

STRENGTHENING BEEKEEPING TECHNOLOGY PROMOTION THROUGH NETWORKING

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ABSTRACT

The networking framework of development of beekeeping as a sustainable environment friendly, agro-based industry was organized through the creation of the National Apiculture Training Research and Development Institute (NARTDI) under RA 9151, in August 10, 2001. The Institute is tasked to educate, train beekeepers, conduct research and extend technologies that will sustain the development and progress of the emerging industry. The NARTDI subscribes to a participatory R and D paradigm where research and development problems are defined jointly by beekeepers, researchers, and other stakeholders of the industry.

The program has seven components: training and education, technology demonstration, establishment of satellite centers, apiculture models, beekeeping communities and networking, nukes and queen bee production, fabrication of beekeeping tools and supplies, commercialization and industry linkages and consumer education.

Networking is being accomplished in establishment of satellite centers, establishment of demonstration apiaries provincial agriculture models, and beekeeping communities, setting up queen bee breeding centers, monitoring and technical assistance, BEENET annual conferences and techno-fora, National Beekeepers, Congress, National Honey Festival, beekeeping trainings-seminars and publications and Radio broadcast.

Networking as a component of technology promotion and development strengthened the collaboration and linkages among the RD and E implementers, facilitated the dissemination of improved beekeeping technologies, accessibility of supplies and materials (ex. Wax foundation) at local levels thereby increasing colony holdings/beekeeper from 10-250 colonies, increased honey yield and income, increased livelihood in rural areas beside the claimed therapeutic benefits. It is also hoped that with networking and dialogue, Beekeeping or Apiculture be included as one of the regular commodity supported in the National Program of the Department of Agriculture, Department of Science and Technology and the Department of Environment and Natural Resources.

Key words: Apiculture/Beekeeping, Networking

INTRODUCTION

Beekeeping is a sustainable- and agro-based industry being developed in the Philippines today.

The value of honey has been appreciated as a result of the honey gathering/hunting from *Apis dorsata*, *Apis cerana*, and *Apis trigona* – honeybee species native to the country. In 1913, a German scientist introduced to the country *Apis mellifera* L. and its culture. However, beekeeping has not taken-off. Beekeeping was reintroduced in 1980's through Science and Technology Resource Agency and the Netherlands Development Organization which was adopted by few interested individuals but has not been popularized due to lack of technical knowledge in managing colonies, inferior queens, and lack of competent technicians and lack of funds. In 1990's, some Non-Government Organization (NGOs), and Don Mariano Marcos memorial State University (DMMMSU) have started to conduct researches on bee culture. DMMMSU in particular have vigorously promoted beekeeping as an alternative source of income in support to the reforestation campaign of the government. Thus, DMMMSU created the Apiculture Training and Development Center (ATDC) tasked to accelerate the development of beekeeping in the region in 1991, which sported an unprecedented awareness, interest, and participation of various agencies nationwide.

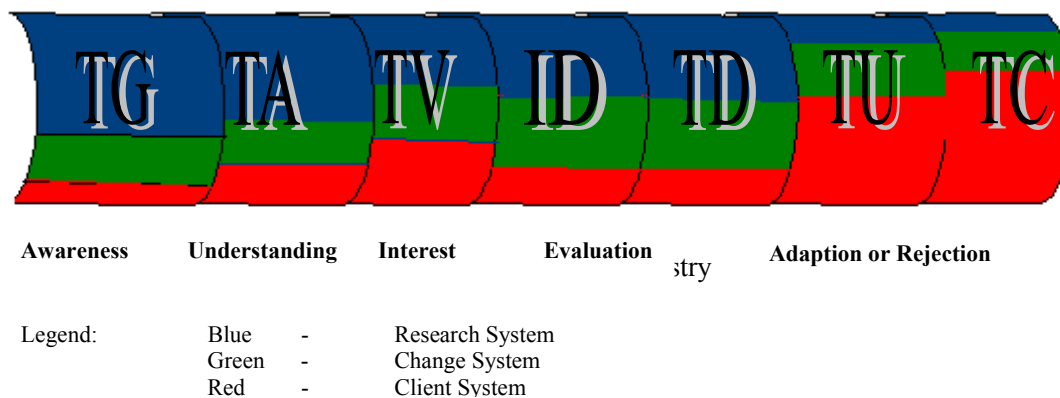
Through collaboration with different NGO's, Government organization (GOs'), Local Government Units (LGUs) and State Colleges and Universities (SUCs), ATDC was converted into National Apiculture Research Training and Development Institute (NARTDI) in August 10, 2001 tasked to educate, train, generate and extend beekeeping technologies in the country. Its mission is to develop Apiculture as an agro-based industry.

