Options and opportunities in the utilization of natural products within specific “Green Sector” projects being undertaken by GIZ in Ethiopia

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# 1. Background

## 1.1 Purpose of Assignment

The purpose of the assignment was to support the respective specific programmes within the “Green Sector being undertaken by GIZ in Ethiopia, and formulate potential for intervention so as to achieve the objectives of enhancing income generation and employment in the rural areas of Ethiopia.

## 1.2 The specific projects within the “Green Sector”

The three Programmes and Projects that formed the focus of this exercise were as follows:

* Green Innovation Centre (GIC)
* Strengthening Drought Resilience (several projects forming a programme) (SDR)
* Conservation and Sustainable Use of Natural Resources: Biodiversity (“Biodiversity”)

The specific areas of intervention comprising these three Programmes and Projects largely cover specific districts within Afar and Somali Regional States.

## 1.3 Methodology

A site visit to Addis Ababa, Ethiopia was carried out by the Consultant between Sunday 20 and Friday 25 January 2019. Meetings were held with the various Programme Managers, Project Managers and technical staff during this period with the intention of gaining an understanding of the work being undertaken within the Programme areas and where in particular linkages could be found for opportunities that could be developed with natural products value chains and that could lead to enhancing income generation and employment.

In addition to the meetings undertaken throughout the week, a morning of presentations by the consultant was undertaken hosted by the Biodiversity project followed by discussions and follow up through the afternoon. Although open to all three Projects, these presentations were attended almost exclusively by members of the Biodiversity Project with attendance by one Programme Manager and one Technical Advisor from the collective SDR Projects. The GIC teams were involved with a capacity building seminar during the time of the site visit. However, the opportunity was taken for the consultant to address this GIC seminar at its conclusion and also to attend a session of the Ethiopia Agribusiness Accelerator Platform workshop taking place at the same time, again in company with GIC. These two events were primarily covering Honey and Beeswax and robust exchange of information and views took place at both sessions.

A list of GIZ personnel met for discussions from the three Projects is included as Annex 1.

## 1.4 Natural Product focus and presentations made

Following prior discussions with the GIZ SCIDA-II TC-Facility Project Manager, the main focus of the consultant during this site visit was on the Gums & Resins and the Honey & Beeswax sector. Additional natural products value chains considered included henna, various indigenous oil seeds for the cosmetic sector as well as indigenous spices. The presentations made reflected this with those being delivered by the consultant titled:

* “Gums and Resins and Wider Market Opportunities”
* “Selected Supply Chain in Somalia – Frankincense and Myrrh”
* “Ethiopian Gums and Resins”
* “Draft Frankincense Manual” (applicable to Somaliland varieties)

These presentations have been shared with the GIZ SCIDA-II TC-Facility Project Manager who will make them available to those that request them, taking into account the proprietary information included in some of the presentations.

# 2. The Three Programmes/Projects

## 2.1 General observations within the three Programmes in relation to Natural Products

Common to all three Programmes was involvement within the Honey and Beeswax sectors. Given the active promotion of this sector through the Government and support given to the sector throughout the donor community, this is not surprising. Honey is produced more or less throughout Ethiopia, it is characterised by low productivity due to prevalence of traditional beehives in the predominantly smallholder production system, poor quality due to main usage being through the honey wine (“tej”) trade, lack of traceability and poor infrastructure for scaling up. Oft cited is that there is great potential for the Ethiopian honey sector, yet there remains little in the way of formalised trade and exports represent a nominal amount of total annual production. Informal exports to neighbouring countries are claimed to be extensive.

As noted, bee husbandry and honey harvesting are undertaken throughout the country, including the dry upland and lowland areas of the Afar and Somali regional states in which the SDR and Biodiversity Programmes are especially active. The programmes concentrate, however, more on introduction of bee keeping as a part of their overall strategic activities but with little commercial linkage to enable sustainable livelihood generation.

The dry areas of Afar and Somali Regional States are harsh environments that provide little in the way of livelihood opportunities – compounded further by drought. Generally there are two main income generation activities within these areas – livestock and gathering gums and resins. Introduction of bee keeping – along with necessary commercial linkages – could introduce additional livelihood opportunities. Acknowledging that livestock will likely remain the primary activity, there are nevertheless opportunities to diversify income sources building on existing natural product value chains through targeted, smart intervention aiming to improve these value chains. The key value chain here is Gums and Resins – whilst there will also be other value chains that could be built upon once a detailed examination of the value chains and linkages has been carried out. These include for example henna as well as oil bearing tree species such as *Balanites aegyptica* and indigenous spices.

Although all the three Programmes offer support in one form or another for bee keeping and honey harvesting, none offer any form of intervention for Gums and Resins (aside from a single PPP project within Biodiversity). Yet the Gums and Resins sector is a significant export sector in its own right, with values far exceeding those of the honey and beeswax sector – and also has a substantial domestic component, providing income generation across a broad section of the Ethiopian rural and urban poor. Like the honey and beeswax sector, gums and resins also has a range of infrastructural problems that need to be addressed so as to improve income generation capacity, employment generation as well as export revenue generation.

## 2.2 Strengthening projects through selected interventions within value chains

Income generation through gathering of frankincense (Boswellia spp), myrrh (Commiphora spp) and Gum Arabic (Acacia spp) is prevalent throughout the programme intervention areas. However, further development is needed within these chains so as to improve the income generation opportunities especially of the pastoralists as well as the farmers within these areas in terms of increased purchases from them as well as improved pricing levels. The Bureau of Agriculture and Natural Resources in Somali State has requested the Project Manager for SCIDA-II TC Facility for support in the Gums and Resins value chains so as to improve efficiency and market linkages. Enhancing income generation at this level will not only help the communities overall drought resilience through more dependable income generation opportunities, but will also generate stronger “ownership” of the surrounding natural resources and the resulting conservation of biodiversity.

