

BEEKEEPING AND NATURE

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 Federal Ministry
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NEEDS ON TRAINING FOR BEEKEEPERS IN THE REPUBLIC OF MOLDOVA

INSTRUIREA APICULTORILOR DIN REPUBLICA MOLDOVA

ON TRAINING FOR BEEKEEPERS
IN THE REPUBLIC OF MOLDOVA

INSTRUIREA APICULTORILOR
DIN REPUBLICA MOLDOVA

CHISINAU
2022

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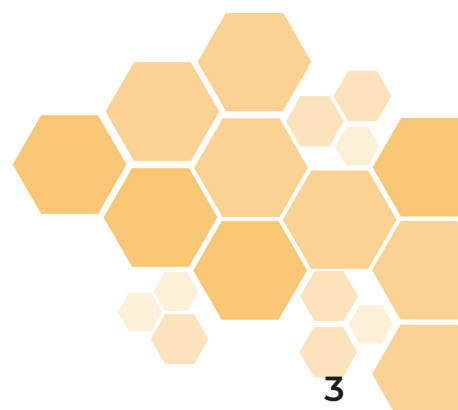
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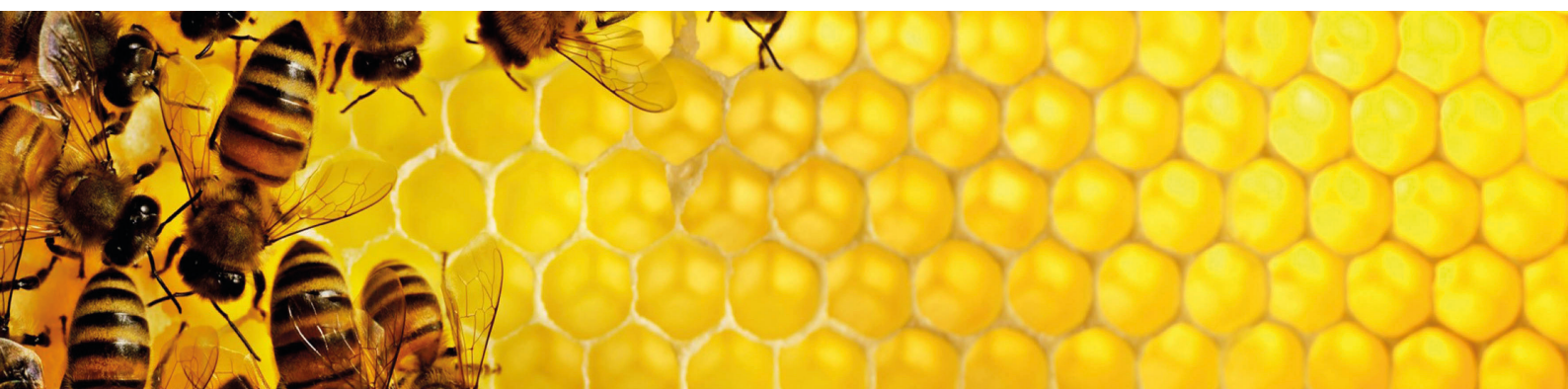
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INTRODUCTION



Actual paper is based on the results and outcomes of the activities performed in the frame of the Project funded by UNESCO through its National Commission in the Republic of Moldova “NEEDS ON TRAINING FOR BEEKEEPERS IN THE REPUBLIC OF MOLDOVA”/„INSTRUIREA APICULTORILOR DIN REPUBLICA MOLDOVA”.

In addition to it, the Institute of Ecology and Geography through the implementation of the project Nr. 20.80009.7007.11: „Evaluation of the urban and rural ecosystems stability for assurance of the sustainable development/Evaluarea stabilității ecosistemelor urbane și rurale în scopul asigurării dezvoltării durabile” has contributed to the organizing and summarizing of the public events with different level of local public, sectoral and civil society authorities for identification of target oriented activities needed for implementation of objectives of national programs aimed at community’s’ development.

Actual project is aimed at the support the implementation of the law, adopted by the Parliament of the Moldova (nr. 70-XVI from 30 march 2006), which has had and is still important by having a positive impact on the evolution of the bee-keeping (apicultural) sector in the country. Implementation of the provisions of this Law has contributed to the

improvement of cooperation and interaction of bee-keepers with local public authorities, silvic, civil society, environmental, sanitary-epidemiological and zootechnic authorities, who supervise and monitor relevant domains of the apiculture development mainly through rayon departments for agriculture and food. It led to the creation of favorable social conditions for development of the bee-keeping (apical) activities in the country.

Based on the results of activities of different associations of the beekeepers, private persons dealing with apiculture and research in different domains of agriculture National Commission of the Republic of Moldova for UNESCO has initiated this project aimed at development of training and educational activities in the apicultural sector. Activities undertaken in the frame of the project objectives have contributed to the strengthening of institutional capacities of the National Beekeepers Associations, local public and sectoral authorities etc. and facilitated apicultural sector development through presentation of relevant case-studies from other countries, opportunities to obtain modern equipment for producing of the apicultural product as well as opportunities for marketing of these products and improve regional cooperation with neighbor countries in agricultural development as well as implementation of the provisions of Common Agricultural Policies with EU countries.

Actually National Association of Beekeepers of the Republic of Moldova (ANARM) represents the interests of more than 5.500 beekeepers. ANARM is active at national level and consists from 30 local (rayon) associations. According to the estimations average age of ANARM members is over 55 years old. The role of young people and women is indefinite. In spite of the fact, that top managers of the association are receptive to organize meetings and consultations with representatives of the relevant ministries, a number of unresolved issues such as: insufficient informing of the members of association on beekeeping themes, respect at of rights and obligations of the members, etc. remained. Members of association are mainly people for whom beekeeping is a hobby, but not people for whom beekeeping is main sources of income. In addition to it, cooperation of beekeepers and farmers especially in such domain as pollination of agricultural plantations is poor developed and training on the efficient use of this for increasing of the productivity of relevant lands is urgently needed. This was recognized

by participants of consultation events and necessity for development of educational activities for this was also an issue for discussions as well as elaboration of relevant recommendations.

Besides this, there are some agricultural farmers (called leaders) in the country who have integrated theirs' business vertically and horizontally in honey producing and who are important honey producers, collect/buy the honey from small producers for export and at the same time provide apicultures with relevant consumable materials and equipment. Also, there are some examples in the Republic of Moldova, on providing of the services on pollination of entomophile plants for money, but this is mainly exemption and does not present a regular practice. Based on that the main objective of the project is to prepare training materials, which could be used in different parts of Moldova in order to help beekeepers to improve theirs' management capacities and to rise efficiency and quality of theirs' production. Special efforts which are provided by National Commission of the Republic of Moldova for UNESCO are aimed at the large involvement of different target groups of population in training and educational activities and thus to strengthen the capacities of different level of authorities to contribute to the increasing of the efficiency of the bee keeping activities, to improve social-economic situation in rural communities and to provide market (local and international) with higher quality of Moldavian bee products. Training activities could also support planning and development of local agendas with a special attention to the beekeeping activities and attraction of investment in this domain. Training and educational activities are also in line with UNESCO and MaB priorities in management of the biosphere reserves and national parks recently created in Moldova. These sites could be also used for training on labeling of the bee products as ecological product produced in nature protected areas.

The outputs and outcomes of this project will be utilized and further implemented in the context of social and economic development in the country as well as to be used for preparing and upgrading of the training/educational programs and support local public and sectoral authorities to plan land management and implement local agendas for sector development in order to support beekeeping activities and trades based on the use of bee products as well as to extend pollination practices on agricultural lands.

The Project assists local public, sectoral, civil society etc. authorities, private households etc. with the development of a local approaches to implement efficient practices in the planning of relevant activities in line with the EU-Moldova Association Agreement and in promotion of regional and local cooperation in rural development.

The project addresses the following outputs:

Training and educational activities strengthened capacities of local bee keepers to produce relevant products and social economic situation of rural communities improved.

Development of training and educational programs with presentation of relevant case-studies and implementation of local planning documents on bee producing projects

Improved cooperation between bee producers and farmers to avoid poisoning of bee families with agrochemicals and thus facilitate improved agricultural and other sectoral practices

Recommendations for strengthening of regional cooperation in bee management and the use of local natural resources for increasing of bee productivity

Awareness raising campaigns on bee products use, health issues associated with bee products as well as its possible use for after COVID 19 recovery practices

Public Participation / Access to Information on bee maintenance and use of bee products for different purposes

1

PROJECT GENERAL OBJECTIVE

The overall objective of this project is to develop training and educational programs, to provide relevant trainings and organize consultation events with different level of authorities, beekeepers etc. on management of the bee (apical) sector, propose measures to increase its efficiency and thus to contribute to the producing of more qualitative bee products and to provide recommendations to different level of authorities on apical sector support.

The project goal is to facilitate a local approach to the implementation of the rural development plans in line with EU Directives and UNESCO priorities for the educational and training activities, by addressing best sectoral (apicultural) practices to achieve good bee products through introduction of best apical activities, projects and measures, facilitate relevant access to information and participation of beekeepers in the decision making process in sector planning and development.

