



WP6/ Activity A.6.1.1 - The Medbee economy concept in mainstream policies for rural development through the CAP

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## Introduction

Bee Economy is a new evolving concept, there is no specific definition to the term, and varies in the understanding of the researchers and stakeholders, however there is a common base which is related to pollination, Beekeeping, the products of the Hive and their transformation into added value products.

According to the Arab Beekeepers Union, Bee Economy is the recovery or reviving of beekeeping, adding added value to bee products, making the most of all hive products, qualifying beekeepers to cope with the current changes, teaching them about beekeeping technology, preparing products suitable for export and competition, and creating a new generation of women and youth to work in beekeeping for sustainability, and biological diversity. (Fathy Beheiry)

It also includes the eradication of poverty and hunger and the improvement of living, considering that beekeeping projects are among the successful agricultural projects, because they are low-cost, high-return projects and have quick returns. (Fathy Beheiry)

Based on our experience from the MedBeesiness Hubs projects, the Bee Economy concept is a powerful tool, for the sustainable rural development of honey producing communities, enabling the involvement of the whole community and region, based on smart specialization. In the Bee Economy concept, all stakeholders are decision makers, and are harmoniously working for the protection of the bees and the environment, which are interlinked and interdependent factors, and for the economic welfare of the sector and the region.

The incorporation of the Bee economy concept in the national policies can impact positively the sustainable development of rural areas, the preservation of the environment, tackling economic issues such as youth and female unemployment, and environmental issues.

Bee Economy goes beyond the value of pollination and the primary gifts of the bees. Bee Hubs can become hubs of inclusive entrepreneurial ecosystems, preserving the environment, the cultural heritage, and offering new jobs and new challenges, not only for the Beekeepers but for the whole community. A vast range of side products is concerned from cosmetics to handcrafting souvenirs and even to “Api/bee-tourism”.

The Bee-economy is strongly connected to youth. Young people bring fresh business ideas. The Medbeesiness Hubs project has pollinized them by offering them training and capacity building and granted financial and technical support. New products have been developed, and the foundations of a sustainable cross-border network has been created.

**Every season, pollination deliver billions of dollars in economic value. Billions worth of annual global food production relies on bees’ contribution.**

**Each hive contributes 100 times more in value to the community than to the beekeeper.**

Honey bees are the most valuable pollinators in terms of agricultural economics, they provide pollination to virtually any crop, making bees important to the production of food including meat and dairy products. Honeybees play a vital role in improving agricultural

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productivity, preserving biodiversity and promoting sustainable livelihoods. The bee is one of the most economically important insects, producing honey and other hive products, and pollinating crops that account for more than 35% of global food production.

Honey is more than just a by-product of pollination. Is an economic driver in its own right. Used commercially for food, cosmetics, pharmaceuticals, traditional medicine and medical wound dressings.

Beeswax is another economic driver with 101 uses, from candles to cosmetics, while pollen is gaining popularity as super food. Propolis, royal jelly & bee venom are used in cosmetology, pharmaceuticals and the beauty industry as well as in Apitherapy.

Agricultural leaders understand both the economic and ecological importance of pollinators. It's hard to imagine an ecosystem where they are absent.

Unfortunately, bee populations and the number of species are declining, with potentially devastating consequences to natural and agricultural ecosystems. Multiple factors are involved in bee declines, including loss of habitat and reduced natural forage, unsustainable management practices, pesticide exposure, and parasites and pathogens. The introduction of non-native species, have serious economic and ecological impacts.

The aim of this Policy document is to provide tools & suggestions for incorporating the MedBee economy concept in the national policies.

The policy suggestions are based on (a) the particular policy framework in Egypt (b) the CAP framework on apiculture support framework; (c) the reports from the ongoing evaluation and (d) interviews on experiences and suggestions by the target groups, the partners and the end beneficiaries.

The feedback that we had from our survey showed that the stakeholders in Egypt are ready and very enthusiastic, in getting engaged in the Bee Economy & Api Tourism.

What Egypt lacks is a comprehensive legislation system for Beekeeping, the trade of honey and the gifts of the bees, artisan cosmetics and Apitherapy. More training and capacity building are needed as well as further scientific research on bees both in terms of taxonomy and reasons for their decline, last but not least public awareness, so that Egypt can explore its full potential and become a leader in the trading of the products of the hive, bee queens as well as a unique Api Tourism destination, where Bee Economy will be flourishing.

## Methodology

The study has incorporated a variety of tools and activities. On line research took place & in person in Brussels during the European Sustainable Energy week 2023 for

- Current legislation regarding beekeeping and trading of honey and other products of the hive as well as sustainable beekeeping in Egypt
- national policies in Egypt & international organisations who are working closely with Ministries for climate change, biodiversity, empowering youth & women in rural areas, as well as funding schemes.
- the new CAP regulation on apiculture on which the national apiculture schemes are formulated at the EU level
- current and new guidelines on the Green Deal especially those that focus on the pillars 'Biodiversity' and Farm to Fork';

A study visit in Stockholm took place, and a meeting at the Swedish National Trade centre, where trade issues were discussed.

Stakeholders and policy makers were mapped and a questionnaire was created which was used as a base for the interviews and getting feedback. (Appendix 1)

Interviews on experiences and suggestions by the policy makers, and stakeholders took place in Egypt, and some virtually. (Appendix 2)

Previous reports from the ongoing evaluation of the Medbeesiness Hubs project, were examined, especially WP3.

Regarding the strategies and policies for enabling the Bee Economy concept to be incorporated in national policies in Egypt, a study on the international organisations who are active in Egypt, took place, as their mission and action plans are creating an enabling environment for the Bee Economy to be sustainable, expand, and gain the recognition needed so that it can be embedded in the national policies. They are also providing funding and platforms for cluster creation.

This is why the role of international organisations is examined and highlighted.

## Current policies and policy framework including funding opportunities at regional/national level

### Historical Background of Beekeeping in Egypt

Egypt has a profound ancient tradition of beekeeping, which dates back thousands of years. Beekeeping was particularly important in the extensive irrigated lands of the lower Egypt where there were abundant flowers, but also wild honey was searched often under the protection of the royal archers. The bee became the symbol of the country; pharaohs were known as Bee Kings, and the sanctuary of Osiris, a much-worshipped god was the Mansion of the Bee. The bee was so important that it was associated with the Sun itself. (Ahmed Elsalwalhy -African Union – Interafrican Bureau for Animal Resources)

Honey and wax were treasured commodities in Egyptian society, as were other medicinal products from bee hives. Archaeologists have found honey in ancient Egyptian tombs, preserved over thousands of years, a testament to its eternal shelf-life. Beekeeping remains an important economic activity in Egypt. ( Ahmed Elsalwalhy -African Union – Interafrican Bureau for Animal Resources)

1918 marked the beginning of modern beekeeping in Egypt, with the introduction of wooden Langstroth frames and in 1920 the first society of beekeepers was created. Since then, this group has released periodical bulletins to enhance beekeeping techniques in Egypt and share ideas. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

After the introduction of Langstroth frames, there has been a gradual transition from traditional to contemporary beekeeping techniques, and today 99% of beekeepers in Egypt adopt modern methodologies. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

All beekeepers in Egypt deal with honeybee colonies without any protective clothes except the veil (face protecting). Also, a lot of beekeepers do not use smokers during hives inspection, despite the aggressiveness of colonies. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

### An Overview of the Beekeeping sector in Egypt

Apiculture is predominantly conducted by beekeepers of middle age (59 %) with small apiaries (>50 hives). 41 % of Egyptian beekeepers have between 10 and 20 years of experience, and the rest, less than 5, and more than 20 years. Approximately 53% of beekeepers rent land for apiary establishment, particularly during migratory apiculture, which is required by 79% of Egyptian beekeepers. (A3.1.2 Regional studies on the economic value of networking around the honeybee products )

Beekeepers believe that beekeeping increases income and recommend it to others, indicating that beekeeping is a promising enterprise for reducing rural unemployment.

Beekeeping is not a solitary profession, as 86 % of beekeepers require workers to assist them. The majority of workers are not trained and assist only in the transport of hives (95 %). 29 to 47% of the workers are involved in hive repair, cleaning, feeding, and observation. 92% of beekeepers do not have any access to training services in their regions. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

For 75% of beekeepers, the knowledge of honeybee keeping is transferred by relatives and friends rather than recognized academic sources. Approximately 89 % of beekeepers stated that beekeeping associations (individual non-governmental association of beekeepers that provides scientific, technical, social and economic apicultural support and that collaborates with universities and commercial academies working in this sector) play no active role in their regions, and they rely solely on themselves. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

Still, 40% of beekeepers are members of beekeeping associations, and 34% of beekeepers play an active role in the association.

The most popular product produced by Egyptian beekeepers is honey (96 % of beekeepers produce honey), followed by the production of bee packages at a rate of 57%. 51 % of beekeepers produce royal jelly and pollen professionally, followed by the production of bee wax (49 %). While bee venom and propolis had the lowest production rates (35% and 15 %, respectively), some beekeepers also produce protein replacements (21%) for use in their own winter hives. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

41% of beekeepers lack knowledge of value-added products because they only sell their products as raw material. Even the remaining 59% of beekeepers are lacking information, as only 2% of them produce honey candies and only 7% of beekeepers in Egypt are involved in the production of bee wax products.

Propolis cannot be used as raw material and must be refined; just 9% of beekeepers purify propolis, while 11% dissolve collected bee venom in solution.

