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Value Chain Analysis Indonesia Essential Oils

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Content

List of Sources	4
Glossary.....	5
Executive Summary	6
1. Introduction	9
1.1 EU market segmentation for essential oils	9
1.2 Indonesian natural ingredient products groups	10
1.3 Structure of this report.....	10
2. The European Market for Essential Oils.....	11
2.1 Trends in the European market.....	11
2.2 European market demand.....	13
2.3 European requirements.....	15
2.4 Value addition.....	16
3. Structure and Governance of the Essential Oils Value Chain.....	19
3.1 Value chain actors	20
3.2 Influencers	27
3.3 Supporters	28
4. Opportunities, Obstacles and Sustainability for the Essential Oils Sector	34
4.1 Outcomes of Chapters 2 and 3	34
4.2 Key obstacles for growth of exports to Europe	36
4.3 Key opportunities for growth of exports to Europe	39
4.4 Sustainability challenges and opportunities.....	40
4.5 Conclusions.....	40
5. Possible Interventions and Support Activities for Essential Oils	42
6. Conclusions	47
6.1 Market segment	47
6.2 Intervention logic.....	47
6.3 Risks	47
Annex I — Essential Oils Produced in Indonesia	49
Annex II — Longlist of Companies Identified and Shortlist of Companies Interviewed.....	50
Annex III — Price Indications for Selected Essential Oils from Indonesia and Competitors	51

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Glossary

ADB: Asian Development Bank
AFFI: Indonesian Flavour and Fragrance Association
APSKI: Employer Association for Food Supplements
ASEAN: Association of Southeast Asian Nations
BRC: British Retail Consortium
BSO: Business support organisation
CBI: Centre for the Promotion of Imports from Developing Countries
CSR: Corporate social responsibility
DAI: Dewan Atsiri Indonesia (Indonesian Essential Oil Association)
DC: Developing country
DFID: Department of Foreign and International Development (UK)
DG: Directorate General
EC: European Commission
EU: European Union
FAO: Food and Agriculture Organization of the United Nations
FFI: Fauna and Flora International
FSSC: Food Safety System Certification
GACP: Good agricultural and collection practices
GMP: Good manufacturing practices
GPJ: Gabungan Pengusaha Jamu, the Indonesian Herbal and Traditional Medicine Association
HACCP: Hazard Analysis and Critical Control Points
IFEAT: International Federation of Essential Oils and Aroma Trades
Indessota: Indonesian Essential Oil Trade Association
ISO: International Standards Organization
ITC: International Trade Organization
ITPC: Indonesian Trade Promotion Center
JICA: Japan International Cooperation Agency
MoA: Ministry of Agriculture
MEF: Ministry of Environment and Forestry
Mol: Ministry of Industry
MoMaF: Ministry of Marine Affairs and Fisheries
MoT: Ministry of Trade
MT: Metric tonne
NPOP: National Programme for Organic Production
NGO: Non-governmental organisation
NRSC: Natural Resources Stewardship Circle
NTT: Nusa Tenggara Timur
NTB: Nusa Tenggara Barat
PERKOSMI: Indonesian Cosmetics Association
R&D: Research and development
REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals
SIPPO: Swiss Import Promotion Programme
SME: Small and medium-sized enterprises
SOP: Standard operating procedure
UNIDO: United Nations Industrial Development Organization
USD: United States dollar
USP: Unique selling point
VCA: Value chain analysis

Executive Summary

This CBI-commissioned value chain analysis (VCA) identifies opportunities and obstacles in the Indonesian essential oil sector, vis-à-vis European markets for essential oils, but especially value-added products, such as organic essential oils. This analysis identifies characteristics of trends, demand, requirements and options for value addition, describes the actors and relations in the value chain, identifies clear obstacles and opportunities and proposes targeted interventions.

In addition to this VCA report, CBI developed two additional reports: on seaweed (extracts) and plant extracts.

Chapter 2: The European market

Based on information on trends, demand, requirements and value addition propositions, the study shows good potential for essential oils on European food and cosmetics markets. The study also shows that, although Indonesia has a large raw material production base, its product range is quite uniform and companies lack unique selling points. Companies have not yet taken advantage of the European market trends that could benefit Indonesian producers, such as increased demand for organics and compliance with corporate social responsibility (CSR) and traceability requirements. Finally, the analysis shows a big difference in compliance between SMEs and big players, and in the perception of European buyers towards their products. The table below summarises these aspects of the European market's trends, demands, requirements and the opportunities and the potential for Indonesian essential oils.

Indicator	Essential oils (non-organic)	Organically certified essential oils
European market trends	(+/-) Indonesian suppliers do not leverage trends	(+) Supply constraints in EU, organic entering F&F
European demand	(+) Growing market	(++) Organic is fast growing segment
European market requirements	(+) Exporters meet requirements, REACH issue for SMEs	(+/-) Indonesia can meet most requirements
Value addition opportunities on the European market	(+/-) Low margins	(++) Organic premium
Potential for Indonesia	+++	+++++

Chapter 3: Structure and Governance of the Value Chain

Chapter 2 shows that the value chains for essential oils in Indonesia are generally long and complicated, leading to low levels of traceability and security in terms of quality and quantity. Trust, communication on quality and volumes and transparency in terms of prices is low. Key issues, for example, health and safety at the distilling level, remain unsolved.

The chain generally involves farmers, collectors, distillers and exporters, but other intermediaries might be also involved. Coordination among actors in the value chain, including supporters and influencers is weak but the sector association, DAI, can provide a solid basis to improve this situation, since it has a good coverage of the sector.

Chapter 4: Opportunities and Obstacles and Sustainability in the Value Chain

In terms of obstacles, Chapter 3 identifies the following key issues:

- Lack of supply chain management: Many Indonesian essential oil exporters act as traders and do not take responsibility to ensure a sustainable supply chain in terms of volumes, quality and traceability. They face therefore many issues around accessing raw materials at the right quantities, the right times and at the right prices.
- Indonesian SMEs lack knowledge specifically on:

- European market trends, so they do not develop products which meet market needs, and do not leverage high-growth segments in Europe.
- European market access requirements and standards, so they do not comply with quality, documentation and certification, or the right route to introduce innovative products to the European market.
- No market access: Indonesian SMEs specifically have little contact with the European market and European buyers so they do not learn about buyers' requirements and do not communicate with buyers on product development and improvement. Therefore, companies do not develop USPs.
- Perception of European buyers: In terms of quality, European buyers see problems with Indonesian businesses' food safety management, consistency, documentation and communication with SME suppliers of essential oils.
- There is little coordination amongst players in the sector, especially for organic essential oils, which limits their ability to tackle obstacles beyond the influence of individual companies.
- Across the board, local business support organisations (BSOs) do not offer sufficient services to meet the needs of exporting companies, such as organic certification.
- Although R&D into essential oils exists, the private sector is not well connected with the actors responsible for it. More research in, for example, organic production, is also necessary to compete in value-added markets.

Chapter 3 identifies the following opportunities:

- Good availability of raw materials and options to increase raw material supply;
- Best cases for business where companies can learn from one another;
- Growing, strong demand in the European market;
- Strong research focus;
- Priority sector for government.

Chapter 5: Possible Interventions and Support Activities

Chapter 4 proposes the following interventions for essential oils:

- Improve sector coordination;
- Export development for SMEs and setting up best practices for development of USPs through supply chain management, sustainability and product diversification;
- Develop traceability and compliance tools;
- Develop market information tools for the sector;
- BSO service delivery development.

For certified organic essential oils, Chapter 4 proposes additional interventions:

- Capacity building for organic sector service providers;
- Market orientation to the organic market for exporters, BSOs and public institutions.

Chapter 6: Conclusions

In the conclusions, the research team provides recommendations on focused market segments, key considerations for interventions to succeed, and multi-sector interventions, identifying risks, risk mitigation actions and indicators.

The research team recommends a market focus on cosmetics and food sectors. In terms of key interventions in the essential oils sector, we recommend:

- Identifying committed suppliers willing to work towards developing USPs in terms of full traceability, CSR compliance, certification and product diversification, such as developing or reinvigorating the smaller oils produced in Indonesia.
- Building awareness of opportunities offered by different USPs through market orientation and market intelligence.
- Developing a sector strategy to create an enabling environment for USP creation.

The research team identified the following key risks for possible CBI interventions:

- Commitment of companies;

- Government interference;
- BSO resources and capacities;
- EU regulatory changes;
- Dissent amongst sector stakeholders.

1. Introduction

1.1 EU market segmentation for essential oils

This VCA considers the food and cosmetic industries as the main users of essential oils. Both industries have an organic segment.

1.1.1 Food and feed industry

The food industry is the largest market for essential oils. Essential oils are mostly used as ingredients for flavour compounds, which are then used as an ingredient for a large variety of food products, including dairy, frozen products, bakery and confectionary, meat, snacks, condiments and especially the beverage sector. However, direct use of specific essential oils also happens. Ingredients for food can be further segmented per functionality and into specialty ingredients or commodity ingredients, as shown in the table below.

Specialty products can be of premium quality, certified, exotic and relatively new to the market. Commodity products are of standard quality and traded in large quantities, some even through futures markets.

Table 1. Ingredient by functionality

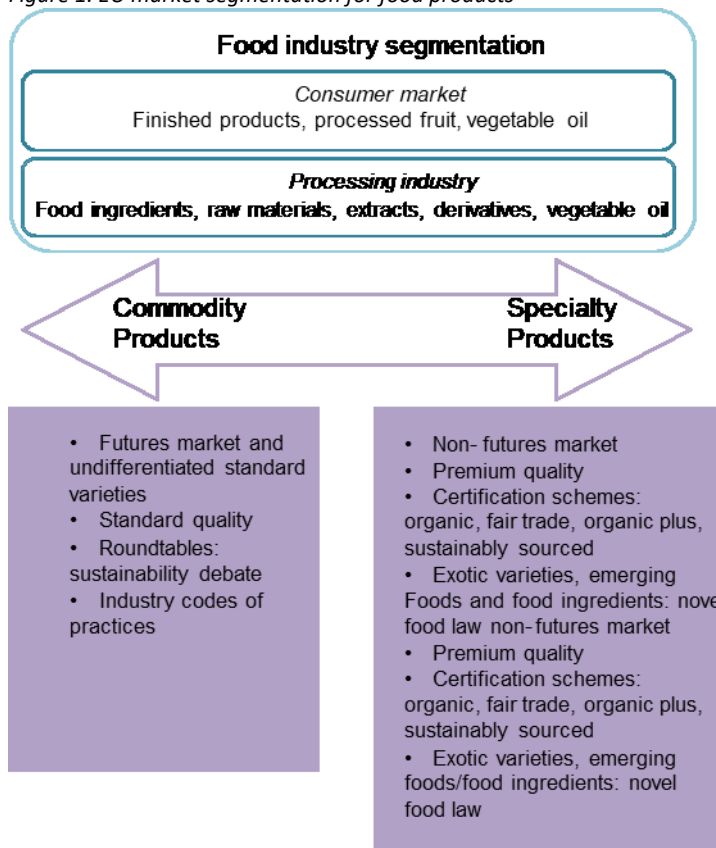
	Examples of natural ingredients used
Texturisers (e.g. thickeners)	Gums, waxes, resins, hydrocolloids
Flavours	Essential oils, oleoresins, aromatic plant extracts, spices and herbs
Colours	Only natural colourants permitted
Glazing agents	Waxes
Fortification	Plant extracts, seaweed extracts

1.1.2 Cosmetic industry

Developing countries supply many different essential oils to cosmetic producers in the EU, often through intermediaries, such as traders, distributors and processors, or with the support of agents. The cosmetic industry is divided into five main segments — skin care, hair care, decorative cosmetics, fragrances and toiletries — each with many different sub-segments. Of these segments, toiletries, skin and hair care represent the largest segments in the cosmetics industry with approximately 25% market share each, followed by fragrances and decorative cosmetics, which have about 15% and 10% respectively. Essential oils are used in these products mostly to add fragrance, but also to offer other supporting functions, including for active properties (see aromatherapy below) or to help preserve the product.

In addition, aromatherapy is an increasingly important market, both in skincare and haircare cosmetics with aromatherapy ‘claims’, but also as single or mixed essential oils, which are often marketed as cosmetics, but often not included in the figures below. In some cases, they are marketed as pharmaceutical products, where value is highest; in other cases, outside both segments, mostly as home fragrances, where value is lowest.

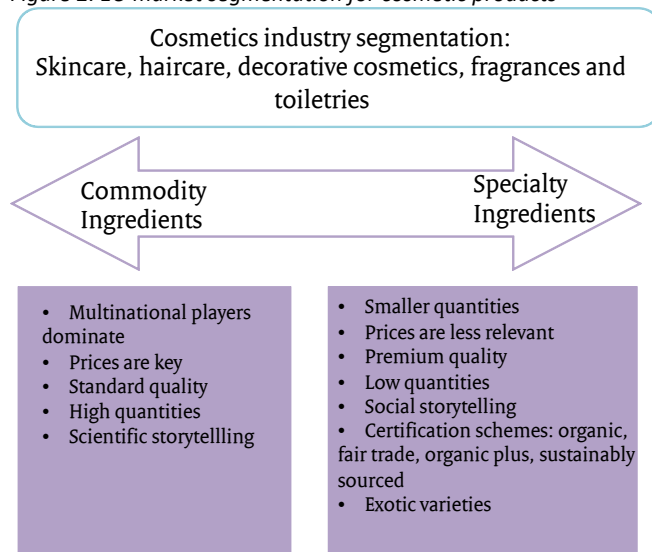
Figure 1. EU market segmentation for food products



Demand can be divided between conventional or commodity and specialty ingredients. Specialty ingredients are traded in smaller quantities and are often used for additional marketing potential in addition to their functionality or activity. These ingredients, for instance, may carry a certification for social or environmental standards, may be rare, have exclusive and strong marketing and storytelling qualities, sometimes all of these combined. They are more used in exclusive, natural, organic or ethical products.

Commodity ingredients serve as the basis for many products, including both conventional and natural cosmetics products requiring large and constant ingredient quantities at highly competitive prices.

Figure 2. EU market segmentation for cosmetic products



1.2 Indonesian natural ingredient product groups

This VCA looks at essential oils. An essential oil is a concentrated liquid containing volatile aroma compounds from plants. Essential oils can be produced from various plant sources, as well as from different plant parts including resins or plant exudates, leaves, flowers, fruits, bark and wood. Most essential oils are extracted using steam distillation. Other extraction methods include water distillation, mechanic or cold-pressed expression — most notably from citrus peels — solvent extraction or enfleurage (from flowers). Extraction methods mainly depend on the raw material being extracted.

In addition to non-certified essential oil, this VCA also includes specific information, obstacles, opportunities and interventions on organic essential oils.

1.3 Structure of this report

This report is structured in six chapters. Chapter 1 is just an introduction. In Chapter 2, Indonesia’s essential oils sector is discussed under four themes:

- European market trends;
- European demand;
- Market requirements;
- Value addition opportunities.

Chapter 3 looks at the structure and governance of the sector looking into the actors, influencers and supporters, the governance structure of the value chain and the horizontal and vertical relationships amongst them.

Chapter 4 identifies key opportunities and obstacles along the value chain and in terms of the business enabling environment. Chapter 4 also discusses specific risks to CSR in the value chain. In Chapter 5, we propose possible interventions and support activities for the essential oils sector. In Chapter 6, we provide a conclusion associated to an intervention logic and risks. Throughout, specific information for organic essential oils is added as boxes.

2. The European Market for Essential Oils

This chapter discusses the European market for essential oils according to four indicators:

- European market trends;
- European demand;
- Market requirements;
- Value addition opportunities.

Specific information for organic essential oils is added as boxes.

2.1 Trends in the European market

Healthy and natural

Consumer demand for natural products is increasing. Consumers often see natural products as healthier alternatives to synthetic products, a view which companies increasingly exploit in their marketing strategies. To respond to this trend, producers tend to replace chemical ingredients with natural ingredients. Companies across all segments are highlighting their use of natural ingredients, which can include certifications to attest naturalness, for example in the case of cosmetics. The healthy, natural trend is also related to a drive for high-quality products which are traceable throughout the value chain.