PROJECT MAIN ISSUES OF CONCERN

2

A. Understanding the importance of the educational/training activities in apical sector for social and economic development

National programs and sectoral plans for the social and economic development in Moldova include bee keeping activities and production of relevant products.

It is also recognized that training including its vocational part is an essential component for sector development and preparing of relevant project files for implementation of relevant activities.

Different level of public and sectoral authorities recognizes the necessity of training and educational activities for planning of local agendas aimed at social and economic development, based on bee producing products. Implementation of such documents is an issue of concern for different level of authorities and stakeholders and activities in the frame of actual project contribute to the elaboration of relevant measures aimed at promotion of apical activities and theirs' better/more efficient management.

IN ADDITION TO IT MOLDOVA SIGNED AND RATIFIED ASSOCIATION AGREEMENT WITH EU and European markets for Moldavian apical products could become more accessible in case of improved quality of bee products and large use of pollination activities on different agricultural lands.

B. Commitment and capacities of different level of authorities to support apical producers through training and educational activities and through this to contribute to the social and economic development

The project facilitated development of training and educational activities with involvement of different level of authorities and beekeepers with identification of activities/projects needed for apical sector development through addressing to common issues such as:

- Rural and Sectoral development
- Protection of bee families from agrochemicals, facilitation of co-operation between farmers and bee keepers
- Access to information and best practices/case-studies on apical sector development
- Public involvement and participation in the decision making process
- Capacities of local stakeholders and authorities to prepare and implement projects aimed at apical sector development.

C. Opportunities for planning of educational/training apical related projects and attraction of best practices in this domain

The project offered opportunities to organizing of the consultation events with relevant public, sectoral and civil society authorities, interested stakeholders with involvement of the bee keepers. During these events actual situation analysis in regard to training and educational aspects in development of apical sector was presented to participants by project team and discussed with them.

On the base of these events local public, sectoral and civil society authorities had an opportunity to propose projects and activities (prepare project files), which according to theirs' opinion could be implemented to improve efficiency of the apical sector in rural communities.

They also received an information on good apical practices with presentation of respective advantages and potential benefits from the functioning of the biosphere reserve and national park (Cahul and Orhei rayon).

D. Awareness-raising and dissemination activities

Target audience along the project implementation included local public, civil society and environmental authorities, as well as farmers, beekeepers, research institutions and Universities, etc. Administrations of rural communities were also involved in organizing of consultation and training/educational planning events through contribution in preparing of the situation analysis as well as including of relevant proposals in local agendas for social and economic development of relevant community.

E. Partnership with all relevant stakeholders and networking

The project offered the opportunity to organize partnership and networking with all relevant stakeholders, on developing of apical and agricultural activities and thus to facilitate local planning practices and cooperation with attraction of investments through preparing of relevant project portfolio.




3

DESCRIPTION OF THE TASKS

The project was also aimed at promotion of local/regional approach for the development and implementation of the training/educational activities for the apical sector in the Republic of Moldova and preparing of the case-studies with presentation of the best practices which could be implemented in rural communities to support beekeepers and vulnerable groups of population.

Presentations like “Our Farm” and on responsible consumption have also been prepared and presented to the participants of the events (annex 1).

The activities of this Project have been targeted at:

-  Situation analysis on the needs for training and educational activities for the apical sector development.
-  Organizing of the consultation and target oriented events with involvement of different level of local public, sectoral etc. authorities in order to identify necessary projects and activities needed for development of relevant training and educational activities and programs for different agricultural activities implemented in community.
-  Organizing of training events for beekeepers and for persons who want to start apical activities with presentation of the list of potential donor institutions. Fundraising issues were also identified by participants as a priority for training.

- Development of proposals and relevant plans with a program of measures for development of training and educational programs including strengthening of the fundraising capacities of local bee keepers and authorities to support apical activities and in general agricultural development in local communities.
- Training on dialogue, creation of partnerships and networking among bee keepers with involvement of different level of authorities, research and educational institutions, civil society etc.
- Public access to information, communication and active participation/involvement in the decision making process and planning of relevant agendas on local level for facilitation of the sector development

3.1. PROJECT OUTCOMES

The development and implementation of the training/educational activities facilitates strengthening of capacities of different local authorities, agricultural producers and bee keepers to implement efficient apical practices, measures/projects and activities.

Main objectives of such trainings are based on the issues identified during planning and consultation events performed in the frame of the project.

Project also provided local authorities and civil society with the information on the use of relevant technical equipment in apical sector, data on the state of environment in regard to the use of different types of vegetation capacities in production of the bee products, modalities to prevent poisoning of bees with pests used by farmers etc. In this context the importance of better cooperation with farmers and local public and sectoral authorities was underlined with the presentation of possible opportunities (announcements on pest application on the web-sites of primaries, use of internet resources for communica-

tion, etc.) for this were also discussed during training and educational events.

The project created an opportunity for discussing of practical application of supportive measures identified for development of apical sector and projects with identification of possible sources for investments and institutions which could support theirs' implementation. Special attention was given to the strengthening of fundraising capacities of different level of authorities, farmers and beekeepers to develop relevant trades based on apical sector and organic farming.

The dialogue for the development of the training and educational programs for beekeepers was organized during consultation meetings and target oriented events. It allowed to provide useful recommendations for further development of the apicultural sector.

Main outcome refers to the improved capacities of local bee keepers and farmers to prepare projects and activities and thus to contribute to the more efficient planning process of local agendas in regard to apical sector development.

The project also identified that there is still much to do in Moldova on raising awareness on the bee products quality and access of the apical goods to the market, marketing of the bee products and use of relevant equipment and promotion of responsible behavior in communities, farmers etc. to prevent mass poisoning of the bees.

Finally, the project facilitated development of tools to enabling the public access to information, communication and actively participation of public and other stakeholders in the decision making process on sector development.

This was recognized as one of the key issues and was supported by local authorities during the consultation meetings and discussions organized within actual project with involvement of different level of public, sectoral and civil society authorities as well as research community and Universities. It showed that general public needs more information on bee products produced in Moldova and benefits of pollination on increasing of the productivity of agricultural crops due to the pollination.

3.2. CHALLENGES IDENTIFIED



- poor cooperation between local public, sectoral etc. authorities with actual and potential bee keepers in management of the apical sector. Main obstacles are: insufficient financing, poor equipment of local labs dealing with the evaluation of the bee products quality with relevant equipment and training/educational programs for the labs staff members. Participants also expressed commitment for further involvement of the National Commission of the Republic of Moldova for UNESCO as well as MaB program in further development of training and educational programs/activities with the presentation of recent achievements in development of the apical sector, fundraising, facilitation of cooperation on local, regional and international level, attraction of relevant organizations dealing with rural development, cooperation with the farmers in order to prevent poisoning of bees with agrochemicals.
- poor involvement of civil society in decision making as well as insufficient capacities of local authorities to plan and assist to relevant stakeholders in planning and development of the apical sector.
- COVID 19 obstacles and restrictions on communication, organizing of public events etc. Consequences and its impact on sector development to be evaluated in future with preparing of relevant recommendations.
- identification of institutional responsibilities of local authorities in the management of apical sector in order to overcome insufficient cooperation with sectoral authorities to implement best bee keeping activities and measures.

The Project had experienced a general need in identifying of the competent authorities to support the training and educational activities in rural communities, increasing of financial support for training and educational activities and more efficient use of human resources/capacities in implementation of the relevant measures. In this context local authorities and bee keepers underlined the necessity for training

and educational activities to support apical sector development and expressed commitment for efficient cooperation in this domain with UNESCO (National Commission of the Republic of Moldova for UNESCO).



3.3. LESSONS LEARNED

International experience in apical sector exists in different regions, neighboring Moldova and could be efficiently used in the country. Training and educational activities serve as a tool for implementation of best practices in bee keeping in Moldova and thus facilitate sector development with improved capacities of local bee farmers to use modern equipment, technologies and practices in day to day activities.

Consultation events and discussions with different level of authorities in different parts of the country showed a strong need in organizing of the training activities in a close dialogue with potential stakeholders and investors in order to implement identified projects needed for apicultural sector and through this to contribute to the social and economic development in rural communities. Discussions also showed high potential for the use the experience obtained in the frame of the project during training events on a national scale and thus to contribute to the implementation of the provisions of the National Program “Moldova 2030 and other political papers developed in Moldova.

Main lessons learned from the project development:

1. Training and educational activities to be developed in close cooperation with sectoral authorities and presented to local Councils. Involvement of research institutions and Universities under UNESCO umbrella (program education for all) is a vital issue for organizing of training events.
2. Training activities and proposals for apiculture sector development should be part of planning process in forming of agendas in rural communities with identification of potential sources to

support sector development. In this context fundraising activities as well as improvement of capacities to apply for projects is an issue of concern for local communities and stakeholders.

3. Programs for training should be associated with presentation of the case-studies and include presentations on opportunities/modalities for the pollination of agricultural lands/crops. The concern is also to motivate/train farmers to cooperate in agro-chemical use/application with bee keepers to avoid poisoning of the bees.