Regarding diseases and pests' control, 68% of beekeepers claimed that they can diagnose the origin of hive disease and treat it properly, which requires further investigation as the majority of beekeepers (73%) utilize preventative treatments without observable symptoms.

In addition, the lack of technical knowledge among beekeepers has resulted in the adoption of many treatments for the same cause. For instance, 28% of beekeepers use chemicals to treat Varroa, while 87% utilize natural alternatives. The same pattern was discovered in Nosema and poultry diseases, indicating that they employ both sorts of therapy. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

Given the absence of authorized treatments, the interactions between different treatments are extremely significant and hazardous. There are several causes for colony extinction,

which can be either natural or induced by external factors. 92% of beekeepers attribute colony losses to starvation. 89% of beekeepers said that chemicals are responsible for colony losses. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

The most relevant findings are that beekeepers cannot always identify the reason of colonies losses, in the last winter season 64% lost about 20% of their colonies, requiring further investigation and research.

Climate change is a growing problem worldwide, and 65% of Egyptian beekeepers consider it to be the most significant problem confronting beekeeping in Egypt, requiring more attention to solve. Regarding diseases, 64% of beekeepers concurred that it is a major issue. According to 53% of beekeepers, the rise in production costs is the third major issue, and marketing comes in last with a 39% approval rate. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

The Food and Agriculture Organization (FAO) statistics on data collected for beehives in Egypt from 1960 to 2016 indicate that the number of beehives increased from 1961 to 1990, reaching a peak of 1.7 million beehives, dropped thereafter and declined steeply between 2005 and 2015, and then tended to increase gradually until 2019; The variation in the number of beehives in Egypt between 1960 and 2016 may have been caused by a number of variables. The drop in the number of beehives in Egypt from 1990 to 2016 can be linked to a number of factors such as;

- (1) The destructive effects of the Varroa mite, which represents the major ectoparasite of honey bees in Egypt and worldwide and was first observed in Egypt in 1983
- (2) The loss of agricultural land in Egypt due to urbanization that led to decreasing trends in cultivated crops that depend on honeybee pollination
- (3) The extension and overuse of pesticides against different crop pests, which negatively affect bees
- (4) Adverse effects of in-hive chemicals used to protect and treat honeybees against pathogens and parasites
- (5) The introduction of alien species

Apiculture is considered a family business for over 75% of beekeepers, work in the apiaries with their families (about 79% of beekeepers' family size ranges from 4-6 persons), and they employ others to help them with ordinary apiary labour. The remainder of the beekeepers who did not acquire beekeeping through their family (25 %) typically learned beekeeping because it is a widespread occupation in their region, in addition to their primary occupation; nonetheless, the majority of them have limited experience and lack the required knowledge. They can take care of beehives and extract honey, but they lack the precision required to manage beehives. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)



Egyptian beekeepers requeen their colonies annually by acquiring virgin queens and allowing them to mate naturally, or by growing virgins from existing colonies. The majority of queens are raised through grafting, and queens are kept in cages with few workers and sold either as virgin or mated.

Certified queen producers are often in high demand in Egypt.

The relevance of apiculture (beekeeping) to the agricultural sector in Egypt continues to grow each year. Most beekeepers derive the majority of their income from honeybee colonies' products. Because the establishment of honeybee colonies requires healthy flora, the majority of apicultural operations exist in close proximity to cultivated Nile River areas. It is common knowledge that nectar and pollen gathered from flowering plants are the primary food sources for honeybees.

It may be claimed that citrus, clover, and cotton are the three most important blooming plants for beekeeping in Egypt. These plants are not native to all Egyptian governorates; thus, beekeepers travel their colonies from area to region to follow the blossoming season. This practise is known as "Migratory Beekeeping." In addition to these primary plants, honeybee colonies should be located near cultivated plants to meet their nutritional needs.

Placing honeybee colonies on barren soil could result in their demise. Recently, Egypt's desert has been intensively reclaimed. It is likely that apicultural activities will be prevalent in these places.

### **Beekeeping economic figures in Egypt**

**Egypt is regarded as one of the most significant countries for beekeeping** in Africa and the Arab world. The Egyptian Ministry of Agriculture recently revealed that exports of bee products had reached \$300 million. In 2021, Egypt ranked **top globally** in exporting bee packages. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

**Egypt ranked second in the Arab world** for honey production in 2018, after Algeria. The Arab Union for Beekeepers estimates that Egypt currently cultivates 2.5 million beehives, which are the primary source of income for **25.000 to 30.000** Egyptian beekeeping households. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

In 2018, Egypt exported over 1,2 million **bee packages** and 115 Tons of **bee wax**, making it the **leading exporter of both items in the Mediterranean region**.

Recent years have seen a decline in the honey production and the revenue of beekeepers due to a number of issues, including the rise in production expenses and the challenges beekeepers have in migrating to fruit orchards. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

In Egypt, **queen bee production** is considered the most essential investment in the field of beekeeping. According to the Central Agency for Public Mobilization and Statistics, Egypt exported approximately 511 thousand bee packages (bees are packaged in kilograms) to Saudi Arabia and approximately 304,000 packages to the UAE and 35,000 packages to Kuwait in the first nine months of 2021 for a total of approximately 861,000 bee packages valued at \$19,846,000. However, exports to these countries were conducted for less than 24 dollars per pack, although **international pricing** for the same package of bees were between 100 and 130 dollars. There is a lot of untapped potential as only 37% of beekeepers know how to breed queens, and no taxonomy exists to prove the quality of the queens. Also, queen producers are not certified by any academic institution.

Honey is not a primary consumer product in Egypt; people rarely consume honey and frequently utilize it for therapeutic purposes, as annual honey consumption declined from 0.13 kilograms per person in 2002 to 0.05 kg per person in 2013.

Egypt is the only country capable of producing queen bees all year-round, due to the climate and easy mobility of bees. These factors make Egypt qualified to be an international center for beekeeping with excellent investment and employment opportunities for Egyptian youth.

Beekeeping brokers, serve as collection points for all beekeepers who are typically unable to process or market their products, and their importance is increasing due to their capacity to store and market bee products on the long term, which is unavailable to beekeepers. Without their contribution to the market, the majority of beekeepers would have lost their jobs as a result of their inability to sell their goods. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

Beekeeping is a potential venture for reducing rural unemployment.

The lowest unemployment rate (1.9%) was observed in the governorate of Menia, which is regarded a suitable place for beekeeping. This percentage soared to 27.5% in South Sinai, which has no substantial beekeeping industry. The existence of beekeeping in a region encourages the community to undertake a second, low-paying employment. The average weekly wage in Menia is over 60% of the average wage in South Sinai., because the majority of beekeepers in Menia also have a second job. (A3.1.2 Regional studies on the economic value of networking around the honeybee products)

Although the initial cost of setting up an apiary is not prohibiting and has a high ROI, the cost of apiary land rental is a significant concern.

Sustainable rural development seeks to enhance the quality of life through resource focused development, innovation, and intergenerational equity.

Financial support from the government for the development of small and micro producers, including the beekeeping sector, is a key factor in increasing the competitiveness of small and large producers in this sector.

The diversity of agriculture and its continued growth, Egypt's geographical location and climatic conditions, and the availability of the necessary expertise are major strengths of

Egypt's production, whereas the absence of certified treatments and market control, as well as high production costs, are the primary challenges beekeepers face. Additionally, the scarcity of pure queens and lack of marketing skills contribute significantly to the decline in beekeeper profit.

### **Policy framework in Egypt**

The beekeeping industry plays an important role in increasing crop productivity through pollination and creating jobs opportunities among rural people. The government is implementing numerous programmes to significantly promote the industry, such as the MSMEs agency, which supports MSMEs in many industry sectors in order to establish sustainable competitive advantages and identify major obstacles to the sector's future development.

Since 1960, the Egyptian Ministry of Agriculture has prohibited the importation of queens in an effort to manage honeybee diseases. Imports of Carniolian and Italian queens are permitted, although the pricing remains a big issue. (Activity 3.1.3: Mapping the policy frameworks at cross border level)

### **Egyptian Law: Beekeeping controls and apiaries removal cases**

According to Egyptian agriculture legislation and beekeeping regulations and apiary removal cases, Egyptian law stipulates, through Law **No. 53 of 1966**, promulgating the Agriculture Law established rules and measures for boosting cotton growing, as well as beekeeping requirements as follows;

#### **Law No. 53 of 1966**

- It is not permissible to raise honey bees or set up apiaries in the areas specified by the Minister in his decision.
- Whoever removes his existing beekeeping apiary at the time of the decision is entitled to an appropriate compensation in accordance with the terms and conditions for which a decision is issued by the Minister.
- In all cases in which one of the apiaries is repeatedly removed by the administrative route, the removal must be preceded by proving the condition of the apiary subject of removal in a report drawn up by a policeman in the presence of the agriculture representative and the owner of the apiary or his representative in his absence (Activity 3.1.3: Mapping the policy frameworks at cross border level)

### **Egyptian CODEX ES 355-1 (2005)-HONEY AND METHOD OF ANALYSIS,**

#### **Part 1: HONEY**

This section outlines the fundamental needs and descriptive specifications for honey. According to the information provided in the Egyptian Standard Specification for Honey, there is an absolute necessity to make an amendment to this standard for the following reasons:

1- The last Egyptian specification for bee honey was issued in 2005. Egyptian honey was divided according to its botanical source, the only difference between these types was according to the sucrose % in honey, so the specification specified clover honey with a sucrose % of no more than 5% and the rest of the species not to exceed the proportion of sucrose 10%.