Under the devolution of powers to the Regional states, they are empowered to set and collect royalties on the harvest of natural products from the forests within their respective jurisdictions (confirmed through the Forest Development, Conservation and Utilisation Proclamation 2009 (Ethiopian calendar) 2017 (Western calendar)). The Regional States are required also to collect and compile statistics on the state of their forests. Depending on the areas as well as the quality and strength of the relevant administrative officials – these activities may or may not happen. In any case, since the powers devolved from the 1990s, the accurate knowledge of the status of Ethiopia’s forests has declined significantly. New assessments are recommended so as to establish the current status of this resource base, through quantification, species confirmation, health and regeneration of the forest species. Revenue generation through forest resources has not been effective yet could well become an important source of revenue for the Regional States.

As an example – a rate of 20% of the harvester price (the price paid to the harvester by intermediary traders) was set some time ago. The volumes of Gums and Resins harvested and traded within Afar is not known currently – but in Somali State the primary Gum-Resin traded is myrrh – and much of this trade is believed to be conducted informally and illegally over the borders bringing little benefit back to the Somali Regional State.

In Somalia itself, a comprehensive, well documented and fully traceable supply chain is in existence for myrrh and annual harvests are around 1,000 tonnes. Harvester prices paid are US$16-20/kg giving an annual harvester value of US$16-20 million. If a 20% royalty were to be payable this would generate US$3.2-4 million for state revenues. Of course, the harvest of 1,000 tonnes of myrrh annually over the borders in Somalia does not mean that there is an equivalent potential harvest within the Ethiopian Somali Regional State. However, given similar geographic, biodiversity and socio-economic conditions on both sides of the border it could be strongly contended that an equivalent myrrh harvest could be attained within Somali Regional State generating substantial income for the state as well as formalising the actual harvest and trade.

The following key areas have been identified as offering opportunities for improved livelihood income generation through intervention by the respective GIZ project activities. Specific suggestions on key areas of intervention that the Programmes/Projects can integrate into their findings are provided in each of the sections below.

# 3. Gums and Resins – Afar and Somali Regional States

## 3.1 Strengthening community participation within existing VCs

Gathering of gums and resins within these specific intervention areas has been an activity more or less since time immemorial. The trees, all of which exist in each of the intervention areas, form part of the environmental landscape and offer additional income opportunities to pastoralists and farmers making use of the opportunities offered by the environment around them.

However, these resources remain underutilized in terms of potential income generation as there is significantly greater availability of gums and resins than is being collected and the prices being attained could be greater than are being achieved. Additionally, concern has been raised over the future sustainability of the resource through traditional harvesting practices.

The potential income generation within each of the intervention areas needs to be assessed in detail but indications from elsewhere have shown that it can be substantial. Mature myrrh trees for example will yield upwards of 5 kg annually of resin and as noted in adjacent Somalia for example current prices of US$16-20 are paid by organized traders for clean quality myrrh. A pastoralist gathering myrrh – 90% of whom are likely to be female – can gather easily 100-500 kg myrrh within the seasonal period and generate US$1,600-8,000 annually.

This is not happening in the intervention areas despite strong and increasing demand for resins within the local and export markets that is not being met. There is the opportunity therefore to identify why this is the case and design interventions for implementation within these existing supply chains that would lead to increased income generation opportunities.

## 3.2 Gums and resins within Afar and Somali State

Drought Resilience initiatives in Afar and the Somali Regional State offer opportunities to link with improving income generation through gums and resins gathering. These initiatives currently aim to secure productive livelihoods and food for the longer term and improve access to and make sustainable use of natural resources such as water, land and pastures.

The main livelihood generation is through pastoralist livestock activities as well as some crop farming. However, none of the three Programmes has an active wider ranging gathering of gums and resins as a livelihood strategy. Yet indications are that both Afar and Somali Regional State have the potential for gathering both gums and resins.

NGARA (Network for Natural Gums and Resins in Africa) estimated that the annual potential harvest of Gums and Resins within **Afar** is:

* 250 tonnes of Tigray olibanum (*Boswellia papyrifera* – frankincense)
* 500 tonnes of myrrh and opoponax (*Commiphora myrrha* and *Commiphora guditti*)
* 600 tonnes of both kinds of Gum Arabic (Acacia Senegal and Acacia seyal)
* The combined potential value could between US$5-10 million annually to harvesters if such harvests are attainable

Similarly, NGARA estimated that the annual potential harvest of Gums and Resins within **Somali Regional State** is:

* 2,500 tonnes of Ogaden Olibanum (*Boswellia neglecta* and *Boswellia riviiae*)
* 4,500 tonnes of myrrh and opoponax (*Commiphora myrrha* and *Commiphora guditti*)
* 1,700 tonnes of Gum Arabic (*Acacia Senegal* and *Acacia seyal*)
* The potential annual value if all was harvested would be in the range of US$70-85 million.

Yet the annual harvests are clearly nowhere near these levels in terms of either volume or value – despite the indicated strong potential demand levels in both international and domestic markets. In fact – from direct observation in the Addis Ababa Merkato Market – there is a shortage of gums and resins for local market demand that is being met through imports from Greece, Indonesia and elsewhere. This is somewhat surprising given the Ethiopian Government push for foreign exchange generation.

## 3.3 Harvesting practices and production

Actual harvesting practice depends on the type of gum being harvested as well as the place of harvest. Production is seasonal – dry season only. Tapping of the trees – making incisions in the tree and then collecting the dried “tears” – is almost exclusively practiced for harvesting *Boswellia papyrifera* for frankincense. Myrhh and the other frankincense species are almost exclusively collected from the natural exudates without tapping; and for the myrrh species this is believed to lead to a higher quality gum-resin.

