-Kokoo chccolate story can be read on WWW.co-op.co.uk/ext_1/Development.nst)). Of course, cocoa-growing and the chocolate market was well-established before the Fairtrade approach persuaded consumers to invest more directly in Ghanaian farmers' welfare, but this is nevertheless a factor that potentially contributes to a market advantage to any new, village-scale essential oil initiative. See also Appendix 6.

9.2 Scenarios

The following scenarios were made using a rational choice model, where decision makers seek maximization of benefits according to aims. They illustrate the potential niche markets for a new essential oil; on the basis of the information gathered for this survey, where interviewees (namely the marketing directors of the selected companies) expressed their opinions and willingness to participate in a new essential oils project. Please note, that at this point it is impossible to work out volume and price of an essential oil that has not yet been discovered, the scenarios are therefore speculative.

The following matrix shows scenarios assuming that:

- *A new Ghanaian fragrance was discovered;*
- *There is a distillation capacity in the country;*
- *The aim of the firms is to increase revenue.*

Table 9: Mid term scenarios if: *A New essential is discovered and introduced into the domestic market*

9.2.1 Unilever-related scenario

Scenarios		
Best	**Mid**	**Worse**
Unilever helps create a stable network of rural producers and an efficient supply chain of the new essential oil. (see Novella Africa…)	Unilever helps create a stable network of rural producers and an efficient supply chain of the new essential oil.	Unilever continues doing 'business as usual' and does not get involved in creating a network of rural producers or a supply chain.

The new essential oil is used in products developed by Unilever Ghana and is later on used at the global level. Unilever pays for the international safety tests (see 6.1).	Unilever Ghana maintains a stable demand for use in local products.	

A win-win scenario would be a project development partnership with Unilever Ghana. This company has the know-how and willingness to develop a local supply chain (or network of rural producers) - they have done it in the past for the salt and tinned tomato industries (Interviewee 11). It is important to note that there are already some efforts underway to promote the use of other types of natural products (other plant-based oils) within Unilever International. See the copy of 'Project Novella', at the end of the report, for more information.

9.2.2 Getrade-related scenario

Scenarios		
Best	**Mid**	**Worse**
A typical atalla soap with a Ghanaian scent is produced. The product is marketed as an exclusive Ghanaian product and extends into the international market. The international safety tests are paid for by an international company, interested in buying the product (i.e. Neal's Yard or Body Shop, etc) The new scent also complements the existing shea & cocoa butter oil industry, which are currently exported unscented.	The Ghanaian atalla soap is created and sold in the domestic and west African markets. The new scent is used in existing products such as Village fresh etc., or as a complement in other products sold in the domestic and West African Market.	Business as usual.

A more conservative scenario would be to supply the demand of Getrade, by producing small quantities of essential oils and slowly substituting a share of the 90% of essential oils that they import.

9.2.3 Quest related scenario

Scenarios		
Best	**Mid**	**Worse**
Quest introduces the new fragrance into its pallet (This happens to 2 plant based fragrances every three years, approximately) and pays for safety testing.	Quest shows interest in the scent, and decides to eventually reproduce it synthetically in its laboratory.	Quest shows no interest in the scent.

The riskiest and most appealing scenario is the involvement of Quest. If the company's perfumers showed an interest in the new scent, there could potentially be a new industry generated in Ghana, with the obvious benefits for rural farmers. In the mid case scenario outlined above, Quest might benefit by producing a synthetic clone of the fragrance, ruling Ghana out of long term benefits from trade in the natural product. This matter was raised with Mr. R.Clery of Quest on the 17th of July, and his response was that Quest would still strive to make this scenario still positive for Ghana, as Quest would be keen to respect their corporate social responsibility code of conduct. As such, some form of contract would need to be agreed before any such close involvement started.

10 Conclusions and further research

This investigation aimed at describing the market for plant based essential oils from Ghana. Results show that the Ghanaian demand for essential oils is almost exclusively satisfied by imports due to the pre-eminence of multinational companies within the fragrance and flavour industries and the apparent slow-down of a local distillery industry that was active up to the late '90's. The scope for substitution of imported essential oils will depend on reliability of supply at competitive prices.

There is also potential for complementing the existing Ghanaian cottage industries, which already have a strong presence in the domestic market. The majority of firms were keen on both substituting known essential oils and experimenting with novel fragrances. New scents could be used with existing local brands, or in new products. Consumer preferences are dictated by value for money and 'multi-use'. In terms of fragrances Ghanaians like citrus types, especially lemon. Both entrepreneurs and Ghanaian perfumers are more likely to be interested in these types of new scents.