Over time, different types and degrees of honey appeared in the market, which may not be aligned to the Egyptian standard specification, but they suit many consumers in terms of the price and availability in the market. These types have spread and is difficult for the consumer to differentiate. For this reason, many beekeepers see the need to amend the standard specification for Egyptian honey to suit the needs of the market. As a simple example, Egyptian honey can be divided into different types according to its vegetable source, and then each type is divided into different grades according to different criteria such as

- a. % of containing the required main plant nectar
- b. Sucrose %
- c. It contains artificial nutrition in different degree
- d. It contains foreign substances
- e. The included % of HMF

2- Packages must be: Premium first-class glass and a label that clearly expresses the product's quality, characteristics, and therapeutic importance, quoting from specialized research, and the package is placed inside another box of cardboard, wood, or any other material that prevents light from reaching it

3- If the beekeeper desires to sell his honey by himself, he submits an application to the competent authorities attached to his apiary license and a sample of his honey with an explanation of the quantity and his commitment to the packing and packaging conditions. The specialized laboratories determine the quality and grade of honey. If there is a violation of what has been declared, the beekeeper will be punished with severe penalties and prevent the issuance of another approval for him. (Activity 3.1.3: Mapping the policy frameworks at cross border level)

#### **Food Safety Authority (<http://www.nfsa.gov.eg>)**

In the plenary session held on Monday, January 2, 2017, the House of Representatives, approved the law establishing the National Food Safety Authority and publishing the law in the Official Gazette on January 10, 2017, No. 1 of 2017, promulgating the law of the National Food Safety Authority.

The executive regulations of the Authority's Law were issued pursuant to the Prime Minister's Decision No. 412 of 2019 and were published in the Official Gazette on February 18, 2019.

Article (3) Clause 1 of Law No. 1 of 2017 stipulates the issuance of the National Food Safety Authority Law, which grants the authority the competencies and powers to set binding rules for food safety; In accordance with applicable international standards; and in a manner that

does not conflict with national requirements; A decision shall be issued to define these rules by the Authority's Board of Directors.

The National Food Safety Authority is an independent body that aims to protect consumer health by ensuring that food produced, processed, distributed, or marketed meets the highest standards of safety and health.

The idea of unifying the multiple regulatory bodies (more than 17 regulatory bodies affiliated with several ministries) appeared in one body that would assume full responsibility at the beginning of the first decade of the twenty-first century, after the agreement of the Ministers of Trade and Industry; health and population; The establishment of the National Food Safety Authority, and a committee was formed, by decision of the Minister of Trade and Industry No. 374 of 2007, to run the procedures for establishing the authority

According to the law establishing the authority, the establishment that deals with food products must be registered online through the online form <http://reg.nfsa.gov.eg/>

Conditions for exporting honey in Egypt;

- The honey to be exported must be attached with new packing proof papers.
- The issuing company or the issuing entity must have a commercial registry.
- The issuing company owns a tax card.
- The issuer must hold a bank account with an amount deposited in US dollar currency to facilitate bank transfers.
- All papers that prove that the honey to be exported complies with all health specifications must be in possession. (Activity 3.1.3: Mapping the policy frameworks at cross border level)

### **Egypt & Agricultural Biodiversity Strategy**

The Convention on Biological Diversity (CBD) established an international initiative for the conservation and sustainable use of pollinators in which Egypt is actively participating. The Food and Agriculture Organization (FAO) facilitates and coordinates the initiative together with other relevant organisations within the programme of agricultural biodiversity. The initiative aims to promote coordinated worldwide action to:

- Monitor pollinator decline, its causes and impacts on pollination services;
- Address the lack of taxonomic data-which will add value to the queen bee production
- Assess the economic value of the pollination and economic impacts of its decline;
- Promote the conservation, restoration and sustainable use of pollinator diversity in agriculture and related ecosystems.

The initiative has helped develop and implement national and regional pollinator initiatives, produced several guidance manuals, and accelerated work on risk assessment methods for

pesticides. Encourages Parties and invites other Governments to integrate the conservation policies to encourage;

- the private sector to achieve more sustainable production and consumption systems;
- academic and research bodies, and relevant national, regional and international organizations and networks, to conduct further research
- beekeepers, land managers, urban communities, indigenous people and local communities and other stakeholders to adopt pollinator-friendly practices and address direct and indirect drivers of pollinator decline at the field and local level;
- To develop and deploy monitoring of wild and managed pollinators in order to assess the magnitude of the decline and to evaluate the impact of deployed mitigation actions;

Encourages the Global Environment Facility and other donors and funding agencies to provide financial assistance, including capacity-building activities, for national and regional projects for the sustainable use and conservation of pollinators.

### **Egypt's National Climate Change strategy**

Designed to consolidate all aspects of climate change in one document to be a basic reference that ensures the integration of climate change dimension into general planning of all sectors in the country. It was developed at the request of the National Council for Climate Change. The strategy contains five key goals and sets directions to achieve each objective

- 1: Sustainable Economic Growth and Low-Emission Development in Various Sectors
- 2: Adaptive Capacity & Resilience to Climate Change
- 3: Enhancing Climate Change Action Governance
- 4: Enhancing Climate Financing Infrastructure
- 5: Scientific Research, Technology Transfer, Knowledge Management and Awareness to Combat Climate Change

All the above goals create an enabling environment for beekeeping and bee economy to be sustainable and expand, and provide a platform for the economic growth of the beekeepers.

### **Egypt Vision 2030**

Egypt Vision 2030, is an ambitious national agenda launched in February 2016 by the Egyptian Government and the vision consists of eight main national goals to be met by 2030 that are aligned with the United Nations Sustainable Development Goals (SDGs), and the Sustainable Development Strategy for Africa 2063.

The new updated version has three dimensions: economic, social and environmental, and several axes: interest in the knowledge economy and encouraging innovation, industrial deepening and value chains. As well as managing population growth issues, achieving spatial justice, other goals include: development issues, promoting women and youth

empowerment, developing the small and medium enterprises sector, and encouraging entrepreneurship.

All the three dimensions of the strategy are related to beekeeping and bee economy and action plans can be integrated into the specific axes.

Climate change is a significant issue in a number of nations, particularly in the agricultural and water sectors. Climate change in Egypt includes the possibility of a rising sea level, a rise in temperature, and a decline in crop yield. Such consequences may also include the rise in water needs of crops, the distribution rate of plant diseases and pests, the decrease in precipitation rates or drought, the alteration of land usage, and the secondary salinization caused by the incursion of seawater. Consequently, there is an immediate need to comprehend the possible implications of climate change and to establish adaptation strategies and measures to mitigate future climate change risks.

### **The African Pollinator Initiative**

The African Pollinator Initiative (API) founded in 1999 by a group of persons from across the African continent, who were aware that pollinators play a key role in ecosystem health, both in farmers' fields and in wild landscapes.

The API was interested in and committed to protecting, understanding and promoting the essential process of pollination for sustainable livelihoods. At that point virtually nothing was known about the effectiveness of pollinators of wild plant species.

The African Pollinator Initiative is poorly funded, and lacks a secretariat to coordinate its activities, and link with similar initiatives. All pollination projects and researches have been through external funding. The research agenda doesn't address the most critical needs of the industry on the continent.

### **Policy Recommendations**

There is a need for new policy directions, with implications not just for beekeepers but for the entire way in which we view production, develop the livestock and crop sectors, and the health of our environments.

A new global study found that crop yields respond more positively to increases in wild pollinator densities than to increases in honey bee densities. While both honey bees and wild bees contribute to crop pollination, honey bees, it is now known, cannot fully substitute for the positive yield effects attributed to wild pollinators.

By increasing food security, pollinators contribute to the improvement of livelihoods and to the significant increase of income of some of the most deprived areas. Economies that rely on pollinator-dependent agricultural crops can be at high risk if there is a significant decline in pollinator populations.

The promotion and development of apiculture as a commercial enterprise and the increases in the output of hive products, would require that the agricultural sector policies of most

governments address the uniqueness of the bee industry, and put in place policies and regulatory framework that enhance apiculture development.

Despite the reliance of agriculture on ecosystem services, many agricultural and land management practices are contributing to broader ecosystem service decline.

### **Landscape Management Options**

Munyuli (2011) outlined various management options for enhancement of pollination including pollinator-friendly semi-natural habitat, natural habitat, field, and landscape management strategies.

The options include incentives for farmers for sustainable conservation of pollinators in agricultural landscapes; policies for conservation of pollinators in agricultural landscapes, strategies for dissemination of information on pollinators, monitoring pollinator communities in rural landscapes and policies to reduce pollinator-unfriendly farming practices.

### **Beekeeping options**

Beekeeping options exist for the improvement of pollination; these include improving traditional beekeeping methods; encouraging modern beekeeping and management; instituting bee health as part of beekeeping; and streamlining value product packaging, value addition and marketing structures. (EE Polination Industry in Africa: Status, Challenges & options for enhancement by Peter Kwapong)

Greater collaboration between policy makers and researchers will provide evidence and practical options to protect and restore natural areas that provide critical habitats and foraging ecosystems for pollinators. These efforts must be backed up by enforcement of regulations on beekeeping and environmental health. (EE Polination Industry in Africa: Status, Challenges & options for enhancement by Peter Kwapong)

### **The Comprehensive Africa Agriculture Development Program (CAADP)**

provided a platform for Africa to own, set and drive to its agricultural and development agendas. African Leaders renewed their commitment to agricultural sector growth, outlining goals and objectives for the next ten years in the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods.