This trend is relevant for a range of functionalities required by industries, including improving taste and smell, opening up opportunities for essential oils to replace flavour additives, or providing food fortification or supplementation. The trend is known to Indonesia's essential oils industry, especially its sector association, but the sector is not actively tapping into the European market outside of the flavours and fragrances industry, where natural fragrances remain a niche.

Box 1. Growing demand for organic essential oils

Helped by an increase in demand for natural products and ingredients, the market for organic products is growing strongly. This trend is most relevant for food and cosmetics, but is also present in food supplements within the health segment. All buyers interviewed for this VCA, apart from the main flavour and fragrance players, stress organic as the key trend for the sector. Several buyers indicated that while supply of conventional essential oils from Indonesia is covered, they are keenly exploring organic supplies from Indonesia.

Still, organic products represent a small part of the overall market, depending on the specific product and market. Organics are particularly important for aromatherapy and are making strong headway in skincare. The most mature markets in the EU are in Northwestern European countries, such as Germany, Switzerland the UK and the Nordic countries. The fastest growing markets for organic ingredients are currently in Eastern European countries.

In general, few Indonesian companies are investing in this trend. The Indonesian organic sector currently is very limited and many companies express a reluctance to invest in certifying their value chains due to issues with supply fragmentation and even the mindset of farmers. Other countries, such as India, already have a head start in this segment.

Traceability

Traceability within value chains is very important due to legislative and buyer requirements, such as certification schemes. Following good practices guidelines in production, harvesting and processing is also increasingly important to access the European market. Suppliers which are able to offer full traceability to their buyers have a competitive advantage.

In this context, the adoption of verifiable, documented traceability systems takes on even more importance for suppliers, helping them to compete with suppliers from countries where traceability is problematic, such as China. In addition to stricter controls, buyers require certifications from recognised and trustworthy sources, which can demonstrate the supplier's commitment to high and consistent quality and safety.

In general, Indonesia is seen as lagging in traceability, which will be further explained under Chapters 3 and 4. However, traceability is also problematic for some of Indonesia's main competitors, such as Egypt, China and India.

Box 2. Traceability is compulsory for organics

For organically certified essential oils, European legislation requires traceability. Buyers also make it a top priority in their sourcing, to have traceability in place all the way to the source of raw materials.

Vertical integration of supply chains — Responsibility for quality enforced along the chain

Decreasing margins in competitive markets, combined with increasing demands on safety, traceability and quality have prompted various European manufacturers to integrate their supply chain management in their processing operations and rationalise their value chains. This results in:

- Middlemen (local traders, brokers or agents) with a limited value addition function being cut out of value chains, both in Europe as well as in source countries. In the Indonesian essential oils trade, where only a few companies have made efforts to get closer to sources to be able to offer traceability, middlemen continue to play a vital role.
- Processors, manufacturers and retailers are generally shortening their chains and work with fewer preferred suppliers (importers and producers), on whom they place the responsibility for product quality and delivery volumes. A tighter control over the chain allows them to improve traceability, monitor product safety and quality and achieve process improvements.

Sustainability and ethical sourcing

Awareness amongst consumers is growing about the effects their purchasing behaviour has on social conditions in production countries, including a growing interest in the source of ingredients. This enhanced consumer interest results in the increased demand for ethically produced products, particularly those that have fair trade or other ethical certifications. Consumers, however, do not always demand these certifications. In fact, there is a growing demand to go beyond certifications, to explain to consumers what true, local benefits the products they buy generate.

Sustainability offers opportunities to companies in marketing (premium, market access) and supply (ensuring future availability, which is especially relevant for wild-collected products). Working on sustainability is not yet high on the agenda amongst Indonesian exporters, which makes Indonesia less attractive to buyers compared to other suppliers. To achieve more sustainability would take a substantial change in how Indonesia's essential oils supply chains are set up, as further explained in Chapters 3 and 4.

Sustainable wild collection

In the case of wild collection, sustainability has become more important due to legal requirements, such as the Convention on Biological Diversity, in addition to CSR and economic perspectives. The availability of wild-collected materials has been reduced by encroaching cities and agricultural zones, retiring collectors and disinterest from young rural populations in collecting, in addition low prices and overharvesting.

Sustainability of supply, in terms of quantity and quality, as in consistency in the active content, is increasingly relevant to EU buyers of ingredients, especially when they need to make large investments in product development and documentation. Consequently, European buyers are becoming more involved in the sustainable management of natural resources to secure supplies.

Exporters are then required to make their supply chains more transparent and take more responsibility to ensure sustainability of raw material production. Some companies in Indonesia practise sustainable wild collection practices,

for example, Martha Tilar in the cosmetics industry, which has a strong mission for community development and sustainable trade. We have not seen commitments to sustainable collection amongst essential oils exporters, which could be due to a strong ‘trader mentality’, as explained in Chapters 3 and 4.

2.2 European market demand

The demand for essential oils is growing worldwide. The global essential oils market is expected to grow by [8.4% per year over the period 2016–2024](#), amounting to almost USD 14 billion. Europe accounted for more than 40% of the demand at the start of this period and is expected to remain a dominant market, especially for high-quality and high-priced essentials for fragrance, cosmetics and aromatherapy. This is because the main flavour and fragrance manufacturers in the world are based in Europe.

European imports of essential oils have increased by 0.8% in volume during the period 2012–2016. However, import value has increased by 9% annually between 2012 and 2016, which shows increasing prices in addition to growing demand. However, this development is driven mostly by trends outside of Europe, for example, the growth in emerging markets in Asia and Latin America and the strong growth of the aromatherapy market in the USA.

Table 2. European imports of essential oils:

	Imports in EU-28 from Indonesia 2017, in tonnes and million €		Annual growth or decline since 2013, in value	Main importing country in 2017, in value	Main country of origin
3301 Essential oils, incl. concretes and absolutes; resinoids; extracted oleoresins ...	85,596 tonnes	€1.78 billion	13%	France (22%), Germany (20%), UK (15%), Netherlands (14%)	USA (9%), France (9%), India (7%), Netherlands (7%), Brazil (7%)
330129 Essential oils, concrete and absolutes (excl. citrus and mint)	17,701 tonnes	€805 million	13%	France (36%), Germany (15%), UK (15%)	France (16%), China (10%)
Resinoids	878 tonnes	€15 million	7%	France (22%), Germany (17%), UK (17%)	France (25%), USA (19%), Germany (16%)
Extracted oleoresins	21,463 tonnes	€239 million	8%	UK (20%), Netherlands (16%), Germany (14%)	India (22%), Germany (13%), USA (9%)
Oils of mints	2887 tonnes	€58 million	-1%	Germany (37%), UK (28%)	India (41%), USA (23%), China (13%)

European essential oils imports were valued at €1.78 billion in 2017. The USA and France are the main suppliers, each accounting for 9% of the supplies. The USA is the key source for citrus, along with Brazil, and mint essential oils. India and China provide a wide range of essential oils, as do smaller exporters such as Egypt, Indonesia and South Africa, while France and the Netherlands, in particular, are re-exporters. Indonesia represents a minor source of origin, although the country is responsible for a large part of world supply of certain spice oils (e.g. clove, nutmeg) and patchouli (see Annex I).

Table 3. European imports of essential oils from Indonesia

	Indonesia's share of the European market, in value	Imports of EU-28 from Indonesia 2017, in tonnes and million €		Annual growth or decline since 2013, in value	Main importing country from Indonesia in 2017, in value
Essential oils, incl. concretes and absolutes; resinoids; extracted oleoresins...	3%	1.545 tonnes	€57 million	9%	France (37%), Spain (32%), Germany (12%), UK (10%), Netherlands (7%)
Essential oils, concrete and absolutes (excl. citrus & mint)	6.85%	1.437 tonnes	€55 million	9%	France (38%), Spain (32%)

Resinoids	4.85%	31 tonnes	€0.7 million	18%	UK (83%)
Extracted oleoresins	0.16%	63 tonnes	€0.4 million	17%	Spain (61%)
Oils of mints	0.44%	13 tonnes	€0.3 million	235%	Slovakia (65%), UK (32%)

According to ITC, there are no exports of resinoids from Indonesia to Europe.

Box 3. European market demand for organic essential oils

Until recently, European demand for organic essential oils remained very limited, despite a high growth of the organic segment in other markets, such as fruits and vegetables, coffee and sugar. European legislation on the organic market allows the use of conventional ingredients making up less than 5% of the final product when an organic version of the respective ingredient is not widely available. Many European manufacturers of organic products use this exception to use conventional essential oils instead of organic essential oils.

A small but growing number of manufacturers is aiming for completely organic products and searching for organic essential oils. For specific market segments such as skin care, supplements and aromatherapy, organic is becoming important, while for the flavours and fragrance industries, organic remains as a niche.

Vegan food segment

The number of Europeans who are reducing their consumption of animal products has been increasing significantly due to health, animal welfare and financial reasons.

BioFach, one of the most important European trade fairs for organic and natural products, dedicated part of its [February 2018 trade fair](#) to the world of vegan, showing the potential and possibilities for future product development. This fair corroborates the fact that consumers are less willing to compromise on taste and texture of vegan foods and many expect an eating experience that is similar to eating products containing meat, dairy or eggs. Essential oils play a strong role in providing flavour to many vegan food products.

Ethnic foods segment

Appreciation amongst consumers in Europe for products from different origins and valued by different ethnicities is increasing. Newcomers to Europe have contributed to the increased attention these products have been receiving. As European consumers travel and meet other cultures, which is not a new trend, it brings more authentic non-European and ethnic products on the European market on a regular basis.

While cuisines from Southeast Asia are very popular in Europe, this is currently limited to the Thai, Malaysian, Singaporean and Vietnamese cuisines. Indonesian food is less known, except in the Netherlands. However, many traditional ingredients in Indonesian cuisine, including spices, also find a use in Malaysian food. This can support the demand for essential oils by food manufacturers to reach the right flavour profile in their food products.

Natural and organic cosmetics

The market for natural and, in particular, organic cosmetics are expected to grow in the coming years. Global demand for organic personal care products was estimated at over [\\$10.16 billion \(€8.2 billion\) in 2015](#), and is expected to reach \$25.1 billion (over €20 billion) by 2025. This represents a 9.5% compound annual growth rate. Even though growth in the organic cosmetics market is expected to be highest in North America, both Europe and Asia-Pacific follow closely behind. In addition, European natural cosmetics companies export their products across the globe, adding to their demand for natural ingredients. Germany is the largest market for organic personal care products in Europe.

In 2016, skincare products represented [the largest segment of global organic personal care products market](#), followed by haircare and cosmetic products. This strong growth is supporting the demand for organic natural ingredients for cosmetics, including essential oils. These products have a premium price when compared to conventional ingredients.

Channels to the European essential oils market

Type of importers: European flavour and fragrance compounders, cosmetic and food manufacturers, essential oil importers

- Examples of large flavour and fragrance manufacturers: IFF, Givaudan, Firmenich, Symrise
- Examples of essential oil importers: Voegele, [Nitsche](#) and Elixens

Box 4. Organic essential oil importers

Examples of essential oil importers with an organic range: [Voegele](#), [Sanabio](#) and [Aromatech](#)

Price developments

Imports have shown an average growth between 2013 and 2017, due to increased demand in Asia and pressure on essential oil cultivation. These trends are expected in the future. Moreover, fluctuations in production are becoming more common, for example related to weather.

Table 4 Development of European import prices of essential oils (other than citrus and mint oils) in €/kg

2013	2014	2015	2016	2017
31.7	35.0	36.7	40.6	46.5

Source: Eurostat, 2018

Buyer perception

European buyers in general perceive Indonesia as an important origin for essential oils. Many of the interviewed buyers are active in Indonesia, where they source a variety of products. Their perception of quantities, quality, prices and supply consistency is mostly OK, which can be interpreted as a positive perception, as European buyers have high requirements and OK implies that the offers comply with their requirements.

The main concerns of buyers about Indonesian extract exporters relate to inconsistency in quality, and issues that have been identified with contamination by pesticide residues, phthalates and iron. European buyers relate these problems mostly to SME exporters; The top players' products are considered high quality. Buyers indicate that smaller companies have difficulties to meet the requirements in relation to standardisation, facilities compliance, quality, reliability and service level. They relate this to insufficient knowledge on quality control and management and different perceptions on communication.

The interviewed buyers could not rate the performance of Indonesia compared to other countries. The preferred supplier country depends on the specific product that they are looking for, and buyers consider the competitiveness of individual suppliers instead of entire countries.

Box 5. Buyer perceptions of organic essential oils from Indonesia

European buyers do not perceive Indonesia as an important origin of organic essential oils. The availability of organic essential oils is considered very limited in Indonesia which leads importers to seek alternatives in other countries. For example, a French importer indicated buying organic patchouli in India (even though quality was considered lower) since organic patchouli was not available from Indonesia.

2.3 European requirements

The most relevant requirements for essential oils are the following.

Food

Food products and ingredients are covered by an extensive body of legislation. The most important aspects of these laws deal with food safety, which includes hygiene, pesticide residues, contaminants, microbiological criteria, permitted additives, and processes and systems to control these requirements, such as tests and Hazard Analysis and

Critical Control Points (HACCP). In addition, buyers can demand food safety, traceability and sustainability standards beyond legislative requirements, e.g. ISO 22000, depending on which specific buyer.

The most established certifications amongst Indonesian producers are ISO 9001 and HACCP, with some companies making progress towards ISO 22000 and the Food Safety System Certification FSSC 22000, which is the main full food safety management standard in Indonesia. An estimated 30% of medium to large companies in the Indonesian food sector are certified for the FSC 22000 standard. Most exporters did not mention whether they have food safety certification (most large ones likely do), but indicated that they are certified by the Indonesian food and drug authority and have basic food safety in place.

Cosmetics

For cosmetic products, legislative requirements are less stringent than for the other segments in this study. For essential oils, the main issues is with REACH. Registration, Evaluation and Authorisation of Chemicals (REACH) strongly affects market options for new essential oils due to high registration costs and for other chemically modified ingredients, increasing costs of exporting to Europe. REACH compliance is problematic to all but the largest Indonesian essential oils exporters, who have entered or set up consortia, with EU clients such as Firmenich, Givaudan and IFF. The knowledge on REACH and compliance with it is problematic for small and emerging exporters.

Non-legislative requirements are very relevant as this sector strongly relies on the story backing the final product, in addition to the efficacy or functionality of ingredients. Buyers normally demand additional certifications and marketing materials, such as those promoting Indonesia as the origin, in addition to documentation on safety, efficacy, stability and dosage, to differentiate products from those of competitors. This type of marketing is very uncommon in the essential oils industry in Indonesia, apart from exceptions such as Tripper.

Box 6. Organic legislation

A small but growing group of European buyers require third-party certification of sustainability. Organic certification is becoming particularly more important. Organic food additives are produced and processed by natural techniques, such as crops rotation, biological crop protection, green manure and compost.

To market food products in the European Union as organic, producers need to implement organic farming techniques and have their facilities audited by an accredited certifier. Moreover, for essential oils specifically, the solvents used need to be permissible under organic legislation. These requirements are specified in [European Union Regulation 834/2007](#). Organic certification is costly, but buyers are often prepared to pay significant price premiums for organic essential oils, depending on the specific product. Few Indonesian companies have reached compliance to organic standards and certified their products.

For organic specifically, the introduction of TRACES, a new system for trade in organic products, is considered an obstacle for small exporters by European buyers.

Communication

Although not a legal requirement, buyers stress the need for proper communication, both verbal as well as in terms of samples and documentation. These are vital for establishing business, growing business as well as ensuring business continuity. Buyers consider Indonesian companies, especially SMEs, as relatively weak in terms of communication when alerting on non-compliance or late deliveries, following up on requests, proper sampling, as well as providing proper documentation.

2.4 Value addition

Quality management, traceability and its documentation

Buyers look at product quality first, but they are increasingly placing emphasis on quality management and transparency along the chain. Improving supply chain transparency makes it easier for EU companies to comply with

legislative requirements and certification standards. Suppliers who are able to offer full traceability to their buyers have a competitive advantage.

Opportunities to add value to raw materials for essential oils include proper identification, harvest, collection and post-harvest handling and documentation complying with good agricultural and collection practices (GACP) and good agricultural practices (GAP) to get a higher price for the raw materials.