Production of *B. papyrifera* takes place in one of three ways:

1. Hiring of tappers directly or through contractors with payments being made on delivery of the frankincense.
2. Concession whereby licensed companies contract individuals to arrange tappers to produce the resin. Concessionaires pay tappers a contracted seasonal wage.
3. Farmers or local residents (essentially pastoralists) organise as co-operatives to sell their harvest to wholesalers and exporters. Though less common, this third system is becoming more important along with the recognition that local long-standing residents should benefit directly from the resources that surround them. This will also help to preserve the resources through the direct interest of the local residents and in contracts to the bought in labour under the first two systems above.

Currently, with the bulk of B. papyrifera being harvested within Tigray, it is not suggested that the Programmes look at this frankincense primarily – not least as there would seem to be a need to tackle the endemic problems of forest management there as a political pressure point.

## 3.4 Cross-linking of existing drought resilience programmes with gums and resins supply chain enhancement

Project interventions comprise a range of initiatives including water spreading weirs combined with grass seed and forage establishment as well as tree and fruit programmes aimed at improving livestock husbandry amongst others – together with pilot bee keeping exercises. These interventions target pastoralists, primarily women in seeking to improve their livelihood opportunities. Potential cross linkages with Gums and Resins exist already - the bee keeping for example is enhanced by the forage availability especially of Acacia tree species which are endemic to the area – and the prime source of Gum Arabic.

Intervention with activities seeking to improve participation in the Gums and Resins value chains would fit very well the overall programme objectives – working in the **same areas**, working with the **same potential beneficiaries** and working towards the **same ultimate objectives**. Adding in interventions with an existing Value Chain and seeking to enhance the benefits in its participation would strengthen the interventions of the programme projects immensely.

An assessment of the Gums and Resins species within the target intervention areas is inevitable to quantify the resource potential and status. Furthermore, an assessment of potentially already existing involvement of the beneficiaries within the supply chain will bring out opportunities for improvement in income generation.

## 3.5 Resource extent not known and value chain mapping needed

As noted above, the data covering the extent and the health of respective forests is out of date and no firm knowledge is held on the current and future potential yields from the resource bases. Further identification and quantification of the exact species that have commercial value is needed. With two skilled forest professionals in the Biodiversity and the SDR Programmes, the Programmes would have the technical skill and capacity to carry out such resource assessments under their guidance.

Furthermore, there is a need to accurately map the supply chain within each species and assess the respective value chains so as to identify intervention steps the programmes could utilise.

## 3.6 Linking in to the private sector

Although the traditional uses and value chains for *Boswellia papyrifera* are relatively well known, less well known are the uses for the other frankincense species and the Gum Arabic species. This could well be due to the traditional commercial concentration on *B. papyrifera* as the main commercial species. Primary source of *B. papyrifera* is Tigray – although smaller resources exist in Afar state. Aside from the need to quantify the resource size in Afar as noted above, the resource in Afar would seem to have suffered less in terms of over–exploitation due to its remoteness. Harvest, grading and trade in *B. papyrifera* from Afar could also benefit from enhanced and improved value chain support directly with the communities especially through support for cooperatives. This kind of support could well serve as a pilot demonstration for what could be achieved in terms of sustainable harvesting of *B. papyrifera* for eventual extension into Tigray.

Aside from the sizeable indicated potential resource of myrrh and Gum Acacia within both Afar and Somali Regional State, it seems that commercial exploitation of these species is substantially lower than for *B. papyrifera*. Reasons indicated range from distance to insecurity, to lack of knowledge and awareness of both the harvesting communities as well as the traders and exporters based in Addis Ababa.

As a result, firstly the hiring of tappers and/or concessioning of these gums and resins does not occur; and secondly, because such contracted labour is not involved that has little interest in the long term sustainability of the forest, there is less danger of poor harvest practices and over-exploitation than is the case in Tigray. Instead the harvesting communities continue to be pastoralists, gathering gums and resins as they graze their livestock. These more traditional harvesters are almost exclusively women and have the ingrained knowledge of the species gained over centuries as well as a long term interest in the sustainability of the forest so as to continue providing an income.

However, it is clear also that the supply chains are not functioning as they could. In particular:

* There is strong market demand for gums and resins in the local and international markets that is not being met;
* There is a substantial (yet unconfirmed) resource base in Afar and especially Somali Regional State;
* There are strong indications that much of the harvest (itself a fraction of the potential) is being exported informally into neighbouring states;
* The material that does arrive in Addis Ababa for grading and/or sale into domestic and international markets is of poor quality due to incorrect harvesting techniques and adulteration with other similar but not commercially exploited or lower value gums and resins;
* Despite a very substantial resource in Gum Arabic, Ethiopian formal exports are less than 1,000 tonnes annually and account for less than 1% of annual worldwide trade. World leader Sudan dominates world supply with more than 85% yet geographically similar conditions occur in Ethiopia.

There is therefore a need to understand why trade in these species is less extensive than the potential. This includes an understanding of the local uses for individual species, an understanding of traditional trading routes and linking these in to wider supply chains to generate income. This can and should be linked directly with private sector partners so that trade links established become sustainable.

There is also the need to address the quality issues and to ensure that harvesting of these natural products remains at a sustainable level. This entails understanding of the individual species and the uses the pastoralists put them to – for example it is understood that Gum Arabic species are utilized as a drought food in terms of need with high nutritious value.

As well as encouraging the establishment of cooperatives to work together in the collective supply of individual gums and resins, this would also examine harvesting methodology (for example the *Boswellia papyrifera* is tapped but none of the other species are tapped), keeping and maintaining harvesting of different species separate, hygiene in the field and storage together with grading in the field prior to sale to traders. Working directly with private sector traders with knowledge and need for these species will establish suitable pricing levels as well as a sustainable market directly with communities.