#### **The Malabo Declaration commits Africa to:**

- a. Adhere to the principles and values of the CAADP process: agriculture led growth, evidence-based planning, productive partnerships and alliances, exploitation of regional complementarities, country level implementation and regional coordination
- b. Enhancing investment finance in agriculture: prioritize actions to attain public investment targets imperative for vitalizing public goods that are essential for creating a more dynamic enabling environment for attracting private sector investment.



- c. Ending hunger in Africa by 2025 by: doubling current agricultural productivity levels, access to quality and affordable inputs, supply appropriate knowledge and information, access to water, reduce post-harvest losses by 50% by 2025, social protection, early warning, increased consumption of locally produced food items, improved nutritional status
- d. Halving poverty by the year 2025 through inclusive agricultural growth and transformation: sustain agricultural growth of at least 6%, public-private partnerships; job creation, preferential promotion of women and youth in agri-business
- e. Boosting intra-African trade which should triple by 2025; and
- f. Enhancing resilience of livelihoods and production systems to climate change

The Malabo Declaration therefore addresses itself to a number of issues, but the Apiculture sector, as one of the oldest livelihood and income generating activities on the African continent, it exemplifies much of the best of the continent, and also some of the most persistent challenges. (The Future of the African Bee: A call to mainstream beekeeping to enhance delivery of the Malabo Declaration -Nouala S and Ossiya SA)

Greater investment is needed in agriculture which can generate the greater employment opportunities and multiplier. Investment in the sector should start with curricula that include skills and enterprise development.

Africa must view her large youth population as an opportunity, a demographic dividend, to have human capital (large proportion of working age persons) for economic development. **The beekeeping sector, with low capital outlays especially for apiculture could provide an entry point for youth employment. There is great untapped potential for entry into the sector along its many value chains.**

#### **Increased market access and trade.**

The large percentage of beekeeping products are either consumed within households and communities or sold to intermediaries. Beekeeping is more often a supplementary activity, non-wage earning, with marginal profits.

Marketing channels are poorly developed and inefficient, incurring huge losses along the entire value chain. There is limited progress made even at policy and regulatory level to develop beekeeping as an agroindustry, with little agribusiness development.

Countries across Africa are failing to meet export standards to European and other markets, and are unable to organize even to supply countries intra regionally that are importing honey and other hive products.

Policies are needed to promote the sector as a key agricultural sector. Public sector investments would create an enabling environment for agribusiness development. (The future of the African bee: A call to mainstream beekeeping to enhance delivery of the Malabo declaration-Nouala S and Ossiya SA-African Union – Interafrican Bureau for Animal Resources)

#### **Enhancing conservation and sustainable use of all of our natural resources.**

The contribution of bees to biodiversity maintenance are key to the health of environments for all other natural resource based economic activities.

Policies are needed to value and provide mechanisms to attach and enforce collection of revenues and payment of penalties from utilization and misuse of these ecosystem services.

To achieve the goals set out by the Malabo Declaration, the real value of the potential contribution of beekeeping has to be taken into consideration. Bees offer practical, low-cost avenues for increasing production and productivity of food, and for improving nutrition, offer innovative products and to enter niche markets.

The sector has a tremendous potential for disadvantaged segments of the population including women, youth, and deprived communities. It has a high multiplier capacity, with value chains capable of creating additional jobs for artisans and industrial opportunities.

Egypt can benefit from a wealth of information, draw on knowledge from an endowment of a legacy of a long tradition of beekeeping which could form the basis for strong evidence-based research. Aligning the beekeeping sector to the Malabo Declaration therefore requires political commitment and fundamental reforms in policy and practice to mainstream it across the productive sectors (Nouala S and Ossiya SA 15)

The new Common Agricultural Policy (CAP) designed by EU can provide a good platform for guidance and action plan as beekeeping measures, actions and funds are taken into consideration. The main objectives are to:

1. foster sustainable development and efficient management of natural resources
2. reduce chemical dependency
3. reward farming practices and systems that deliver multiple environmental benefits
4. contribute to reversing the decline of biodiversity
5. preventing natural risk and achieving greater resilience

Bee Life, the European Beekeeping Coordination, proposes coherent measures that highlight the value of pollinators, both for the farmers and the environment. **At the same time, it aids in the protection and recovery of biodiversity in rural areas & the safeguarding of bees, beekeeping and the bee economy.**

CAP incorporates a new and innovative system, the eco-schemes, conceived to increase national environmental and climate-care action based on regional or local needs.

Eco-schemes present a unique opportunity to invest, incentivise and reward farmers for going beyond the mandatory requirements and increase environmental and climate performance. This **new measure, which should represent 30% of the direct payments within the CAP, is the opportunity for all** (MS, NGO and also professional or farmers organisations) to propose new action schemes for a win/win relationship between agriculture and nature.

Global efforts have been made to address this biodiversity crisis. EU adopted its first framework to address the decline of wild pollinators - **the EU Pollinators Initiative**. The **EU**

**Biodiversity Strategy for 2030** set the overall ambition of reversing the decline of pollinator numbers and diversity.

### **The EU Pollinators Initiative**

The goal is to eliminate & reverse the loss of biodiversity and ecosystem services reaffirmed by the **Action Plan for nature, people and the economy**. The EU initiative on **pollinators is strongly supported by all stakeholder groups, and in particular by the general public**.

Besides addressing the problem in the EU, the initiative will also contribute towards global action on pollinators. The African pollinators initiative can be aligned and connected to the EU Pollinators initiative.

### **Knowledge regarding the pollinators**

The current knowledge comes from north-west Europe, while **biodiversity hotspot regions like the Mediterranean are under-researched**. The European Red List of Bees has shown that, next to pollinator decline, we are also witnessing a **decline in bee experts**.

### **Mitigation measures**

Better knowledge transfer between researchers and managers on the ground (e.g. farm advisory services) **and increased investments to provide pollinators with habitats in rural and urban areas will be necessary**. Some direct threats to pollinators from invasive alien species are known and can be tackled through direct action or awareness raising, but further research is needed to better understand the complex patterns of their impact.

### **Collaboration and awareness raising**

Exchange of knowledge and experience and joint actions between various stakeholders is key to developing cost-effective measures and maximising synergies. Such an integrated approach requires sufficient collaboration **between scientists, policymakers, stakeholders and the general public**. The conservation of pollinators requires broad societal engagement, it will be necessary to further raise awareness and **engage wider society as individuals and the private sector can lend decisive impetus to conservation actions**.

### **Strategy aimed at protecting nature and reversing the degradation of ecosystems.**

The main objective is to put Europe's biodiversity to recovery by 2030, and it sets out ways to implement existing legislation more effectively, as well as new commitments, measures, targets and governance mechanisms. They include: Transforming at least 30% of Europe's lands and seas into effectively managed protected areas;

**This Biodiversity Strategy** aims to tackle key drivers of biodiversity loss. It proposes to, among others,

- establish binding targets to restore damaged ecosystems and rivers,
- improve the health of protected habitats and species,
- bring back pollinators to agricultural land, reduce pollution, green cities, enhance organic farming and other biodiversity-friendly farming practices,

- and improve the health of European forests.
- Funding of around €20 billion/year is to be unlocked for biodiversity through various sources, including EU funds, national and private funding.

The Strategy is closely linked with Farm to Fork (2F2) Strategy & the overall European Green Deal, of which it is a core element.

### **The Farm to Fork (F2F) Strategy**

aims to enable the transition to a sustainable food system, that safeguards food security and ensures access to healthy diets sourced from a healthy planet. It also aims to reduce the environmental and climate footprint of the food system and strengthen its resilience, protecting citizens' health and ensuring the livelihoods of economic operators.

It proposes measures, including **improved labelling to better meet consumers' information needs on** healthy, sustainable foods. Bee Economy in Egypt can benefit from this measure as the lack of proper packaging and labelling are barriers to trade and exports to Europe.

The Strategy is closely linked with EU Biodiversity Strategy for 2030 and the overall European Green Deal, of which it is a core part.

### **The European Green Deal**

Efficient use of resources by moving to a clean, circular economy and stop climate change, revert biodiversity loss and cut pollution. It outlines investments needed and financing tools available, and explains how to ensure a just and inclusive transition. The European Green Deal covers all sectors of the economy, is also an integral part of the European Commission's strategy to implement the United Nations' 2030 Agenda and the Sustainable Development Goals (SDGs)

## Multi-dimensional modelling tools supporting decision-making for the beekeeping sector

Honey bee colonies are fundamental for the provision of goods and ecosystem services. Honey bees are highly influenced by environmental conditions and quality, beekeepers' management practices, socio-economic conditions and policies adopted for cropping and land use. Represent useful tools for science-based decision support for beekeepers, risk managers and policymakers.

Global declines in pollinator population and diversity are due to a number of factors including habitat destruction, pesticide misuse, diseases, pests and parasites, invasive species and climate change. These individual drivers may combine to produce negative synergistic effects (Potts et al., 2010).

Multiple policy approaches in a variety of sector must be adopted to mitigate the declines. Despite their importance to human well-being and biodiversity, ecosystem services face increasing threats worldwide with consequent negative impacts on human quality of life. Sixty percent of ecosystem services are being degraded or not being regenerated fast enough to meet demand (MEA, 2005a)

Beekeeping activity is highly related to a set of management strategies applied at various levels of resolution: from the implementation of beekeeping management strategies at the level of beekeeper to the development of policies supporting the beekeeping activity at national level.