For processed products HACCP is compulsory for food, while GMP I or II can be required for pharmaceutical grade essential oils which fetch premium prices. In addition to the minimum and mandatory food, pharmaceutical and cosmetic standards of production, large retailers and processors in the EU increasingly demand compliance with standards such as the cosmetics ingredients GMP, the [British Retail Consortium \(BRC\)](#), the [International Food Standard \(IFS\)](#) and [ISO 22000](#). Compliance with these standards improves traceability and quality control within the value chain and gives companies a competitive advantage.

Processing at origin

There is a general shift in processing from the EU to countries of origin. Further processing, such as blending of essential oils for aromatherapy products, can add considerable value to products. Exporters can also add value to their products by improving standardisation, which requires appropriate technological improvements, such as meeting local capacities. Quality and food safety management are of the utmost importance.

Sustainability

Both for cultivation and wild collection, sustainability is a major issue to EU companies and consumers. Obtaining certifications, developing marketing stories and adopting CSR practices can add value to products, open up opportunities and facilitate market access.

- *Marketing stories:* In addition to complying with certification standards, there are opportunities to add value by employing marketing stories, which mostly involve the product's origin. It may include the local tradition of use, production methods, benefits for communities or the environment, the identity of producers, the environment of production, etc. Increasingly, these marketing stories require strong documentation to back real benefits. Several Indonesian essential oils companies already use storytelling in their marketing, but predominantly they have a strong product focus on their promotional materials.
- *CSR and company codes of conduct:* By implementing CSR policies or company codes of conduct, companies can set themselves apart from their competitors. Such codes include social and environmental parameters that demonstrate an exporter's commitment to sustainable principles. Although basic compliance is increasingly becoming a market requirement, going beyond the basics can add value to a product and facilitate market access, as some European companies which are committed to sustainability require such codes or policies from their suppliers. Indonesian companies often do not have written codes or other documents to substantiate and promote their CSR practices.

Box 7. Value addition opportunities for certified essential oils

Organic and fair-trade products represent niche markets, but their sales in Europe have been growing considerably for several years now. Certified products are priced at a premium when they are sold as organic or fair. Certified products are available, but to a very limited extent.

Due to limited availability of certain organic certified essential oils, buyers pay considerable price premiums for those organic essential oils. In many cases, the price premiums give good return on investment for the organic certification, including the implementation of changes in farming and processing and possibly lower productivity. Many of the interviewed buyers expressed a strong interest in organic essential oils from Indonesia. Buyers from the fragrance and flavours industry are not yet interested in organic certified essential oils. However, availability of organic and fair-trade oils from Indonesia is very limited.

Annex III provides price indications for selected essential oils from Indonesia and competitors. These price indications show that prices depend largely on the order size and composition. They also show that Indonesia is price competitive in several products including clove and citronella.

Value addition through direct exports

European buyers generally prefer to have short transparent supply chains without unnecessary intermediaries. This implies a preference to source directly in Indonesia, all other factors being equal, that is when the same value addition activities take place in Indonesia as in China. However, apart from commodities such as turpentine and rosin, most oils are already sourced directly in Indonesia. Moreover, as explained above, these products also have low prices in Europe. However, for companies with the ability to comply with EU requirements, exporting directly instead of through exporters in Indonesia can provide a substantial value addition.

3. Structure and Governance of the Essential Oils Value Chain

This chapter describes the structure and governance of the essential oils value chain (VC), looking into:

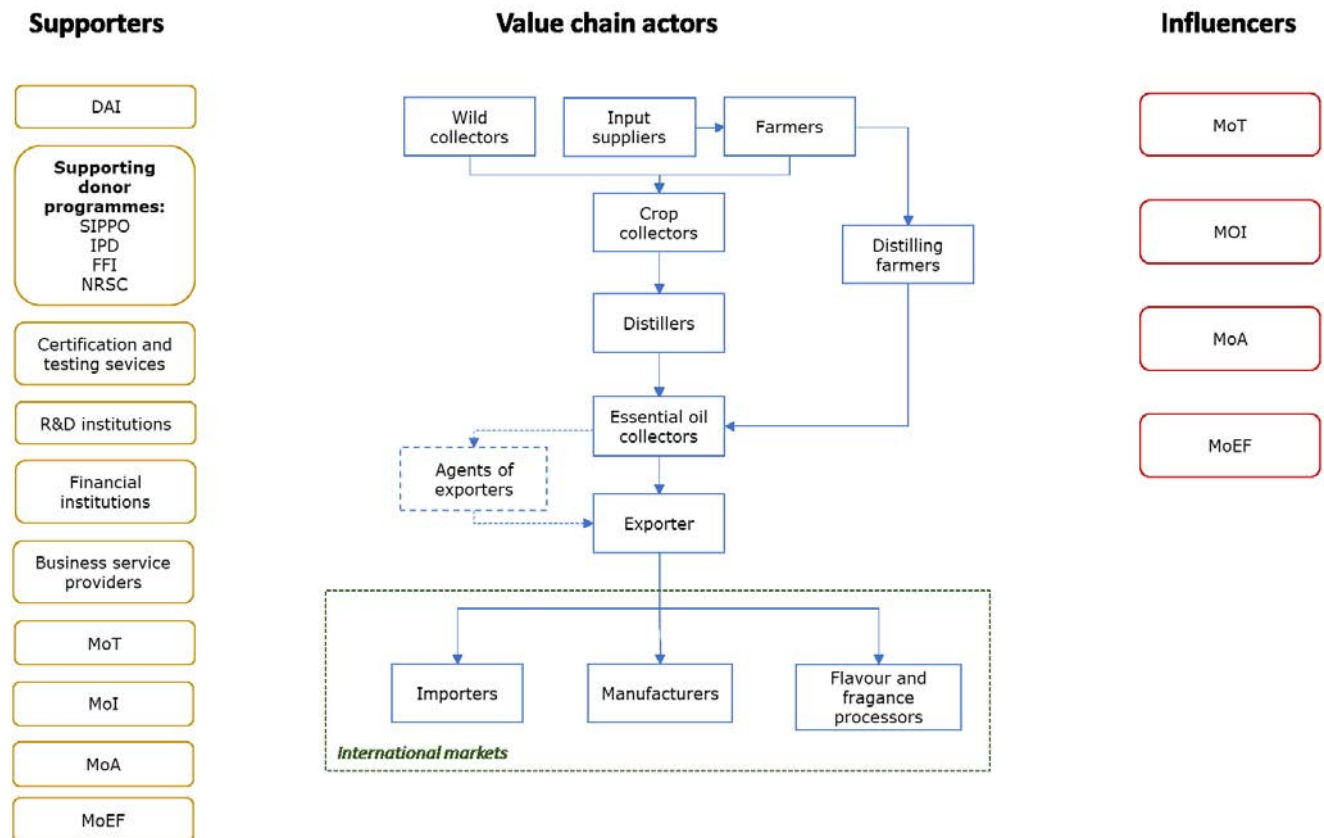
- What are all the actors, influencers and supporters in the VC? How many are active in each part of the VC?
- What is the governance structure of the VC and how are the actors working together?
- What are the horizontal and vertical relationships between these actors, influencers and supporters?

Please note that organisations can have different roles. For example, government agencies often have both an influence role, setting the rules, and a support role, helping value chain actors to comply with the rules. We discuss:

- Value chain actors: All actors from input supply up to buyers in Europe;
- Value chain supporters: Industry associations, international organisations, donors, local NGOs, government organisations and other supporters in key services such as certification, testing, R&D and financial services;
- Influencers: The key rules and responsibilities making up the enabling environment as well as the ministries setting and implementing these rules.

Figure 3 below provides a representation of the value chain for essential oils directly exported to European markets. This chapter discusses these different players, starting with value chain actors, moving to influencers and finally discussing value chain supporters. Specific information for organic essential oils is added as boxes.

Figure 3. Value chain of essential oils directly exported to European markets



3.1 Value chain actors

3.1.1 Input suppliers

Availability of quality seeds differs amongst different essential oil crops. Provision of superior seeds to farmers is a key focus area in the sector strategy of the Ministry of Industry.

Agricultural inputs such as fertiliser, pesticides and herbicides are easily available in Indonesia. However, the knowledge on their application is limited. Moreover, there is little knowledge on what pesticides and herbicides are permitted under specific standards and certifications or which are permissible to buyers.

Box 8 Lack of availability of organic inputs

In general, there is low commercial availability of agricultural inputs which comply with the organic regulations in Europe.

3.1.2 Wild collectors

Several raw materials for essential oils are collected in the wild such as massoia bark, some gurjun and litsea. Collection is done throughout Indonesia. Collectors, who for the most part are women, also live in the poorest communities, having little alternative income.

Training of collectors on sustainable collection practices is very limited in scope in Indonesia, even though it is mandated by Indonesian legislation. How and when collection takes place depends on how collectors are linked to traders and distributors connected to the internal and international markets. Communities often lack a clear window to the market and do not collect until they are notified of specific demands from local traders.

The value of plant material at this level is low compared to later value addition. Collectors are often involved in initial post-harvesting procedures. Communities sometimes organise storage in local collection centres, while waiting for collectors to pick up materials.

3.1.3 Farmers

Most raw materials for essential oils are based on cultivation. For many crops, essential oil production is only one of the uses of the crop. For example, in the case of cloves, the buds are an important spice, while the buds, the leaves and the stem are used to produce different essential oils. This makes it difficult also to estimate the number of farmers who are active in the essential oils value chain. There are figures available for some crops used only for essential oils production, for example patchouli (around 25,000 farmers) and citronella (around 5,000–10,000 farmers).

Some farmers are organised in farmer groups or cooperatives, but the percentage of organised farmers is not known. The scale of production is generally very low, leading to a strong fragmentation of production and higher costs. Application of and knowledge of good agricultural practices for the particular crop is often limited, but likely higher for spice crops. This is due to a weak extension services by the private sector and government institutions, as well as the lack of remuneration for quality (see below). In case of a need for fast cash, farmers also sell or distil their crop even when it is not mature, strongly affecting the composition of the essential oil.

The lack of extension affects product volumes, pushing the productivity of many estate crops in Indonesia substantially below that of other ASEAN countries and competitors such as China and India. It also affects quality, in terms of residues, microbiology, variation in composition. It also affects production due to poor soil management.

Box 9. Farming of raw materials for organic essential oils

No information is available on the number of farmers working according to organic standards.

For organic certification farmer organisation is of vital importance. If farmers are not organised, the costs are greatly increased for setting up and organising groups to manage internal control systems, to efficiently convince farmers of the benefits of organic certification, and to train them on organic production systems, even when existing production is close to organic. It also makes certification costs prohibitive. Tools to make training, compliance and auditing activities more efficient are lacking. Industry sources specifically cite very little experience with documentation at the farmer level.

The use of non-organic fertilisers, pesticides and herbicides by farmers is a big issue in Indonesia. According to industry sources, much effort is needed in terms of building knowledge, but also in changing mindsets. Several companies indicated that their experience is that farmers return to using these chemicals to increase their crop or save time. Equally, quick returns are needed to show farmers that growing organic results in higher prices to justify higher costs of production and potentially lower yields.

3.1.4 Crop collectors

Crop collectors pick up raw plant materials at farms and collection communities and deliver them to distillers. Little information is available about this level in the chain.

3.1.5 Distillers and distilling farmers

Two types of actors perform distillation: distillers or farmers with distilling capacities. Farmers usually also distil raw materials for other farmers in their surrounding area or community, while distillers usually receive their raw materials through collectors. Distillation can range from rather traditional to modern facilities, although at this level the scale is often small.

Essential oils distillation requires substantial labour. For example, one average clove distillation plant provides employment for more than 50 workers and further employment is created at the collector and exporter level. Taking the example of patchouli, the number of distillation units in Sulawesi and Java is approximately 250, producing 900 metric tonnes per year. The number of distillation units in Sumatra is approximately 175, producing around 300 metric tonnes per year. With each distillation unit employing a minimum of five people, the total number of people employed in the distillation process is around 2,000 for patchouli alone. Moreover, the number of collectors and agents involved in the trade chain amount to approximately 300 people.

Industry stakeholders indicate that there has been a lot of improvement in distillation in recent years, as traditional wood-fired iron stills, as well as water and steam distillation is being replaced with more modern stainless steel units. This has caused a radical improvement in quality for some oils. It has also led to a reduction in the number of distilleries, with larger farmers and distilleries taking materials from smaller farmers, instead of smaller farmers also doing their own distillation while still ensuring that raw materials are distilled quickly after harvest. The exception are products such as nutmeg or cinnamon which are transported over long distances before processing. These distilling farmers and distilleries have sometimes been supported by large exporters to ensure proper processing and installation of the right equipment.

A substantial number of traditional distillers continues to exist, as modernisation is not always economical. For example, in the case of smaller producers of patchouli, which has a short harvest season. Application of health and safety practices is lacking and accidents have been reported, leading to serious injuries or casualties, due to such practices not being in place.

3.1.6 Essential oil collectors

Essential oils collectors act as intermediary between distillers and exporters and play an important role in the consolidation of small quantities from distillers. Some also take on the role of agent or representatives of exporters for a particular growing region, while others sell the essential oils to them as independent traders.

Some of intermediaries provide working capital or down payments to farmers and distillers, having the power to set the buying price of the crudes. This way, the quality grade of the essential oil remains out of the equation, with

adequate quality fetching a similar price as high-quality oils. Farmers do not have an incentive to produce high-quality essential oils and prefer to produce a mix of good and bad batches. Moreover, these 'ljon' systems make farmers very dependent and extension difficult.

Usually, traceability can be assured from the level of the essential oil collectors. Here, different batches from distillers often get mixed together, resulting in uncertain traceability beyond this level.

Box 10. Control of organic essential oils value chain

For organic essential oils, traceability and separation of flows is vital. Therefore, exporters must take much closer control of the value chain or invest to get closer to the sources of their raw materials. Several companies have decided to do so, investing in their supply chain. This was mostly done for crops whose raw materials come from a concentrated area where they already had closer ties. Essential oil collectors play a much smaller, or no role in these value chains.

3.1.7 Exporters

The following data was found at the exporter level:

- There are well above 80 companies active in the industry, around 10 big players, several of which are amongst the top companies worldwide.
- We identified 83 companies for the fieldwork¹.

Key locations include:

- Java — with 61 companies, out of which seven in Banten, six in Central Java, 26 in Jakarta, five in East Java, two in Yogyakarta and 15 in West Java;
- Sumatra — 14 companies;
- Bali — Four companies.

Please note that some companies are based in Jakarta but do not produce there. The vast majority of the companies in the sector are privately owned, many still are family businesses. However, in certain sectors, public companies play a substantial role, for example in products which are considered NTFPs (under the responsibility of the Forestry department, e.g. cajaput). Another example is in the case of gum rosin and turpentine, eucalyptus, where the company Perhutani is producing vast quantities for auction.

There are 31 companies which are members of DAI, covering the majority of the essential oils production and the essential oil exports from Indonesia.

Box 11. Indonesian exporters of organic essential oils

Six members of DAI currently offer organic essential oils:

- CV Aroma
- PT Haldin Pacific Semesta
- PT Indoharvest Spice / PT Gorom Kencana
- PT Mignons Sista International
- PT Natura Perisa Aroma
- PT Tripper Natura
- PT Van Aromabut

These companies have only certified selected value chains, which means that the range of essential oils currently available as organic is low. A detailed overview of organically available oils could not be provided, nor is it known whether there are organically certified companies outside of DAI membership, which is unlikely.

¹ During the field work, the local team visited 10 exporters, with two additional exporters visited for a short visit together with the international expert. Please note that due to the short visit not all questions in the questionnaire could be discussed with the company in detail, so the company is not included in further statistics. These exporters are shown in Annex 1. Further statistics on companies are based on these 10 companies.

Exporters do not operate at 100% of their capacity. Most produce well under their production capacity, some as low as 20%, for various reasons discussed below. There are large similarities amongst the companies in terms of the oils they export. Those that have a large portfolio focus usually on Indonesia's big oils. Some companies have developed strong USPs for specific products, such as Karimun Kencana Aromatics for patchouli, Haldin for citronella and Indesso for clove and nutmeg. There is also a large number of oils dealt in by some of the smaller players, such as PT Scent Indonesia.