4. Local bee keepers have poor experience in cooperation with different level of authorities and need more experience in marketing of theirs' products and need more developed commercial capacities. It is also necessary create opportunities for permanent training on the most recent achievements in the apical sector.

In this context main issues of concern for development of training and educational activities were identified as follows:

- insufficient capacities existed on local level to introduce the measures needed for apiculture sector development;
- poor capacities of farmers and commercial operators, different level of authorities etc. to support apicultural activities based on apiculture development;
- educational and training activities should also support setting of priorities for local bee keepers through better planning of local agendas, promotion of regional cooperation and use of apiculture in development of different trades (organic farming, pollination, tourist, COVID- 19 recovery etc.);
- training on financial, methodological, technical etc. issues to support and help young people and other vulnerable groups of population to deal and to be involved in apicultural sector development;
- need to improve the capacities of local labs for current monitoring on bee products quality and to control the use of agrochemicals (mainly in agricultural activities) to avoid poisoning of bees
- need to allocate time and funding for improving the dialogue and organize a training of bee keepers in different domains: fundraising, technical maintenance, use of modern equipment, etc.



3.4. STEPS NECESSARY TO IMPROVE TRAINING AND EDUCATIONAL ACTIVITIES. ROLE OF UNESCO.

The next steps to facilitate training and educational activities proposed by project (based on the results of the consultation and training events) were identified by participants of different events organized in the frame of the project:

- including and adapting of training and educational activities to existed on local level planning papers for sectoral development according to the results of the consultation events of the project
- provide training on opportunities for different level of authorities and stakeholders on fundraising in regard to apicultural/apicultural sector development.
- provide in training courses with the presentation of relevant case-studies on bee keeping practices existed in actual network of the MaB UNESCO networks of the biosphere reserve and develop relevant training/educational programs with presentation of the results of the use of nature protected areas and biosphere reserves for producing of ecological pure bee/agricultural products.
- develop educational programs for Universities on bee maintenance and in general on the apicultural management with inclusion of training on planning practices and sectoral development
- The necessity to include in training programs relevant tools, mechanisms and human resources capable to manage apicultural activities with the use of bees (mainly pollination of the crops)
- Follow up on the exchange of information within UNESCO educational programs, presentation of relevant best case-studies aimed at apiculture management with the information on potential benefits for different target groups of population and

sectoral development due to the apiculture sector development (pollination, health issues, economic benefits etc.)

Priority reform measures could include next issues:

- handling of educational/training programs in agricultural sector development with the use of bees including involvement of different stakeholders, farmers, bee keepers, commercial operators etc.
- training and education on minimization of the damage to the bee families due to the use of agrochemicals on agricultural lands and adjacent territories
- educational and training activities on promotion of pollination practices especially during droughts as a tool for adaptation to climate change,
- training on management of protected areas and buffer zones for producing of the ecological pure apicultural products
- farmer education and outreach activities for different target groups of population, with involvement of Universities on apicultural sector development.
- develop capacities of different stakeholders in the use of educational and training activities in decision making process and planning of local agendas.

It is important to identify long-term solutions taking into account important UNESCO priorities and necessities to improve efficiency of training and educational activities for the promotion of the apicultural sector. Its effective functioning could provide local population with additional benefits based on the nature win-win solutions and intensify efficiency of the ecosystem services in producing of the purer agricultural products.

4 PROJECT APPROACH

Actual project has been developed in the frame of the local participation mechanism supported by the National Commission of the Republic of Moldova for UNESCO in order to contribute to the development of training and educational activities to support apiculture sector development.

Proposals for such activities were discussed in the frame of the project with different level of public, sectoral and civil society authorities during consultation events.

During such meetings the analysis of actual needs for training and education were presented by the core team and this served as a base for preparing of the training/educational materials. Project also contributed to the identification of project files and activities needed for apiculture sector development.

Prepared proposals are submitted to the National Commission of the Republic of Moldova for UNESCO and associations of farmers dealing with apiculture sector as well to different central institutions for further development of necessary projects in cooperation with potential donors and relevant stakeholders in the country.

This outcomes of the project could support implementation of next objectives reflected in national social-economic documents:

OBJECTIVE 1:

Creation of sustainable ecological conditions for production of apicultural products based on nature win-win solutions;

OBJECTIVE 2:

Strengthening of capacities of local public, sectoral etc. authorities as well as interested stakeholders to develop apicultural sector and reinforcement of community actions and planning process for protection of ecosystems and implementation of pollination activities on agricultural lands.

OBJECTIVE 3:

Increasing of the incomes of population through development of relevant trades based on green economy (organic farming, tourism, infrastructure development etc.) and support public health issues in recovery from COVID-19



5 PROJECT TASKS

5.1. INITIATE AND SUPPORT TRAINING AND EDUCATIONAL ACTIVITIES IN DEVELOPMENT OF THE APICULTURAL SECTOR

Methodology for project implementation was based on next approaches:

Identification of training and educational priorities. Based on the consultation events with local public, sectoral and civil society authorities next issues were identified:	Development of the case-studies	Fundraising capacities
the use of equipment		information on available donor agencies and strengthening of the project preparing capacities of rural communities
pollination of agricultural lands	best practices in the bee family maintenances as well as the use of pollination practices on agricultural lands	methodology on project writing
marketing of bee products		preparing of project files, description of activities
cooperation with local communities and measures to prevent poisoning of bees by agrochemicals used by farmers	cooperation on local and regional level	

At the same time implementation of training and educational activities takes into account the need to separate of activities on reproducing and producing of bee race material. As it was proposed during consultation and training events that 4-5 bee gardens from the race and reproductive domains will be organized per year in order to assist the process for perfection of the activities according to the European standards, trainings and experience exchange. Introduction of the pure raionated/regionalized race genetic material, strengthening of capacities of the bee gardens to maintain and improve the business mode for the race productivity of the bee gardens. Existed plans for social and economic development of Moldova for the period of time (2021-2024) presume that the number of race and reproductive bee gardens will increase every year through voluntary involvement of the beekeepers, who want to be professionals in this business. Training should also include activities in order to help to the persons with disabilities to be able to develop their own business in the field of the management of the race and reproductive bee gardens.

Training in the bee gardens permitted providing of the productive apiculture in Moldova with biologic reproductive material of a high quality and this will improve the genetic value of the bee families and respectively reduction of expenses for theirs' maintenance (due to the raised resistance to different deceases) as well as increasing of the producing of honey and other apical products.

Training on strengthening capacities to perform analyses to determine phytosanitary substances used for treatment of agricultural crops which intoxicate the bees is also an issue of concern for bee keepers in Moldova. Existence of a certain lab, which could issue the results on reasons (substances) with which the bees were intoxicated, would give a possibility to implement provisions of the law on Apiculture nr.70-XVI from 30 March 2006 on compensation to the beekeepers' losses in the value of the costs of bees as well as a loosed profit till the end of the year and to raise responsibility of farmers in respect of the phytosanitary legislation in order to avoid litigation in relation to beekeepers.

Training on consolidation of joint efforts of beekeepers and local public authorities to contribute to the sector development through creation of the independent unit of the associative sector for monitoring, information and coordination of activities with apical interest. Based on the examples from other countries (ex. Germany), which takes into

account agreement of common efforts of the associative and state sectors, is creation of the control unit of the associative sector (Society for protection of Bees/Apărarea Albinelor – SAA Control), with the potential financial support offered by donors. This presumes hiring of qualified personal, procurement of equipment, transport, etc. for rapid monitoring in the field of cases, which led to the death of bees, in order to supplement efforts in this domain. Training activities permitted to accumulate information, which could be also used as a prove in further civil dossiers or other disciplinary procedures. It will assist to beekeepers and public authorities in the process of findings of the intoxication cases with the bees including offering of information on procedures, which have to be applied and will administrate the modality for theirs' implementation. This will systematize relevant information and will rise awareness of relevant stakeholders on different issues and will also facilitate interaction among the farmers and beekeepers.

Training and educational activities performed in the frame of the project offered specific activities in order to apply and assure efficient mechanisms to prevent intoxication of bees, based on the intensive communication among parties involved in application and use of agrochemicals, including involvement of the local public authorities. The use of efficient tools on information exchange about the placement of beehives and about the treatment of agricultural crops with phytosanitary substances, preparing of memorandums (agreements) on cooperation between beekeepers, farmers, local public authorities and other public persons to assure the use of efficient/automatized mechanisms on interactions among involved authorities to reduce the risks of poisoning of bees. Offering of juridical consultations is necessary for claiming of damages from intoxication of bees, implication in case of necessity of authority authorized by beekeepers, implementation of relevant actions based on probes showing intoxication, obtaining of the lab results for administrative procedures, monitoring of the situation, cooperation with mass-media on the problem of apical sector management and concrete cases of the bees' intoxication, creation of the administrative fund and mechanisms for compensation of the damages, etc.

Consultation events and training showed that creation of the 10-15 race bee gardens will permit assurance of the productive bee gardens in Moldova with biologic reproductive material of a high quality and

this will improve the genetic value of the bee families and respectively reduction of expenses for theirs' maintenance (due to the raised resistance to different deceases) as well as increasing of the producing of honey and other apical products.