## 3.7 Recommendations as to how the Programmes/Projects can respond to the opportunities and findings within the Gums and Resins sector

## 3.7.1. Documentation of traditional harvesting practices, uses and preparation of harvesting manuals

For each of the primary commercially harvested species within Afar and Somali Regional State – it is recommended that a knowledge based is established covering traditional harvesting practices, uses of each product and to establish harvesting manuals based on best practices. These recommendations will enable understanding the very first stages of the value chain with the objectives being to improve the value chains where possible.

**Recommendations**:

|  |  |
| --- | --- |
|  | **Harvesting practices and techniques** |
| **1** | Document traditional harvesting practices and techniques – including time of harvest, method of harvest, post harvest handling including grading and storage, the traditional view of the most valuable type and the value sought for such grades |
| **2** | Establish traditional knowledge behind such harvesting practices and techniques – including need to rest the trees, tree cutting where practiced, frequency and size of cuts, quality of exudates |
| **3** | Determine who are the traditional harvesters, who is enabled to harvest the trees from the communities, community training requirements needed, who is enabled to sell the harvest and establish the proportion of total income generated by harvest of gums and resins |
| **4** | Document traditional uses of individual specific gums and resins for home consumption – medicinal, religious, edible (and under what conditions), other spiritual, insect and other pest repellant etc |
| **5** | Compare traditional harvesting techniques with accepted modern practices especially in relation to tree and forest sustainability, ability for regeneration, quality requirements |
| **6** | Review traditional and modern harvesting, post harvest and storage practices to establish best practice |
| **7** | Review best practices in light of commercial requirements with the intention of combining the best practices into a harvesting manual in the case of each species |

3.7.2. Mapping Value Chain and Market Study for each of the primary commercial species harvested in Afar and Somali Regional State

There is a need to examine the existing Value Chains within each of the species and in each of Afar and Somali Regional States so as to understand more fully the economic contributions of each stage and to identify weaknesses within in each Value Chain. This would identify opportunities for support within the Porgrammes/Projects.

**Recommendations**

|  |  |
| --- | --- |
|  | **Undertake mapping of value chains and carry out Market Studies** |
| 1 | Identify clearly the actors within the chain from harvester through to buyer for domestic and/or export |
| 2 | Prepare market studies for each species within the value chains through to trader level |
| 3 | Identify the process provided by each actor within the chain and the value added by that process – from harvester to co-operative if such exists, to bulking up trader if not, through to grading and where such grading takes place, to on-sale from grading process to domestic and export traders |
| 4 | Identify cross-border informal trading and values and reasons for informal trading |
| 5 | Identify problem areas and how these can be addressed. These would include inter alia:   * + Mixed species providing degraded product at grading point leading to lower pricing   + Adulteration with other similar species   + Lack of awareness of ultimate use of gums or resins harvested   + Lack of understanding of the underlying value of the gums and resins harvested   + Lack of bargaining power within the value chain   + Lack of possibility for bulking up of harvest and effective economies of scale |
| 6 | Prepare interventions based on the value chain analysis. These could include:   * + Awareness training on the need to maintain separate harvest of species   + Training in post harvest handling and grading at harvester level   + Introduction of traceability systems and leading ultimately to various different certifications   + Formation of collective groups (cooperatives, unions) for bulking of harvests and capacity building for negotiation with traders for direct sale of graded product   + Market awareness and pricing   + Direct linkages to private sector commercial traders and exporters in Addis Ababa   + Establishing linkages with importing companies through private sector commercial traders |

3.7.3. Undertaking resource assessments of the species in Afar and Somali Regional States

There is the need to provide up to date knowledge of the status of each of the individual commercialized species so as to gain not only a knowledge of the potential for annual harvest but also for an understanding of state of health of the individual commercial species in terms of current harvest practice, age of trees and their regeneration status, threats to their current and future status including from human intervention, Government policy, climate change and other factors.

The methodology would employ modern technology including drones to identify individual species and their density which could cover wide areas at relative low costs. The findings would help identify and guide strategic opportunities and measures that could be taken. Undertaking this type of resource assessment would also enable identification of other potential commercially interesting species, their distribution extent and density as well as their health and threats to their future. Amongst others these could include wild growing henna, Balanites species and also identify species such as aloes and useful Euphorbia or Opuntia cacti.

Such assessment would be undertaken in association with locally based communities that are able to identify such species as well as the uses to which they could be put through traditional usage as well as wider commercial utilization.

**Recommendation**

|  |  |
| --- | --- |
|  | **Undertake resource assessments for each species** |
| **1** | Undertake species resource assessments for individual commercially harvested species within each intervention state |
| **2** | Identify other species that could have potentially useful commercialization prospects and include within the wider resource assessments |

3.7.4. Sustainability issues

Examination of the **current laws** at federal level as well as at state level in relation to:

Ownership of forests

Access to forests

Forest maintenance and custodianship

rights of access to forest products – timber as well as non-timber

Responsibility for permits/royalties – setting of rates and collection

Use of permits/royalties at state and federal level

Examination needs to be carried out covering actual practice in respect of the law in relation to the above aspects. Suggestions to be made on what the laws could or should say, or be specific on and what could or should be reasonable and practical in governing the forests, enabling sustainable utilization of forest resources and policing of this.

Amongst other areas the **permitting/royalty system** in place should be examined for:

* Harvesting permits
* Collection permits
* Transport permits – within individual state and into other states
* Export permits
* How these are obtained, what needs there are to obtain them, who can obtain them
* Are they honoured, ignored?
* How are they evidenced in terms of totals, income generated etc

In relation to **traditional laws and practice**, examination should cover:

Are the laws/permitting systems in contrast to traditional laws and practices?

Ownership and who has access to forest resources under traditional law?