The beekeeping sector lacks of suitable tools for risk assessment and decision making which can be used by relevant stakeholders (e.g., beekeepers, risk assessors, policy-makers)

Since 2009, European Food Safety Authority (EFSA) has launched a series of initiatives to support scientific assessment of factors influencing colony health. **EFSA recognised the importance of a holistic approach for the assessment of honey bee health** and launched the MUST-B project aimed at exploring the influence of multiple stressors and factors on bee health, an emerging property of bee colony dynamics within a specific environment and under specific objectives of management. It is a complex, dynamical and multidimensional property that results from the interaction between colony demography and energetics, the temporal and spatial pattern of environmental drivers and resources availability in the landscape, the population dynamics and the epidemiology of pests and diseases, the level of contamination in the environmental matrices, and the beekeeping practices. It can serve as a good platform for non-EU countries as well.

### "Pollinator Eco-Scheme"

A package of good pollinator practices that are considered the eligibility criteria for a farmer to benefit from the pollinator eco-scheme. There are a number of obligatory practices to be applied by the farmers, and a couple of practices that Member States may wish to add to the Pollinator package. These practices are shaped differently for annual and perennial crops. All measures are related to the provision of nectar to pollinators through the plantation of various crops and not monocultures and no use of chemicals.

### **Farm Advisory Services (FAS)**

Farm advisory services (FAS) have an important role in achieving the healthiest environment possible, by promoting natural methods of soil fertility improvement and pest control. As these services are done on one-to-one basis, they can be very beneficial for beekeepers who face different problems and barriers depending on their geographical location, size and educational level.

#### **Investment subsidies**

Supports investment in techniques that are non-harmful for bees and pollinators. Intersectoral cooperation within farming communities (farmers of different productions and beekeepers) should get more support improving agri/apicultural practices.

The pollinators in general need a policy scheme that can assure them the healthiest environment (soil, air, water, flowers) respecting their ecology and allowing safe and diversified food resources. Beekeepers are major actors in rural areas and contribute where they are living from the economic vitality of the region.

#### **Strategies to Improve Apiculture in Africa**

The success lies on the ability of the industry to organize and direct the available resources to take action and move the industry to new levels of competitiveness and profitability.

Sustainable beekeeping can be achieved through conservation of bee plants in different areas and developing their seasonal floral calendar. Successful beekeeping enterprise requires production and processing equipment, infrastructure such as transport, clean water, energy roads, communication systems and buildings.

However, lack or inadequate of these resources pose major challenges for the industry. Social networks, producer and marketing associations provide opportunities for beekeepers to advance their skills, lobby for protection of bees, and organize collective processing and marketing of hive products.

Access to wider networks would assist beekeepers find opportunities for training, markets and new research findings that can be used to improve their understanding of the industry.

#### **Improve access to Finance**

Access to an affordable credit is a major factor for many who would like to beekeeping business. Financial institutions should be sensitized to consider beekeeping as a viable enterprise and therefore provide services such as deposits, security and credit to individuals and businesses to buy goods or expand business operations.

#### **Monitoring and evaluation**

Apiculture like any other investment would require a monitoring and evaluation mechanism to collect and analyse information based on the targets set and activities planned.

It will enable players in the sector to compare the inputs into the work against the expected output. Also, it will measure the extent to which set out objectives have been achieved and how they were accomplished.

## Integration of the Bee Economy concept in Egypt & the role of International Organisations

The Sustainable Development Goals are a global call to action to end poverty, protect the earth's environment and climate, and ensure that people everywhere can enjoy peace and prosperity. Egypt's SDG priorities are: inclusive economic development, social justice, environmental sustainability and natural resource management, and women's empowerment. The UN was able to implement joint activities with these results areas in mind.

Following the launch of the national sustainable development strategy "Egypt vision 2030", the second VNR presented in 2018 marked the successful implementation of the economic stabilization and reform program, whereas the third VNR would share with the international community Egypt's strides to lay the foundations for more resilient economy and community capable of weathering adverse unexpected shocks such as COVID-19 pandemic

The UN Sustainable Development Cooperation Framework between the Government of Egypt and the United Nations for the period 2023-2027 aims to promote the continuous cooperation between the UN in Egypt and the Government of Egypt while leaving no one behind.

### FAO & The Bee Economy

The Food and Agriculture Organization is a specialized agency of the United Nations that leads international efforts to defeat hunger. Their goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives. FAO aids the Bee Economy by creating enabling environments for the Beekeeping to flourish.

### IFAD & The Bee Economy

IFAD has invested in rural people for 40 years, empowering them to reduce poverty, increase food security, improve nutrition and strengthen resilience.

Agriculture is a key sector in the Egyptian economy, providing livelihoods for 57% of the population and directly employing about 26 % of the labour force. Farming is a vital source of exports and foreign exchange accounting for 20% of export revenue.

IFAD involves rural producers and their organizations in the design and implementation of strategies and projects. They enable innovative public-private-producer partnerships that bring farmers' organizations and private sector operators together to ensure public-private collaborations, are also benefiting small producers. IFAD can play a crucial role in the integration of Bee Economy in regional and national policies as they have the platform and knowhow of implementing similar strategies.

### Consultation and dialogue for inclusive development

The Farmers' Forum is the overall framework of the partnership between IFAD and organizations run by smallholder farmers. The Forum facilitates a permanent process of consultation between these producer organizations, IFAD and governments, focusing on



rural development and poverty reduction. At the global level, the Farmers' Forum was established in 2005, and facilitates an ongoing, bottom-up dialogue between rural farmers' organizations from all over the world. It serves as an operational tool to foster partnerships between IFAD and farmers' organizations.

Farmers' organizations collaborate with IFAD through the design and implementation of IFAD country strategies and investment projects. IFAD also channels funds to directly support their initiatives. Over the last decade, direct support has been organized at regional level through large grant programmes co-financed and in partnership with like-minded donors.

### **UN Women and the Bee Economy**

Women are drivers of change in their families, communities and businesses. Through working with women leaders and gender equality champions, UN Women invest in behaviour-change actions at the local and national level to reduce carbon emissions, promote sustainable consumption practices and advance climate-smart actions by individuals and families.

UN Women is supporting women's leadership, employment and business opportunities in key sectors as part of Egypt's overall investments in ensuring a just transition within the water, renewable energy food sectors.

Strategies include the skilling and reskilling of women for recruitment, retention and advancement in the sectors; and strengthening the capacity of women-owned businesses to 'green' their business models thereby reducing their risks related to climate and environmental changes and advancing environmentally sustainable business practices. In deepening support to women farmers, UN Women will provide accessible knowledge to increase their profitable investments in climate-resilient agriculture, access to climate-smart technologies and access to markets to diversify and move up the value chain.

Only in Upper Egypt a limited number of women practise beekeeping (in mud tube hives). UN women can play a crucial role in the integration of Bee Economy, by empowering women to become Beekeepers and train them to create artisan candles, cosmetics and bee themed arts and crafts. In ancient Egypt, women used honey and wax for skin care.

The ECO works with the National Council for Women, Ministries of Environment, Finance, Higher Education and TVET institutions, International Cooperation, Planning, Social Solidarity, Trade and Industry, local governorates, the private sector, civil society and community-based organizations. The ECO is deepening its environmental and climate action programme partnerships with UN agencies and other development partners to promote gender integration and mainstreaming in key climate action areas. It can provide the perfect platform for the inclusion of Bee Economy and its integration in the local & regional policies.

### **UNDP & the Bee Economy**

UNDP help countries develop strong policies, skills, partnerships and institutions so they can sustain their progress. In Egypt, UNDP supported the government in hosting the 14th

meeting of the Conference of the parties to the Biological Diversity Convention and provides extensive expert assistance in the preparation of Egypt's National Climate Change Strategy

Over the years, their support to Egypt has expanded to ensure the country's full participation to global environmental efforts.

### **UNESCO Egypt**

UNESCO's mission is to contribute to the building of peace, the eradication of poverty, **sustainable development and intercultural dialogue through education, the sciences, culture, communication and information.**

UNESCO Cairo supports Arab member states, individually and collectively, to establish policies, action plans, partnerships, and alliances that facilitate: enhanced access to knowledge diffusion mechanisms; the bridging of technological gaps; the adoption of proven technologies; and the acceleration of building human and institutional capacities in relevant fields.

UNESCO can play a very important role in the development & integration of the Bee Economy based on 2 axes:

- support on areas of science and technology that are identified as most essential for the realization of the sustainable development agenda
- Protecting the tangible Beekeeping cultural heritage of Egypt (Sun temples, mud beekeeping tubes, places where Beekeeping practices where taking place etc) & the intangible Bee treasures of Egypt (stories and legends, traditional medicine, Bee smoking techniques etc) by putting these under UNESCOs protection. This adds value and safeguards the cultural treasures of Egypt, which can be the base of placing Egypt in the global Api Tourism Map

### **Women for Bees-UNESCO**

Women's empowerment and biodiversity conservation

Women for Bees is a state-of-the-art female beekeeping entrepreneurship programme launched by UNESCO and Guerlain. Implemented in UNESCO designated biosphere reserves around the world, the programme has actor, film maker and humanitarian activist Angelina Jolie for a Godmother, helping promote its twin objectives of women's empowerment and biodiversity conservation and sustainable use.

Focusing on local and native bees, their welfare and maintenance, as well as education on bees, the programme aims to enable women's empowerment through an expertise-driven sustainable professional activity. It also aims to contribute to raising awareness of the importance of all bee species as pollinators.