Sourcing practices

Exporters predominately get their essential oils from intermediaries, but some also work directly with distilleries. Some indicate that traceability can usually be provided up to that level, even if collectors are involved. Most exporters work with suppliers based on long-term business relationships, but without supply contracts. Sometimes contracts are made verbally, but often purchasing is left to local representatives who source on the company's account. There is sometimes strong competition for supply if volumes fall short, which is very disruptive to relations that were established between exporters, collectors and distillers.

In general, the companies show a strong trader's attitude in their sourcing practices, not taking actions to improve their supply chains, achieve traceability and improve practices along the chain. This is clearly linked to the buyer perceptions mentioned in Chapter 2, related to contamination and inconsistent supply, especially the SME exporters with insufficient knowledge on quality control and supply chain management.

However, some companies are investing to get closer to the source to improve quality and differentiate themselves from other Indonesian companies. Companies in the Medan area specifically are considered traditional in this respect. Industry sources indicated that a new generation is coming in with a different mindset that to add value and enter other markets, exporters need to get closer to and invest in production in order to improve quality and differentiate their offer to the market.

The table below, provides insights into the type of tools and processes processors have put in place to support quality sourcing. It shows a high incidence of lists of approved suppliers and quality checks by quality control staff, but a lack of written specifications. A relatively large number of exporters also does supplier audits.

Table 3. Application of sourcing tools and practices, by 10 interviewed companies

To facilitate your sourcing do you have	YES	NO
Written specifications agreed with your suppliers?	30%	70%
A list of approved suppliers?	90%	10%
Factory-gate quality checks?	90%	10%
Quality control staff?	100%	0%
Regular supplier audits/visits	80%	20%
Quality, input or financial support for suppliers?	70%	30%
Batch number?	100%	0%

The main sourcing challenges mentioned by the respondents are:

- Competition for raw materials from other essential oil manufacturers (60% of companies);
- Changing qualities (20% of companies);
- Price fluctuation;
- Price of logistics and transportation.

Some exporters also have their own farms and plantations for strategic products.

Box 12. Sourcing practices and challenges for organic essential oil exporters

Organic essential oil exporters source more directly, often working directly with distillers to ensure traceability, documentation and quality. There are also cases where they have set up their own distillation facilities for

organic essential oils. In general, business relations in organic essential oils are stronger, as exporters have fewer alternatives when producers decide to sell to others.

The main sourcing issue for organics mentioned by respondents was the high costs of certification, in terms of organisation of farmers, internal control systems, documentation and training. The companies interviewed also mentioned that the effort of organising organic raw material supply is too large for their companies and they lack experience. Some also mentioned the difficulty of managing separate product flows.

Processing practices

Most exporters also engage in processing, which can range from stabilising and homogenising oils and testing different qualities coming from different regions differ, while product needs to be of consistent quality, re-distillation and acid washing, to fractioning to produce isolates and molecular distillation among the most sophisticated companies.

Again, buyers mention that smaller suppliers have difficulties to correspond to processing requirements, most notably their ability to meet product standards and compliance of facilities, related to a lack of knowledge on market requirements, standards and technologies, good manufacturing practices and management skills, especially to manage quality processes.

In terms of testing, all companies are able to offer GCs with their product, while other testing is done only by the more sophisticated companies. The number of companies that mentions HACCP certification is surprisingly low, although the majority mentions being checked by the Indonesian food and drug authority.

Table 6. Incidence of testing and certification, by 10 interviewed companies

Tests	
Gas Chromatography	100%
HPLC	30%
GCMS	20%
Refracto analysis	20%
Specific Gravity	20%
Optical Rotations	20%
physical-chemical	10%
Organoleptic	10%
calibration	10%
LC	10%
MS/MS	10%
Polarymeter	10%
Chemical analysis	10%

Certification	
Kosher	70%
Halal	60%
Organic	20%
HACCP	10%

Registration	
REACH	60%
FDA	60%

Challenges of companies with processing include:

- Adapting the production to changing quality and quantities of raw materials (30 % of interviewed companies);
- Access to new technology (30 % of the interviewed companies);
- High costs of certifications (20 % of the interviewed companies).

More than half of the companies have registered products under REACH. Those that do not, become dependent on importers with a registration or supply international markets through bigger peers in Indonesia.

Management practices

70% of the interviewed companies indicated that they have a business plan. The management needs mentioned were mostly related to export marketing in terms of client management, understanding and fulfilling customer needs and providing the documentation required for international markets. No issues were mentioned in terms of

sourcing or supply management, which again underlines the strong trader mentality of processors, and a lack in terms of supply chain development.

Box 13. Organics philosophy new to Indonesian companies

The philosophy of organics is not well understood in Indonesia. Companies that engage in organic value chains are doing it mostly because of demand. Moreover, organic is mostly considered a cost, not a USP that provides value addition to companies. Some companies indicate they fear revenue is not considered enough to finance the certification process and that the market is too narrow.

Marketing practices

Export markets are vital for the Indonesian essential oils sector, which has traditional, strong links to the international and especially the European flavours and fragrance industries. Some have joint ventures or long-term cooperations, including joint investments in the chain and compliance, with the main exporters in Indonesia. However, many companies in the country do not export directly, cannot scale, do not know international markets and buyer requirements, have little to none export experience, or do not meet international buyer requirements. The implementation of REACH could aggravate this situation, as some companies opt to sell registered products through other exporters.

New companies entering the market, for example exporters of spices, miss information on market and buyer requirements. There appears to be a low knowledge of and no vision towards supplying markets outside of the traditional flavours and fragrance segment, such as other market segments, for example aromatherapy, or adding certification such as organic.

Of the companies interviewed, around 70% almost exclusively sell in export markets, while two only sporadically exported and mostly supply other exporters. Out of these 70%, some exclusively supply processors of flavour and fragrances, while the remainder supplies foreign processors and importers. The main challenges to compete are:

- High competition, especially on crude essential oils, both from peers in Indonesia, as well as competitors in other countries, such as India;
- High costs of transportation;
- Costly and stringent requirements for international markets;
- Lack of buyers.

Stakeholders indicated in our interviews that the competition amongst exporters is hurting the stability of the industry and making development investments from the private sector difficult. This competition affects sourcing and trade. They indicate a need to identify non-competitive issues to cooperate and innovate, for example, bringing CSR into the attention of big buyers.

In terms of export destinations, the table below shows that European markets are still the most important. However, Asian and North American markets are also supplied. Please note that Europe plays a key role in the global fragrance and flavour industry as well as in the essential oils trade. From Europe, Indonesian oils get re-exported all over the world. The most common relationship between an Indonesian company and a buyer is SPOT buying, which accounts for 70% of at least part of the businesses, which can still be based on long-standing business relations. Six out of 10 companies also work with long-term contracts.

Table 7. Export destinations, by 10 interviewed companies

Area	Percentage of companies that export to a region
EU	70%
Asia	40%
Latin America	20%
North America	40%
Maghreb	-
Oceania	-
Russia	-

Africa	-
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In interviews, some companies expressed interest in exploring markets in other regions, most notably the Gulf region and Africa.

Box 14. Marketing practices of organic essential oil exporters

In general, there appears to be a lack of knowledge and vision to supplying markets outside of the traditional flavours and fragrance segment. As demand for organic certified essential oils from this market is limited, exporters also pay less attention to organic certification. Indonesian companies in general do not have an understanding of organic markets, the growing demand for organic essential oils in aromatherapy, the natural and organic cosmetics sector, and organic food.

Several new companies are entering the essential oils market, for example exporters of spices, which have experience in organic certification from the spices industry and have a keen interest in exploring organic essential oils. Several other exporters, especially SMEs are considering organic certification for key products to differentiate themselves in the market and compete with large players.

Due to the very limited domestic organic market, Indonesian exporters are exclusively focused on export markets when organic essential oils are concerned. In terms of markets, they focus exclusively on Europe and the United States for these products. They also focus more strongly on importers, as processors such as flavour and fragrance companies have less demand for organic essential oils. Knowledge of the market amongst organic buyers in Indonesia is low, and organic certified exporters face issues with market access since most have become certified recently.

3.1.8 European trade and industry

Europe is the leading market for essential oils in the world. European buyers play a large role in the Indonesian essential oils market by setting standards for quality, prices and ways of doing business. The European market for essential oils comprises around 150 EU importers and traders, and 10 to 15 processors that buy directly from Indonesia. The processors have the most buying power, even more than the 150 importers. These processors are large players, including giants such as Coca-Cola. Both importers and EU processors focus on cosmetics and the food industry, but most combine both.

Box 15. Interest in organic oils from European importers

There is a strong demand amongst interviewed importers for organic certified essential oils. Out of the 14 interviewed importers, twelve showed interest in organic certified essential oils.

Many European companies sourcing in Indonesia have established partnerships with their suppliers to source directly from Indonesia instead of through traders. Direct sourcing is particularly attractive for strategic essential oils, which account for an important part of their sales and are not always widely available through traders. Before they start buying from a supplier, they perform a due diligence process to mitigate risks such as insufficient quality or sustainability issues. This process requires an investment of time by both buyer and supplier, which must be earned back afterwards through long-term trade.

The partnerships still rely to a considerable extent on trust between the buyer and supplier. Such trust is built over time and during this time, the companies learn about each other's business and interests.

European companies with strong relationships with their trusted Indonesian suppliers sometimes invest in their supplier if there is a clear business case to be made. Indonesian suppliers are often interested in investments by European companies when the investments can lead to product improvement and when they need technical assistance from their European partner.

The sustainability trend in Europe stimulates companies to become more involved in their supply chains. Large multinational processors such as Firmenich are implementing sustainability policies which force them to take more

responsibility for sustainability in their supply chains. They must first know how their supply chains are organised and require their suppliers to provide transparency through reporting systems such as [Supplier Ethical Data Exchange](#) (SEDEX), used by [Firmenich, Givaudan, IFF amongst many others](#), or through their own questionnaires or audits. Based on the information about sustainability issues, the European companies may require their suppliers to take measures to improve sustainability. In some cases, when European companies identify major sustainability issues which cannot be addressed by their suppliers alone, they will offer technical support.

For example, Firmenich is implementing the [Deep Roots 2020 programme](#), which has the following targets:

- Build 40 responsible sourcing projects;
- Reach 100,000 farmers directly through the projects;
- Improve the livelihoods of 250,000 farmers;
- Work with 20 key suppliers in the Naturals Together strategic platform;
- Involve 50 suppliers in a continuous improvement programme;
- Impact 100 supply chains.

In Indonesia, Firmenich has established two projects in Java and Sumatra with a complete redesign of the patchouli and cassia supply chains based on floor and fair price scheme, and a closer connection with local farmers.

3.2 Influencers

Food legislation in Indonesia is quite similar to European legislation, covering hygiene and food safety, residues and microbiology. Industry sources indicate that the differences lie mostly on weak enforcement, particular when it comes to smaller companies, or the implementation of particular regulatory areas into guidelines. Compliance in Indonesia does not necessarily mean that companies could also comply with standards expected in Europe.

The Ministries of Agriculture, Forestry, Industry, Trade, Health, and Finance each are involved in different stages of the essential oils industry. Each agency will oversee, regulate and develop specific parts of the industry. Ministry of Forestry is now combined with Ministry of the Environment.

Table 8. Role of Indonesian government agencies in the essential oils trade

Ministry	Scope and role	Specific to the essential oil sector
Agriculture and Rural Development	Agriculture policies and farmers development (which include farm and plantation plants, e.g. patchouli, lemongrass, clove, nutmeg)	<ul style="list-style-type: none"> • Ministry provides supporting services. • No information was provided on agricultural policies from MoA.
Environment and Forestry	Forestry policies (which cover forest plants, e.g. agarwood, massoia, sandalwood)	<ul style="list-style-type: none"> • Ministry provides supporting services. • No information was available on policies from Ministry.
Industry	Industrial policies, processing, export	<ul style="list-style-type: none"> • Strategy for essential oils developed in 2009, targeting human resource development, seed improvement, cultivation programmes, BSO development, cluster development, standardisation and improvement in technology, diversification of products, institutional strengthening at the regional level and pilot projects for downstream industry development. • Directorate Generals of relevance to sector are: <ul style="list-style-type: none"> ○ SMEs (with a focus on food products); ○ Agro-processing; ○ Chemicals and upstream manufacturing (including companies working the cosmetics sector);

		<ul style="list-style-type: none"> ○ International cooperation, marketing and trade promotion. ● The ministry has a strong focus on development of value added products, as well as stimulating development outside of Java.
Trade	Trade policies, trade promotion	<ul style="list-style-type: none"> ● MoT has an Export Development Strategy which touches upon key issues including product development, market information, coaching, matchmaking, and trade agreements. ● An essential oil sector specific strategy does not seem to exist.
Cooperatives and SME	Developing SMEs and home industries	None identified
Health	Ensuring health standards and issuing health certificates for products and factories	None identified
Finance	Export and import duties and taxes	None identified
National Education	Education and scientific research	None identified

Adjusted from MoT, Indonesian Essential Oils, “the scents of natural life”

Box 16. Organic certification not a priority

None of these ministries mentioned organic certification as a priority area for essential oils. This in contrast to countries such as India, a key competitor of Indonesia in essential oils, which has made organics a priority in its agricultural sector development strategy.

On the provincial and regency level, regional governments administer national programmes and extend the reach of the national government to producers in local communities. Agriculture and forestry are often managed by one department, usually called *dinas pertanian, kehutanan dan perkebunan* or department of farming, forestry and plantation. Similarly, industry, trade and cooperatives are managed by one department, usually called *dinas perindustrian, perdagangan dan koperasi* or department of industry, trade and cooperatives.

3.3 Supporters

3.3.1 Industry organisations

DAI

DAI was founded in 2007 to address large supply and price fluctuations of essential oils and regulatory issues. It’s a private association with 31 member companies. Its 2017 budget was USD 60,000. Its aim is to support and assist essential oil business players, companies or individuals, to further develop their products and market access.

Of the companies interviewed, some 90% are DAI members. They indicate DAI is an important platform to get relevant information on the essential oils industry. However, it is considered weak in terms of informing on buyer requirements and offering market access services such as information on buyers, matchmaking and market information.

Key objectives of DAI’s roadmap include increasing supply stability and product quality, resulting in higher prices, increasing export value of Indonesian essential oils by 20% and of derivatives by 10% (SIPPO BSO Factsheet) through:

- commodity-based workshops and trainings focusing on citronella and cajeput in the 2018 Medan conference, and ‘organic essential oils’ in 2018, looking into key issues as well as addressing knowledge gaps of new players, such as with REACH;
- developing suppliers databases;
- developing guidelines for distillers, focusing on health and safety, maintenance, quality, purchasing and selling in cooperation with the Ministry of Industry and Ministry of Agriculture;

- extending its market information services;
- advocacy;
- matchmaking efforts, as well developing SOPs for those, amongst others in coordination with ITPC.

A first matchmaking event was organised with SIPPO during AAC/AAIC in Jogjakarta. Other priority events include IFEAT 2019 Bali, visiting fairs in Asia such as in-Cosmetics Asia in 2018, and possibly in Europe in 2019, to increase its network in the cosmetics sector. DAI is also looking into organic certification for smaller producers in Indonesia which want to enter the market.

The organisation seeks to build alliances, for example, with ministries to improve quality, and in the future with other national associations such as the Cosmetics Association, the Bali Spa producers association, to invite buyers to future matchmaking events in Indonesia and local market development, as well as with mining companies and SEAMEO BIOTROP to examine land reclamation by planting cajuput and citronella, to produce cajuput and citronella oils.

By offering more valuable services the organisation seeks to extend its membership base by 20% by 2020. Key strengths include a good understanding of challenges and opportunities of the essential oil value chain by its members, some financial autonomy, a strong network for national and international strategic alliances, as well as good legitimacy and coverage in the sector covering 90% of exports. Weaknesses to be addressed include: the dependency on board members for activities, the low-implementation capacity of the secretariat, the dominance of key industry players and a strong focus on the flavours and fragrances industry, leaving some blind spots for other market segments and trends such as organics. Moreover, the organisation needs to improve mapping of members' needs.

Box 17. Organic certification not a priority

DAI does not consider organic certification an industry priority. Organic certification was mostly considered a value proposition for smaller exporters to differentiate themselves in the market, and allow them to enter international markets with lower volumes.