What are the obligations under traditional law – for example what restitution is possible against those that willfully or otherwise destroy a productive tree?

How are disputes over resources settled amongst local communities?

How do local communities handle access to tradable resources and in terms of who can access them, what payments are made to communities in respect of the use of these resources for trade

The resulting examination can then make recommendations for the management of the forests for the communities that have traditionally utilized them as well as enabling encouragement for the commercial utilisations of the forest resources in an environmentally sustainable manner as well as encouraging ethical and fair trade reward for utilisation of these forest resources.

**Recommendation**

|  |  |
| --- | --- |
|  | **Examination of sustainability of species utilisation** |
| **1** | Undertake review of federal and state law in respect of forest ownership, access and management |
| **2** | Establish permitting or royalty systems in place covering all aspects of harvest, storage, trading and transport |
| **3** | Undertake review of traditional laws and practice and whether these are in conflict with federal and/or state laws |
| **4** | Make recommendations for management of forests by traditional communities |

3.7.5. Quality control, assurance and traceability

Detailed assessments of the needs for gums and resins in terms of quality, quality assurance as well as traceability is crucial in acceptance for international markets. Ethiopia’s reputation as a quality supplier of gums and resins has become tarnished in recent years due especially to poor quality of product offered, adulteration, lack of traceability as well as dependability in supply. These aspects are in addition to the sustainability issues identified under section 3.7.4. above.

A baseline study into the commercial species in Afar and Somali Regional State will need to be undertaken as an initial step. This study would be in two parts and examine firstly:

Requirements of exporters of gums and resins as well as those for importers (which may well be different)

These requirements would cover specifications such as size, colour, purity levels of the gums and resins offered, foreign object minimal levels including in relation to international standards where known or available

Ultimate use of the gums and resins and specific requirements for such use. Eg specific pharmaceutical requirements for Gum Arabic and myrrh including traceability, hygiene requirements, microbial loads etc; minimum essential oil yields for frankincense etc

* Pricing differentials for different grades
* Storage requirements
* Packaging requirements
* Age of product

Secondly an examination of what happens in practice in relation to the above aspects.

This would then provide a detailed framework against which the Programmes/Projects could work with the aim of addressing specific areas that show poor adherence and where such intervention could lead to improved incomes in terms of volumes of product offered for sale as well as in terms of price.

**Recommendation**

|  |  |
| --- | --- |
|  | **Determine quality control, assurance and traceability needs** |
| **1** | Carry out baseline study into needs of exporters and importers, together with domestic markets and needs |
| **2** | Carry out analysis of current practices in relation to baseline needs |
| **3** | Prepare detailed intervention plan addressing specific areas of need |

3.7.6. Gain understanding of Government policy and intentions for the Gums and Resins sector

In comparison to, for example, the Honey and Beeswax sector, the Gums and Resins sector seems not to be receiving the attention it deserves in terms of support, focus, capacity building, standards generation, export development, import substitution and more.

The Government control over the sector has loosened completely from the peak days of the National Gums and Resins Production and Marketing Enterprise (NGPME). NGPME was (and remains) a parastatal and at its peak it controlled all harvest, grading, trade, export and domestic sales of gums and resins. This included access to the forests as well as forest husbandry. Since the early 1990s the sector was opened up through the licensing of private companies in the trade including their take over of much of the NGPME infrastructure and markets. NGPME continues to exist to this day and is the major individual exporter of gums and resins. However, the sector as a whole would seem to have deteriorated in terms of quality, standard, reliability since then, including the unsustainable harvest of the lead frankincense, *Boswellia papyrifera*. Market development of the lesser traded gums and resins – including Gum Arabic and *Boswellia neglecta* and *riviai* has not taken place. Further – although the world markets for myrrh have increased sharply in terms of both volume and pricing over recent years, Ethiopia’s sales especially to China have declined.

The strategy for gums and resins at Government level needs to be determined so that the Programmes and Projects can align their activities with this strategy. During the consultant’s visit for example it was learned that the Government planned to take the NGPME into the Ministry of Agriculture. There remains some confusion over this which would need to be resolved especially in relation to what this means for the other actors as well as for NGPME itself. Further – there is no association of Gums and Resins Producers and Exporters as there is in other sectors – for example honey and beeswax. There are no standards in place for Gums and resins – aside from specifications introduced by NGPME for *Boswellia papyrifera* and which they continue to use to this day. NGPME has only two specifications for myrrh, none for the other frankincense species and none for Gum Arabic.

The policy towards the forests that host Boswellia papyrifera needs understanding so that again the Programmes and Projects can work within this policy – or strive to change it if necessary. The spread of commercial cash crops such as sesame production at the expense of destruction of centuries of forest, especially forest that is able to produce valuable export products, would seem to be counter productive.

**Recommendation**

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|  | **Government policy towards Gums and Resins sector** |
| **1** | Commission study into Federal Government policy towards sector from historical viewpoint and in light of current and ongoing broad Government development objectives |
| **2** | Establish GIZ policy towards Gums and Resins sector in light of understanding of Federal Government position |
| **3** | Seek to lobby Federal Government policy where needed so as to drive positive sector development |
| **4** | Design suitable GIZ interventions within sector aiming to work with Federal Government towards objectives |

3.7.7. Value addition

Within Ethiopia’s Gums and Resins sector there is very little in the way of value addition taking place at all. Exports are almost exclusively of raw material – gums and resins. Value addition takes place outside Ethiopia – where essential oils are processed, as well as other forms of intermediary products, which are then utilised in high value retail, medicinal, food products with little if any reflective value back to Ethiopia.

Kenya has at least two essential oil processing plants where frankincense is distilled for international cosmetic and medicinal markets. Somaliland has one such plant whilst in Dubai another Somaliland owned essential oil processor specializes in distillation of frankincense for customers in Europe, the USA and Canada as well as China.

