

## Final report

# **Revival of apiculture practices and pollination services amongst Indigenous mountain communities through bee colony production in the Nilgiri Biosphere Reserve (NBR)**

Period from 01.02.2014 to 31.01.2015

Project no: EA/SG17

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## Introduction

Honey bees play a very important role in the ecology, livelihoods of the small tribal farmers and forest dependant honey harvesters. The Nilgiri Biosphere is an important landscape in Western Ghats mountain ranges of India are rich in bio-diversity and considered as one of the 12 Bio-diversity hotspots of the world. Due to various alteration of landscape use by human has drastically reduced the bee population and habitats. The present project- Revival of apiculture practices and pollination services amongst Indigenous mountain communities through bee colony production in the Nilgiri Biosphere reserve (NBR) has emerged as a new initiative to strengthen the local/feral bee population and the farmers are trained to multiply bee colony for their needs as well to contribute to nature here after.

## **Objectives of the Project**

The primary objectives of the project are to establish Apiaries to rear Indigenous/native bees ie. *Apis cerana indica* in different landscape localities in Nilgiri Biosphere Reserve and train local tribal farmers in beekeeping techniques, colony raising, dividing and make awareness of the importance of natural bee population for crop and forest pollination services and to contribute colonies back to nature through freed swarms. Also, it focuses on networking with other farmers and various public and private agencies to make them aware of the importance bees and bring them on to conserve it.

### 1. The Layout and implementation of the project;

There are 50 small tribal farmers have participated in this effort from four different localities of the NBR. The project activity has begun with establishing of Apiaries in four sites to facilitate hands on training in beekeeping, understanding bee colony, handling of bees and role in pollination process. The very first apiary which established in Konavakarai is the largest to train and serve 25 beekeepers. An apiary in Sigur on the northern foot hill plateau of Nilgiri is organised for 10 beekeepers. An apiary in keystone campus in Kotagiri is established for 8 beekeepers in and around Kotagiri and the final smallest apiary is established in Pillur region to train and facilitate 7 farmers.

a. 50 starter stock colonies were gathered from beekeepers to accommodate in apiaries in four sites for training farmers in beekeeping.

b. conducted six one day training for 50 farmers for hands on practical beekeeping, observation, dividing techniques to multiply 3 colonies from the stock and take away home 3 bee colonies by every farmer accounting for 150 colonies.

c. to establish starter colonies 50 bee hives are fabricated and supplied to all apiaries. To enhance the brood size, top bar is introduced in the brood chamber and regular frames are used in super

chambers. The top bars in brood provide opportunity for easy inspection and split at queen appearing period without disturbing the brood. The swarming hives are equipped with top bars only

d. every trained farmer was additionally supplied with three bee hives to transfer the divided colonies and installed in their homestead farm.

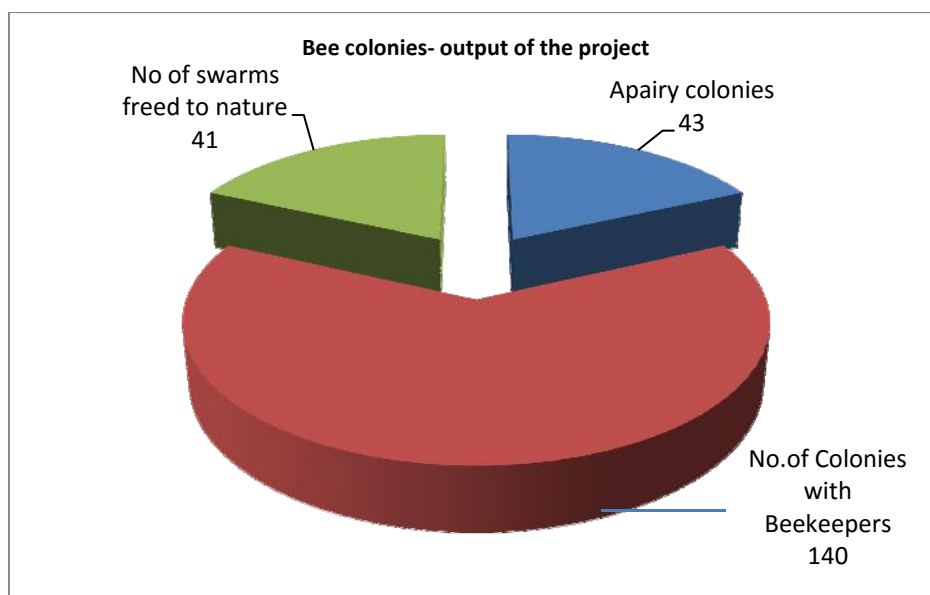
c. these trained farmers are continuing supports to assist in beekeeping to neighbouring farmers

2.a

| Location of apiaries | No. of beekeepers | Indigenous community | Colonies established | No of training completed | No. of hives fabricated & issued |
|----------------------|-------------------|----------------------|----------------------|--------------------------|----------------------------------|
| Semanarai 1200 MSL   | 25                | Irula, Kurumba       | 25                   | 6                        | 75                               |
| Sigur 910MSL         | 10                | Irula, Jenukurumba   | 10                   | 6                        | 30                               |
| Kotagiri 2000MSL     | 8                 | Kurumba              | 8                    | 6                        | 24                               |
| Pillur 560 MSL       | 7                 | Irula                | 7                    | 6                        | 21                               |
| total                | 50                |                      | 50                   | 24                       | 150                              |

3. Output of the project

- a. The trained beekeepers have divided bee colonies from the regional apiaries and established it in their homestead farm.
- b. As part of strengthen local bee population in nature 50 trained beekeeper has allowed their hives to swarm one from every hive has accounted 41 bee colonies and freed to nature.
- c. The bee keepers have unanimously agreed to continue to contribute one swarm to nature in the years to come.