### **UNIDO- Best practices in Egypt**

UNIDO is the specialized agency of the UN that promotes industrial development for poverty reduction, inclusive globalization and environmental sustainability. A very successful project which can be duplicated or serve as best practice for the Bee Economy integration, is the

'The Egyptian Cotton Project', in collaboration with Filmar and Cotton Egypt Association. They held a 3-day "Cotton Harvest Event" celebrating the second cycle of conventional and organic long staple and extra-long staple Egyptian cotton cultivation, resulting in high quality cotton that supports economic, social, and environmental sustainability.

The harvest celebration brought together proud and joyful farmers and small owners showing their hard work growing Egyptian cotton to consumers, local and international textile manufacturers **major fashion brands and retailers including Christian Dior , Stella McCartney, Hugo Boss, Marks & Spencer's, John Lewis, and Macy's among others, and a number of key government representatives** including the Governor of Kafr El Sheikh, representatives of the **Ministry of Agriculture, the Ministry of Public Business Sector, and the Ministry of Trade and Industry.**

Aiming to promote global strategic partnerships and enhance the awareness of on-ground impact of cotton cultivation on sustainability claims of renown brands and retailers on their used cotton, the harvest celebration included a tour for international brands and retailers at textile factories in Borg Al Arab and Fayoum, followed by a harvest day celebration in Kafr ElSheikh governorate showcasing the season's Egyptian cotton harvest adapting Better Cotton Initiative standard systems, and closed with a high level round table meeting where key stakeholders discussed the promotion of global partnerships towards advancement and innovation in the textile industry.

The Egyptian Cotton project, was funded by the Italian Agency for Development Cooperation. Aiming to advance competitiveness and demand by international markets, the Egyptian Cotton project prioritizes aspects of sustainability, inclusiveness and value addition of the Egyptian long staple and extra-long staple cotton value chain.

This proves the capacity of international organisations in Egypt and their impact through the collaboration of all sectors.

Cotton honey is very unique kind of honey with huge international demand. Unfortunately, its therapeutic properties are not known in Egypt, and is considered as a second-class honey. By empowering the cotton industry, the production of cotton honey can be increased creating a new economic benefit for the beekeepers and the society, as more beehives in the cotton fields means higher production.

The project can be extended and be more sustainable by connecting the cotton producers with the Beekeepers.

## Experiences gained and lessons learned from the project suggestions on new policies for:

- **Beekeeping training**

At least 80% of the beekeeper's community in Egypt consider beekeeping to be a family business, and veteran beekeepers say that the beekeeping industry is inherited, not taught.

Given the nature of the profession as family economics, Beekeepers, depend on bee products in their primary form. Marketing activities are carried out by self-efforts or by relying on an intermediate dealer who purchases the quantity produced in its raw form, and carries out the packaging and marketing operations, which has a significant impact on the beekeeper's low financial return.

Medbeesiness Hubs project has conducted workshops to train beekeepers to find added value for bee products other than honey and to enable them to increase the marketing capacity for their products, and have higher economic return.

Education, training and capacity building are the most essential elements in the creation of the Bee Economy.

Medbeesiness Hubs project has created training material on all the gifts of the bees (Honey, propolis, bee venom, beeswax, pollen, royal jelly) which was based on the therapeutic properties, uses, historical uses in each country, local gastronomy and cultural heritage. The training was followed by capacity building on creating artisan cosmetics, arts and crafts, jewellery and bee themed items, in empowering the delegates and showcase the inclusivity and the multiple dimensions and impacts of the Bee Economy.

A special attention was given to storytelling so that all the unique and authentic features of each country are safeguarded and transferred from the stakeholders to the hearts of the visitors creating bonding and unique Api Tourism experiences.

Api tourism is the most fast developing form of regenerative tourism, and a key component of Bee Economy. Training material has been prepared with best practices from all over the world, with focus on Slovenia, which is supposed to be the leader and Cyprus who is entering dynamically this market with the Deputy Ministry of Tourism and Larnaka Tourism Board supporting it, financially and promoting it nationally & internationally.

Egypt has unlimited potential in developing Api Tourism, unique unexplored treasures, stories legends and rituals which can attract travellers who seek experience tourism from all over the world. (Appendix No 3)

Three aromatic Bee trails have been created during the project: The King of Clover, The Citrus and the Cotton Honey, based on the unique landscape and agro treasures of Egypt, and the three blossoming periods, but also the dynamics, culture and potential to host groups of tourists. All the trails include activities which cover all the senses, experiential workshops, storytelling and activities in nature. Study visits have taken place to evaluate the capacity of the beekeepers and the hosting community, and the trails are ready and feasible to be put in effect.

Many initiatives have started after the TOT trainings and a lot of ideas have been put into business plans which have been selected for grants through the Medbeesinees hubs project.

The real impact will be created when the trainings will take place in several beekeeping rural areas and reach the families of the beekeepers and the rural communities who are hosting them.

Interviews with different stakeholders have shown the need of a solid multidimensional educational system which will cover education from kindergartens to universities, while more practical and in the field, education is needed for the Beekeepers.

At the moment Honeybee Training in the Arab Republic of Egypt, is provided by two Centres which specialise in beekeeping training programmes: Career Development Center (CDC), Faculty of agriculture, Cairo university & Beekeeping Training Center Bee Research Department Agricultural Research Center Ministry of Agriculture. (Activity 3.1.3: Mapping the honeybee producers and policy frameworks at cross border level)

Beekeeping education should be more holistic, starting from the actual beekeeping, to the preservation of the environment, the sustainability of the hive, but also the sustainability of the business, through diversification, inclusion in aromatic trails, Api Tourism, branding, cooperation etc

Unesco Education can be a good start of integrating the knowledge about Bees and Beekeeping in primary & high schools through their programs, where Universities and colleges can integrate it into their curriculum.

More public awareness is also needed so that people know and appreciate the value of the gold liquid & the bees.

Cross border cooperation could be very beneficial in this sector, the Cyprus University of Technology has a department of entomology and an expert in solidarity bees and UCLAN University is launching in September the Hive of Knowledge, a community-based knowledge hub where the beekeepers, students, scientific society, the; local community and voluntary organisations, will be interacting and certified courses for professional beekeeping will be on offer.

- **Minor grants to improve business capabilities**

Although significant financial resources are not essential to initiate beekeeping activities at subsistence level, they are essential for development of beekeeping enterprises.

Successful beekeeping and marketing of hive products depend on adequate supplies of equipment for production, storage, processing and packaging. Availability of affordable credit facility is therefore necessary for beekeepers and beekeeping associations to buy equipment, run collection centres and for traders to buy hive products.

Due to the size of the business of the Beekeeping sector, any grant can have an impact on their business performance. MedBeesinees Hubs project in Egypt have selected 10

businesses and individuals to receive a small grant, in order to boost the Bee Economy & improve their business capabilities.

The European Bank for Reconstruction and Development (EBRD) is providing a loan of up to US\$ 20 million to Qatar National Bank (QNB) to support youth entrepreneurship in Egypt. The new EBRD financing falls under the EBRD Youth in Business programme in Egypt, and it will be extended as sub-loans by QNB to private micro, small and medium-sized enterprises (MSMEs) led or owned by local entrepreneurs under the age of 35.

In addition, capacity-building and advisory services will be provided directly to MSMEs to support the development of youth entrepreneurs and to share technical expertise and know-how.

The EBRD package will be complemented by investment incentives provided by the European Union's Neighbourhood Investment Platform (NIP) Egypt Micro and Small Financial Inclusion Programme.

The EBRD's Youth in Business programme enables young entrepreneurs to access critically needed financing and technical assistance to grow their small businesses through dedicated credit lines to banks and microfinance institutions for on-lending to MSMEs run by young entrepreneurs. The credit lines are complemented by technical assistance for partner banks to strengthen their lending capacity.

Egypt is a founding member of the EBRD. Since the start of its operations there in 2012, the Bank has invested more than €10.3 billion in 154 projects across the country.

Young people have demonstrated resilience to shocks and led positive change in their communities. Young people (aged under 30) constitute more than half (55%) of the population across MENA, compared with 36% of the population across OECD countries. While challenges vary significantly across the region, youth unemployment rates are among the highest in the world. The COVID-19 crisis has underscored the need to place the needs of young people at the centre of an inclusive and resilient recovery.

- **Export potential**

Egypt is one of the oldest countries in the world in beekeeping sector. Today is considered the most important country in beekeeping sector in the Middle East, among Arab nations and Africa. The number of hives is about 1,344,000 and there are about 7,700 mud hives (old hives). The number of beekeepers in Egypt is about 270,000. Egypt has three primary seasons: citrus season in the first two weeks of April, clover season from May to the first week of June, and cotton season in August and September. The annual production each colony is between 9 to 15 kilos, and the total production is 1,100,000 kilos. Egypt exports honey to several countries, additionally exports beekeeping tools and swarms to many Arab and African countries.

Bee honey is the most popular product among all beekeepers included in the survey, as the beekeeper relies on the production of honey in its raw form without clear interference in the

packaging containers, which are plastic containers that do not correspond to standards in most cases.

#### Barriers to exports

- Beekeepers have limited experience in finding added value for the honey they produce,
- packaging does not fulfil the market requirements and the intended use
- Beekeepers have to search for potential markets themselves
- intermediary trader on the product
- laws governing the beekeeping industry in Egypt are not explicitly stated in the agriculture law.
- absence of clear legislation, the trade in bee nucleus, which represents the second-most-important source after honey, is exposed to risks, and could be halted at any time due to its reliance on exporting to the Arab Gulf region directly based on the requirements of the importing country.

