# Biovillage programme at Kodathur (Pondicherry)

In partnership with State Bank of India

M.S.Swaminathan Research Foundation
Chennai

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#### **Foreward**

The Union Territory of Pondicherry was chosen by MSSRF, way back in 1991 for initiating a human centered mode of development programme known as the 'Biovillage Model' which, pays concurrent attention to natural resources conservation and enhancement, poverty eradication and women's empowerment. This was initiated in 3 villages with the support of Asian Development Bank (ADB) and the International Fund for Agricultural Development (IFAD). The programme was expanded in 1995 to cover 19 villages in Pondicherry with the support of UNDP as well as the Hunger Projects of Japan, Sweden and India. To make this approach a movement a blue print was presented to the Pondicherry administration in 2000, to convert all the 270 villages in the Territory into Biovillages by August 15, 2007, which marks the  $60^{th}$  anniversary of our Independence.

In September 2004 SBI, LHO, Chennai with the SBI, ADB, Pondicherry as the implementing office, came forward to partner MSSRF in this programme in selected villages serviced by SBI Pondicherry and a MoU was drawn up with them to replicate the Biovillage model with their financial support. This initiative serves as a model initiative on how developmental strategies can be implemented in a partnership mode between research organizations/financial institutions and the communities. The present publication summarizes the work done and the impact. I hope this will pave way for more such joint partnerships in implementation of such programmes to make the Biovillage Programme a movement in other parts of the country too.

M.S. Swaminathan

M. P. Priisher

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Concept presentation at SBI, LHO, Chennai, September 2003





Signing of the MOD, MSSRF, Chennai, January 2004





Inauguration of Kodathur Biovillage programme January 18, 2004



Felicitation



Inauguration of Pseudomonas Unit



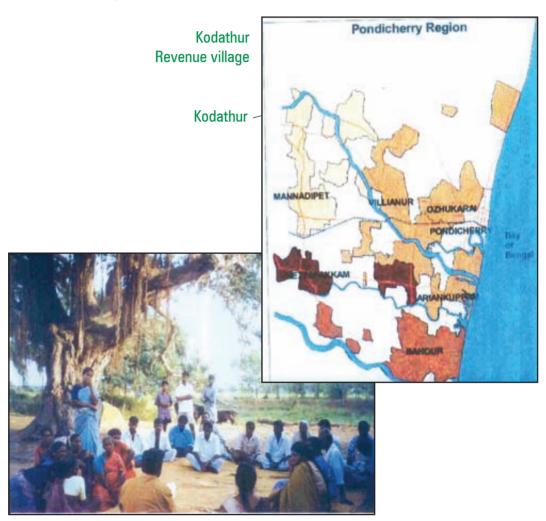
Inauguration of Trichogramma Unit



Demonstration of Trichogramma Unit

#### Introduction

In September 2003, the JRD Tata Ecotechnology Centre, MSSRF, presented a concept note on the Biovillage Programme to SBI at Trichy. The primary aim of the project was to work with households below povert line in the selected villages serviced by the SBI, Pondicherry, and to offer livelihood security through a credit-linked Biovillage programme. Following this, a Participatory Rural Appraisal (PRA) and a Baseline Survey were being conducted to replicate the Biovillage programme in Kodathur village - the service area of SBI. The PRA revealed that the Kodathur revenue village has five spatial units, each having distinct social structure, and demarcated by social distance.



PRA conducted at Kaikilaipet

The salient points that emerged during the survey were that more than 60% of the families do not own any land; of the 123 land holdings in the village, 83% are small and marginal holdings; only one third of the families own cows, and 13% own goats, and a large number of workers - of which 38% are male and 32% female - are engaged in non-agricultural activities. Most are landless agricultural labourers' households, with an annual household income of Rs 15,000, and employment for only 150 days. Livestock play a crucial role in the village economy, and it was felt that there was great potential for enhancing dairy and the milk cooperative movement with better management practices, which could increase their household income.

Horticulture, floriculture, aquaculture, poultry and dairying were identified as potential areas of further development. Almost all the households had debts, and except for a few SHG members, the rest have taken loans from usurers at high interest rates of 240-360%. Based on the PRA it was decided that the entry point of activity in the selected villages could be through Integrated Dairy Management (IDM) Fig. 1, and also a few micro enterprises as model initiatives. It was decided that nearly Rs.50 lakhs worth of credit for these activities would be expected from the SBI during the Ist phase of the implementation with the formation of 40 SHGs, and about 5,000 trainee days to do these activities better.