Consultation events and preparing of the training materials were organized on the base of the use of statistical data and discussions with different local and sectoral authorities as well as with beekeepers. It allowed to identify key issues for further educational activities as well as to prepare recommendations for the development of apicultural sector in Moldova with further possible presentation of the investment portfolio with project files and facilitate cooperation with relevant stakeholders and institutions. Based on the outcomes of the consultation events and projects/activities/measures proposed by relevant authorities a number of proposals for the apiculture sector development were prepared for to be included in local agendas for social and economic development. Situation analysis performed by the core team and used for consultation events showed that productive potential of the apical sector is strongly underestimated. So, actually 16-18 kg of honey is obtained from one bee family per year, while the potential of the race is 30-50 kg./year This situation could be explained by limitations in the application of traditional methods in growing and genetically improvement of the bee families.

Actually only some methods of the phenotypic selection are used, without determination of the race purity. There are no methods for efficient procedures in apical technology for genotype selection of the bees' population, selection of bee families is performed without taking into account certain important biological features of the bee families such as: resistance to the specific deceases, viability of the sapling, indicators of compartment, etc. Because of the scientific and innovation-al vacuum in genetically improvement of the bees' community there is a great deficit of the apical sire material of the bee race/breeding (especially of bee queens) with a high genetic value. In spite of the annual necessity/demand in 60 thousand bee queens for breeding, only 1,0-2,0 thousand are officially produced by beehives and theirs' quality and morph-productive properties are rather poor. The progress in genetically improvement of bee forces cannot be assured without families of pure, healthy and strong race resistant to the specific deceases with vigorous displaying of the biological cycle for reproduction and

growing up of sapling.

Another important problem is alimentation of bees in the deficit periods of harvesting. Consolidation of theirs' forces with vigorous biologic active nutritive supplements is very important. The influence of such supplements, and especially of rare microelements from organic coordinative compounds on the activities of the mellifious bees is a scientific problem, which is actually poor studied.

At the same time, taking into account the fact that climate conditions in the country are very unstable and are often unfavorable for apicultural activities, the development of the energy-mineral-protein well digested supplements for bees is becoming a very important and actual scientific problem. Intervention in breeding with such supplements during a deficit harvesting period in nature would permit attenuation of the negative climate effects and successful development of the bee families and as a result obtaining of performant productivity, which will assure supplementary incomes for beekeepers.

In this context, improvement of the programs for amelioration of homologated bee populations (*A.m. carpatica*), realization and optimization of certain technologies, procedures and performant methods for maintenance and exploitation of the bee families, studying of the pollution factors and identification of the theirs' impacts on the honey bearing bees and apical products, studying of the breeding of families according to the demands of the organic farming, evidence of the efficiency of the pollination of the agricultural crops with the bees in the conditions of different anthropic autochthone ecosystems, constitute an important problem and through its resolving efficient and sustainable development of the apical sector in the Republic of Moldova can be assured.

In the frame of the project the experience exchange and trainings, meetings for further development of the research and educational activities, genetic amelioration of the homologized race, methods of alimentation of bees, treatment of different deceases etc. should be realized in cooperation with donors and with involvement of international institutions like European apical associations, ACA (Austria), etc. on the base of common/joint projects.

APICULTURE SECTOR DEVELOPMENT AND TRAINING/EDUCATIONAL ACTIVITIES

6

The project had identified the necessary steps to give all relevant further information on the national level in regard to apicultural sector, as well as provided a platform to discuss opportunities for its development on local level with local public, sectoral and civil society authorities as well as improvement of local and regional cooperation, partnership etc.

The project objectives fit to the national program “Moldova 2030” with the component on agricultural development with an opportunity on the large use of apicultural and pollination activities on agricultural lands.

It is also in line with a number of other sectoral programs aimed at development of local tourism, trades etc. including the management of the territories of biosphere reserve and national park.

The activities within the component on apiculture sector development were mainly aimed at the increasing of honey production, on issues related to the agricultural pollution and estimation of its possible effects on the state of environment.

Focus areas were aimed at the improvements in the handling of agrochemicals and minimization of use of chemical fertilizers and increasing of organic fertilizers use.

Chemicals for plant protection against insects are also part of the program, but do not take into account needs of beekeepers. At the same time the pollination activities are poor mentioned in sectoral

programs and while there is a strong need in the country to increase areas of agricultural lands, where bees could be used. According to estimations (presented during the consultation and training events) pollination could rise efficiency of agricultural lands for 20-40%.

Through the adapting of policy objectives and measures to implement EU Common Agricultural Policy reform through awareness raising activities, Moldova could benefit from enhanced understanding on the impacts of the introduction of the Best Agricultural Practices and especially in the development of the apicultural sector.

More specifically, for development of the apicultural sector, the main problems, legal, administrative, institutional and funding deficiencies were identified and discussed during training events.

Still, due to the insufficient funding the level of apiculture sector development is rather low and its development is based mainly on the efforts of private households.

The products, which local habitants sell on the peasant market are considered as somewhat ecological and are sold at better prices than other products sold in the stores.

Farmers are not obliged to label their products and testify in any way that their products are ecological pure, meaning that they did not use any chemical fertilizers or pesticides or treated seeds etc. during crops cultivation.

At the same time the demand for ecological products will increase and thus determine the market.

Based on the provisions of different national and sectoral programs and planning documents productivity of apicultural sector on the national level will increase. Actually it is expected that in the nearest period (3-5 years) an average productivity of the bee family could be on the level of 30-35 kg of bee products (honey, etc) per year.

Based on the results of the consultation and training events, the proposals for development of priority measures in apicultural activities with an environmental concerns and optimization of the pollination activities in the management of agricultural lands ("best agricultural practices") were proposed by participants (local public, sectoral etc. authorities).

Main project conclusions for this include:

1. The need to ensure the harmonization of local apicultural practices with the EU directives, and Common Agricultural Policy (CAP), etc.
2. There is also an obvious lack of methodological materials for training and education on financial, institutional and human resources management in order to implement advanced agricultural practices (related to apicultural sector). The analytical laboratories are mostly very poor equipped and are not certified; there is also insufficient number of skilled, trained personnel in such labs, etc.
3. There is a great need to implement local public awareness campaign with farmers and rural households in relation to cooperate with a beekeepers during application of the agrochemicals on the agricultural lands. Pollination activities are also poor used and there is a strong need to harmonize application of agrochemicals with bee activities, especially during the pollination.
4. Create and organize the integrated local support system of monitoring, and decisions making, which will collect, stock, evaluate and report the data regarding the quality of environment and the select the most relevant time for pollination of crops.
5. Elaborate programs on training and information of farmers and households on agrochemicals use (practices, case-studies, projects etc.). Special attention should be given to strengthening of fundraising capacities of local communities and authorities on bee keeping and the use of relevant equipment.

As it was mentioned during the consultation and training events the use of bee products and its marketing is an issue of concern for local public authorities and private bee keepers, especially in regard with development of local trades and tourism activities.

The core team of the project has identified a number of several activities, listed below (table 1) with identification of theirs' possible specific indicators.

Table 1. Activities proposed by local authorities during consultation and training events organized in the frame of the UNESCO funded project.

Activity	Indicator
Activity. Conduct relevant stakeholders analysis on the development of apicultural practices and evaluate its impact on environment	
1. Identify multiple stakeholders groups as target audience	<ul style="list-style-type: none"> • Target audience identified • The most appropriate, effective and highest impact level for project interventions chosen: local public authorities, farmers • Specific training for vulnerable groups of population, gender issues in beekeeping activities, refugees • University students
2. Develop proposals on apicultural development in rural communities.	<ul style="list-style-type: none"> • Informative package available. These packages contain informative publications on promoting best practices, impacts of apicultural activities rural development with identification of benefits for consumer through the use of ecological bee products. • Proposals for dissemination of projects aimed at bee keeping and apicultural sector development prepared • Private bee keepers productivity increased in the rural areas for 10-20% by 2030 • Investment portfolio for apical sector development

6.1. RESULTS.



Training and educational activities organized in the frame of the the UNESCO funded project had a strong character of novelty but also of difficulty as strong training and educational campaigns had to be designed and organized to change consumer behavior and thus contribute to the improvement and raising of efficiency of the apicultural sector in Moldova with strengthening of capacities of local public, sectoral etc. authorities to facilitate regional and local cooperation in this domain.

The discussions carried out with the target audience showed again great lack of awareness and insufficient knowledge on the use of modern equipment in beekeeping activities and practices, the impact of improper use of agrochemicals on the death of bees, poor application of pollination practices on agricultural lands etc. It also showed difficulties in attracting of investment in the sector and poor capacities of interested stakeholders to apply for fundraising, to assure project/activities development and implementation.

The responses of local public authorities during the workshop and consultation events organized in the frame of the project proved the need to organize strong informative campaign and also to take all necessary measures to ensure the involvement of the agricultural/apicultural sector and tourism (private households) in development of investment portfolio and cooperation with potential donors and beneficiaries.