PRE INDUSTRY NETWORK MECHANISM

1. Research and Extension (R & E) Network

The R & E Network of Apiculture adapts the R & E Networking in Sericulture of the Sericulture Research and Development Institute (SRDI) (Figure I). The model presents the interconnectivity of the functional relationship as a system in order to speed-up diffusion process from Technology Generation (TG) to Technology Commercialization (TC), bridge the gap between the research, change and client systems in its desire to design a comprehensive model of transferring apiculture technologies.

Fig. I. Participatory technology transfer approach as a model interface between and among the research, change, client system and the R & D continuum and integration of the stages of diffusion process (Dumlao___).



The RDE programs of NARTDI are implemented in Research and Development Division and the Extension or Training, Technical Services Division.

Research and Development Division composed of seven (7) units namely: Bee Breeding, Bee Pasture Development and Farming Systems, Bee Protection, Apiary management, Honey and By-product Development, Engineering and Socio-economics.

Researches in Queen rearing and queen production have been conducted. The establishment of National Bee Breeding Station is being proposed to ensure supply of quality queens. Survey of melliferous plants that can supply pollen, and nectar, and the integration of beekeeping in different farming systems such as in Mango-based, Vegetable-based, and in Lowland and Upland farming systems were conducted. The role of honeybees is being assessed in crop production such as in vegetables, mangoes, and other fruit trees. Researches were also being done in the control bee diseases and pests especially *Varroa* mites and the Philippine swifts, a bee-eater bird. Researches were conducted for dry- and wet- seasons apiary management practices and other feed supplementation. Researches in honey analysis and by-product development are also being done. Researches completed in Engineering include fabrication of local wax melter and honey extractors.

The Extension or Training and Technical Services Division is composed of Formal and Non-formal education, Colony dispersal, Monitoring and Evaluation, Establishment of Satellite Centers, Demonstration Apiaries, Apiculture Models, and Publications.

Trainings were conducted by NARTDI for the trainers and extentionist. Initial nucs and beekeeping supplies and materials were provided after the one-year beekeeping course and interested trainees from short courses followed by monitoring and evaluation. Colonies are also provided by the Institute or sourced out from other apiaries for R and E activities of other SUCs and line agencies, provincial apiculture models, demonstration apiaries and satellite centers.

Satellite centers (SC) is envisioned to be strategically located in Luzon, Visayas and Mindanao to facilitate technology transfer and sharing of beekeeping resources. There are now two (2) satellite centers in Luzon. One is located at Cagayan State University, Sanchez Mira, Cagayan in the north and one at southern Luzon Polytechnic College at Lucban, Quezon in the south –Luzon. Each SC serves as Bee breeding center or source of breeding materials for queen production, conduct on-the-spot Beekeeping Course, conduct location-wise researches and provide laboratory for fabrication of beekeeping tools. After strengthening the beekeepers and organizing them into cooperatives, the SCs will concentrate on technology promotion through trimedia approach (TV, radio, print), training and research activities.

Provincial Apiculture Models (PAM) are being developed to motivate the bee-farming communities, government as well as private entities to actively participate in the agroforestration projects and other environmentally-sound farming activities in support to beekeeping. Demonstration apiaries showcase the viability of beekeeping as an alternative source of livelihood and support to crop production (pollination services).

Technical assistance is extended in procurement of beekeeping tools and equipments, in organizing beekeepers into cooperatives or associations, formulation of policies and guidelines in apiary operations.

Technologies generated and verified are being packaged in Technoguides, leaflets and manuals.

The R & E pyramid (Figure 2) is being adapted in the research and extension activities.

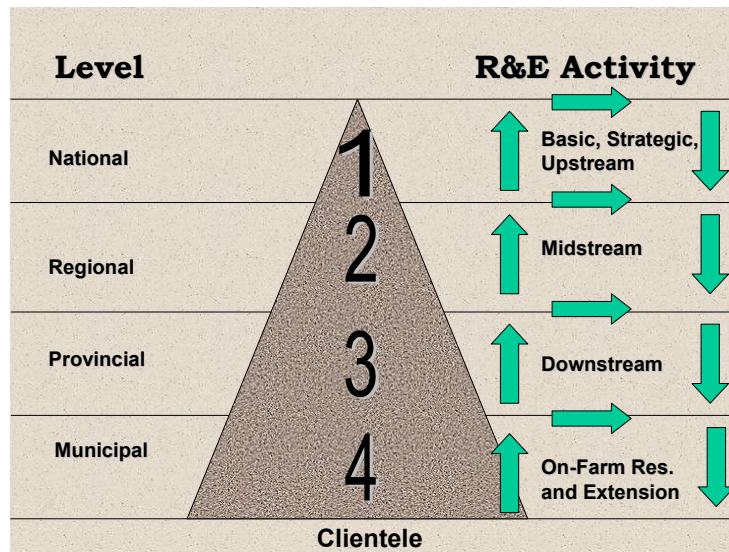


Figure 2. The Research and Extension pyramid

3. Production and Marketing Networking

The local production of honey both from native and exotic bees in 1999 is 300 tons valued at P60,000,000.00 or 1,153,846.15 US\$. Production of bee pollen, propolis, royal jelly and processing of wax products are still negligible.