A Memorandum of Understanding (MoU) was signed on 24 January 2004 between SBI, Chennai LHO and MSSRF, to replicate the Biovillage model with the financial support of SBI through its Pondicherry ADB and in the same year, Dr. Bruce Albert inaugurated the Kodathur Biovillage programme. The groups were formed, and the first credit link was accomplished in April 2004 with a credit dispersion of Rs. 25,08,500/- (US\$ 55744) Table 1 & 2 and at the end of the year 2004, the second phase of loan was sanctioned Rs. 14,45,000 (US\$ 32111) Table 3.

Biovillage programme focused on a demand-driven approach, utilizing the existing natural resources for more production, identifying local specific enterprises and value addition to the product, and better water management for sustainable livelihood and agriculture. Focus was given in the following areas:

#### a. Water Management

- Training programmes were organized on System of Rice Intensification (SRI) to help the farmers achieve maximum yield with minimum use of water.
- Farmers welcomed the training, and began practice of SRI, but due to the change in government policy on sugarcane price, uncultivable lands are used for sugarcane cultivation.

- b. Emphasis on low input and high value output
  - Vegetable cultivation, floriculture and maize cultivation were given priority.
- c. Improving efficiency in livestock management Integrated Dairy
  - Cattle management (organized cattle health camps, health clinic, awareness meetings in association with Veterinary College and Animal Husbandry Department)
  - Feed management (Introduced various types of concentrated, dry feed and green fodder)
  - Market linkage to get better price for milk leading cooperative societies were linked (Pondicherry Milk Producer Society (PONLAIT) and Hatsun Agro (Arokya)
- d. The Biovillage Programme also supported region-specific enterprises such as promotion of Integrated Dairy development, production of Pseudomonas (Biofungicide), Trichogramma (a Biopesticide) which have a local market.
- e. Promotion of vermicompost mushroom cultivation, biogas production and other petty activities.

Extensive training programme were given to the members in the above mentioned areas (Table 4). Regular field level interactions were held to evaluate progress.

#### After the intervention of MSSRF & SBI

At the end of two year intervention, an impact analysis was carried out to evaluate the work done so far, and this is presented in a concise form in Table 5. Currently, under the IDM programme, 180 members own cattle, and they supply milk to Hatsun (Private Dairy) and Ponlait (Government Dairy). Of this, 15 members have constructed biogas plant, 15 members developed fodder cultivation (10 ha), and 9 members have a vermicompost pit. A subsidy of Rs. 42, 000 has been allotted for fodder and biogas plant through government department.

We infer that by the intervention of SHGs, about 250 households have been relieved of debt from moneylenders, 29 SHGs consisting of 19 women, 9 men, and 1 mixed, have been mobilized. Three new groups have also been formed. In about 250 households, 280 additional calves and 180 milch animals, and an additional 20 goats have been reared, and 250 households have benefited by a "revolving fund". Through the integrated dairy activity, 110 households have been brought under this fold. Ten households are involved in goat-rearing activities, and one is involved in tailoring, 5 own petty shops, one matweaving unit established and 10 households are engaged in Pseudomonas (Biofungicide) production.

The SHGs are now able to identify the needs of the community and facilitate themselves through group activities. Their mobility has increased, and there has been tremendous improvement in their skills for networking with stakeholders like Bank, DRDA, Block Development Office, District Industries of Commerce, Department of Animal Husbandry, Veterinary College, Fodder Research Station, Federation, Ponlait, Hatsun, Deepaoli a NGO, MSSRF etc.

The net increase in income through dairy activity is Rs. 10,56,000 (110 households x Rs. 1200/ month x 8 months). Additionally, 140 Labour days have increased through Pseudomonas production, with an income of Rs. 52,750 (US\$ 1172).

# **Demystification of Pseudomonas Production**

10 households are involved in Pseudomonas production activity. So far the group has produced 3 tons of Pseudomonas. MSSRF has helped the group identify a regular market for their product.