A policy recommendation is to focus on strengthening a producers' network and distillation industry. The development of a skilled rural network with high quality standards was one of the milestones in the establishment of a shea butter network in Ghana (Interviewee 14); and may prove to be the biggest challenge to establishing a rural essential oils cottage industry.

It has been noted that, in spite of the oligopoly of multinationals there are some positive indications for the future markets of novel and local essential oils, particularly because all interviewees have are keen on sourcing directly in Ghana. There is renewed interest in developing local production of oils, and the market for green fair trade products has grown significantly in the last decade e.g. Bananas and chocolate.

From a Development point a point of view, the potential benefits are greater than outlined in the tables: local capacity and know-how engendered would allow further research on other essential oils. Further research could focus on the flavour and insecticide industries and the development of a rural development partnership with either domestic or multinational firms.

11 References

Abbiw, D.K. (1990), *Useful plants of Ghana*, Intermediate Technology Publications and Royal Botanical Gardens, Kew:UK

Alexiades, M.N. (2002) Sangre de drago (croton lechleri) P.p 136-155 in Shanley, P., Pierce, A. Laird, S.A. Guillen, A (eds) *Tapping the green maket: certification and management of non-timber forest products.* Earthscan, London

Amres, G.R., M.Barrow, C.Burton, T.E.Casey, W.S. Matthews & J.Nahney (1971) Bay oil distillation in Dominica. *Tropical Science* 13: 13-16 (with appendix by Coward describing the still used)

Ames G.R. & W.S.A. Mathews (1968) The distillation of essential oils. *Tropical Science* 10: 136-148.

Asante-Dartey (2002), Domestic market for medicinal herbs: in progress Technoserve, Accra

Blao, H. (1998) News Article 411, Producing essential oils in West Africa, http://network.(Blao, 1998) .ca/ev.php?URL_ID=5548&URL_DO=DO_TOPIC&reload=1062182740

Chemical and Engineering News , *'Reshaping Flavour and Fragrances'* 80(18):32, May 2002, American Chemical society: US

Coppen, J.J.W. (1994). *Flavours and fragrances of plant origin: A review of the production, markets and development potential of selected essential oils and resins and their plant sources*. Natural Resources Institute/Overseas Development Administration.

EPA (1990), *Clean air act*, http://www.epa.gov/oar/caa/contents.html,US

Falconer, J.D. (1992). *Non-timber forest products in southern Ghana: a summary report.* ODA Forestry Series No. 2. UK Overseas Development Authority, London.

FAO (1995), *Chapter 7: essential oils*, Non-wood forests products 12, Food and Agriculture Organization of the United Nations, Rome

Fenn, R.S. (1968) Perfumery requirements for essential oils. *Tropical Science* 10: 42-48.

FORIS (2003), FAO, Forest information systems, http://www.fao.org/forestry/fo/country/index.jsp?geo_id=76&lang_id=1

Hawthorne, W. (2002) *Scents for conservation and rural livelihoods: investigating and promoting the potential for essential oils to improve the livelihoods whilst enhancing security of rainforest biodiversity*, proposal presented to the Forestry Research Programme, NR International on the 16th of January 2002.

ITC. 1993. *Essential oils and oleoresins: A market profile*, International Trade Centre, UNCTAD/GATT, Geneva.

Iqbal, M. (1993), *International trade in non-wood forest products: an overview*: forest products working paper 11, Food and Agriculture Organization of the United Nations, Rome

Iqbal, M. (1995). *A study of trade restrictions affecting international trade in non-wood forest products*, FAO, Rome.

Kate K. & Laird A. S. (1999) *'The commercial use of biodiversity: access to genetic resources and benefit-sharing'*: Earthscan, London

Keita, J. D. (1993) Main Non-Wood forests products: Ghana,

In Non Wood forest products in Africa: an overview, FAO, Ghana.

Lawrence, B. M. (1985) A review of the world production of essential oils *Perfumer and Flavorist*. Vol. 10, October/November: 5, 6, 8.