There is no such processing plant in Ethiopia. However, there are a number of small scale stills – capacity being very low – that produce some essential oils for specific export customers as well as for some local market utilisation.

The Recommendation is to encourage development of local value addition in Ethiopia, and seek possible PPP partners either locally or internationally.

**Recommendation**

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|  | **Encourage local value addition** |
| **1** | Carry out a survey of those small scale value addition activities that do exist currently – mainly in Addis Ababa and attending craft markets or for sale to local retail outlets |
| **2** | Assess these organizations for their potential to develop further into larger scale opportunities for exports |
| **3** | Assess their linkages in to other locally based industries that could utilise their products as ingredients for cosmetic ranges, food products, aromatherapy products |
| **4** | Target 2 or 3 such organisations to enable capacity building, business planning, market surveys, capital raising and partner identification |

# 4. Honey and beeswax value chains

The Programmes all have elements involved with beekeeping and honey harvesting – although all operate effectively in isolation of each other. Opportunities therefore exist for working together within the Programmes/Projects and developing and integrated, holistic approach. In particular there is the need to link together with private sector initiatives so as to help provide markets in the case of those programmes being undertaken in the water spreading weirs and grassland rehabilitation activities. Establishing fruit trees in these areas is also clearly a good plan again if there are markets with whom the produce can be sold.

An interesting link exists within the beekeeping programmes, the gums and resins support potential, and the establishing fruit trees around the water spreading weirs rehabilitated zones. This would be the establishment of gums and resins trees – especially Acacia species. The advantages here include:

* Acacias are highly mellifluous, have a long flowering period that will provide bees with fodder
* Acacias are leguminous, provide animal fodder also when more mature
* Appropriate varieties will provide additional income through gum collection
* Linking pastoralists to markets through establishing cooperatives as well as providing training in bee keeping, honey harvest, improved quality and grading for the gums collected will provide additional benefits over and above the rehabilitation of the land

Interestingly, although the arid drylands – both upper and lower – may not give the appearance of being productive beekeeping territory, there is a surprising amount of bee feeding flowers available more or less throughout the year. Desert type honey is well sought after in specialist markets – due especially to the medicinal benefits from the various flowers the bees feed on as well as the purity of the honey therefore derived. In Somaliland there is strong anecdotal evidence that dryland honey from around the frankincense producing zones command high premium rates in the Gulf States especially in Saudi Arabia where prices of between US$50 and 100/kg are indicated.

There would be an opportunity to tap in to these markets through properly trained co-operatives, most likely operating through the lead bee keeper type system (wherein a lead bee keeper looks after up to 20 individual bee keepers and ensures quality of product).

Such a system could be established with fully traceable honey sourcing, bulk collection and training through to a private sector company able to maintain the integrity and quality of that honey for direct marketing to selected specialist premium markets. Establishing such a system could eventually lead to GI (Geographic Indicator) status that would further enhance the integrity – along the lines understood to be being sought for white honey from Tigray. Benefits could then be brought to the community co-operatives that relate directly to the environment from which the honey has been derived.

# 5. Biodiversity opportunities

Meetings held with the Biodiversity programme focused especially on identified opportunities that the programme was already working on, along with potentially interesting additional prospects that would fit well within that programme including Public Private Partnership (PPP) prospects. The Biodiversity programme does not support the establishment of new value chains nor does it support complete existing value chains – instead it seeks to enhance existing value chains through focusing on gaps.

Specific areas with opportunity for offering support at specific points within those value chains include:

## 5.1 Honey production at Arba Minch

This pilot project was established so as to provide income for newly established forests that aim to provide fuel wood for the city alleviating pressure on the on the forest reserve. Establishing beehives would help provide this income until the trees mature. However, the project has run into problems with siting of the hives as well as the people allocated for the hive husbandry.

Direct needs were identified in the meeting as being:

* For technical expertise in the setting up of the hives their siting and their maintenance
* The need to examine and target the specific markets for the honey produced
  + Primary target originally the *Tej* producers –
  + A closer market assessment may target the bottlers of table honey in the local markets through offering a better quality product
* The need for more intensive training in harvesting and hygiene control to meet table honey needs.

There is the opportunity for a more integrated holistic approach within the honey value chain – and this could then be expanded into other similar type markets facing similar opportunities. The challenges include:

* Need for traditional protection of trees within a wide ranging forest;
* Need to improve the quality of the honey produced for targeting a higher market level at the end of the process;
* Need to package for quality at the end of the market process;
* Direct linkages needed with the packagers and sellers of the “blue jar” honey in the market place;
* Generation of better income for bee keepers based on improved yields and quality;
* Possibility for bee keepers becoming “Park Protectors” through an effective concession for placing bee hives and leading to possible Park sanctioned certification;
* Quality production of honey leading also to quality production of beeswax for sale to the local churches as candles;
* Linkage to a local PPP.

## 5.2 Repha PPP - Myrrh specific value chain needs

Repha is a German company that has been buying myrrh for a specific application through a Dutch trading company for a number of years. Repha has partnered with GIZ Biodiversity in seeking improved practices in myrrh collection and quality control, sustainability and in establishing a Forest Management Plan. An agreement has been entered into with 2 small co-operatives in Somali Regional State covering a combined 50 members. This will be able to collect sufficient for Repha’s needs (3 tonnes annually). Traceability would be ensured through direct buying from the co-operatives.

However, the initiative has yet to commence due to a run in with the Ethiopia Biodiversity Institute (EBI), which is the competent authority for negotiation of Access and Benefit Sharing (ABS) agreements under the Nagoya protocol. The EBI is insisting that this agreement falls under the Nagoya Protocol although it is clearly based on normal biotrade based on prior known uses.