# Marketing Tie-Up with Pasic, Government of Pondicherry

Regular marketing arrangements were made for Vinayagam Women SHG (Pseudomonas florescence Biofungicide) of Kodathur village with the PASIC, Government of Pondicherry has accepted to procure 4 tons per annum@ Rs. 42/-per Kg. Discussions are being held with Deputy Canservator of Forest, Dept. of Forest & Wildlife Pondicherry also for marketing Support.

# **Quality Certification**

The Pseudomonas florescence Biofungicide produced by the Vinayagam Women SHG of Kodathur village received Quality Certificate from Department of Plant Pathology, TNAU Coimbatore for better marketing prospects.

#### **BVC Members**

3 Bio Village Council members were selected from Manaveli and Kaikilaipet Villages of this project.

#### **Assets**

The increase in money flow among the SHG members has helped in purchasing certain assets such as jewels, residential plots, and household articles (TVs, Fridges, Mixies, Almirah, Cycles, and Telephone etc). Twenty SHG members have altered their house with the support of internal credit. 250 households have benefited by the revolving fund. The revolving fund

was utilized for household consumption. Money spent on family and social functions has increased from Rs. 5,000 to Rs. 20,000 per household.

# **Social Recognition**

Each family is proud to be a member of SHG. Due to the taking over of an activity, their social status has increased, and their contribution to community betterment has brought them honor and respect. The local people give due recognition to the SHGs. Men are registering the land and plot in the name of their wives.

# Skill Development

The milk yield has increased due to the application of scientific methods of cattle management. SHG members started to develop their skills, especially in interacting with members, expressing their problems and feedback to the public officials and stakeholders etc. The development of awareness to familiarize themselves with the Government schemes for arranging subsidy to individuals/groups.

Familiarization of the practice of bank transaction has been developed. They have developed the skill to mortgage their jewels in the bank - instead of the earlier practices of mortgaging at the pawnbrokers for higher rates of interest. These linkages have enabled them to act independently on any issue for common cause.

# **Decision Making**

Within the family, decision-making has now become a joint effort, with more discussions with all members of the family on various issues, and also to ensure income generation. In most of the households, women manage the family affairs, and so decision-making is unavoidable. In most occasions, the women have active discussions and decide on the issues regarding home management. Many times they share the family responsibility equally in all the respects. Men are proud to respect the decision of women.

# Responsibility

Particularly in Kaikilaipet village, a women member of SHG is the breadwinner of the family. The alcohol-addicted husbands usually beat their wives. Earlier in such cases, the women refused to take up the family responsibilities. But nowadays they have learned to manage the problems.

Group Management activities have increased the workload of women, particularly on managing cattle, maintenance of accounts and spending much of their time in approaching

the banks and Government offices for their basic requirements. Whenever the women are engaged in domestic work, men take care of their children, elders and also the cattle in the household.

#### Conclusion

Thus, this initiative has shown a good model of how good practices, access to credit and continuous capacity building can improve the livelihoods and economic returns of the rural poor.