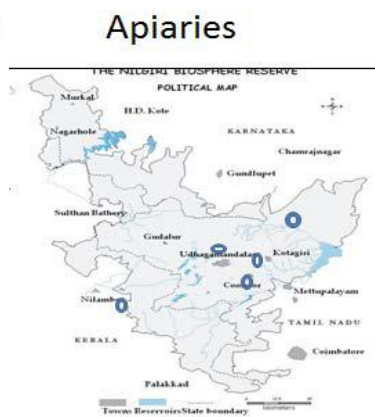
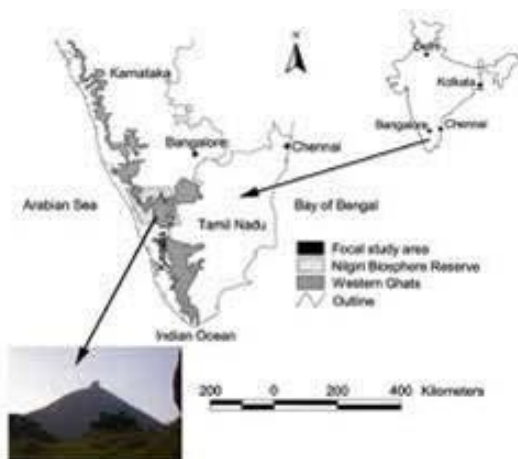


- The apiaries in Semanarai and Sigur are functioning as regional Bee resource centres & training centre since end January for local farmers, school children and members of different agencies including various department of government.
- The apiaries are displayed with posters and hand out on beekeeping information in Tamil language and in English.
- The National Horticulture Mission-government of India's programme is dovetailed with apiaries, for farmer's training regard to pollination support through beekeeping. The SNEHA- a service society run Indian Overseas bank has used the Semanarai apiary to train farmers for their programme. The United Planter's association of South India (UPASI) Krishy Vingyan Kendra has used our Kotagiri apiary for their beekeeping training. Island Trust and NGO, The Tamilnadu Agriculture University, Ooty has used out Sigur apiary for farmer's exposure visit trip to learn bee pollination services.

### 3.1 The Challenges faced during the project period

- In and around Semanari valley seven bee hives were raided by sloth bears. This forced the farmers to place hives closely around their farm houses; eventually it limits them to extend the number of hives.
- In Sigur, the farmers have faced dearth of nectar often which leads to slow growth of colony and natural swarms were less. Many beekeepers have undertaken planting of melliferous plants in lieu of situation.
- The long spell of raining season in 2014 shifted swarms later January 2015.
- Some of these factors had impact on colony production, and apiary has achieved 43 colonies to the target of 50. The farmers have managed divide and hive 140 colonies to the target of 150nos.

### 4. The functional Apiary sites across NBR.



## 5. Information and dissemination activity:

a. posters were prepared and displayed in apiaries in Tamil language and in English to share, awareness on benefits of beekeeping, seasonal management, hygienic honey harvest, value addition of honey and wax, bee pollination benefits in crops and forest vegetation etc.

b. Hand outs were made bilingual for farmers



## Annexures: 1. The list of beekeepers and their colony position

|    | Name of Beekeeper | village   | Community | Associated Apiary | No of colonies with apiary | No. of colonies with beekeepers | No of colonies Swarmed |
|----|-------------------|-----------|-----------|-------------------|----------------------------|---------------------------------|------------------------|
| 1  | Mani              | Semanarai | Kurumba   | Semanarai         | 1                          | 3                               | 1                      |
| 2  | Suresh            | Semanarai | Kurumba   | Semanarai         | 1                          | 3                               | 1                      |
| 3  | Rasu              | Semanarai | Kurumba   | Semanarai         | 1                          | 3                               | 1                      |
| 4  | Siva              | Semanarai | Kurumba   | Semanarai         | 1                          | 3                               | 1                      |
| 5  | Mari              | Semanarai | Kurumba   | Semanarai         | 1                          | 3                               | 1                      |
| 6  | Mahalaingan       | Semanarai | Kurumba   | Semanarai         | 1                          | 2                               | 1                      |
| 7  | Ravi              | Semanarai | Kurumba   | Semanarai         | 1                          | 3                               | 1                      |
| 8  | Balan             | Semanarai | Irula     | Semanarai         | 1                          | 2                               | 1                      |
| 9  | Thangaraj         | Semanarai | Irula     | Semanarai         | 1                          | 2                               | 1                      |
| 10 | Nilagiri          | Semanarai | Irula     | Semanarai         | 1                          | 3                               | 1                      |
| 11 | Sivaraj           | Semanarai | Irula     | Semanarai         | 1                          | 3                               | 1                      |
| 12 | Arjunan           | Semanarai | Irula     | Semanarai         | 1                          | 2                               | 1                      |
| 13 | Rengan            | Semanarai | Irula     | Semanarai         | 1                          | 3                               | 1                      |
| 14 | Shanmugam         | Semanarai | Irula     | Semanarai         | 0                          | 3                               | 1                      |
| 15 | Masanan           | Semanarai | Irula     | Semanarai         | 1                          | 2                               | 1                      |
| 16 | Pali              | Kilcoupe  | Irula     | Semanarai         | 0                          | 3                               | 1                      |