Local businesses are regarded as beekeeping brokers, as they serve as collection points for all beekeepers who are typically unable to process or market their products, and their importance is increasing due to their capacity to store and market bee products on the long term, which is unavailable to beekeepers. Without them, the majority of beekeepers would have lost their jobs as a result of their inability to sell their goods.

Recent years have seen a decline in the honey production and the revenue of beekeepers due to a number of reasons, including the rise in production expenses and the challenges beekeepers have in the migration to fruit orchards as the main source of income in other countries is the pollination services, while in Egypt the beekeepers have to pay money to the farmers to establish their apiaries near the orchids. This results in more expenses for the beekeepers and low income.

Egyptian export revenues were low due to the low quality of Egyptian bee packages in comparison to the Australian and Argentine counterparts. This is regrettable as despite of the seven-thousand-year history of Egyptian beekeepers there are not pure certified breed of bee in Egypt which has a major effect on the revenues. In addition, Egypt is the only country capable of producing bees and queens all year-round.

The National Board of Trade in Stockholm has created the: Open Trade Gate Sweden, in order to facilitate trade between EU and non-EU countries, and can provide information and tools to Egyptian Beekeepers about the regulations and how to export to Europe.

## • Regional cluster formation on the honeybee

Clusters have gained increasing prominence on economic development in recent years. Governments worldwide regard clusters as potential drivers of enterprise development and innovation. Cluster initiatives are also considered to be efficient policy instruments in that they allow for a concentration of resources and funding in targeted areas with a high growth and development potential that can spread beyond the target locations (spill-over and multiplier effects).

Clusters are environments where enterprises can develop a competitive and global edge, while at the same time generating wealth and local economic development in the process.

However, the advantages associated with clustering do not always emerge automatically. Relatively few clusters in the developing world have been able to achieve high and sustained growth rates. In many cases, they are trapped in a cycle of competition, stagnation and poverty and are unable to spontaneously achieve the transition to innovation and growth.

Consequently, appropriate policy support and assistance are often required.

The potential of cluster development resides not just in its capacity to stimulate high rates of growth, but also in the conducive environment it provides for the promotion of broad-based and inclusive forms of development. This is partly because clusters constitute socio-economic systems where the population of enterprises often overlaps with the communities living and working within a specific area or territory. Joint actions allow cluster stakeholders to overcome limitations and reap opportunities that are beyond their individual reach.

The focus lies on initiatives that encourage enterprises and institutions in these clusters to undertake joint actions that could ultimately yield benefits to the cluster as a whole and the communities in which they are embedded.

By promoting the development of agro-food, tourism and creative industries, which are often concentrated in peripheral regions, the Integrated Cluster Approach contributes to reducing regional inequalities within national borders.

Better communication between stakeholders of the three sectors together with a collaborative decision making and governance structure fosters regional development while preserving natural and cultural heritage, through raising awareness about the importance of biodiversity sustainable utilization of resources and adding value to territorial assets

### **Success Principles for Cluster creation**

Strengthen cluster governance mechanisms

Cooperation can be strengthened by investing in trust-building activities. Cluster stakeholders' engagement in joint actions is important, but also how these interactions are organized and embedded into the local economic system.

Good governance in a cluster allows for coordinated and effective planning, higher level of performance. Good performance in turn increases the cluster's "social capital stock, networks, trust & shared values. This raising "social capital stock" tends to reinforce the



good governance in the cluster. The economic performance refers to the increasing productivity and exports, adaptation to changing market requirements.

### **Key Policy Tools on Regional Bee Cluster Formation**

#### 1. Focus on existing clusters

An essential aspect is to focus on working with existing clusters, rather than creating new ones. While existing clusters often demonstrate significant unrealised potential, the creation of clusters from scratch is likely to lead to a top-down process, with private sector having limited incentives to assume a leading role.

#### 2. Promote private sector based inclusive growth

The private sector plays a central role in promoting growth in general. Economic growth must be broad-based, inclusive of all categories of stakeholders, sustainable and gender balanced. Cluster initiatives need to focus not only at enhancing (labour force) productivity, innovation and participation in economic life, but also address non-economic issues such as access to employment opportunities and improving the health and education.

#### 3. Encourage collective efficiency through joint actions

that could ultimately yield benefits to the cluster as a whole and the communities in which they are embedded. Measures to help cluster stakeholders reduce barriers to cooperation and help them overcome their isolation include: Foster linkages between cluster stakeholders, facilitate consensus building, build relationships, encourage trust building, strengthen governance mechanism, support the cluster's institutional network

#### 4. Provide targeted support to the cluster's institutional network

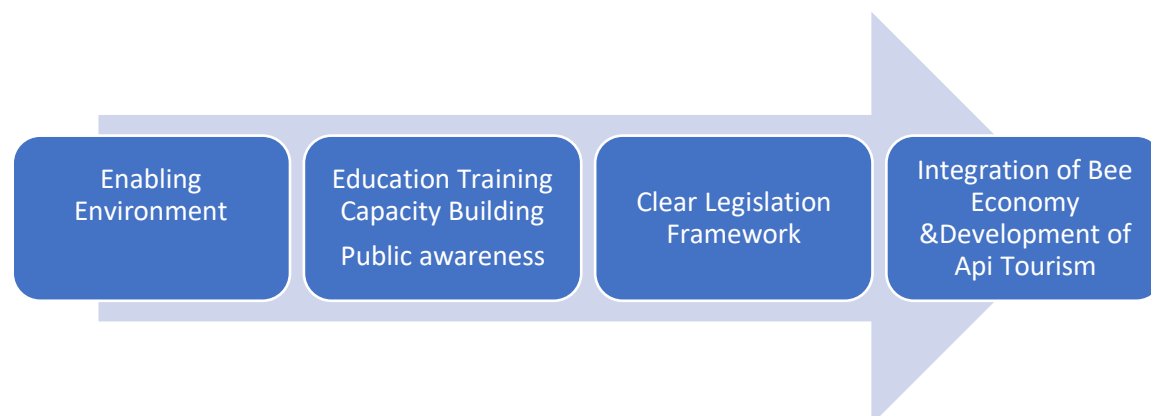
Provide incentives for public and private sector bodies to more effectively promote cluster development and to build their capacity to do so. Relevant local, regional and national institutions, including chambers of commerce, local governments, NGOs, producer associations, universities, training institutions and regional as well as local economic development agencies can play a strong supporting role in the development of the cluster. The creation of a cluster of decision & policy makers who will interact and create bigger Bee Economies on Med scale, will be extremely beneficial for the incorporation of Bee Economy in the local, regional, national and partner countries.

Our survey showed that there is a strong will of all policy makers to cooperate and form a cluster, the challenge will be to select the right cluster and build on it and develop mechanisms of governance that the cluster will be vibrant, effective and benefit all stakeholders.

## Development of the bee economy concept as a holistic approach to regional development

The development of the bee economy concept as a holistic approach to regional development, should focus on the following areas:

Enabling Environment for the creation of Bee Economy



The main threats of Beekeeping in Egypt are :

- (1) The destructive effects of the Varroa mite, which represents the major ectoparasite of honeybees in Egypt and worldwide and was first observed in Egypt in 1983
- (2) The loss of agricultural land in Egypt due to urbanization that led to decreasing trends in cultivated crops that depend on honeybee pollination
- (3) The extension and overuse of pesticides against different crop pests, which negatively affect bees
- (4) Adverse effects of in-hive chemicals used to protect and treat honeybees against pathogens and parasites
- (5) The introduction of alien species.

These threats have to be controlled and alleviated using a holistic strategy, using all the tools that have been described in this study.

### Education-Training-Capacity Building

This should be continuous and involve everybody, as public health, environment and survival of the planet are concerned, in order to create bee-sensitive and economically sustainable bee regional economies which will embrace biodiversity protection more easily since they shall be linked to their personal interests - the bee economy concept.

### Research & Development

Research on the taxonomy of bees, on the impact of alien bees, on the indigenous breeds of Egyptian bee queens, will add value to the Beekeeping industry and Bee Economy.

In addition to increasing honey production, it is necessary to build bee product projects that, via the pollination process carried out by bees, boost the yield of agricultural crops and provide economic value to the project's owner.

The impact of the Bee Economy concept in Cyprus is tangible, the 3 Festivals in the area, create 100K euros in a day/each, more than 100 different workshops are running, sponsored by the Ministry of Tourism and new products emerge, in cooperation with Universities and Research centres, but also artisan cosmetics and bee related arts.

MedBees have capitalized, the results of MedFest, bringing the Bee Economy concept, into a higher level, increasing the Bee Communities, activities and products and adding the Med dimension, of huge potential and cross fertilization.

What we still lack, is the cooperation between the policy makers, and the existence of a strategic policy document which incorporates the Bee Economy in the National policy with specific policy tools.

### **Creation of Api Tourism in all its forms and flavours**

#### **Api Tourism -Placing Egypt in Api Tourism map**

Egypt has all the potential to become a leading Api Tourism destination. (Appendix No 4)

Apitourism has just started its development in Egypt, through the Medbeesbusiness Hubs training and capacity building and the new initiatives that have started by the subgrantees of the project with the cooperation of beekeepers and the travel industry.

The involvement and support of the public sector will be extremely important for the sustainability and development of Api tourism which is the most fast developing type of regenerative tourism. Growing interest in agrotourism has also resulted in the creation of illustrated hives (glass hives) that allow visitors to safely approach bees and view hive life without upsetting the insects.