Negotiation is clearly required with the EBI so as to enable this initiative to proceed – and which would then enable similar larger, wider scale such initiatives to be undertaken across a range of natural products. Should negotiations fail then this could pose a problem for the natural products sector as a whole. The Biodiversity programme is not necessarily equipped to handle such negotiations.

Once the situation has been resolved there will be concern over the ability of the co-operatives – operating in fairly remote zones – to have the capacity to effectively continue the initiative once support from GIZ Biodiversity has run its course. There is a need to link with a strong private sector operator that has the incentive and capacity to continue and expand the business. This includes ongoing provision of full traceability and quality requirements. The private sector operator will need also to commit to continue bringing benefits back directly to the cooperatives in direct relation to their efforts in harvesting and safeguarding the myrrh resource.

## 5.3 Indigenous cardamom and other spices

The Biodiversity Programme is providing support through a holistic approach to the wild coffee sector. This is planned to lead to sustainable agricultural supply chains. The wild coffee survives in forest areas which leads to the potential for establishing and supporting other value chains within the same area and involving the same farmers. PPP links to large scale farmers are incorporated, including for in vogue spices such as turmeric. Certification opportunities – including organic, fair trade and where appropriate Fairwild will be included.

Using the same areas as the wild coffee – indigenous cardamom grows using the same forest area, and have the need for indigenous trees from which the vines hang. Exotic species also form a part of the initiative – including vanilla, turmeric and black pepper, for which the demand in Addis Ababa and in export markets has been established as being high. For turmeric, a PPP project has been established with a large scale farmer growing turmeric for the Chinese markets, and for whom additional turmeric is required through smallholders.

The support provided through GIZ Biodiversity targets two different beneficiary groups:

* Collectors –with the wild coffee, cardamom and honey;
* Farmers - growing black pepper, turmeric and vanilla.

These two groups are not mutually exclusive and could include the same people.

There is a need:

* To supply quality planting material through nurseries for the exotic species – turmeric, vanilla, black pepper
* To establish procedures, standards and quality control systems
* For the indigenous species – wild coffee and cardamom – there is the need to -
  + Understand the production, harvesting and propagation systems
  + Establish protocols for ensuring sustainable harvesting techniques
  + Encourage regeneration, establish standards and certifications
  + Ensure traceability.

It is recommended that this be piloted so as to establish industry wide standards in conjunction with the private sector, including the PPPs involved or planned to be involved as well as of course the Ministry of Agriculture and other related bodies.

## 5.4 Other potential endemic species opportunities

Additions to commercially interesting indigenous species include:

***Enseta ventricosum* (false banana**) from which the hearts are used in preparing a flour used in making a very sour local bread. The high starch content of this plant could well have other more industrial uses – including being used as a binder for making coffee husks into fuelwood briquettes. The fibre is used as a base for making baskets.

**Black cumin** – extensively used already as a cooking oil and which could well have wider uses in for example cosmetics. Cumin oil currently is mainly used as a cooking oil in the Muslim community and is also exported to Sudan. It is believed to be widely used as a hair product – but not much is known in respect of this application currently.

**Henna**, a dye derived from the tree *Lawsonia inermis* (locally grown in the Afar and Somali Regional State) is extensively used across the age and gender spectrum as an adornment in Ethiopia as well as within the Gulf States (especially Yemen) as well as from Sudan and Egypt. There is strong potential for export development as well as with import substitution.

***Balanites aegyptica***, tree that is believed to grow widely within the lower lying areas of Somali Regional State and Afar, could also have applications as a cosmetic oil derived from the kernel. The flesh on the outside of the fruit is also nutritious and can be eaten fresh as well as dried.

***Moringa stenobotalle*** is a local endemic variety of moringa. It could be of interest for use of the leaves as a fresh or dried vegetable and the oil as potential within the cosmetic sector.

These applications need exploration as well as likely needs under the Nagoya Protocol and the Access and Benefit Sharing issues. Development of these value chains could well be through PPPs – either local or international, or indeed a combination of the two. Some local activity is already in place, mainly as cottage sector industries – these have the opportunity for further development through PPPs.

**Recommendation**

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|  | **Develop indigenous natural product value chains** |
| **1** | Undertake a detailed scoping study identifying potential natural products that have local, traditional use and potential for larger scale commercialization |
| **2** | Undertake resource assessments in local areas to establish the size of the resource base for the individual natural product so as to ensure that it has the potential for sustainable harvest in commercial quantities; |
| **3** | Undertake market research into the local uses, the processes needed to add value, local potential partners;  Undertake research into potential PPP partners at both local level for product supply into local markets as well as with international PPPs for export markets |
| **4** | Broker suitable PPP partnerships with strong private sector players and suitable organizations with access to and affinity with the natural product |
| **5** | Enter into discussions with the Ethiopian Biodiversity Institute in relation to Nagoya Protocol and Access and Benefit Sharing possibilities |
| **6** | Identify where in the Value Chain Biodiversity is able to support intervention |

## 6. Large scale honey and GIC

GIC has links in to the Ethiopian Agribusiness Accelerator Platform (EAAP) through the Ethiopian Agricultural Transformation Agency. The EAAP seeks to build 2-3 value chains that will meaningfully increase smallholder farmer incomes and to enable Ethiopia to become globally competitive in those commodities and related packaged products. The first value chain to be addressed under the programme is that of honey. The programme will address the infrastructural and capacity constraints identified as preventing full potential:

* Incubation – professionalising smaller enterprises using a readily scalable approach;
* Acceleration – scaling relatively mature enterprises;
* Ecosystem – focus on support enterprises including input suppliers, quality testing laboratories, packaging companies.

Amongst the expected outcomes of the programme by 2020 will be:

* Return to growth in the Ethiopian organic honey export market;
* Establish one to two recognised, widely available and growing domestic honey brands;
* One Acceleration participant successfully raised growth equity and 2-3 Incubation participants raised seed capital;
* Three fold increase in farmer yields as a result of transitioning from traditional to modern beekeeping.