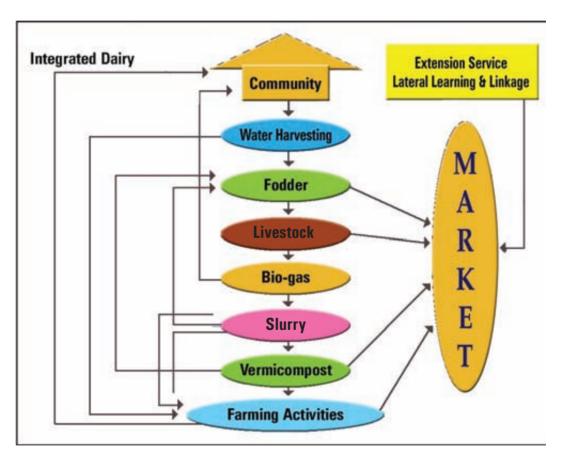


Fig. 1: Integrated Dairy Management

Table 1: First Phase credit linked for suitable enterprises

Name of SHG	Men/ women/ mixed	Credit linkage (1.4.2004)	Income Generating Activity	Matching grant by Community Banking, MSSRF
Srisakthi	Women	1,86,500	Dairy & Petty Shop	31,000
Muthamizh	Women	1,36,500	Dairy	16,000
Vakrakaliamman	Women	1,73,000	Dairy	17,800
Mariamman	Women	1,38,500	Dairy	40,000
Saraswathi	Women	1,35,000	Dairy	30,000
Indiragandhi	Women	1,08,000	Dairy	33,000
Annaimeera	Women	94,500	Dairy	36,000
Karumariamman	Women	67,500	Dairy	35,000
Roja	Women	67,500	Dairy	34,000
Kasthuribai	Women	1,35,000	Dairy	41,000
Kurinji	Mixed	1,21,500	Dairy	34,000
Vinayagam	Women	3,20,000	Pseudomonas	96,500
			(Biofungicide)	
Total Amount		16,83,500 (US\$ 37411)		4,44,300 (US\$ 9873)

Table 2: Revolving fund facilitated during First & Second Phase

Name of SHG (Self Help Group)	Men/women/ mixed	Village	Revolving Fund
Srisakthi	Women	Manaveli	50,000
Muthamizh	Women	Manaveli	50,000
Vakrakaliamman	Women	Manaveli	50,000
Mariamman	Women	Manaveli	50,000
Saraswathi	Women	Manaveli	50,000
Indiragandhi	Women	Manaveli	50,000
Annaimeera	Women	Manaveli	50,000
Karumariamman	Women	Manaveli	50,000
Nethaji	Men	Kodathur	50,000
Bharathidasan	Men	Kodathur	50,000
Annai Teresa	Women	Kodathur	50,000
Kasthuribai	Women	Kaikilaipet	50,000
Kurinji	Mixed	Kaikilaipet Pet	50,000
Adhiparasakthi	Women	Kaikilaipet Pet	25,000
Roja	Women	Kaikilaipet	50,000
Thiruvalluvar	Men	Manaveli	25,000
Sengeniamman	Men	Kodathur	25,000
Thamarai	Women	Kodathur	50,000
Total Amount			8,25,000 (US\$18333)

Table 3: Second Phase credit linked for suitable enterprises

Name of SHG	Men / women / mixed	II phase Credit linkage (1.11.2004)	Income Generating Activity	
Srisakthi	Women	1,17,000	Dairy & Petty Shop	
Muthamizh	Women	1,69,000	Dairy	
Vakrakaliamman	Women	1,35,000	Dairy	
Mariamman	Women	1,75,000	Dairy, vegetable vending, Mat weaving	
Saraswathi	Women	1,15,000	Dairy	
Indiragandhi	Women	1,03,500	Dairy	
Annaimeera	Women	46,000	Dairy	
Karumariamman	Women	1,03,500	Dairy	
Roja		Women	46,000 Dairy	
Kasthuribai	Women	1,15,000	Dairy	
Kurinji	Mixed	75,000	Dairy	
Annai Teresa	Women	75,000	Dairy, Petty shop	
Anjanavathi	Women	30,000	Goat rearing	
Shenbagam	Women	50,000	Dairy	
Thamarai	Women	50,000	Dairy	
Adhiparasakthi	women	40,000	Goat rearing	
Total Amount in Rs.		14,45,000 (US\$ 32111)		

Table 4: Training Programme Organized

Training and Capacity Building Programme	Trainee
	Days
Orientation on SHG formation - June 2003	580
Training in Accounts and Bookkeeping was given to Kodathur SHGs by role model of Biovillage Council Member - August 2003.	222
Two-day programme on Integrated Dairy Farming (purchase of animals, maintenance and clean milk production) at Rajiv Gandhi Veterinary College, Pondicherry –September 2003.	90
One-day exposure training on Hybrid Fodder production, Biogas plant and Goat rearing at Kattupakkam Fodder Research Station, Chennai - October 2003.	150
Exposure visit and training on <i>Trichogramma</i> biopesticide at Biopesticide Lab, MSSRF, Chennai - November 2003	20
Exposure visits on Biogas demonstration at Pillaiyarkuppam and Sellancherry farmers' houses, Pondicherry - November 2003.	60
Exposure visit on commercial mushroom cultivation Pondicherry - November 2003	40
Exposure visit to Whirlpool Company to start Laundry enterprises - December 2003.	20
Exposure visit and training on Scientific Dairy Management at Hatsun Agro Ltd, Salem - December 2003.	150
Vermicompost Training and exposure visit, Kattupakkam Fodder Research Station and Pillaiyarkuppam - December 2003.	80
MOU with Manager, Mr. Kannan, Hatsun Agro, Salem - meeting held at JRD Tata Ecotechnology Centre, MSSRF, Chennai - December 2003	55
One week intensive technical training and demonstration on Pseudomonas Biofungicide at Tamilnadu Agricultural University, Coimbatore - January 2004.	30
Auditor estimate on Dairy and Pseudomonas - January 2004	32
Cost benefit ratio for cattle feed and milk yield - meeting by Dr. Rukmani, MSSRF, Chennai - January 2004	120
Intensive training on Trichogramma Biopesticide at Kannivadi.  Dr. Malarvannan, MSSRF, and Poomani, Women's SHG, were resource persons - January 2004 to June 2004.	80
MOU signed with Amazing Agro Products - meeting held at JRD Tata Ecotechnology Centre, MSSRF, Chennai - February 2004	20
Training Programme on Poultry Feed Processing Unit and Maize cultivation at Namakkal - February 2004.	85