Additionally, these types of hives can support educational initiatives for children, adolescents, and adults. As a convergence between tradition, alternative medicine, and the sustainable income generating activity of the beekeeper, Api tourism blends sustainable beekeeping, niche, historical heritage, and health tourism. Ecology, also known as beekeeping, eco-beekeeping, or Api-tourism, is a commonly utilised marketing strategy that blends beekeeping and tourism. The beekeeping-oriented activities (bee products, apitherapy, beehive air, bee museums, production activities, historical beekeeping activities, photos, etc.) become tourism attractions and generate additional income to beekeepers and the travel industry. Countries such as Slovenia and USA are at the forefront of this strategy's implementation

#### **Policy instruments for more sustainable tourism management**

are not different in essence from instruments in other fields of environmental public policy. They can be classified into

- economic (or market-based),

- regulatory (or command-and-control) and
- institutional instruments.

Economic instruments comprise environmental taxes, user fees, financial incentives and tradable market permits, regulatory instruments include quotas and zoning, while institutional instruments refer to eco-labels and changes in property rights. Sometimes a combination of various policy instruments might be more effective than implementing a single one.

#### Eco-labels

These can be applied to almost any product or service offered to tourists that satisfy certain environmental criteria (accommodation facilities, tour operators, beaches, restaurants, marinas or tourist destinations). To be meaningful, an eco-label must be internationally recognised and administered by a reputable organisation.

#### **Development of community-based eco-tourism**

The government of Egypt is promoting Bedouin-managed tourism enterprises in pristine wilderness areas in protected areas. Conservation and sustainable tourism in St. Katherine Protectorate is intended to provide a model for how to conserve natural and cultural resources and provide benefits to local communities while also enhancing tourism quality. The income generation programme, based on local stakeholder participation, redistributes entry fees for the Protectorate by promoting eco-tourism businesses via training and technical support, thus providing local incentives to conserve the wildlife base of these revenues, and by paying community guards who represent local communities, liaise between management units and communities and support monitoring, research and eco-tourism in their region. The traditions and indigenous knowledge and customary skills of local people have become central to the development and management of the St. Katherine Protectorate. The craft programme was initiated in the belief that the maintenance of cultural diversity and the conservation of biological diversity are interconnected, and that biodiversity can be conserved through a broader effort to promote and sustain human welfare and culture.

The Bedouin Craft programme was established to produce and commercialize Bedouin crafts involving over 400 Bedouin women.

The Medicinal Plants Conservation Project (MPCP) component was initiated in 2007 to strengthen the conservation management of medicinal and aromatic plants (MAP). Impact on biodiversity Local communities have realised that the protected area is of great interest to visitors. They are now interested and empowered to maintain and protect the area by reporting violations and using peer pressure to prevent degrading activities.

The major opinion leader in the community is also a Protectorate Community Guard who helps enforce regulations and is a conduit between the Protectorate management and the community.

#### Replicability

The government of Egypt has provided an enabling environment and technical support to provide positive incentives to set up biodiversity and culturally based businesses and to protect the ecosystems on which these businesses are based. Lessons learned: The effective integration between tourism, local economic development and protected area management, which is the basis for nature-based tourism, can direct economic benefits to remote rural areas and increase incentives for conservation in state protected lands. Conservation projects can help to catalyse associated rural development activities by other agencies. It is essential to involve and benefit local people at an early stage in the process. Community participation and support for conservation activities requires time. The traditional responsibility of local people as the resource managers in the area should be acknowledged and built upon. Inputs and benefits have to be tangible and be sustained to gain the trust and confidence of local people. This should also extend to the long-term involvement and accountability of individual rangers and managers.

**Api tourism can be a replica model of the St Katherine project.**

### Policy limitations and constraints for new policy tools

The main limitations that have been observed during the study for the creation of the policy document in Egypt for the integration of the Bee Economy are the following:

- Lack of clear legislative framework regarding the exports of the bee products

Egyptian honey standard needs modifications to meet the demands of Egyptian honey producers and to be aligned with the growing requirements of international market. A total of 35 honey samples of citrus, clover and cotton honey were collected from 26 locations in Alexandria and Behera provinces. Samples were analyzed according to the official methods of analysis of the AOAC (1984) for the determination of sucrose, reducing sugars, moisture content, water insoluble solids, ash, free acidity, lactone, total acidity, diastase activity and (HMF) concentration. The honey samples were compared with the standards of Codex, Gulf, and Egypt. Pollen content was studied in all samples as well. The Egyptian honey standard was proven to be stricter than other standards and is recommended to be modified as the apparent sucrose content should be raised to 10 % except for the cotton honey.

- Lack of legislative framework for artisan cosmetics made with beeswax and honey.

There is no legislative framework regarding the artisan cosmetics, like hand crafted healing creams, ointments, handmade soaps etc, so they are sold only on line or directly from the persons who do them, which is very restrictive. This is happening in a lot of countries, not only Egypt, and is a burden for small and micro businesses who are producing high quality products, but do not have the financial means and to acquire fully licensed laboratories.

The creation of regional certified laboratories, where all the artisans can produce and certify their products will give a great boost to the Bee Economy, youth and female entrepreneurship and preserve the traditional medicine and recipes, of Egypt which are one of the richest in the world.

- Lack of legislations regarding Api therapy although there are excellent practitioners in Egypt offering services mainly outside the country.

Api therapy was first practised in Egypt, like so many other alternative therapies. A clear academic and practical certification by an authorized institution and a legislation frame for the practitioners, will enable Egypt to become an Api therapy destination, as a lot of people are seeking alternative therapies for health, wellness and rejuvenation.

Excellent practitioners offer their services abroad.

- Lack of hygiene and public infrastructure in rural areas

Some Apiaries are located in remote areas, where streets are not paved, the access is extremely difficult, rest rooms and bathrooms are rare to find, and the hygiene standards do not meet the demands of the visitors.

Clear signs, a good transportation network and the creation of first aid centres, and clean bathrooms are necessary foundations for the development of Api Tourism and Bee Economy.

- Lack of cooperation between stakeholders

Clusters and cooperatives do not exist, and Beekeepers associations reach only 41% of the beekeepers, so the implementation of strategies and policies are more complicated due to the huge population of the country, the difficulty in reaching and training the stakeholders and have an impact on their life and profession.

- Lack of scientific research regarding the breeds of bees and the uniqueness of Egyptian queens

Through Regulation 1698/2005, the European Union requires direct links of cooperation between universities, producers, and consumers to promote technology transfer, as beekeepers seek opportunities to increase their competitiveness and the introduction of innovations is hindered by the small size of apiaries, inadequate investment, and inadequate guidance and communication roles in research centres.

Further scientific research about the uniqueness of the breed of the queens, and their certification, will enable increase in the demand and prices of the queen packages, which will affect positively the beekeepers and the economy in general.

Official insemination centers and certified queen breeders will elevate the Egyptian queen breeding into another level.

- Lack of reliable data concerning numbers of beekeepers, exact production etc

There is no reliable data about the numbers of beekeepers, due to the size of the population, the difficulty to reach some areas and the small sizes of apiaries who act on their own, most of the existing data are estimates which sometimes varies from one researcher to another or one association to another.

- Lack of distinctive brand of the unique products

Being a pioneer in beekeeping, Egypt could benefit from a unique brand, logo and motto which could be recognizable from the whole world.

This would create a global demand but also national awareness, so that the Egyptians will feel proud of their honey, and purchase only Egyptian honey, as food and medicine, upgrading of production and packaging methods, and a great boost in the Bee Economy.



## Other strategic proposals for cross border development of the bee economy concept and cluster cooperation approaches for regional development

Strategic proposals for cross border development can be divided into the following pillars

- Creation of a cluster of decision & policy makers who will interact and create bigger Bee Economies on Med scale- Bee Regional Centres
- Best practices regarding- Pollination Gardens-Bee Parks & themed nature trails  
Larnaka tourism Board, is devoting a part of their budget in the creation of the above adding value, new thematic places of interest, empowering the branding of the area and Api Tourism. Honey villages are embracing these additions and once a year, thematic trips are organised for journalists, travel agents, DMCs and bloggers
- Med Bee Festivals at World Bee Day to be hosted each year at a different country, as platforms of B2B & B2C trade, exchange of best practices, networking and clustering
- Med Bee Scientific Conferences to be hosted each year by a different University/Research center in a different med country- for pollinators and not only with hands on activities, workshops etc
- Cross border cooperation of voluntary groups working on environmental issues and community service projects such as Rotary, in Cyprus they have created an irrigation system for one of the honey villages, a regional center for artificial insemination of Queen bees, a range of pollinators gardens and this year are launching new projects in cooperation with Troodos Network. The Rotarians of Egypt are very keen in contributing.
- Study visits and exchanges for good practices
- Further cooperation in labour force exchange and hands on experiences
- Exchanges of scientists & experts- Apitherapy -Solidarity bees etc
- Horizon Europe & other EU Funded projects
- IFAD grants: Global and regional grants fund innovative responses to rural and agricultural challenges being faced by several partner countries. These grants are driven by thematic and regional corporate-level strategic priorities for partnership, research, policy engagement and capacity-building.

Grants for activities implemented in specific countries focus mainly on strengthening institutional, implementation and policy capacities and on innovating in thematic areas. Country-specific grants also pilot new technologies, approaches and methodologies that can subsequently be scaled up through IFAD's country programmes and by other stakeholders.

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