|                                       |             |           |             |           |    |     |    |
|---------------------------------------|-------------|-----------|-------------|-----------|----|-----|----|
| 17                                    | Kanaga      | Kilcoupe  | Irula       | Semanarai | 0  | 3   | 1  |
| 18                                    | Raju        | Kilcoupe  | Irula       | Semanarai | 1  | 2   | 1  |
| 19                                    | Rengan      | Kilcoupe  | Irula       | Semanarai | 1  | 3   | 1  |
| 20                                    | Kirshnan    | Kilcoupe  | Irula       | Semanarai | 1  | 3   | 1  |
| 21                                    | Kalliyappan | Kilcoupe  | Irula       | Semanarai | 1  | 3   | 1  |
| 22                                    | Kalimuthu   | Kilcoupe  | Irula       | Semanarai | 1  | 2   | 1  |
| 23                                    | Mari        | Kilcoupe  | Irula       | Semanarai | 1  | 3   | 1  |
| 24                                    | Ravikumar   | Kilcoupe  | Irula       | Semanarai | 0  | 3   | 1  |
| 25                                    | Karamdai    | Kilcoupe  | Irula       | Semanarai | 1  | 3   | 1  |
| 26                                    | Vellayn     | Pillur    | Irula       | Pillur    | 1  | 3   | 1  |
| 27                                    | Chandran    | Pillur    | Irula       | Pillur    | 1  | 3   | 1  |
| 28                                    | Rengan      | Pillur    | Irula       | Pillur    | 1  | 3   | 0  |
| 29                                    | Nanjan      | Pillur    | Irula       | Pillur    | 1  | 2   | 1  |
| 30                                    | Selvi       | Pillur    | Irula       | Pillur    | 0  | 3   | 1  |
| 31                                    | Murugan     | Pillur    | Irula       | Pillur    | 1  | 3   | 0  |
| 32                                    | Chinraj     | Pillur    | Irula       | Pillur    | 1  | 3   | 0  |
| 33                                    | Rajendran   | Sigur     | Irula       | Sigur     | 1  | 3   | 0  |
| 34                                    | Sasikumar   | Sigur     | Irula       | Sigur     | 1  | 3   | 1  |
| 35                                    | Vasantha    | Sigur     | Irula       | Sigur     | 1  | 3   | 0  |
| 36                                    | Marai       | Sigur     | jenukurumba | Sigur     | 1  | 3   | 1  |
| 37                                    | Basuvaraj   | Sigur     | Irula       | Sigur     | 1  | 3   | 1  |
| 38                                    | A.K.Bhojan  | Sigur     | Irula       | Sigur     | 1  | 3   | 1  |
| 39                                    | Chithan     | Sigur     | jenukurumba | Sigur     | 1  | 3   | 1  |
| 40                                    | Mohan       | Sigur     | Irula       | Sigur     | 1  | 3   | 1  |
| 41                                    | Mari        | Sigur     | Irula       | Sigur     | 1  | 3   | 0  |
| 42                                    | Sikuthai    | Sigur     | Irula       | Sigur     | 1  | 3   | 1  |
| 43                                    | Chandran    | Kotagiri  | Irula       | Kotagiri  | 1  | 3   | 1  |
| 44                                    | Dasan       | Kotagiri  | Irula       | Kotagiri  | 1  | 3   | 0  |
| 45                                    | Babu        | Kotagiri  | Irula       | Kotagiri  | 1  | 3   | 1  |
| 46                                    | Johee       | Kotagiri  | Irula       | Kotagiri  | 1  | 3   | 1  |
| 47                                    | Devaraj     | Kotagiri  | Irula       | Kotagiri  | 1  | 3   | 0  |
| 48                                    | Suresh      | Kaotagiri | Irula       | Kotagiri  | 1  | 3   | 1  |
| 49                                    | selvan      | Kotagiri  | Irula       | Kotagiri  | 0  | 2   | 1  |
| 50                                    | Ramasamy    | Kotagiri  | Irula       | Kotagiri  | 0  | 2   | 0  |
| No of colonies –output of the project |             |           |             |           | 43 | 140 | 41 |

Annexure 2. Some sequences of the trainings and progress of the project;



Wax cup preparation for queen rearing and grafting a larve.



Colony inspection and dividing techniques are shared