Training in Mushroom cultivation was organized at TNAU,	
Coimbatore - February 2004.	60
Community Banking - meeting by Mr. Alphonse - February 2004	115
One-week exposure visit and training on <i>Pseudomonas</i> Biofungicide by Durga Women SHG, Kannivadi - March 2004.	60
Dairy Feed Management by Dr. Murugesan and Dr. Nandhakumar, Hatsun, at Manaveli village - March 2004.	240
Training on Cattle Insurance by Development Officer, Oriental Insurance, Pondicherry - March 2004	160
Group Insurance and Brirla Life Insurance - March 2004	45
Group Management Training by Ms. Rajalakshmi, Biovillage Council Member - April 2004	300
Meeting with Branch Manager, Ms. Balaveni, SBI, ADB, Pondicherry (to clarify the Loan details) - January 2005	130
Seed Treatment demonstration by Institute of Magneto Biotechnology, with SBI officials, LHO, Chennai - March 2005	90
Meeting with Mr. Srinivasan, Branch Manager, SBI, ADB, Pondicherry (to start innovative enterprise and issues solved) - March 2005	120
SBI LifeInsurance - by SBI officials - April 2005	123
Dairy Management Training by Dr. Kumanan, GM, Procurement, PONLAIT - November 2005	97
Group Conflict Management - December 2005	120
Exposure visit on Floriculture and backyard kitchen garden - December 2005	43
Pseudomonas Training (quality test) by Mr. Selvamugilan, MSSRF, Kannivadi - January 2006	60
Workshop on Cattle Feed Management and Fodder Production by Dr.Kumanan, GM, Procurement (PONLAIT) - April 2006	160
Leadership Training - May 2006	80
Leadership Training was organised for SHGs President and Secretary at Manaveli village - May 2006	24
Stackholders meeting organised to the kodathur, manaveli& kaikilaipet	
SMG, president & secretary with Mr. Mohan, SBI, ADB - June 2006	26
Cattle Health Camp organized with the support of SBI, ADB & Animal Husbandry Department, and Pondicherry July 2006	250
Two days workshop on cattle feed management and fodder production - August 2006	130
Total Trainee Days	4,267

Table 5: Impact of Biovillage Project

A report from PRA	Impact Study
During the PRA survey, only Women's Association (Mather Sangam) formed by Block Development Office, Pondicherry existed.	29 SHGs consisting of 19 women, 9 men and 1 mixed have been mobilized. The SHGs are now able to identify the needs of the community and facilitate through group activities. Their mobility has increased and networking with their stakeholders like Bank, DRDA, BDO, Veterinary College, Fodder Research Station, Kulumai Federation, Ponlait, Hatsun, Deepaoli, MSSRF etc has increased tremendously.
The maximum amount of loan given by moneylender is Rs. 2,000/ The interest rate is 240% or 360%	Through direct intervention with SHGs, 250 households have been relieved of debt from such moneylenders.
Assets created (Non biological)	Household amenities increased (TV, Mixie, Almirah, Cycle, Phone etc). Money spent on family and social functions has increased from Rs.5,000 to Rs.20,000. Twenty SHGs members modified their houses with the support of internal credit.
Assets created	Out of 250 households, the number of calves and milch animals doubled 20 Goats increased
41% own livestock like cow, buffalo and goat. None of the Scheduled Castes own land, and one third of these families' own cows and 13% of families own goats.	250 households have benefited by Revolving Fund. In addition to those existing through the integrated Dairy activity, 120 households were brought under the folder. 10 households are involved in goat rearing activity, 1 households involved in tailoring, 5 households involved in petty shop. 10 households developed backyard kitchen garden, 1 households matweaving, 10 households are engaged in <i>Pseudomonas</i> production.