The distribution of the informative publications on promoting of apicultural activities in the agricultural and tourism sector development, impacts of pollination activities on the state of different crops, benefits for customers through the use of ecological products, etc. will contribute to a better understanding of the problems and increase awareness of the authorities to repeat such informative campaign on a permanent base. Participants of the events underlined necessity in training on communication in order to present bee products in mass-media and informational materials.

During the consultation and training events participants proposed next issues and activities (table 2.)

Table 2. Activities proposed by participants of the consultation and training events:

Activity	Indicator
Activity. Organize stakeholders dialog with theirs' further involvement in apicultural sector development	
Prepare stakeholders analysis on beekeepers and stakeholders	<ul style="list-style-type: none"> • Relationship with the potential stakeholders evaluated. Gaps and needs identified
Establish a network of communication with relevant stakeholders	<ul style="list-style-type: none"> • Modalities for communication discussed and agreed • Network and partnerships created • Case-studies for training prepared
Transfer of know-how on the development of stakeholders' dialogue to partners (donors, experts, regions, etc.)	<ul style="list-style-type: none"> • Share best practices and results of the stakeholder dialogue with presentation of its results to local authorities, beekeepers, potential donors, rural communities etc. • Share best practices and results of the stakeholder dialogue with presentation of its results to local authorities, beekeepers, potential donors, rural communities etc. • Local agendas include apicultural activities. Such activities supported by local communities and authorities
Activity. Develop information and communication strategy on apicultural sector development (possibly on national level)	
Propose communication strategy with input from stakeholders	<ul style="list-style-type: none"> • Mechanism of having access to the relevant information related to the project activities (bee keepers, agricultural authorities, farmers etc.) developed • Production of basic communication tools (international and national information material, displays, information on the web)

Awareness raising actions

Organize public outreach	<ul style="list-style-type: none">• Information and training materials available to be distributed at the celebration of the thematic Days devoted to local traditions, dishes, cultural events, etc.• Educational and training publications related to the sectoral development, elaborated and distributed.• Website operational and maintained active discussion forum, with a feedback from users
Promoting media work	Regular publishing of relevant materials and benefits from apicultural activities (bee keepers, honey producers etc.)

Activity. Networking and partnership

Organize partnerships and networking	<ul style="list-style-type: none">• Extended and on-going engagement of partnerships functioning• local beekeepers are involved in regional networks and have established contacts with relevant partner institutions
Monitoring evaluation and reporting	<ul style="list-style-type: none">• lab analysis results published and available for public

Active participation of project beneficiaries and other stakeholders on the initial phases of training and educational activities contributed and was important to identify potential problems and solutions, generate support, and foster knowledge sharing.

The investigations along the project implementation proved that the current information infrastructure for involvement of the public in the use of training and educational materials is still weak in terms of networking capacities of local stakeholders (mainly rural communities). However, there are a large number of non-governmental organ-

izations in the country and in regions, which could contribute to the apicultural sector development and be actively involved in implementation of relevant programs and plans based on active involvement of different target groups of stakeholders in the decision making process on the community level.

Through this project component, the dialogue among stakeholders will be improved and dynamic partnerships and regional/local networking could be created.

6.2. WORKSHOPS

In the frame of the project a number of consultation events were organized in all development regions of Moldova (ADR) with participation of mayors of local communities, farmers, beekeepers, sectoral and civil society authorities.



Pic. 1. Consultation event with stakeholders in the Central part of the country.

Project team has prepared a report based on data obtained from statistical sources, scientific publications, mass-media and meetings with local sectoral units.

Local communities were informed on the quality of bee products, the state of environment, potential partners, who could contribute to the apicultural sector development in respective regions.

Based on the conclusions at the workshops a report with proposals from local communities on development of apicultural sector and application of relevant measures was prepared.

To assist in the development of the training and educational programs needed for sector development, the project team had discussed with local authorities and potential users all issues related to the collection of data, sharing data between communities and needs of new

methodologies and opportunities for attraction of investments and best apicultural practices to relevant region.

An important interest of participants refers to the procurement of equipment to properly perform monitoring on bee products quality, cooperation with donors to implement relevant projects and to have an economic analysis for apicultural sector development. Discussions also showed poor capacity of local authorities to use the benefits of bee related activities (pollination, honey etc.) in the planning of local agendas and thus the efficiency of planning papers in this domain is rather limited.

Policy objectives and measures were discussed in the context of apicultural sector development. Main topics of the discussion at the workshops were:

- Promotion of organic agriculture in Moldova;
- Pollination activities on agricultural, public lands and farms;
- Development of the network of mellifuous plantations for honey production;

The problems identified during consultation events include:

1. Poor information of farmers and other stakeholders on organic agriculture practices and benefits of pollination. Pollination practices.
2. Inadequate financial state of farmers, and low capacities of relevant national institutions to invest into development of organic farming (apicultural sector)
3. Poor capacities of relevant local institutions, public administrations and farmers to assure implementation of necessary conditions into apical products production
4. Insufficient capacities to procure and use of relevant agro-techniques and machines for producing of bee products by farmers as well as maintenance of bee families

Additionally, the necessity for pollination was recognized as one of the priority actions in order to rise efficiency of agricultural lands. Ac-

cording to estimations, it could reduce application of fertilizers for 10-15% with improvement of harvest quality. Finally, the rehabilitation of trees protection strips with planting of mellifuous vegetation, low degree of public awareness that leads to illegal trees and bushes cutting, reed and dry vegetation burning in wetland areas and agricultural lands, etc. were also discussed during the workshop and consultation events. As it was recognized measures aimed at introduction of mellifuous vegetation (acacia, linden) in green belts on agricultural lands could increase attractiveness of such plantations for bees and increase pollination efficiency and consequently productivity of agricultural crops for 20-40% and contribute to the increasing of the farmers' incomes for 10-20%.

OBJECTIVE 1

Diversification of the apical products and consolidation of capacities in processing and production of the apical products with the added value through development of training and educational activities.

In this section the approach to the work was aimed at cooperation and creation of clusters, by taking into account that by 2026 circa 80% of annual volume of apical products will be produced with added value (mono flora honey, wax, pollen, bee queen

milk, propolis, therapeutic products, etc.)

This component has a strong character of novelty but also of difficulty as strong awareness/training campaign needs to be designed and organized to change the consumer behavior.

The most appropriate target audience for training and educational activities having the highest impact of project interventions consists from local bee keepers, local communities, private persons etc. Informative publications on promoting organic farming, impacts of pesticides on bee products quality and bee deaths, benefits for consumer through the use of ecological products, etc. are available and could be distributed as an informative package. Local authorities will include provisions of the project in the promotion of more environmentally friendly methods linked to the economic benefits and change in consumer behavior as it is relevant to improve public health and implementation of the apiculture implementation measures and activities in the development of rural communities.

OBJECTIVE 2

Reduction of harmful substances from agriculture through planning of local agendas and promotion of bee based agricultural practices

The activities within this component are mainly aimed at developing of local agendas in regard to introducing of good agricultural practices, increasing awareness of farmers on the use of pesticides to avoid deaths of bee fam-

ilies, opportunities to improve the farmers' behavior and understanding on the benefits of implementing the best agricultural practices in regard to bee protection and efficient use of bee families. However, to facilitate a clear and realistic picture and provide the farmers with enough background knowledge and information it is necessary to provide relevant stakeholders with relevant case-studies with presentation of respective documentation, tools and mechanisms for its implementation in local conditions.

It will facilitate improvements in the handling of bee families and minimization of the risk of deaths of bee families from the use of chemical fertilizers and pesticides, as well as improve practices in farmer education and promotion of relevant activities to support production of the apicultural sector.

More specifically, the main problems, legal, administrative, institutional and funding deficiencies should be identified in relation to the agricultural sector. Based on the results of the workshop, a proposal for priority measures in local planning documents were recognized as an efficient support tool in the the integration of concerns of bee keepers and optimization of the use and application of pesticides into farm management.

In the context the planning of educational and training activities should be aimed at presentation of the case-studies implemented in other regions and communities. Local public authorities invited national UNESCO experts to prepare such materials in future with further presentation of developed case-studies to local communities, farmers, bee keepers and other interested in apiculture development stakeholders.

OBJECTIVE 3

Recommendations for the training and educational activities aimed at stimulation of the constituency of the producers' groups for extraction, processing and commercialization of honey through theirs' endowment with the modern equipment with the relevant capacities to extract and process of honey and other apical products;

Certainly apiculture can be a profitable business, but only with its efficient management. The delivery of honey in bulk is not a very difficult action, but thoughtlessness and infeasible. In order to obtain any profit, apical products have to be processed and delivered to the customers as a valuable product. A training on this issue was also recognized as a priority

Processing of the apical products is normally assured with the use of modern equipment, which normally is rather expensive, but gives a good outcome.

3.1 Development of the regional apical centers with training and educational facilities; **Initiatives for the creation of the regional apical centers**

This represents a concentrated effort for increasing of the welfare and competitiveness of beekeepers in a certain region, including providing of services for processing of the products, its depositing, management services, research, theoretical and practical training.