The organisation is funded from membership fees and it also charges for services such as trainings and conferences.

Other organisations of note

- Indessota is The Indonesian Essential Oil Trade association set up in 1962. Unlike DAI, which covers the whole value chain, Indessota focuses on exporters and traders association. According to its vice-president, the organisation does not have a continued level of activity, but instead gets together in case particular issues need to be resolved, with activities mostly in the hands of its board and an executive secretary in Jakarta. According to its website, its activities include lobbying, organising seminars and training, in addition to industry coordination.
- AFFI – the Indonesian Flavour and Fragrance Association represents producers in Indonesia, including subsidiaries of foreign companies such as IFF and MANE. Out of 13 members only PT Jutarasa Abadi is local. A current focus area is on halal, which has become compulsory in Indonesia for food.
- Koltiva is a spin-off of the Swiss Contact programmes in the cocoa industry, which has developed tracking and tracing systems for the essential oils industry. For both industries, the variety of steps and applications, as well as the use of different plant parts, for example clove buds, leaves and stems, makes traceability problematic. This tool makes traceability cheaper and more feasible.

3.3.2 International organisations, Local NGOs and Foundations

SIPPO

SIPPO, the Swiss Import Promotion Programme helps build capacity for export promotion boards and sector-wide associations in six business sectors, in eleven developing and transitional countries. The programme is managed by Swisscontact in partnership with BHP Bruggler and Partners and Helvetas Swiss Intercooperation. In Indonesia, SIPPO

is working on fish and seafood, natural ingredients and technical wood and is developing last-mile services for four Indonesian BSOs. Relevant to this sector are its activities with MoT, MoI and DAI. SIPPO works specifically on last-mile support, supporting expansion and quality of BSO services for their members' exports, including in the following areas:

- Market intelligence — providing intelligence and building capacities to produce and disseminate;
- B2B matchmaking — supporting matchmaking activities, building capacities, and networking;
- Client management — helping BSO members understand buyers' needs and join buyer networks in the market.

SIPPO supports each organisation based on annual plans, which are part of a strategy targeting the year 2020. SIPPO has expressed a strong interest in cooperating with CBI and IPD in their activities in the natural ingredients sector.

IPD

IPD, Germany's Import Promotion Desk, has chosen Indonesia as one of its partner countries to work in the natural ingredients and timber sectors. In natural ingredients, IPD works with various spices, essential oils and extracts, coconut products and seaweed products.

IPD works directly with Indonesian companies, linking them to European buyers, particularly German buyers, at key trade fairs such as SIAL, Anuga, in-cosmetics, Biofach, Fi&Ni, Hi&Ni. IPD also helps Indonesian business support organisations improve service delivery to their members through workshops. It partners with MoI and MoT through the National Export Development directorate general. IPD has expressed a strong interest in cooperating with CBI and SIPPO in their activities in the natural ingredients sector.

FFI

Fauna and Flora International, or FFI, is a global, UK-based charity focused on nature conservation. It historically focused on conservation aspects, such as setting up conservation zones, but has more recently been shifting towards sustainable use of conservation areas, as well as supporting local communities to develop livelihoods to achieve sustainable conservation area management and sustainable use systems. FFI focuses strongly on communities, developing activities more for community enterprises and less for international market access or linkages with bigger processors in Indonesia.

NRSC

The Natural Resources Stewardship Circle (NRSC), is an initiative of the cosmetics and fragrances industry leaders. These brands, ingredient manufacturers and producers came together to jointly tackle key sustainability issues in the value chains of natural ingredients which have strategic importance to the industry. NRSC's guidelines, which were launched at COP 10 of the Convention on Biological Diversity (CBD), focus on environmental sustainability, as well as improved living conditions of producers. The promotion of access and benefit sharing (ABS) principles is integral to its work, incorporating them in the supply chain assessments and awareness workshops for its members. In the future, NRSC aims to develop and test ABS protocols with indigenous communities.

In Indonesia, NRSC members are working on improving the patchouli value chain, in particular focusing on issues such as pesticide use and improving the sustainability of production. Lessons learned from this activity could be used for wider activities in improving essential oils value chains in Indonesia. Moreover, NRSC can leverage its member base for future CBI activities in the essential oils sector.

3.3.3 Other private sector players

During our interviews, we found that extraction companies make use of various services, most notably loans, working capital, insurance and certification, and in a few cases testing of heavy metals and microbiology, marketing promotion and agronomy support, which is discussed below under R&D.

Table 9. Use of business services by essential oils companies, by 10 interviewed companies

Types of services	% of companies
Financial services	90%
Certification	50%
Testing	30%
Marketing and promotion	20%
Agronomy (cultivation and post-harvest)	20%
Processing	10%
Logistics and export	10%

Certification and testing

In terms of management, quality and food safety certification, there are ample options available in Indonesia. Training, inspection and certification bodies operating in Indonesia include:

- SGS
- TÜV
- SAI
- Bureau Veritas
- Lloyds
- Sucofindo

These bodies offer a full range of food safety testing, inspection and certification services for Global Food Safety Initiative (GFSI) standards such as FSSC 22000, BRC, and ISO standards ISO 9001, ISO 22200 and ISO 14000. SGS is the market leader in Indonesia with an estimated 25% market share.

Box 18. Organic certification services

Control Union has a relatively dominant position in the organic certification market, offering certification for the organic standards of the EU, USDA and the Japanese Agricultural Standard (JAS). Internal staff estimate that Control Union accounts for up to 90% of the market.

Several national institutes offer testing services, including: the Laboratory For Quality Testing Of Goods, BPMBEI, of the Ministry of Trade (MoT), which provides quality and safety testing for consumer products, and Balai Besar Kimia dan Kemasan (BBKK) of the Ministry of Industry (MoI), which provides testing on packaging for foods (Sector Scan IPD).

R&D

Universities that have agriculture, farming, biology, botany, chemistry, chemical engineering, or pharmacy programmes are involved in the development of the essential oils industry. Notable contributions have been made by Bogor Institute of Agriculture (IPB), Gajah Mada University (UGM), November 10 Institute of Technology (ITS), Brawijaya University and UPN Veteran Surabaya. Brawijaya University has a specific research institute for essential oils, the [Institut Atsiri](#).

Moreover, there are several public sector research institutes relevant to the industry. A key institute is the Indonesian Medicinal and Aromatics Crops Research Institute or IMACRI, which is commonly known by its Indonesian acronym Balittro, short for *Balai Penelitian Tanaman Obat dan Aromatik*, which is a unit of the Ministry of Agriculture located in Bogor. IMACRI works closely with IPB (Bogor Agricultural University) conducting research on technical aspects of cultivating medicinal and aromatic crops, developing better plant varieties and seeds and assisting companies in quality control. One recent contribution by IMACRI is their research in the three most important patchouli varieties: Lhokseumawe, Tapaktuan, and Sidikalang.

In general, cooperation between R&D institutes and companies is positive, both for testing and research services, but many companies do not make use of the opportunities provided by R&D institutes. In particular for research,

there is an expectation of private sector funding, so larger companies more commonly engage with R&D institutions. Industry sources also indicated that the more advanced cooperation is in agronomy, less so in value addition.

In terms of R&D for processing, relevant institutes include:

- The Post-Harvest Research Centre under the Ministry of Agriculture;
- The Agro-Industry Research Centre under the Ministry of Industry for processing quality improvements and standardisation;
- Bogor Agricultural University, which also works on processing technology.

Box 19. Weak R&D in organic production practices

R&D in organic cultivation is still very weak in Indonesia. An exception is Brawijaya University, which is joining forces with one of the interviewed companies on developing improved monitoring systems for organic certification. Public research institutes focus on yields and quality, not on organic.

Finance

Indonesia scores quite well in terms of access to credit in comparison with other countries. The World Bank ranked the country 55th amongst member states.

Indonesia has a very well developed financial sector, with around 10 commercial banks operating across the country. The biggest players include Mandiri, BRI, BNI and BCA, but more than a 100 smaller operators and 1,600 rural banks operate in Indonesia. Compared to other countries, finance for Indonesia’s agricultural sector is well developed, with the sector accounting for 8% of the outstanding loan portfolio, compared to its 14% share of GDP.

However, earlier reports indicated that financial services, especially for SMEs, remain rather one dimensional, focusing on credit with less access to other financial services needed for investment and exports. Moreover, there are indications that finance to companies on the outer islands (70% of outstanding loans is in Java) and women-led SMEs is more problematic — out of an estimated 58 million MSMEs in Indonesia, approximately only 12% have access to credit due to lack of formal financial statements, credit history or collateral (KPMG, 2017).

Farmers lack knowledge finance providers’ requirements and access is limited (Wulandari, 2017). Although investments are often small — between \$200 and \$1,000, for example, for applying good practices in seaweed — financing is still required. For low-income farmers, financing usually comes from the informal sector or from traders, as issues with collateral affect them more strongly than SMEs. Products are often also considered inappropriate to small-scale farming (SAFIRA, 2018). Practitioners in Indonesia indicate that the costs of getting farmers ready for finance are high, including improving financial literacy, group formation and management, financial management, in addition to building connections in the chain with providers of inputs, post-harvest equipment. According to industry stakeholders, financial institutions in Indonesia do not consider these groups as good business cases.

3.3.4 Government organisations

Three government organisations support the essential oils sector: the Ministry of Trade, the Ministry of Industry and Ministry of Agriculture & Rural Development.

Organisation	Focus areas and activities
Ministry of Trade - DG National Export Development	<p>Spices and herbs and their derivatives (e.g. essential oils) have been designated amongst the 10 priority potential products to be developed.</p> <p>Five departments are relevant to the sector:</p> <ul style="list-style-type: none"> • Export training — export skills development; • Export development cooperation; • Export Product Development — capacity building of the private sector; • Promotion and Branding — market entry facilitation and branding;

	<ul style="list-style-type: none"> • Export Market information — collect and share third-party information. ITPC develops trade attaché reports.
Ministry of Industry	<p>Mol wants to improve its activities through:</p> <ul style="list-style-type: none"> • implementing international best practices for export development and promotion; • improved understanding of supplier needs; • product-market matching and matching companies to appropriate matchmaking activities; • improved inter and intra-organisation coordination; • capacity development at regional level. <p>The Directorate of Access to Industrial Resources and International Promotion, conducts last-mile activities (Anuga Sial, Biofach). Other DGs of this Ministry could engage more deeply in value chains, for example supporting industrial development, access to equipment, human resource development, R&D, quality and GMP and certification</p>
Ministry of Agriculture & Rural Development	<p>MoARD stimulates farming as businesses, looking at increasing value and competitiveness of agricultural commodities especially at farm level. For the extract sector, the Ministry’s strategic plan aims to:</p> <ul style="list-style-type: none"> • Increased stabilisation of production to also stabilise prices; • The development of economic value agricultural commodities, which could include organic oils; • Encourage the advancement of agro and bioindustry; • Increase farmers' incomes. <p>To achieve these aims, the Ministry works on capacity building and integration of best practices in production and post-harvest, such as through extension services; provides training and offers access to production or post-harvest equipment.</p>

Box 20. Support for organic cultivation

There is no knowledge on organic production offered in extension services in Indonesia. However, there is a strong expectation amongst the private sector that government institutions will take care of extension.

4. Opportunities, Obstacles and Sustainability for the Essential Oils Sector

The goal of this chapter is to determine the key opportunities for growth and the key obstacles to Indonesian essential oils exports to Europe, focusing on exporting companies and their supply chains. Information on CSR in the sector is also provided. Specific information for organic essential oils has been added in boxes.

4.1 Outcomes of Chapters 2 and 3

Chapters 2 and 3 provided information on how the value chain for essential oils functions and what are the challenges along the chain. However, many of these challenges can be considered superficial.

These chapters showed a series of opportunities and issues which affect direct exports of essential oils to Europe. Chapter 2 demonstrated a wide availability of many raw materials. Indonesia is an important producer and exporter of essential oils. The country plays a dominant role in the world markets of certain traditional oils such as patchouli, cloves and nutmeg, which are produced in Indonesia or collected in the wild. The European market for essential oils is large and several trends offer good opportunities for value addition, such as an increasing drive for sustainably produced ingredients, full traceability and direct sourcing, and a need for essential oils for strongly growing market segments, such as aromatherapy.

On the flip side, Indonesian processors have not been following these trends to add value nor do they have a USP in the market. Outside the key products, Indonesian exporters are often not price competitive with other producing countries. In terms of European market access requirements, REACH is adding a high barrier to the market for new suppliers of essential oils, or when existing suppliers want to extend their product portfolio. Finally, European buyers have expressed concerns when working with Indonesian SMEs in terms of inconsistency in quality, adherence to quality control and food safety standards, as well reliability and communication.

Box 21. Opportunities for Indonesian organic essential oils

Some of the raw materials available in Indonesia are already offered as organic. The European market for organic certified essential oils is growing strongly. Offering organic oils also allows suppliers to meet buyers' needs for full traceability and to enter into highly dynamic segments where organic is already important, such as aromatherapy. However, the offer of organic essential oils in Indonesia is very limited.

Chapter 3 provides clear insights into why this situation has arisen. On the positive side, it showed a keen interest of supporters and influencers in the sector, which resulted in a range of beneficial measures. Several lead companies in the sector are highly successful on export markets and are considered top-notch on a global level. Moreover, the industry is well organised and the leading BSO in the sector is well perceived. Research capacities in the industry are present. On the negative side, it provided a range of strongly interrelated issues, both within the value chain as well as the business enabling environment (influencers and supporters) which reducing the sector's ability to export directly, in particular for SMEs and new entrants to the export market. These include:

- Fragmentation in production, resulting in higher costs of raw materials;
- Competition on supply;
- Low quality of raw material because of lack in application of SOPs;
- Low quality of raw essential oils because of traditional distilling facilities and mixing of different qualities;
- Limited ability to meet processing standards by SMEs;
- High and costly requirements of the EU market;
- Low market knowledge and market access.

Box 22. Issues for the Indonesian organic essential oils value chain

Several lead companies in the essential oil sector have entered the organic space and are already exporting. Interrelated issues reduce the ability of companies to produce and export organic oils. Specific issues to organic value chains are:

- Fragmentation in production, resulting in higher costs of raw materials and higher costs of establishing organic production systems, including training, awareness raising, establishing organic production systems, documentation;
- Lack of available supply of organic raw materials;
- Contamination of land available for essential oil crop production;
- High costs of organic certification;
- Lack of awareness of the organic market, and interest in supplying to this market.