Employment and income increased·	<ul> <li>Income increased through Dairy activity - Rs. 10,56,000 (110 households x Rs.1200 x 8 months).</li> <li>Additionally, 140 Labour days increased through <i>Pseudomonas</i> production. Rs. 52,750 income increased for <i>Pseudomonas</i> activities.</li> <li>125 households involved in Dairy, <i>Pseudomonas</i>, Tailoring, matweaving and Petty shop activities.</li> </ul>	
Biogas plant	15 Biogas units have been constructed and this helped the women members save 2 hours of time per day by using LPG gas. Cow dung 360 days x 5kg =1,800kg. This will convert to biogas worth Rs. 1,500, and the slurry will convert into compost worth Rs. 600. The FYM sold for Rs.600 per ton. Rs.23400 subsidy facilitated through DRDA.	

Table 6: Summary of SHG Financial Transactions

Heads	Amount (Rs)
Total Savings	11,09,560
Internal Lending	31,23,800
Interest through Internal Lending	3,42,450
First Phase Loan	16,83,500
Second Phase Loan	14,45,000
Revolving Fund	8,25,000
Seed money from MSSRF	4,44,300
Subsidy arrived from DRDA	42,000
Total Turnover	90,15,610

Table 7: Repayment of loans: Regular

Name of the SHG	Total Members	Total S Savings	Interest	Internal Lending	Repayment status(as on September 2006)
Nethaji	10	75,000	28,000	2,30,000	25,000
Bharathidasan	10	75,000	26,500	2,30,000	25,000
Annai Teresa	10	44,500	13,600	1,12,000	60,000
Kasturibai	10	75,000	23,200	2,30,000	1,26,318
Kurinji	10	80,000	16,500	2,10,000	76,979
Adhiparasakthi	10	12,500	1,700	39,000	35,000
Roja	10	50,500	11,600	1,07,000	1,10,795
Anjanavathi	10	24,500	11,600	83,000	25,000
Shenbagam	10	20,800	7,300	56,000	25,000
Thiruvalluvar	10	70,000	27,000	1,90,000	25,000
Senganiamman	10	18,800	4,600	39,000	25,000
Thamarai	10	65,000	27,000	1,40,000	30,000
Vinayagam	10	30,000	75,00	90,000	16,000
Karumariamman	10	65,000	16,250	1,95,000	85,803
Annaimeera	10	75,000	18,750	2,25,000	88,016
Indiragandhi	10	55,000	13,750	1,65,000	1,29,731
Saraswathi	10	48,600	12,150	1,45,800	1,42,415
Sri Sakthi	10	75,360	38,200	1,90,000	1,31,283
Mariamman	10	44,500	11,125	1,33,500	1,08,846
Vakrakaliamman	10	34,500	8,625	1,03,500	99,975
Muthamizh	10	70,000	17,500	2,10,000	89,350
Total	•	11,09,560	3,42,450	31,23,800	14,80,511

# **Snapshots of Activities**





Hatsun Milk collection center





Cattle health camp conducted with the support of SBI and Animal Husbandry, Govt of Pondicherry





Two days Workshop on Cattle Feed Management by Ponlait, Govt of Pondicherry & SBI



Fodder cultivation at Kodathur



Biogas plant at one of the Houses



Biogas stove



Vermicompost production



Backyard kitchen garden developed with the support of horticulture department, govt of pondicherry



SHG monthly meeting



Tagging the milch animal by Hatsun Doctors



Petty shops



Tailoring



Goat rearing



Mat weaving



Pseudomonas production unit



Pseudomonas production unit



Pseudomonas SHG receiving Organic product award



Steering committee meeting held at Biocenter



Interaction with SBI official