The formation and development of the regional centers are actually recognized as a main factor for the development of apiculture and local communities. Inefficiency of actual results in the field of processing of apicultural products is mainly caused by governmental policies on apical sector development and beekeepers' associations are not focused on producers and processors in the „clusters” of regional economy. This missing could be overcome through development of relevant training programs based on the analysis of actual practices on this issue on the base of the case-studies.

Main characteristic of „clusters” is organization (structuration) and systematization of the efforts (economic capacities) of the sector, when each of its component performs relevant activities according to the requests of the market and „cluster” strategy. Regional apical training and educational centers present an ideal frame for uniting of many services/companies under same brand, according to certain common evaluations of resources and competence, implementation of the policy for marketing. In addition to it, in the frame of a certain „cluster”, participants will have a chance for

training, experience and services exchange through joint participation in the activities on informing, training, purchase services, access to the stationery or mobile equipment, products, marketing, sales, development of joint infrastructure etc. Local stakeholders would benefit from protecting the environment since it is in their own economic interest to preserve natural resources for the future. Therefore, environmental measures could be considered as marketing instruments for bee keepers since they can create new markets for ecological agricultural products.

Protecting the environment and natural resources implies extra work and higher costs for farmers and that is why bee keepers should be compensated accordingly. There should be a training on economic motivations for practicing environmentally friendly apiculture, especially near protected areas and adjacent to them territories.

The discussions at the workshop showed:

1. There is also an obvious lack of methodological materials among beekeepers for financial management to implement the new planning documents on production of bee products.
2. There is a great need in the country to implement public awareness campaign with farmers in relation to appropriate use of chemicals to avoid poisoning of the bee families and thus rise efficiency of pollination.
3. Implementation of the apiculture sector support measures should be organized through elaboration of the training and educational programs and action plans to improve bee keeping practices in local communities
4. Elaborate programs for training and informing of farmers with the purpose of promoting and implementation of the best agricultural practices (BAP).

In the frame of the target oriented event local authorities proposed next training and educational activities to be developed in order to increase efficiency of apicultural sector and to improve bee keeping management practices.

1. Practices for bee keeping and transportation of bee families to mellifuious plantations to be improved. This proposal mainly refers to private persons dealing with local honey production in order to increase efficiency of bee families and reduce bee morbidity and mortality.

2. Extension of the protected zone. A concern is based on the creation of green carcasses on agricultural lands. Such carcasses need better management and protection from authorities. Actually green belts do not have a mellifluous plants in its component and for future such species should be introduced.
3. Apical products are very useful for the human organism and regular consumption of honey has a benefic effect for human health, but not everybody knows such information and respectively does not use apical products. A homogenized bee honey is not a single product from the beehive. Beekeepers produce a very diverse number of products.
4. Moldavian apiculture can become a veritable vector for the country brand through which customers could discover the products, appreciating its quality. With the nuts, with a sunflower seed, honey with raisin, etc., as well as apical products like pollen, propolis, bee queen milk/royal jelly, etc.
5. Organizing of different public events, exhibitions, fairs and festivals on the apical topic will strongly extend vision and knowledge of the visitors with an opportunity for them to taste exposed products and thus urging to buy these products in future.
6. Planning of the tourist activities. Authorities proposed to include this issue in the planning papers on local level. At the same time, they also expressed an interest on presentation of relevant case-studies from biosphere reserves, protected areas and national parks.
7. Promotion of local trades. Development of such activities will lead to the more efficient and rational use of local natural resources and will be based on traditional for the regions practices in agriculture, housekeeping, bee breeding etc.
8. Training courses on the reuse of organic wastes from bee keeping activities
9. Trainings on strengthening of the fundraising capacities of different level of authorities and stakeholders dealing with apiculture and producing of relevant products. Special attention was given by participants to agriculture (organic farming) and tourism management activities with possible use of bee keeping practices.

IDENTIFICATION OF SIGNIFICANT CHALLENGES FOR DEVELOPMENT OF TRAINING AND EDUCATIONAL ACTIVITIES

7

Main issues of concern in development of training and educational activities are associated with poor capacities of local stakeholders to implement the results of these events in practical work. Mainly it refers to:

- insufficient financial capacities of local producers and authorities. In addition to it donor institutions are strongly reserved to allocate financing for small bee keepers. To overcome this issue project proposed to organize a special training on strengthening of capacities of applicants to prepare attractive proposals and to involve different target groups of population in bee keeping activities
- poor institutional capacities of local public and sectoral authorities to support local bee keepers. There are practically no measures in local agendas aimed at development of the apiculture sector in c communities. Project has proposed a number of measures to train local public and other authorities to plan such activities and thus provide an institutional support to people dealing with bee products. In this context target oriented consultation event showed great disponibility of local communities to support such plans and facilitation of this process is urgently needed.
- technical issues. Procurement of relevant equipment is a part of previous mentioned challenges. In this context an approach for

- fundraising was presented to possible local applicants for equipment and thus project has contributed to attraction of modern techniques in local bee keeping activities. In future project proposes to have a special training on the use of relevant technical equipment, especially for new comers and young people who will express commitment to start bee keeping based activities
- human resources. During the project development a concern was identified in regard to insufficient number of young people (< 35 years old) to deal with bee keeping and in general to stay in rural communities. Mainly this business is being developed by retired age people for this is alike an additional hobby, which gives some income. Taring activities and consultation events showed that this concern could be overcome if to have relevant campaign for pupils (10-12 classes) and students originated from relevant localities. Such trainings could be organized during summer period (vacations) with attraction of this target group of population and thus to facilitate theirs' capacity to stay and work at home (not to emigrate).

In addition to it taring and consultation events showed that in spite of actual difficulties there is a good base for development of the bee keeping activities in Moldova and the ussie is to transfer experience accumulated by actual bee farmers to young people. Young people should be trained on the base of the case-studies in such domains like:

- Technical issues: modern equipment, its use, use of internet resources including marketing issues, etc.
- Regional and local cooperation including stakeholders from EU, neighboring countries
- Marketing
- Avoiding of the poisoning of bees from agricultural activities
- Bee heaven maintenance in winter period, treatment from insects etc.

Participants also expressed a commitment to host people from EU with good developed bee business and to have opportunity to cooperate with big bee products producers as on local, regional and international levels.

Training and consultation events identified next problems from agricultural activities for the apiculture sector development

Typical problems and “bad practice” identified by the national experts during project development included:

- there is an insufficient of information on pollution among bee keepers and also poor information on availability of mellifuiuous plantations on adjacent areas
- transportation of bee families is often organized to the areas already occupied by other bee keepers and improvement of cooperation on this issues is urgently needed on the base of the use of internet resources and preparing of relevant web-resources (pages) available for farmers
- pesticides are commonly stored in unauthorized places where there is a risk of causing pollution and poisoning of bees
- some farmers do not consider the pollution requirements of the crops they are applying agrochemicals without informing of bee keepers. Legislation in this domain should be developed together with a relevant lab network
- farmers and agronomists do not sufficiently recognize the potential value of pollination in agricultural practices

Good agricultural practices identified during project development mainly refer to:

In order to reduce the risk of pollution with from agriculture and private households it is necessary to encourage management practices are commonly promoted to reduce the risk of agrochemicals leaching:

Ensure that agrochemical is applied according to the crop's requirement taking into account: the crop species/variety, expected yield and required quality in regard to use opportunity for pollination of the crops

Increase application of organic fertilizers, which are lees danger for bees and could assure more efficient pollination.

Organic agriculture practices, which presume less application of pesticides and mineral fertilizers. Pollination for organic produced crops is an important element, which could also lead to reduction of the fertilizers load as well as additional planting of green belts on agricultural lands with including in them mellifuiuous species.

8

RECOMMENDATIONS FOR PLANNING OF APICULTURAL SECTOR DEVELOPMENT ON LOCAL LEVEL

During the consultation and training events participants have initiated a number of actions, which could support further development of training and educational activities and expressed a great commitment to cooperate with the National Commission of the Republic of Moldova for UNESCO.

The following tasks relating to supporting of the bee keepers on local level discussed and proposed to support local economies based on the beekeeping activities:

Recommendation 1:

Develop training programs, educational activities for different target groups of population etc. at local/regional level on agricultural, tourism etc. practices to rise bee products consumption, including development of opportunities to support activities aimed at recovery from the COVID-19.

Activities to be undertaken:

- development of relevant case-studies with preparing of educational programs for youth vulnerable groups of people with special attention to procurement and use of equipment, technologies to support bee families during winter period and technologies to treat bee deceases.
- Training on strengthening of marketing capacities of stakeholders. In this context authorities and participants mentioned opportunities to use protected areas for labeling of apicultural products with the name of protected areas as well as extension of the mellifiuos plantations on public lands and including relevant plant

species in green belts on agricultural lands.

- Training on pollination benefits for farmers, especially those dealing with organic farming and greenhouses. The results of pollination should be widely presented for training proposed by central institutions to farmers and thus facilitate enlargement of lands covered with pollination with development of relevant recommendations for farmers.
- To prepare educational materials and recommendations for the use of bee based products in recovery activities for people affected by COVID-19 and other deceases. To show the benefits of honey and other products for elderly people and develop relevant recommendations on the use of such products for different target groups of population with publishing of relevant materials.