Direct support being provided through GIC to producers in West Shoa Dano District coordinates more than 1,000 farmers together with 160 youth as employees, providing support through provision of modern hives and training. The project came on stream fully from 2018 although production for 2018 remained modest at some 700 kg. Nevertheless, significant increases are expected from 2019 as a result of the new hive capacity being brought on line. Processing will take place at Efa-Bari.

However, discussion with the Programme Planning Co-ordinator for this individual honey programme established that:

* There is a need to establish local market channels;
* There is a desire to export;
* There is a need to know the regulations for export;
* There is a need to know procedures for export;
* There is a need to develop linkages for accessing international market channels;
* There is a need to know quality requirements for international markets;
* There is a need to know beeswax capacity and requirements;
* There is a need to know import requirements for Europe and other countries;
* There is need to prepare (and implement) a business plan.

The factory is equipped with filtration sieving equipment, centrifuge, storage tanks for pure honey as well as separation and storage tanks for beeswax preparation.

The honey group is participating in the EAAP and many of these needs would be expected to be addressed there. Clearly there is a need for additional linkages to be made.

**Recommendation**

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|  | **Link honey project to established private sector buyer** |
| **1** | Seek suitable private sector partner for local market distribution |
| **2** | Seek suitable private sector partner for international markets (not necessarily the same as for local markets) |
| **3** | Provide support and capacity building so as to enable the two separate groups to work together |
| **4** | Sensitise both groups in working together and in management of expectations so as to build long term commercial success |
| **5** | Provide ongoing training support and guidance on bee hives, bee husbandry, establishing and maintaining traceability systems and ensuring ongoing honey quality. This should be shared with the commercial partner(s) |
| **6** | Preparation of clear, and implementable, Business Plan in conjunction with the private sector partner(s) |

# Annex:

## Persons met

Site visit took place between Sunday 20 and Friday 25 January 2019

**Strengthening Drought Resilience Projects**

Christian Dohse, Project Manager, SCIDA-II TC-Facility

Christina Ketter, Project Manager, Afar Soil Rehabilitation Project (ASRP)

Clara Schier, Advisor, Strengthening Drought Resilience ASAL (Afar and Somali Region)

**Biodiversity and Forestry Programme**

Ueli Muller, Programme Manager, Biodiversity and Forestry Programme

Katrin Oehlkers, Team Leader PPP and Co-funded Projects

Biodiversity and Forestry Programme

Karin Allgoewer, Team Leader M&E, Knowledge Management and Communication, Biodiversity and Forestry Programme

Mesfin Mengistu, Advisor Public Private Partnership (PPP), Gums and Resins Value Chain (Myrrh), Biodiversity and Forestry Programme

Bekale Haile, Ethiopian Wild Coffee Project Coordinator

Rita Nedif, Junior Value Chain Officer, Biodiversity and Forestry Programme (BFP)

**Green Innovation Centre, Ethiopia**

Magnus Schmid, Programme Manager, Promotion of Agriculturual Productivity through Innovation

Laura de Guevara, Junior Advisor, Green Innovation Centre for the Agricultural and Food Sector - Ethiopia

Solomon Mengesha, Senior Value Chain Adviser, “Building an Avocado and Sesame Value Chain” Strategic Alliance (develoPPP.de)

Addisu Asefa, Planning Programme Co-ordinator, Green Innovation Centre – Ethiopia

Tesfalidet G/Kidan, Programme Co-ordinator, Green Innovation Centre - Ethiopia

**Additional parties met, Addis Ababa**

Professor Ermias Dagne, Emeritus Professor of Chemistry, Department of Chemistry, University of Addis Ababa

## TimeTable

**January**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Sunday 20** | **Monday 21** | **Tuesday 22** | **Wednesday 23** | **Thursday 24** | **Friday 25** |
| **Am** | Rest after arrival | 1. Introduction SDR Projects Rahem Building  2. Orientation meeting Global Business Hisham Building Networks | Presentations given by Arthur Stevens on Gums & Resins at Hisham Building attended by Biodversity and Forestry Programme, Chris Dohse PM SCIDA-II TC-Facility and Clara Schier, Advisor, Strengthening Drought Resilience ASAL | 1. Meeting Addisu Asefa and Tesfalidet G/Kidan Planning Progamme Coordinators GIC Honey Project West Shoa Dano District | 1. Professor Ermias Dagne, Dept of Chemistry, University of Addis Ababa | 1. SDR Projects meeting Rahem Building, Christian Dohse, PM SCIDA-II TC-Facility and Christina Ketter, Project Manager, Afar Soil Rehabilitation Project (ASRP)  2. Continued discussions Biodiversity Project Rahem Building  3. Lunch GIC at Capital Hotel |
| **Pm** | Briefing Christian Dohse, PM SCIDA-II TC-Facility | 1. Overview of Biodiversity and Forestry Project, Hisham Building | 2. Discussions on presentation and on Biodiversity projects, Hisham Building | 1. Discussion Chris Dohse PM SCIDA-II TC-Facility Rahem Building  2. Discussion SDR Land Rehabilitation Projects, Christina Ketter, Project Manager, Afar Soil Rehabilitation Project (ASRP) Rahem Building  3. Discussion SDR Honey through IFTAR Clara Schier, Advisor, Strengthening Drought Resilience ASAL Rahem Building | 1. Continued discussions Biodiversity Project Rahem Building  2. Briefing on GIC Projects Laura de Guevara, Junior Advisor, GIC | 1. Attendance at EAAP ATA Workshop, Melania Gates Building Magnus Schmid, Programme Manager, GIC and Laura de Guevara, Junior Advisor, GIC |