Ministry of Lands and Forestry (2002) A Bill entitled (for the) protection of plant varieties: first draft, Ghana

Mynard, B., Blowfield, M. Burchell, R., Collinson, C., Nelson, V., Talontire, A. and Thornback, J (2001) *Ethical Trade, people and forests: a manual*, Natural Resources Institute, Greenwich, UK

Robbins, S.R.J. (1982) Natural essential oils: current trends in production, marketing and demand. *Tropical Science* 24: 65-75

Robbins, S.R.J. (1983) *Selected markets for the essential oils of lemongrass, Citronella and Eucalyptus.* Tropical Products Institute, London.

Rural Industries and Research Corporation (2002) *R&D Plan for Essential oils and Plant extracts 2002-2006,* www.rirdc.gov.au/pub/essentoi.html, RIRDC, Canberra

Schreckenberg, K (2003) *Appropriate ownership models for natural product-based small and medium enterprises in Namibia: report produced for the indigenous task team,* ODI, London

Thomas, M.G. and Schumann, D.R., (1992) *Seeing the forest instead of the trees: Income opportunities in special forest products.* Midwest Research Institute, Kansas City, MO, USA.

Werner Antweiler(1995) Harmonized Commodity Description And Coding System http://pacific.commerce.ubc.ca/trade/HS.html, University of British Columbia, Canada

Walter, S., Cole, D., Kathe, W., Lovett, P., Paz Soldán, M., (2003) Impact of certification on the sustainable use of NWFP: Lessons-learnt from three case studies, Paper submitted for presentation at the International Conference on Rural Livelihoods, Forests and Biodiversity 19-23 May 2003, Bonn, Germany

Web resources:
US Environmental Protection Agency (EPA) http://www.epa.gov/oar/caa/contents.html

[i] Harmonized Commodity Code System
The Harmonized System is an international six-digit commodity classification developed under the auspices of the Customs Cooperation Council. Individual countries have extended it to ten digits for customs purposes, and to 8 digits for export purposes.

In the Harmonized System goods are classified by what they are, and not according to their stage of fabrication, their use, or origin. The Harmonized System nomenclature is logically structured by economic activity or component material (1995,Werner Antweiler)

[ii] GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated *without*

making deductions for depreciation of fabricated assets or *for depletion and degradation of natural resources. (WB,2003)*

[iii] This is Technoserve's team speculative figure.

[iv] Certain fragrance companies have their own plantations, and supervise the quality of ingredients from begging to end (i.e. Biolandes).

Appendix 1: Schedule 1

Proposed market survey of plant-based fragrances in Ghana and Grenada

Rationale

A research proposal 'Scents for Conservation' was submitted to FRP in 2003. 'Scents for Conservation' would promote and monitor the production by rural poor of novel (i.e. never-before extracted, let alone studied) fragrances in essential oils from the rain forests of Ghana and Grenada. 'Scents for conservation' proposes to investigate the ecological, chemical and economic feasibility. If successful, the project would point the way to a major new sustainable rural livelihood initiatives for the two target countries, with implications and lessons for many other tropical countries, linked also to biodiversity conservation benefits.

FRP are concerned that however successful the project is at discovering, extracting and analysing new and interesting fragrances, it would all be a waste of time and money if there is no market for such oils. They have therefore requested a market survey.

The current document is a proposal that Anna Karp organises and conducts a market survey for FRP, consulting with stakeholders in UK, Ghana and Grenada and using published sources.

The general aim behind the proposed market study is therefore to define the existing and potential market niche for the types of usual/commercial essential oils and novel oils expected as an output of the 'Scents for Conservation' proposal.

Aims

We will be investigating the market, from a quantitative perspective, of various types of commercial cleaning, cosmetic, personal grooming and other aromatic products that incorporate synthetic and natural fragrance chemicals in Ghana and Grenada.

Our **Target products** are as follows

<u>Personal care</u> Soap and shampoos, cosmetics, body oils and lotions, perfumes, aromatic insect repellents. <u>Household and commercial cleaning</u> Detergents, scented candles, pesticides that use essential oils. <u>Foodstuffs</u> Packaged or home made drinks and food that contains aromatic oils, for humans or farm animals.

Agricultural

Pesticides or farm insect repellents that use essential oils.

Industrial

Any aromatic products used in factories.

Other uses

E.g. local medical preparations and unforeseen products.

The aims of the market survey directed at these products are:

- Describe the current market in Ghana and Grenada for our target products;

Market chains and how much of each product is traded at the moment; number of manufacturers and re-processors and their distillation capacity; number of retailers, specifying the types of products that they retail; quality standards and monitoring that apply to this market; significance of the market to the national economies.