Recommendation 2:

Develop appropriate recommendations and arrangements for promoting of efficient taring on better management of bee keeping activities in rural communities and private households

- Raise Farmer Awareness of Good Practice through providing of simple and easy case-studies to understand information materials, combined with well- targeted publicity campaigns and mass-media.
- Develop and Promote Local Good Practices based on case-studies developed in other regions (Danube Delta, EU countries etc.) – local authorities should agree upon clear and simple voluntary good practice for bee products producing and management in cooperation with research and educational institutions. Cooperation with UNESCO was also highly appreciated and experience accumulated in the frame of the UNESCO MAB pro-

gram could be efficiently used.

- training on the Use of Economic Instruments to Promote Good Apicultural Practices. This involves the establishment of certain conditions that farmers and private households have to correspond in order to be eligible to apply and receive different level of support (credits, loans, technical assistance etc.).
- Develop Appropriate Agricultural Extension Services. This could play a key role in raising awareness and improving the technical skills of farmers with respect to good practices for the agrochemicals use and develop organic agriculture with pollination of crops.

Recommendation 3:

Promote certified organic farming with the use of pollination and other low input farming systems as alternatives for food producing.

- Develop Relevant Legislation – national legislation for the certification and inspection of organic farming systems in compliance with EU legislation.
- perform a national and specific studies on the assessment of the benefits of nature based solutions for agricultural activities and state of environment. At the moment in Moldova does not exist the special report on the environmental impact of pollination activities and potential benefits on the sue of bee products to support health recovery activities. Actual policy documents adopted in Moldova (Moldova 2030 etc.) support relevant activities and are in line with provisions of the Association Agreement Moldova-EU.

PROPOSALS FOR TRAINING/EDUCATIONAL MANAGEMENT IMPROVEMENT

9

Basic component of the development of apicultural activities in Moldova is presented by different programs/project/activities with relevant program of measures supporting these papers. It assures achievement of the objectives for apicultural development and taring activities present an essential tool for theirs' implementation.

Developed taring and educational programs are based on the analysis of recent developments of the apicultural sector and its benefits for different activities including pollination, recovery from COVID-19 etc.

Main issues for training were identified by local public, sectoral, civil society authorities as well as other participants of the consultation and training events as:

- training on the use of equipment
- training on the strengthening of the fundraising capacities and financial management of the bee keepers
- providing of specific training and educational activities for new comers to the apicultural business and for vulnerable groups of population, young people and women to deal with the bee keeping practices.
- training on promotion of regional and international cooperation, information exchange and on the use of internet resources in improvement of the bee keeping practices, production



of bee products as well as development of proposals for extension of the green belts on agricultural lands with introduction of the mellifluous species and efficient pollination practices.

- measures aimed at introduction of best agricultural practices to support implementation of the nature win solutions
- labeling of the bee products produced in protected sites and on restored lands including wetland areas
- educational activities the use of bee products for different sectors development (agricultural, touristic, cultural etc.)
- strengthening of fundraising, planning etc. capacities of all level of authorities
- public participation and involvement
- development and exchange of information including the work of bee farmers' associations and research should be intensified.

According to the results of the consultation events and workshops a number of recommendations elaborated in the frame of the project could be implemented within the period 2022-2030 as presumed for the national program «Moldova 2030» and other sectoral programs. Project development showed high potential for further actions in order to increase efficiency of the apicultural sector and based on that improve in general social and economic situation in rural communities. Local authorities and civil society expressed a strong commitment to cooperate with National Commission of the Republic of Moldova for UNESCO and MaB in the development and implementation of apiculture based activities and accept/implement in local community's relevant good practices accumulated in different regions.

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Relevant program of measures based on the outcomes of the consultation events and target oriented workshop is presented in the annex 2.



ANNEXES:

Annex 1.

Presentation for the consultation and training events developed in the frame of the project



Măsurile de responsabilizare: Protecția consumatorului

- ▶ Consumatorul este persoana care cumpără, dobândește, utilizează și/sau consumă produse sau servicii. Statutul de consumator este garantat printr-o serie de drepturi
 - ▶ Protecția consumatorilor înglobează mai multe seturi de activități specializate, care au ca scop apărarea și conservarea integrității bio-psiho-sociale a persoanei, în calitate de utilizator al bunurilor și serviciilor distribuite sau comercializate prin intermediul rețelelor publice de ofertă socială, sau prin piața națională.
- Termenul de garanție,
 - Termenul de valabilitate,
 - Viciile ascunse

Materia primară

Definiția conform regulamentului privind mierea:

Mierea este o substanță naturală și dulce produsă de albine


Nectarul de la plante sau eliminări din plante sau

Excrementele insectelor aflate pe plantă,

Transformarea lor prin combinarea cu excrementele proprii și substanțe specifice eliminate de albine.


Formarea nectarului

- ▶ Plantele fuzionează glucoză și oxigen (O_2) din carbon dioxid (CO_2) și apă (H_2O) prin fotosinteză.
- ▶ Glucoza intră în flori prin porii plantei.



Secretia nectarului

- ▶ Nectar (glande nectarifere) se află în flori, deseori la baza lor.
- ▶ Nectar se produce prin plantele nectarifere.



Secretarea nectarului

- ▶ Specii de plante au glandele nectarine afară de floare.
- ▶ Pistilul florii: pe ramurile inflorescenței.
- ▶ Cireas : pe petale sau pe sepale, frunzele verzi.

Aspectele responsabilității și iresponsabilității

- ▶ Mâncare responsabilă. Un consumator responsabil încearcă să evite pe cât posibil risipa de alimente. Trebuie să alege produse mai puțin poluante, ceea ce favorizează produsele care sunt bune pentru planetă.
- ▶ Consumul de produse mai sănătoase. Putem alege întotdeauna să cumpărăm produse fără pesticide sau orice alte compoziții chimice. Există atât de multe branduri care dețin producție în conformitate cu standardele de igienă, precum și cu o compoziție nutritivă sănătoasă.
- ▶ Fă-o local. Pentru un impact economic pozitiv, cumpără produse locale și încurajează autonomia economică a producătorilor tăi. În acest fel, vei promova, de asemenea, crearea mai multor locuri de muncă, precum și integrarea economică și socială pentru lucrătorii din țara ta.
- ▶ Chiar dacă dispun de câteva surse de venit, nivelul datoriilor pe care îl au este în realitate mult mai mare. Acești oameni sunt un dezastru la capitolul bani, cheltuindu-: **iresponsabil**.
- ▶ -Orice bun de valoare pe care îl dețin are atașată o datorie.
- ▶ Cumpăraturile sunt sportul lor preferat.
- ▶ Too many people spend money they haven't earned, to buy things they don't want, to impress people they don't like.
- ▶ Impresia lor este aceea că o sumă mai mare de bani le-ar rezolva problema. Ei cred că într-o bună zi, problemele lor financiare vor dispărea în mod miraculos
- ▶ Nu uita "Knowledge is Power". Ai nevoie de educație financiară pentru a atinge libertatea financiară

Termenul de garanție, Termenul de valabilitate, Viciile ascunse

- ✓ să plătească producătorilor un preț care își propune să acopere costurile unei producții durabile (Fairtrade Minimum Price).
- ✓ să plătească producătorilor o sumă suplimentară care să poată fi investită de aceștia în proiecte de dezvoltare (Fairtrade Premium)
- ✓ efectuarea de plăți în avans, atunci când producătorii solicită acest lucru
- ✓ să semneze contracte durabile care să permită o planificare și producție pe termen lung și care să implice practici durabile de producție.

Formarea manei

- Consistența manei este pe sevă plantei cioplita și pe enzimele digestive și producătorii manei.
- Mana inițială este depozitată cu conținutul apei mai mult de 90%, dar se usucă foarte repede până la 10-40%.
- Alți nutrienți: aminoacizi, minerale și vitamine, acizi organici

Remodelarea de către albine și colectarea nectarului și manei

- Nectarul este preluat cu trompă.
- Trompele albinelor sunt prezentate de câteva părți aflate în starea pliată. În mijlocului se afla limba mobilă cu care nectarul se colectează în gura albinei.



Nectarul și mana se transformă în miere

- ▶ Albina aduce enzimele endogene la nectar și mana prin salivă, care parțial schimbă materialul brut în miere.
- ▶ Albele extrag un volum mare de apă de la nectar sau miere.
- ▶ Conținutul apei în nectar este 40 - 70 %.
- ▶ Conținutul apei în mierea matură trebuie să fie mai puțin de 18 %.

Uscarea și coacerea mierei

Returnarea coltoarelor cu mierea spre stupi .

În interiorul stupului mierea este colectată de la albine spre celula prin lant trofic. fiecare albina muncitoare aduce cu salivă enzime la miere.

Consecințe:

1. apă se evaporă în aer cald al stupului și conținutul apei scade.
2. conținutul enzimei în miere crește.



- ▶ **Mierea este întinsă și deschisă:**
- ▶ Miera este întinsă de albine în mijlocul gurei și a trompei.
- ▶ Pelicula lichidă este expusă în aerul cald al stupului și apoi aspirată înapoi (evaporarea !).
- ▶ În acest timp apă este retrasă din nectar.