The marketing channels of honey, bee pollen and propolis is mostly direct to consumers for small beekeepers but for big scale operation of more than 100 colonies marketing is from producers to traders for local consumption. "Package bees" are being exported to Middle East by one beekeeping company.

4. Network Institutions

Networking has propelled Apiculture as an emerging agro-forestry –based industry in the Philippines today. The Association of Canadian Community Colleges, Canada, the Food and Agriculture Organization (FAO), Australian and Israel governments have greatly supported research and human resource development. Local partners includes: Plan International, World Organization Rehabilitation Training(ORT), Department of Science and Technology(DOST), Department of Environment and Natural Resources (DENR) Department of Trade and Industry (DTI) Department of Agriculture (DA), Department of Education (Dep Ed) and the University of the Philippines at Los Banos (UPLB).

UPLB – conducts research and extension services

Plan International – support trainings of indigent families in Benguet & Mt. Province.

ORT – support trainings of indigent families in La Union.

DOST– assist the Institute promote beekeeping as science & technology for rural development, quality control of honey.

DENR – provides planting materials, identify zones of potential bee pasture areas, prospective beekeeping communities & policy formulation in support to beekeeping

DTI – assist in standardization/quality control of bee products, by-products, marketing and product development.

DA – extension services (yet to include Apiculture in its national RDE program)

NEDA – help establish both local and international linkages.
 Dep Ed,- formulate policy in the integration of beekeeping as an agro-industrial subject/course in the academe.

The Philippine Apiculture Foundation Incorporated (PAFI) and the BEENET Foundation Incorporated are two organizations serving as partners in promoting beekeeping in the country. Annual and Semi-Annual symposia, Seminar-workshops, Congress and Techno-Fora are being organized jointly and separately by the two foundations to gather together stakeholders in Apiculture for exchange of ideas and experiences, updated in the current developments of the market, recent findings and development in research, thresh out problems and plan for the next year's activities.

Networking has also been done among beekeepers as they are scattered entire the country (Table 2).

Table 2. Number of Beekeepers in the Philippines by Province, Regions and Islands.

LUZON		VISAYAS	
Region I		Region 7	
Ilocos Sur	12	Cebu/Mandaue	57
La Union	20	Negros Oriental	3
Pangasinan	1	Bohol	13
Cordillera		Squijor	2
Abra	9	Region 6	
Baguio	24	Negros Occidental	6
Benguet	29	Aklan	2
Ifugao	3	Leyte	6
Kalinga	2	Samar	2 groups of DAR & ARC beneficiaries
Mt. Province	20	MINDANAO	
Region 2		Davao	2
Cagayan	4	Cagayan de Oro	2
Nueva Viscaya	4	Sultan Kudarat	1
Region 3		Agusan del Norte	1
Nueva Ecija	8	CARAGA Region	1
Aurora	16		
Region 4			
Quezon	8		
Region V			
Camarines Sur	8		
Camarines Sur	8		

CONCLUSION

Networking and proper support from the national government by including Apiculture in DA's national RDE program will undoubtedly develop Apiculture as a new agro- based industry in the Philippines. Considering that NARTDI is only one year since its institutionalization, results are very encouraging.

Nevertheless, the networking efforts of the NARTDI has tremendously increased the number of beekeepers from 35 before 1991 to about 278 active beekeepers/ and some beekeepers' organizations in the country today. The average colony holding of about 10 to 250 colonies/beekeeper with 20-50 kg honey yield/colony reflects a great room for development considering the natural resources the country has.

NARTDI is a part of a University, hence extension services, financial and logistic difficulties may hinder close monitoring of beekeepers all over the country and the promotion of beekeeping nationwide. Therefore, networking is a must.

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Table I. List of Trainings and number of trainees conducted from 1991-200.

Trainings	Number of Trainees
Trainer's Training	15
5 day Basic Beekeeping (Introductory Course)	184
7 Day Basic Beekeeping	30
1 year Beekeeping	64