Figure 4. Obstacles and opportunities along the value chain, in bold boxes for organic essential oils

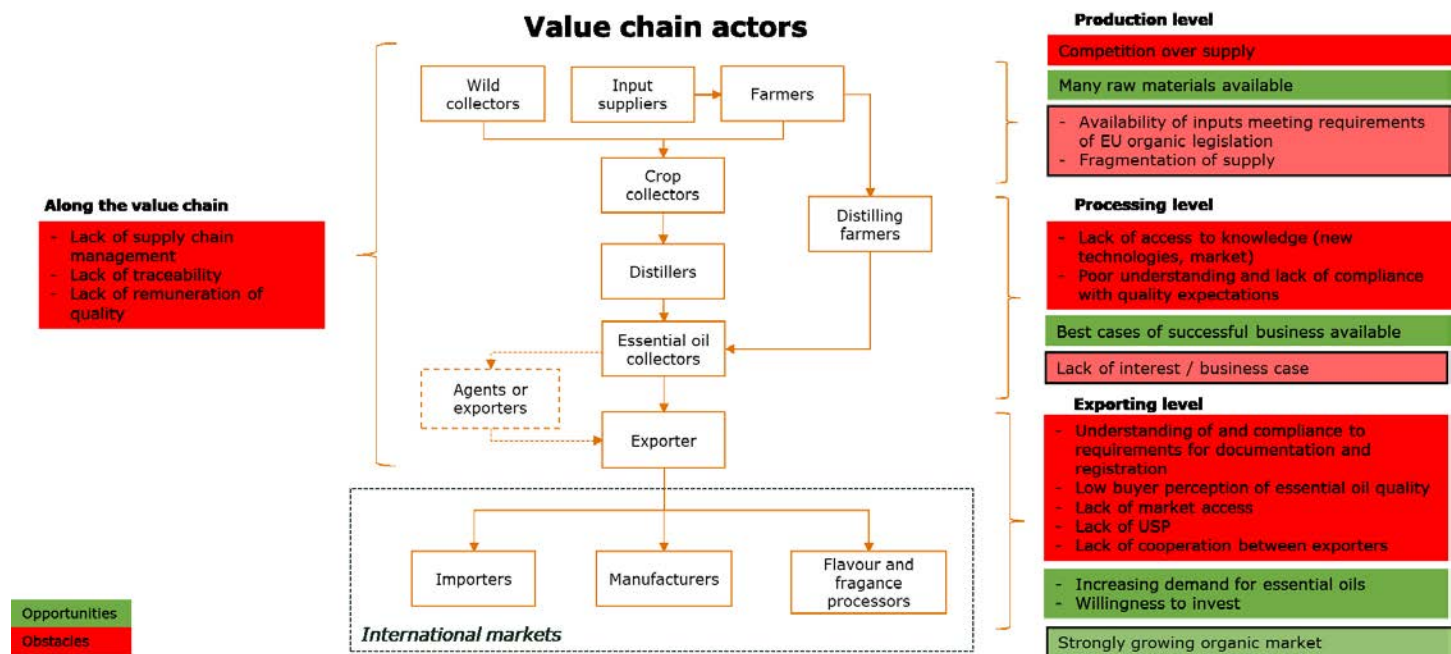
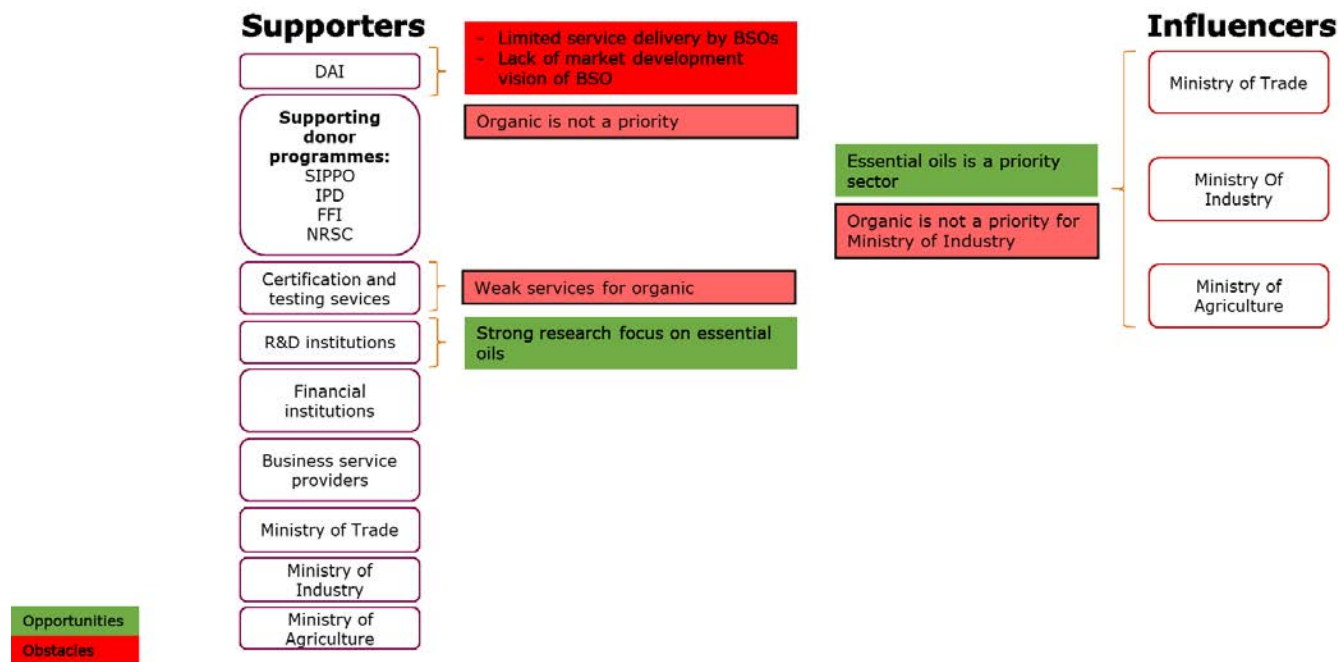


Figure 5. Obstacles and opportunities related to supporting services and influencers, in bold boxes for organic essential oils



4.2 Key obstacles for growth of exports to Europe

The research team concluded that there are several root causes and related obstacles behind these issues which will need to be resolved in order for direct exports by SMEs and new entrants to take place and to make them more effective for other market players. This is foremost the ‘trader mentality’ of many Indonesian essential oil exporters. If these companies do not take responsibility for, and ownership of their supply chain, the issues around fluctuating quality, prices and they cannot improve the competition over resources, nor address the concerns raised by European buyers around traceability and costs.

In addition, several obstacles at processing and marketing level affect SMEs and new entrants to the essential oils trade more specifically, such as market knowledge and access and issues around compliance. Moreover, this is needed to give companies the know-how, and have the confidence to, take ownership over their supply chain and invest in processing and compliance. Finally, it is important to note that several issues at company level also require addressing sector level issues.

Box 23. Key obstacles for the growth of organic essential oils exports to Europe

There are several root causes to be resolved for organic production to take off in Indonesia and for exports of organic essential oils to increase. If companies do not take responsibility for, and ownership of their supply chain issues they will not be able to certify their value chain as organic. Moreover, it is doubtful that such companies would be willing to make the necessary effort and investments, particularly considering the fragmentation in the Indonesian essential oils sector.

In addition, several obstacles at production and marketing level, such as knowledge about the organic market and the requirements for organic certification need to be overcome to give exporters the know-how and confidence to take ownership over their supply chain and invest in supply chain development and certification. Another key obstacle is that the potential for organics is not understood at the level of supporting or influencing actors. At the sector level, this is compounded by a lack in services for the essential oils organic industry.

The table below presents these key obstacles in the value chain and in the business enabling environment, i.e. supporting services and influencers.

Table 10. Obstacles in the value chain

What is the obstacle?	How does this obstacle impede exports?
Sourcing	
<p>Lack of supply chain management: Most Indonesian essential oil exporters show a ‘trader mentality’. They are not taking responsibility for nor are they investing in their supply chain. They cannot therefore establish relationships and systems for an effective traceable supply chain in order to provide high-quality and consistent volumes of essential oils.</p> <p><i>Box 24. Issues for organic oils</i></p> <div data-bbox="207 520 776 619" style="border: 1px solid black; padding: 2px;"> <p>Due to a lack of supply chain management, exporters cannot develop traceability and documentation needed for organic certification.</p> </div>	<ul style="list-style-type: none"> • Inconsistent quality and quantity of supply reduces the competitiveness of Indonesian essential oil exporters by increasing their costs (low use of production capacity), reducing the quality and consistency of their final products, limiting their ability to leverage trends for sustainability and full traceability in Europe. <p><i>Box 25. Without supply chain management, no organics</i></p> <div data-bbox="816 489 1446 583" style="border: 1px solid black; padding: 2px;"> <ul style="list-style-type: none"> • Without supply chain management it will not be possible to establish organic supply chains and export organic essential oils. </div>
<p>Lack of traceability: Traceability at this moment can sometimes be done up to the distiller level, but only to the trader level, as seaweed from different collectors is mixed. No traceability to farm level can be guaranteed.</p> <p><i>Box 26. Problems for organic oils</i></p> <div data-bbox="207 766 776 800" style="border: 1px solid black; padding: 2px;"> <p>No organic certification is possible without traceability.</p> </div>	<ul style="list-style-type: none"> • Traceability is a legal requirement for food exports to Europe. Processors who cannot provide traceability cannot export to Europe. • Not being able to offer fully traceable products deprives Indonesian exporters of a USP in comparison with their competitors, stopping them from justifying higher prices or add value. <p><i>Box 27. Implications for exports of organic oils</i></p> <div data-bbox="816 863 1446 919" style="border: 1px solid black; padding: 2px;"> <ul style="list-style-type: none"> • Without traceability up to the raw material production level organic certification is not possible. </div>
<p><i>Box 28. Availability of inputs meeting requirements of EU organic legislation</i></p> <div data-bbox="207 993 776 1050" style="border: 1px solid black; padding: 2px;"> <p>Availability of organic inputs (seeds, pesticides, herbicides, fertilisers) in Indonesia is very low</p> </div>	<p><i>Box 29. Implications for exports of organic oils</i></p> <div data-bbox="816 961 1446 1018" style="border: 1px solid black; padding: 2px;"> <ul style="list-style-type: none"> • Makes setting up organic raw material production more complicated and reduces the opportunities for exports. </div>
<p>Lack of compensation for quality: Due to the set-up of contracting and financing between essential oil collectors with distillers and distilling farmers, quality is not compensated and mixing different qualities is stimulated. This means distillers, and by consequence farmers, are not motivated to improve quality of their raw materials or distillation processes through the application of good practices.</p>	<ul style="list-style-type: none"> • The quality of essential oils available to exporters is of suboptimal and fluctuating quality, including contamination, affecting export prices or leading to rejections.
<p>Competition over supply: There is strong competition for supply at different levels when supply is short. Competition amongst exporters over supply is very disruptive to relations that were established between exporters on the one side and collectors and distillers on the other side, leading to supply shortages and price fluctuations.</p> <p><i>Box 30. Supply limitations to organic oils</i></p> <div data-bbox="207 1524 776 1612" style="border: 1px solid black; padding: 2px;"> <p>For organic oils, supply will be limited at the start and competing companies entering the market can have an even more strong disruptive influence on prices.</p> </div>	<ul style="list-style-type: none"> • Price fluctuations hurt the market position of exporters.
<p><i>Box 31. Poor soil management and pesticide use</i></p> <div data-bbox="207 1650 776 1822" style="border: 1px solid black; padding: 2px;"> <p>Many farmers lack resources to maintain healthy soils which are suitable for the production of the respective plant materials for essential oil distillation. In addition, they lack resources for integrated pest management, instead applying practices which harm products and the environment.</p> </div>	<p><i>Box 32. Implications for exports of organic oils</i></p> <div data-bbox="816 1650 1446 1770" style="border: 1px solid black; padding: 2px;"> <ul style="list-style-type: none"> • Poor soil management and pesticide use result in low productivity, low-quality products and damage to the environment. This affects competitiveness in terms of prices, quality and CSR. </div>
Processing	
<p>Lack of access to knowledge on new technologies, market info: SMEs do not have the right information available to them in order to guide their businesses to:</p> <ul style="list-style-type: none"> • Apply the right production processes or purchase new processing equipment; • Develop the right product for the right market. 	<ul style="list-style-type: none"> • SME processors cannot make the right decisions on improvement of their factory, resulting in lower productivity and quality, reducing competitiveness in international markets. • Gaps in access to market knowledge can lead to incorrect decision making on product development and compliance

<p><i>Box 33. Specific information gaps for organic oils</i></p> <p>SMEs lack access to information to identify essential oils with most potential as organic, in their product development.</p>	<p>steps and the development of products which are unattractive to EU buyers.</p>
<p>Poor understanding of and lack of knowledge about technology for compliance with quality expectations: Indonesian essential oil exporters, especially SMEs, lack proper food safety and quality management systems to ensure safe, high-quality and pure essential oils meeting international standards.</p>	<ul style="list-style-type: none"> When exports do not comply with legal and buyer requirements, SMEs do not have access to markets, the value of their products is reduced or they are limited to low-quality markets.
Exports	
<p>Understanding of and compliance with requirements for documentation and registration: New entrants to the market, as well as SMEs in the sector do not know EU documentation and REACH registration requirements, so they do not currently complying with these requirements</p>	<ul style="list-style-type: none"> Without proper documentation and registration direct exports of essential oils is not possible.
<p>Low buyer perception of extract quality: European players see Indonesian SME suppliers as lacking proper food safety and quality management skills, resulting in inconsistent and suboptimal quality of essential oils.</p>	<ul style="list-style-type: none"> Low quality perceptions make it more difficult for Indonesian SMEs to start exporting to Europe.
<p><i>Box 34. Lack of interest and business case</i></p> <p>Indonesian exporters, particularly large exporters focus on flavour and fragrance industries, showing very little interest in organic as they do not believe the business case it offers</p>	<p><i>Box 35. Implications for exports of organic oils</i></p> <ul style="list-style-type: none"> These players will not certify their value chain; This limits available organic supply from Indonesia and per exporter, making Indonesia an unattractive country for buyers to source organic products.
<p>Lack of market access: Limited market exposure and the lack of close contacts with buyers, particularly in the case of SMEs, outside the traditional markets of flavours and fragrances makes it difficult for Indonesian processors to provide essential oils suitable for the European market, or specific markets. In reverse, not having suitable products makes it difficult to build up relations with buyers.</p>	<ul style="list-style-type: none"> Indonesian SME essential oil companies do not offer products which are suitable for the European market; Indonesian processors cannot justify investments as they lack a clear window to the European market. <p><i>Box 35. Investments needed for organic oils</i></p> <ul style="list-style-type: none"> Investments need to be made in organic supply chain development and certification, but Indonesian processors cannot justify these investments without market access.
<p>Lack of USP or differentiation: Indonesian exporters offer a rather similar product portfolio, mostly composed of the main oils traditionally exported from Indonesia. There is a lack of USP amongst them in terms of focus segments, certification, products or stories.</p>	<ul style="list-style-type: none"> As there is no USP amongst competitors, all companies compete in the same markets, which makes their offers less attractive on matchmaking events.
<p>Lack of cooperation amongst exporters: Exporters do not cooperate on non-competitive issues and compete both on the supply side and in international markets, making it difficult to develop a joint vision for the sector and work towards it as a group of exporters.</p>	<ul style="list-style-type: none"> Players cannot resolve obstacles to reaching export markets that require joint action, such as market access, supply, buyer perception, reducing the ability to export to Europe. Exporters damage the ability of one another to compete in international markets.

Table 11 Obstacles in the enabling environment

What is the obstacle?	How does this obstacle impede exports?
Supporting services	
<p>Limited service delivery by BSOs: DAI, currently the main BSO, has a very limited service portfolio and doesn't have the capacities, since it is dependent on its board members to provide services in a sustainable way to members, particularly farmers, distillers and SMEs. Key needs of the industry not identified and currently not met include:</p> <ul style="list-style-type: none"> access to market information on trends, demands, new segments, market access requirements; training and capacity building to resolve obstacles in the value chain, such as SOPs, supply chain management, compliance tools, market access information, USPs and branding building; 	<ul style="list-style-type: none"> Essential oil exporters, particularly SMEs, lack resources to improve their supply chains, processing and marketing, reducing their ability to export or add value to their exports.

<ul style="list-style-type: none"> • advocacy and strategy development with ministries. 	
<p>Lack of diversification vision of BSO: DAI focuses on its main members and traditional markets for essential oils, most notably flavours and fragrances. Joint vision development of the industry to enter new market segments such as organic, fair, aromatherapy or new geographical markets is limited.</p>	<ul style="list-style-type: none"> • Exporters do not target new, growing and value-added market segments.
<p>Box 36. Organic is not a priority</p> <p>Key DAI members focus on flavour and fragrances industries, where organic certification is less important. As such, DAI shows little interest in organics, which offer a business case only for small companies. DAI does not advocate for organic certification of offer services in this respect.</p>	<p>Box 37. Implications for exports of organic oils</p> <ul style="list-style-type: none"> • Exports do not target the growing and premium organic market in Europe. • Exports cannot use services to develop their organic portfolio for exports.
<p>Box 38. Weak services for organics</p> <p>Inspectors are available for organics, but support in R&D in organic cultivation and certification services is limited. This makes setting up organic raw material production and dedicated organic supply chains more complicated and costly.</p>	<p>Box 39. Implications for organic oils exports</p> <ul style="list-style-type: none"> • Exports do not target the growing and premium organic market in Europe because of their perceived high costs. • High costs make the offer incompetitive.
Influencers	
<p>Box 40. Organic is not a priority for ministries</p> <p>Organic certification is not a priority for ministries, which are not working to tackle issues affecting the organic value chain. There is not national vision on organic certification, like in India.</p>	<p>Box 41. Implications for exports of organic oils</p> <ul style="list-style-type: none"> • Exporters cannot use services and subsidies for organic certification such as those available to producers in competing countries, reducing their competitiveness.