Uscarea și coacerea mierei

- “agațat” - primul depozit a mierei pe pereții celulelor (crestarea suprafeței) și umplerea completă a celulelor. Miere se transporta de mai multe ori din celulă în celulă.
- Doar atunci când mierea este coaptă celulele sunt pline..
- Aer umid se aeresește prin zborul albinelor (prin găuri).
- Spațiu agațat costul: suficient spațiu pentru miere!

Domeniile politicilor publice în Republica Moldova

- Politici publice privind mediul
- Politici publice privind resursele naturale, producția agricolă și prelucrarea
- Politici publice privind transporturile și comunicațiile
- Politici publice regionale
- Politici publice în domeniul turismului, sportului și activităților de relaxare
- Politici publice industriale
- Politici publice privind serviciile
- Politici publice în domeniul societății civile și democrației
- Politici publice în domeniul afacerilor
- Politici publice în domeniul educației și științelor
- Politici publice privind bugetul și finanțele
- Politici publice în domeniul asistenței medicale
- Politici publice privind cultura
- Politici publice privind administrația publică
- Politici publice sociale și privind angajarea forței de muncă
- Politici publice în domeniul afacerilor externe
- Politici publice privind apărarea națională
- Politici publice privind justiția
- Politici publice privind afacerile interne

Factorii administrativi și de planificare pentru dezvoltarea rezilienței urbane/rurale

- Cine: a) Cine determină ce este de dorit pentru un sistem urban? B) Reziliența căror componente este prioritară? C) Cine este inclus în sistemul urban?
- Ce: - La ce perturbări ar trebui să se raporteze autorității?
- Ce rețele sunt incluse în sistemul urban/rural?
- Este concentrarea pe reziliență generală sau specifică?
- Când: - Reziliență la perturbări rapide sau lente? - Reziliență pe termen scurt sau lung? - Reziliență pentru prezent sau generații viitoare?
- Unde: - Care sunt limitele spațiale ale sistemului urban/rural? - Este reziliența unor componente prioritară? - Reziliență într-un domeniu o afectează pe alta?
- De ce: - Care este scopul construirii rezilienței? - Care este motivația pentru a dezvolta reziliența? - Focusul este pe proces sau rezultat?

Consumul in RM

- Din cauza poluării aerului Republica Moldova se află în zona cu 6-10 morți pe an pe 100000 de locuitori
- Consumul proteinelor este circa 63-73 g/persoana/zi (Romania circa 80-90 gr/zi/pers din care 50% proteine vegetale)
- Medie UE - 50 g/zi/pers/ din care 60% proteine animaliere
- În total circa 1528 t de azot și 130 t de fosfor sau circa 18 kg/persoana de azot și 2 kg/persoana de fosfor
- Categoriile de produse și servicii care pot obține marca turistică în consum responsabil local
 - - Cazare / masă:
 - - Produse meșteșugărești:
 - - Alimente;
 - - Produse turistice.

Annex 2.

Program of measures for development of training and educational activities proposed by participants

Nr.	Name of project/activities needed to reduce impact of agrochemicals use on the bee families	Period of implementation	Institutions involved	Estimative costs	Tools for monitoring	Potential contributors
1.	Development of training facilities for beekeepers in main development regions of Moldova (ADR)	2023-2024	Local public and sectoral authorities, vineries, private households	5000 euro per unit (including technical facilities, case-studies etc.)	Number of created facilities	Local communities, private business, Ecological Fund of Moldova
2	Identification of potential case-studies in neighbouring regions on bee keeping	2023-2024	research institutions, Universities, National Commission of the Republic of Moldova for UNESCO	2000 euro	Proposals for sites/ areas to be presented as a case-study region	Academy of Sciences of Moldova, Local, regional and international donors, Agrarian University

3	Creation of network of beekeepers and partnership	During the whole period of the program „Moldova 2030”	Local public authorities, local business, private households	Costs associated with information exchange	Number of bee keepers involved in partnership activities	Local communities, private business, grants from international donors active in Moldova
4	Creation of cultural, and educational touristic routes with beekeepers products tasting	2024-2025	Ministry of Culture, research institutions (development of maps based on GIS, interactive facilities etc.)	10000 euro (with development of relevant maps)	Number of tourist	Local administrations, biosphere reserve and national park, research institutions (GIS development)
5	Protection of bees from agrochemicals and deceases.	2023-2025	Local communities, private business, environmental inspectorate, research institutions	To be identified	Number of unaffected bee families	Administration of national apiculture asociation, Regional Development Agencies
6	Promotion and development of illustrative papers/ documents on promotion of local trades based on bee products.	Duration of the Moldova 2030 project	Local communities, research institutions, National Commission of the Republic of Moldova for UNESCO	To be identified	Number of people involved in development of local trades based on bee keeping activities	Private households, bee keepers, Universities, Ministry of Culture
7	Development of training capacities in the field of the use of pollination for cultivation of crops and presentations of the case-studies on its benefits.	2023-2023	Research institutions, MAB	1000 euro per training	Number of training programs, trainees and trainers	Ministry of Education and Research, Ecological Fund, Universities

8	Estimation of potential of natural and cultural resources of the use of bee products in recovery from COVID 19	2023-2025	Ministry of Health, research institution, center for preventive medicine (local branches)	7000 euro	Number of people recovered after COVID 19	Center for preventive medicine, local authorities, civil society, rayon administrations
9	Promoting of the organic agricultural practices, based on bee management.	During the period of the national project Moldova 2030	Local agricultural authorities, local communities, farmers, bee keepers	To be identified for every concrete project	Number of farmers, bee keepers and households involved	Local communities, sectoral authorities, research institutions
10	Development of educational and training programs, case-studies etc. for different level of authorities on the topics relevant to bee management practices.	Permanent training	Universities (Agrar and Technical), Agency for Regional Development	To be estimated	Number of training events performed within the year. Number of trained people	Ministry of Education and Research
11	Strengthening of the fundraising capacities of different level of authorities to implement bee sector development provisions, measures and activities.	Permanent training	Donor Institutions active in Moldova, UNESCO, business community	To be identified	Number of projects implemented in different domains of bee management	Agency for regional Development, Universities, donors

Annex 3.

Agenda of the consultation events

AGENȚIA DE DEZVOLTARE REGIONALĂ (ADR) „NORD”, „CENTRU”, „SUD”

REGIONAL DEVELOPMENT AGENCY (RDA) „NORD” „CENTRU”, „SUD”

**SEMINAR DE CONSULTANȚĂ
CONSULTATION MEETING**

**„NEEDS ON TRAINING FOR BEEKEEPERS”,
„INTRUIRE PRISĂCARILOR”**

**COMISIA NAȚIONALĂ AL REPUBLICII MOLDOVA PENTRU UNESCO
NATIONAL COMMISSION OF THE REPUBLIC OF MOLDOVA FOR UN-
ESCO**

Stimați colegi/dear colleges,

Vă invităm respectuos să participați la lucrările Seminarului de consultanță regional „NEEDS ON TRAINING FOR BEEKEEPERS IN THE RDA „NORD”/INTRUIRE PRISĂCARILOR DIN ADR care se va desfășura în perioada

29 septembrie 2021 în cadrul Universității „Alec Russo” din Bălți. It is a great pleasure for us to invite you to participate in the regional seminar on „NEEDS ON TRAINING FOR BEEKEEPERS IN THE RDA/INTRUIRE PRISĂCARILOR DIN ADR, organized on 29 september 2021 în cadrul Universității „Alec Russo” din Bălți.



PROGRAMA SEMINARULUI

<p>10:00 – 10:10 Cuvint de salut</p> <p>10:10 – 10:50 Progamul „Omul si Biosfera al UNESCO, Bee keeping activities in Moldova and its perspectives</p> <p>10:50 – 11:00 Intrebări si discuții</p> <p>11:00 – 11:30 Presentarea temelor de discuții in grupurile mici:</p> <p>Tema</p> <p><i>1. Identificarea problemelor si activităților necesare privind dezvoltarea sectorului/ Identification of problems and activities for sector development</i></p> <p><i>2. Necesitățile locale in instruirea apicultorilor (domeniile prioritare, cooperarea internațională si regională, studiile de caz etc)/Local needs for training of beekeepers (main domains, international and regional ccoperation, case-studies etc)</i></p> <p>11:30 – 12:00 pauza de cafea/break</p> <p>12:00 – 13:30 discuții in grupurile mice/small group discussions</p> <p>13:30 – 14:00 prezentarea rezultatelor discuțiilor, intrebări/feedback</p> <p>14:00 14:45 prinz/lunch</p>	<p>Denus Cernomorets, Director Proiectului UNESCO</p> <p>Dr. Dumitru Drumea, Institutul de Ecologie si Geografie, expert UNESCO</p> <p>Denis Cernomorets, Dr. Dumitru Drumea</p> <p>Toți participanți/all participants</p>
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ARII TEMATICE:

- 1. Managementul sectorului apicol, resursele disponibile, necesități de dezvoltarea;**
- 2. Managementul integrat al resurselor naturale (vegetale, polenizarea culturilor agricole, turism etc).**