- Quantify the essential oil ingredients in the target products, specifying origin and type (synthetic or natural);

Including fixatives, stabilisers, surfactants and any other ingredients used in the target products.

- Define the socio-economic characteristics of the consumers;

Including: ethnicity, age, gender, residence status (tourist/local); urban/rural. This will be quantitative data from manufacturers and market research data, where available; and where no such data are available, by interviewing retailers about the preferences of their customers.

- Identify the opportunities and potential niche markets for new essential oils;

Analyse the potential market for new fragrances including the specification of the products that would be substituted with the proposed innovative scents. This will be derived from interviews with manufacturers and retailers and others listed below.

Methodology

There will be three phases:

Phase 1: Desk-study and networking in the UK, including visits to major fragrance companies, especially those with an actual interest in our target countries including Lever brothers and Quest international; researchers at IIED, LSE, ODI; former staff at NRI (e.g. Clinton Green), Reading, Oxford (e.g. Gina Green)

Phase 2: Fieldwork: visits to Ghana and Grenada. This will involve interviews to establish current usage, costs and willingness to pay for new plant-based oils with:

- Manufacturers of our target products;
- University researchers (Ghana, Grenada);
- Interviews with any actual local producers of essential oils;
- Interviews some specific groups who understand consumers of our target products, e.g. marketing team of Lever Brothers and, in Grenada, cruise ship and on-shore staff, tourist shops, any local processors or re-processors (any value-adding operation) and Arawak islands company;
- Government and NGO staff working with trade issues, rural development, agriculture and natural resources.
  For instance, specifically:

- Chambers of commerce (Ghana, Grenada);
- OCAP and similar agroforestry NGOs (Ghana);
- Forestry departments (Grenada, Ghana);

Phase 3: Analysis and reporting, including initial draft for feedback from FRP.

Outputs

- Two reports, one for Ghana and one for Grenada, satisfying the aims including a market (worst, likeliest, best-case) scenario.

Appendix 2

List of interviewees:

Reference number	Name	Institution	Type of interview	Place	Date
1	Robin Clery	Quest	Meeting	Kent	17.07.03
2	Clinton Green	Clinton Green Consultancy Services	Email	--	09.07.03
3	Andrew Jones	The Body Shop	Email	--	04.08.03
4	Michael Mason	London School of Economics	Meeting	London	18.07.03
5	Kate Schreckenberg	ODI	Meeting		17.07.03
6	William Hawthorne	Oxford	Meeting	Oxford	Several meetings
7	Pierre du Plessis and Cyril Lombard	ASNAP-SANProTA	Meeting	London	12.07.03
8	Abu Juam	Ministry of Lands and forestry	Meeting	Accra	23-28.07.03
9	Mr Issah Nikabs	Ministry of Trade	Telephone	----	
10	Oteng Yeboa	CSIR		Accra	29.08.03
11	Yao Nsarkohh	Unilever Ghana	Meeting	Accra	24.08.03
12	Harrie Hendrix	Unilever Netherlands	Email & telephone	----	10.07.03
13	Angela O' Mahogany	Unilever UK	Email & telephone	-----	21.07.03
14	Peter Lovett	Technoserve	Meeting	Accra	29.07.03
15	Nick Railstone-Brown	Technoserve	Meeting	Accra	29.07.03
16	Emmanuel Addisi	Ministry of Trade, Statistics Department	Meeting	Accra	24.07.03
17	Ladi Nylander	Johnsons' wax	Meeting	Accra	28.07.03
18	Mr. Lechiman	Flavour and Fragrances	Email/telephone	-----	30.07.03 contact after the above date was made by research assistant over the phone

19	Philip Abayoe & Mr. Adama	Ghana British chamber of commerce	Email Telephone	-----	21. 07.03 28.07.03
20	James Meyers	IIED	Email/telephone	-----	
21	Julianna Asante-Dartey	Technoserve	Meeting	-----	29.07.03
22	Sarah Johansson	European Commision	Email	----	01.09.03
23	Mr. Katsis	PZ Cussons	Meeting	Accra	28.07.03
24	D. Baker	GCNA	Meeting	St. Geroge's	06.08.03
25	B. Sampson	Fuerst Day Lawson	Telephone	London	08.09.03
26	Ms. Thelma Gymamfi	Researcher & translator	Meeting	Accra	24-25 & 28-30 July 2003