4.3 Key opportunities for growth of exports to Europe

Below are the key opportunities in the value chain and the business enabling environment provided by supporting services and influencers.

Table 12. Opportunities in the value chain

What is the opportunity?	How does this opportunity support exports?
Production	
<p>Many raw materials available: Indonesian essential oil companies can tap into a large production of different raw materials for distillation, particularly spice oils.</p>	<ul style="list-style-type: none"> • Indonesian companies can export a large variety of different essential oils based on existing raw materials supply.
Processing	
<p>Best cases of successful business are available: Several companies excel in terms of supply chain management, processing and marketing.</p>	<ul style="list-style-type: none"> • Seeing successful cases of business ‘not’ as usual is usually the best way to convince other companies to work in more effective ways, as well and to improve their supply chain, processing and marketing.
Exporting	
<p>Increasing demand for essential oils: The European market and the global market for essential oils are growing slowly but steadily.</p>	<ul style="list-style-type: none"> • Growing markets create opportunities for Indonesian exporters to supply into the European market.
<p>Willingness to invest: European companies in this sector show a willingness to invest in the supply side, especially with advice, but also with financial investments in joint ventures. A particular area of investment identified was in REACH registration of oils and sustainability of supply chains.</p>	<ul style="list-style-type: none"> • Partnerships with European companies can strongly benefit Indonesian exporters and support their market entry, increase sales or add value.
<p>Box 42. Strongly growing organic market</p> <p>The European organic essential oils market is growing strongly. At first it was mostly applications in skincare and aromatherapy, but now increasingly other cosmetic categories. Organic essential oils are slowly making their inroads in the flavour and fragrance</p>	<p>Box 43. Implications for exports of organic oils</p> <ul style="list-style-type: none"> • Strongly growing markets give an opening for Indonesian exporters to supply into the European market.

industry. In contrast, an Indonesian market for organic products remains absent.	
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Table 13. Opportunities in the enabling environment

What is the opportunity?	How does this opportunity support exports?
Supporting services	
Strong research focus on essential oils: Several universities are engaged in the essential oils trade. Moreover, there are specific public research institutes working on essential oils from raw materials sources up to fractionation and isolation of molecules.	<ul style="list-style-type: none"> Companies can benefit from cooperation with R&D institutes to resolve particular issues in their company, such as processing or quality and improve their competitiveness Processors can use research outcomes to improve their supply chains.
Influencers	
Essential oils is a priority sector: Both MoT and in particular MoI have identified essential oils as a priority sector for Indonesia and have allocated resources to its development.	<ul style="list-style-type: none"> Exporters can benefit from investments of both ministries to resolve key bottlenecks in the value chain.

4.4 Sustainability challenges and opportunities

According to an IPD report, Indonesia is relatively advanced at a regional level in ensuring CSR through public and private sector actions when compared to competing countries in the region.

From the fieldwork for this VCA, the following picture of the CSR status in Indonesia's essential oils industry appears. First, knowledge on CSR is limited, and focused on compliance with legislation, 'not doing wrong, instead of doing good'. Second, knowledge of CSR expectations in Europe is low. However, several companies indicated that CSR is coming under closer scrutiny from their European buyers and they have to deliver more information to them in the form of questionnaires.

During interviews with essential oil exporters and other stakeholders in Indonesia, we identified the following key CSR issues:

- At the distilling stage, health and safety practices were not applied. Accidents have been reported, leading to serious injuries or casualties, due to the absence of such practices in workplaces. In addition, ageing stills pose additional health and safety risks.

Additional issues identified:

- Fair and sustainable pricing is not practised. Prices for essential oil raw materials fluctuate and can go below levels needed for a sustainable livelihood of farmers, who opt for other crops, hurting exporters.
- Child labour could happen in farms and is difficult to verify due to the lack of traceability to source. It is common for children to help parents, for example with collecting plant materials around the house, or close to the community. Children may also accompany parents during harvest and will be expected to lend a hand in the process.
- In terms of labour standards, seasonal workers and low-skilled labourers working in handling and harvesting at farms and plantations run the risk of being paid unfair wages.
- Excessive pesticide use and unsustainable wild collection of raw materials were identified, harming environmental legislation compliance and causing environmental harm.

More research into CSR-related issues is required to assess the gravity of these issues, whether they are widespread and to identify interventions to tackle them.

4.5 Conclusions

Based on this analysis, we draw the following conclusions on Indonesia's value chain for essential oils.

Existing essential oils directly exported to European markets

- This sector scores high on export capacity, European demand and ability to meet market requirements;
- There are several obstacles in the value chain, but mostly related to SME suppliers;
- Large essential oil exporters are well positioned and do not need assistance. However, they would still benefit from solutions to the issues in the business enabling environment and the supply chain;
- Most of the obstacles mentioned can be resolved in the short to medium term;
- Stakeholders are already addressing several obstacles in earnest. Improved planning and coordination would boost the effectiveness of these interventions.



This sector offers good grounds for interventions, which will be discussed in Chapter 5.

Organically certified essential oils for food and cosmetics

- This sector scores high on export capacity and very high on European demand and value addition. However, it scores low on production capacity.
- There are several bottlenecks in the value chain, mainly hindering service delivery and awareness, but the key ones can be resolved in the short to medium term.
- A substantial group of companies could benefit and add value to their products.



This sector offers good grounds for interventions, which will be discussed in Chapter 5.

5. Possible Interventions and Support Activities for Essential Oils

The table below shows the interventions proposed for essential oils. It links these interventions to opportunities and obstacles each intervention addresses, describing what role local and development partners could play in each intervention. The table also describes how CBI can provide support initiatives.

Table 44 Proposed interventions for essential oils

What is the solution?	What does it address?	What should local actors, influencers and supporters do?	What are outside supporters doing?	How can CBI contribute?
<p>Improve sector coordination Improve coordination in the sector through elaboration of the existing MoT sector strategy and DAI roadmap and add the insights of additional stakeholders, specifying the strategy for different segments, such as organic, new and minor oils.</p> <p>A sector strategy defines the roles, including responsibilities, of relevant stakeholders, such as sector organisations and ministries. Such a sector strategy should be kept as simple as possible to quickly start working and focus on:</p> <ul style="list-style-type: none"> • Determining process drivers; • Sector vision (based on realistic expectations from MI) and with a key focus on creating a more diverse supply from Indonesia; • Needs to make this vision happen, looking at key obstacles in the VCA, such as BSO service delivery, traceability, SOPs and fragmentation of production, reinvigorating ‘smaller oils’, processing quality, health and safety and quality at distiller level, MI, HR development, market access, sustainability and its certification; • Responsibilities, especially those of the BSOs and ministries; • Solution on how to improve cooperation of exporters to reduce competition over supply and identify non-competitive issues to work on; • Identifying which BSOs do what in terms of essential oils; • Actions and budgets. 	<p>Obstacles</p> <ul style="list-style-type: none"> • Competition over supply; • Lack of cooperation amongst exporters; • Lack of market development vision of BSO. <p><i>Box 38. Obstacles for organic oils</i></p> <ul style="list-style-type: none"> • Organic is not a priority; • Organic is not a priority for Ministries; • Weak services for organic. <p>Opportunities</p> <ul style="list-style-type: none"> • Strong research focus on essential oils; • Essential oils is a priority sector. <p><i>Box 39 Opportunity for organic oils</i></p> <ul style="list-style-type: none"> • Strongly growing organic market. 	<ul style="list-style-type: none"> • DAI has developed a sector road map and has potential to drive the process, or at least ensure suitability to private sector needs. • MoT has a strategy for the sector, and MoI is supporting the industry as well. Along with the MoA, these ministries might also have resources to drive this process. • These stakeholders need to clarify their mandates, activities and strategic goals. 	<ul style="list-style-type: none"> • SIPPO supports DAI but is only focusing on last-mile activities. <p><i>Box 40 Outside supporters of organic oils</i></p> <ul style="list-style-type: none"> • Both SIPPO and IPD have an extensive network in the organic sector which can be leveraged to identify market needs and identify relevant speakers. 	<ul style="list-style-type: none"> • Start the process by organising a first strategic conference with relevant stakeholders and supporting the process with market intelligence; • Bringing in buyers and high-profile speakers who can bring about change.

<p>Export development of SMEs and setting up best cases for USP development through supply chain management, sustainability and product diversification</p> <p>The goal of export development is two-fold. First, an intervention is needed to break through the ‘business-as-usual’ attitude in the essential oils industry. This is best done by developing pilots which show good practices for value addition through supply chain and quality improvement and development of USPs. Disseminating such results is likely to lead to crowding-in by other seaweed processors.</p> <p>Second, export development can bring a new group of suppliers into contact with European markets. Key components need to feed in and benefit from other activities, which need to be delivered with or through partners in order to build local capacities:</p> <ul style="list-style-type: none"> • Quick identification of committed high-quality essential oil companies and European partners with a commitment towards traceability and quality; • Buyer missions to build trust and improve perception of Indonesian suppliers; • Implementation of tools for traceability and SOPs (see below); • Supporting companies with applying best practices of supply chain management, such as investing in SOPs at farmer and distiller levels, traceability (see below), fair treatment of suppliers, fair and transparent pricing and contracting, etc. Essential oil companies can avoid competition, improve traceability and quality by developing stronger relationships and providing technical support to their suppliers or supporting emerging suppliers. Strong relationships offer mutual benefits to suppliers and buyers; • Product development of ‘smaller oils’ and organic oils, including development of relevant documentation and registration with new companies; • Possible trade fair participation for wider sales of essential oils and market entry of new companies; • Dissemination of results and tools nationally through associations, conferences and ministries, and internationally in conferences and trade fairs. 	<p>Obstacles</p> <ul style="list-style-type: none"> • Lack of supply chain management; • Competition over supply; • Understanding and compliance with requirements for documentation and registration; • Low buyer perception of extract quality; • Lack of market access; • Lack of USPs. <p>Opportunities</p> <ul style="list-style-type: none"> • Many spice raw materials available; • Best cases of successful business are available. 	<ul style="list-style-type: none"> • European buyers provide technical assistance on SOPs to achieve desired quality. • Indonesian exporters implement SOPs with farmers and distillers. • MoA can link companies to extension services and offer support to implement SOPs. • MoA, MoT and Mol can support service development of DAI. • DAI can provide additional technical assistance to suppliers. • MoT and Mol are both aiming to provide matchmaking services to the industry and can organise support buyer missions and trade fairs with DAI. <p><i>Box 41. Activities of local actors for organic oils</i></p> <ul style="list-style-type: none"> • European buyers can provide technical assistance on SOPs and documentation for organic. • Indonesian exporters should develop organic supply chains, including needed SOPs and documentation. 	<ul style="list-style-type: none"> • IPD and SIPPO are working on last-mile solutions. IPD can support matchmaking activities, while SIPPO can assist DAI in supporting the process and help develop relevant DAI matchmaking services. • SIPPO and IPD can use their networks to help identify buyers and use insights from their previous experiences to support organisation of missions. 	<ul style="list-style-type: none"> • Profile buyers and suppliers to identify interest and commitment to value addition through quality improvement. • Use its best practices to design pilots and export development programmes and bring in experts and buyers to drive pilots. • Support the organisation of buyer missions to Indonesia or trade fairs in Europe. • Prepare companies in the pilots.
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<p>Tool development for traceability and SOPs Improve traceability through establishment of traceability systems. Improved traceability enables identification of sources of non-compliance in raw material production and is a first step to improvement of quality of essential oils.</p> <p>Strengthen the capacity of essential oils companies to implement SOPs which incentivises quality improvement of by raw material suppliers.</p>	<p>Obstacles</p> <ul style="list-style-type: none"> • Lack of traceability; • Lack of compensation for quality. <p><i>Box 42. Obstacle for organic oils</i></p> <ul style="list-style-type: none"> • Poor soil management and pesticide use. 	<ul style="list-style-type: none"> • Local business service providers can support companies to establish a traceability system. • MoA might have the resources to support exporters with implementing these systems. <p><i>Box 43. Activities of local actors for organic oils</i></p> <ul style="list-style-type: none"> • Several European service providers have developed systems for integrated certification. 	<p>In terms of issues related to sustainability NRSC and SwissContact could be interesting partners to share insights from their projects on the patchouli value chain.</p>	<p>Promote traceability through explanation of European buyer expectations and supporting inclusion of traceability in market entry strategies of companies.</p>
<p>Box 44. Capacity building for organic sector service providers</p>				
<p>Services for the organic sector in Indonesia are not well developed. To support a growing organic essential oils sector, the following services need to be further developed:</p> <ul style="list-style-type: none"> • A sustainable business support sector offering advice and training on organic certification; • Research capacities on organic cultivation methods for essential oil crops; • Public extension services for organic production. <p>In terms of capacity building, it would be beneficial to introduce peer-to-peer learning practices, for example by bringing in highly experienced trainers and practitioners from India. However, first the sector strategy should determine where and for whom such services should be developed, how they are to be selected, and who pays for them.</p>	<p>Obstacles</p> <ul style="list-style-type: none"> • Limited service delivery by BSOs; • Weak services for organics. 	<ul style="list-style-type: none"> • Various actors are needed to implement this intervention and the sector strategy should provide further decision making in this respect. Most likely, it will require support from: <ul style="list-style-type: none"> ○ MoA ○ DAI ○ Certifiers ○ R&D institutes 	<ul style="list-style-type: none"> • None identified. 	<ul style="list-style-type: none"> • Linking various stakeholders.
<p>Develop market intelligence tools for the sector Improve knowledge of markets and market analysis capacities by essential oil companies, DAI and ministries.</p> <ul style="list-style-type: none"> • Produce market intelligence focusing on MAR, and market trends and segments, where possible with local BSOs; • Disseminate market intelligence; • Provide training in market analysis. 	<p>Obstacles</p> <ul style="list-style-type: none"> • Lack of access to knowledge on new technologies, market; • Poor understanding and lack of compliance with quality expectations. 	<ul style="list-style-type: none"> • MoT and MoI both have services related to market intelligence, and DAI is also aiming to develop such capacities. • Several processors in Indonesia are already 	<ul style="list-style-type: none"> • SIPPO can build market intelligence capacities with DAI, MoI and perhaps MoT, although they do not focus on natural ingredients. 	<ul style="list-style-type: none"> • Identify knowledge gaps of processors in the pilot. • Provide tailored intelligence for specific Indonesian products in an inclusive way with

<p><i>Box 45. Market information needs for organic oils</i></p> <ul style="list-style-type: none"> • Market research needs to clearly show the business case for organic essential oils across different market segments as well as: <ul style="list-style-type: none"> ○ Clear margins in the market, related to certification costs; ○ Size of demand; ○ Buying behaviour of organic buyers compared to conventional buyers. <p>Improvement of market knowledge helps suppliers to understand buyer requirements and improve their range.</p>	<p><i>Box 46 Obstacle for organic oils</i></p> <ul style="list-style-type: none"> • Lack of market development vision of BSO; • Organic is not a priority for Ministries. <p>Opportunity</p> <ul style="list-style-type: none"> • Best cases of successful business are available. 	<p>successfully exporting essential oils to Europe, and can serve as best cases from which other suppliers can learn.</p>		<p>Indonesian stakeholders.</p> <ul style="list-style-type: none"> • Organise trainings with CBI experts to transfer knowledge.
<p><i>Box 47. Market orientation for exporters, BSOs and public institutions</i></p>				
<p>To build awareness of the opportunities the organic market has for exporters, raising awareness will be necessary. Market orientation in the form of study tours or trade fair visits will be instrumental in building awareness amongst exporters, BSOs, MoA and Mol.</p>	<p>Obstacles</p> <ul style="list-style-type: none"> • Lack of interest and business case; • Organic is not a priority; • Organic is not a priority for ministries. <p>Opportunity</p> <ul style="list-style-type: none"> • Strongly growing organic market. 	<ul style="list-style-type: none"> • DAI is needed to identify the right stakeholders to participate in a mission. • MoA and Mol might have resources available for organising these activities. 	<ul style="list-style-type: none"> • SIPPO and IPD could both support using their strong network in the organic market. 	<ul style="list-style-type: none"> • Organise a market orientation mission with Indonesian exporters, BSOs and public institutions.
<p>BSO service delivery development (either public or sector associations)</p> <p>Improve future service delivery by developing services needed by the industry. To make them affordable, as well as a good business model for BSOs, this needs to be preceded by an assessment of buyer needs.</p> <ul style="list-style-type: none"> • MI focusing on market potential assessment and MAR and their dissemination; • Training modules focused on HR development for essential oil companies; • Support with compliance, including REACH registration; • Service delivery on R&D independent or referral to knowledge institutes; • Support towards product diversification, reinvigorating smaller oils, organic, fair, traceable, storytelling, etc. • Export marketing. <p><i>Box 48. Specific needs for organic oils</i></p>	<ul style="list-style-type: none"> • Limited service delivery by BSOs. 	<ul style="list-style-type: none"> • Mol and MoT could play a role, particularly funding activities. • DAI needs to identify members' needs and translate these into a service portfolio relevant to its members. 	<ul style="list-style-type: none"> • SIPPO can assess BSOs in different aspects of export promotion in collaboration. 	<ul style="list-style-type: none"> • Business support organisation development through training.

- Support with certification compliance;
- Export marketing specific for organic markets.

DAI has little human resources, and the feasibility and sustainable of efforts need to be a key focus of an intervention.

6. Conclusions

This concluding chapter looks into potential options for CBI interventions in the essential oils sector, as follows:

- Market segment versus product approach;
- Intervention logic and key considerations for interventions to succeed;
- Risks.

6.1 Market segment

This VCA links specific products to specific markets. The focus markets for the research on essential oils were their use in the food and cosmetics sectors as flavour and fragrances. However, attention was also given to their alternative use in the cosmetics industry, most notably in terms of their active properties or aromatherapeutic application. Their use as herbal medicine, although a growing sector in Europe, was not considered due to the limited size of that market niche, as well as the high requirements it poses to suppliers. Moreover, the growing market for essential oils in feed supplements and veterinary medicine was also not considered for similar reasons.

In conclusion, the research team proposes a combined market focus on cosmetics and food, looking beyond the traditional focus of the Indonesian essential oil exporters, i.e. outside the flavour and fragrances market and the main players therein.

6.2 Intervention logic

The research team expects that effective interventions in the essential oils sector can have a large impact on export increases, getting additional companies exporting and improving their CSR status. However, to be effective, a project in essential oils should be designed according to the following logic:

- Indonesian SME essential oil exporters cannot access international markets in a sustainable way if they do not work on their unique selling points. Business-as-usual, doing more of the same, competing for the same sources of raw materials and the same buyers will not allow exporters to compete with large Indonesian suppliers, nor will it bring much benefit to the sector as a whole. As such, a first step should be the identification of committed suppliers which are willing to work towards developing USPs in terms of full traceability, CSR compliance, product diversification (e.g. developing and reinvigorating the smaller oils produced in Indonesia) and certification. In this sense, essential oils are closely linked with organic certification, offering strong opportunities for differentiation and value addition, forming one of the USP options.
- Identifying interested companies is vital for continued action in the sector. To build awareness of companies about the opportunities offered by different USPs, it might be necessary to do market orientation and offer market intelligence. For organic essential oils, this is mostly focused on organic markets, but it is advisable to take a wider scope of USP development, and look at the wider range of USP options available to SME exporters.
- A variety of actors would be required to help develop USPs, including DAI, the relevant ministries (Mol, MoA, MOEF) and research institutes. Ideally coordination between these actors should culminate in a sector strategy focusing on USP development and actions across the value chain allowing companies to develop relevant USPs.

6.3 Risks

We identified the following key risks for interventions in the essential oil sector during the research:

- Companies are not interested in participating;
- Participating companies do not meet commitments;

- No government support to interventions;
- BSO capacity and resources are insufficient;
- EU legislation change regarding new allergen rules;
- Environmental contamination, damage risks for non-certified essential oils, in terms of pesticides use, soil management, unsustainable collection of firewood;
- Health and safety risks for non-certified essential oils;
- Agreement amongst sector stakeholders cannot be reached.

CSR risks in terms of health and safety, especially at the distilling level, child labour and labour rights could not be sufficiently researched, so further research is required to clarify the scope, impact and likelihood of these risks.

Annex I — Essential Oils Produced in Indonesia

No.	Commercial Name	Plant Source	Common Indonesian Name	Application/Benefit
1	Agarwood oil	<i>Aquilaria sp</i>	Gaharu	Perfumery, cosmetics, pharmaceutical
2	Bangle oil	<i>Zingiber cassumunar</i>	Bangle	Pharmaceutical
3	Basil oil	<i>Ocimum basilicum</i>	Kemangi	Pharmaceutical, food, bio pesticide
		<i>Ocimum gratissimum</i>	Selasih mekah	Pharmaceutical, food
4	Black pepper oil	<i>Piper nigrum</i>	Lada	Flavoring, antimicrobial
5	Cajuput oil	<i>Melaleuca leucadendron</i>	Kayuputih	Pharmaceutical
6	Calamus oil	<i>Acarus calamus</i>	Jeringau	Pharmaceutical
7	Cananga oil	<i>Canangium odoratum</i>	Kenanga	Aromatherapy, perfumery, cosmetics
8	Cardamon oil	<i>Amomum cardamomum</i>	Kapulaga	Pharmaceutical
9	Celery oil	<i>Apium graveolens</i>	Seledri	Flavoring, pharmaceutical
10	Cinnamon bark oil	<i>Cinnamomum casea</i>	Kayumanis	Flavoring
11	Citronella oil	<i>Cymbopogon nardus</i>	Sereh wangi	Flavoring, perfumery, soap
12	Clausena/Anis oil	<i>Clausena anisata</i>	Clausena	Pharmaceutical, beverages, perfumery, cigarette, chewing gums, tooth paste
13	Clove oil	<i>Syzygium aromaticum</i>	Cengkih	Flavoring, perfumery, cigarette
14	Coriander oil	<i>Coriandrum sativum</i>	Ketumbar	Food and pharmaceutical
15	Commint oil	<i>Mentha arvensis</i>	Permen	Flavoring, perfumery, tooth paste, candy
16	Cubeb oil	<i>Piper cubeba</i>	Kemukus	Food, beverages, flavoring, soap, detergent, perfumery, pharmaceutical
17	Curcuma oil	<i>Curcuma domestica</i>	Kunyit	Flavoring, pharmaceutical
		<i>Curcuma xanthorrhiza</i>	Temulawak	Pharmaceutical, beverages
18	Fennel oil	<i>Foeniculum vulgare</i>	Adas	Flavoring, soap, cosmetics, perfumery, pharmaceutical
19	Ginger oil	<i>Zingiber officinale</i>	Jahe	Flavoring, pharmaceutical
20	Jasmine oil	<i>Jasminum sambac</i>	Melati	Perfumery, aromatherapy, cosmetics
21	Kaempferia oil	<i>Kaempferia galanga</i>	Kencur	Pharmaceutical
22	Lajagua oil	<i>Alpinia malaccensis</i>	Lajagua	Pharmaceutical
23	Lemongrass oil	<i>Cymbopogon citratus</i>	Sereh dapur	Pharmaceutical, food
24	Lime oil	<i>Citrus hystrix</i>	Jeruk purut	Food and perfumery
25	Litsea cubeba	<i>Litsea cubeba</i>	Krangean	Pharmaceutical, aromatherapy
26	Massoia oil	<i>Cryptocaria massoia</i>	Masoyi	Flavoring
27	Lawang oil	<i>Cinnamomum cullilawan</i>	Lawang	Balm
28	Native myrtle oil	<i>Backhousia citriodora</i>	Surawung	Pharmaceutical
29	Nutmeg oil	<i>Myristica fragrans</i>	Pala	Flavoring, cigarette
30	Palmarosa oil	<i>Cymbopogon martini</i>	Palmarosa	Pharmaceutical
31	Patchoulli oil	<i>Pogostemon cablin</i>	Nilam	Fixative
32	Piper oil	<i>Piper betle</i>	Sirih	Pharmaceutical, antiseptic
33	Rose oil	<i>Rosa sp</i>	Mawar	Perfumery, flavoring, candy, sweetener
34	Rosemary oil	<i>Rosmarinus officinale</i>	Rosemari	Pharmaceutical
35	Sandalwood oil	<i>Santalum album</i>	Cendana	Antibacterial, antiseptic, disinfectant, expectorant, sedative, stimulant, refrigerant
36	Turpentine oil	<i>Pinus merkusii</i>	Tusam	Cosmetics, oil and paint solvent, antiseptic, pharmaceutical
37	Vetiver oil	<i>Vetiveria zizanioides</i>	Akar wangi	Perfumery, soap, cosmetics, fixative
38	Wintergreen oil	<i>Gaultheria fragrantissima</i>	Gandapura	Perfumery, pharmaceutical, flavoring
39	Ylang-ylang oil	<i>Canangium odoratum</i>	Ylang-ylang	Perfumery

Source: Dr. Meika Syahbana Rusli (2010), Trubus (2009)

Source of above: <F:\CBI\Integrated programmes\Indonesia\VCA\Data\Relevant previous reports\Essential oils\2011 EO ministry of trade.pdf>

Annex II — Longlist of Companies Identified and Shortlist of Companies Interviewed

Longlist of companies in the essential oils sector

Name of company	Region	Name of company	Region
Adelle Natural Oil	Jogjakarta	Intan Chemical, PT	West Sumatra
Alhaji Trade Center	NTB	Inti Prima, CV	Jakarta
Arahadi Group	Maluku	Jaspis Ltd, PT	Bali
Aroma & Co, CV	North Sumatra	Java Vetiver Nusantara	West Java
Aroma Essence Prima, PT	Banten	Jujur Mujur, CV	Banten
Aromindo, CV	West Java	Jutarasa Abadi, PT	Jakarta
Arta Palu, PT	Central Sulawesi	Karimun Kencana Aromatics, PT	North Sumatra
Aulia Abadi	North Sumatra	Karya Perdagangan Bersama, PT	Jakarta
Barr International, PT	Central Java	Kelma Niaga Sampurna, PT	West Java
Bayu Jaya Kusuma, PT	Bali	Mahakam Putra Penta, PT	East Kalimantan
Beringin Indah, CV	North Sumatra	Mignon Sista International, PT	West Java
Bintang Timur, UD	Maluku	Mitra Papua, CV	Maluku
Bumi Atsiri Prima, PT	Jakarta	Multi Rempah Sulawesi, CV	North Sulawesi
Chybuwnakula	East Java	Multicrop Trading, PT	West Java
Citra Eka Jaya, CV	North Sumatra	Nabateans Aromatic, PT	Jakarta
Cloris Essential Indonesia, PT	West Java	Natura Laboratoria Prima, PT	Jakarta
Condido Agro, PT	East Java	Nilam Wangi, PT	Banten
Danau Intan, CV	West Sumatra	Nilam Widuri, PT	Jakarta
Djasula Wangi, PT	DKI Jakarta	Nusaroma, PT	West Java
Dragon Prima Farma, PT	Central Java	Packindo Farma Utama	Jakarta
Eglin Pharma, PT	Banten	Pacific Express, PT	Bali
Erterni Nusantara	Jogjakarta	Pavetta Kurnia Atsiri, CV	West Java
Essentia Indonesia Grata, PT	DKI Jakarta	Pemalang Agrowangi, PT	Jakarta
Firmenich Indonesia, PT	West Java	Pradja Pharin, PT	Jakarta
Gautama Indah Perkasa	Jakarta	Rasayana Wangi, CV	West Java
Gelora Abadi, CV	East Java	Ratu Aroma, CV	Banten
Giga Haksa, PT	Jakarta	Riau Gaharu Abadi, PT	Riau
Global Reliance Impex, PT	DKI Jakarta	Sanggarruung Insan Tujuh, CV	Lampung
Gorom Kencana	East Java	Santiang Exports, PT	Jakarta
Graha Atsiri Indonesia (Grasindo), PT	Banten	Sarana Bela Nusa, PT	Jakarta
Guna Graha Gemilang, PT (Graha Gaharu)	Banten	Scent Indonesia, PT	Jakarta
Haldin Pacific Semesta, PT	DKI Jakarta	Sidomulyo	Central Java
Harlen Permai, PT	West Java	Suma Essential Oil, PT	West Java
Harum Segar Aromatic, PT	North Sumatra	Sumber Multi Atsiri, PT	Jakarta
Herba Bagoes, PT	DKI Jakarta	Takasago Indonesia, PT	Central Java
Indaroma, CV	Jakarta	Tatami Goods	East Java
Indarro Aromatik, PT	Central Java	Tharwa Barokah Abadi, PT	West Java
Indarro, PT	Jakarta	Tirta Kencana Nusantara, Ud	West Sumatra
Indesso Aroma, PT	Jakarta	Trida Bangun Semesta, PT	Bali
Indowangi Nusajaya, PT	North Sumatra	Ungerer Indonesia, PT	North Sumatra
Induk Sari Pertani	Jakarta	Van Aroma, PT	West Java
		Vitaher, PT	Central Java

Shortlist of companies visited by the research team

PT. INDESSO AROMA	PT. GRAHA ATSIRI INDONESIA (GRASINDO)
PT. PEMALANG AGRO WANGI	PT. INDOWANGI NUSAJAYA
PT. MITRA AYU	CV. AROMA & Co
PT. AROMA ATSIRI INDONESIA	PT. MIGNON SISTA INTERNATIONAL
PT. INTAN CHEMICAL	PT. SCENT INDONESIA

Annex III — Price Indications for Selected Essential Oils from Indonesia and Competitors

Price indications for selected essential oils from Indonesia and competitors (**organic in bold**)

Clove bud	Indonesian	\$24/kg 1 tonne lots
	Indian	\$84/kg 1 kg lots
	Madagascan	\$75/kg 1 kg lots
Organic clove bud	Indian	\$150/kg
Clove stem	Indonesian	\$15/kg container
	India	\$50/kg
	Madagascar	\$36/kg 200 kg lots
Clove leaf	Indonesian min. 73%	\$12.00/kg, container
	Indonesian min. 80%	\$13.00/kg
	Indonesian min. 82%	\$14.00/kg
	Madagascan	\$17/kg
	Indonesian	\$46/kg
	Indonesia	\$18/kg container
Clove leaf	Indian	\$75/kg
Ginger	Chinese	\$105/kg
	Indonesia	\$115/kg
	Indian	\$80/kg
	Indonesia (red)	\$98/kg
Organic ginger		\$270/kg
	India	\$170/kg drum
Citronella	Chinese	\$18/kg container; \$23/kg; \$53 1 kg lots
	Sri Lanka	\$40/kg container
	Indonesia	\$16/kg
	Indian	80% \$17/kg
Organic citronella	Sri Lanka	\$100/kg
	India	\$63/kg
Vetiver	Indonesian	\$220/kg; \$380/kg 1 kg lots
	Indonesian	\$240 rectified
	Indonesian, molecular dist.	\$260/kg
Organic vetiver	Indonesian	\$450/kg 1 kg lots
	Indian	\$350/kg
Ylang (cananga)	Indonesia	\$61/kg 1 tonne lots
Ylang ylang	Comores : Première	\$225/kg
	Comores : Deuxième	\$180/kg
	Comores : Troisième	\$95/kg
	Comores: Complet	\$150/kg 1 kg lots
	Madagascar (grade II)	\$80/kg
Organic Ylang ylang	Comores: I	\$225/kg
	Comores : II	\$180/kg
	Comores : III	\$210/kg
	Comores: Complet	\$330/kg
Nutmeg	Indonesian (myristicin 7%)	\$38/kg
	Indonesian (myristin 8%)	\$48/kg
	Indonesian (myristin 10%)	\$54/kg
	Indonesian(myristicin 2%)	\$33/kg
	Indonesian (safrole free)	\$67/kg
Organic nutmeg	Indonesian	\$172/kg
Patchouli	Sulawesi min 26% pa	\$48kg

	Sulawesi min 30% pa	\$50/kg
	Sulawesi min 30% pa, light	\$54/kg
	Sumatra min 30% pa	\$56/kg
	Sumatra min 32% pa	\$60/kg
	Sumatra min 34% pa	\$65/kg
	Sumatra min 30% pa, light	\$64/kg
Organic patchouli	Indonesia	\$175/kg;

Source: [ITC Market Insider, April 2016](#)