

CENTRE FOR INDIAN KNOWLEDGE SYSTEMS

REPORT OF WORK DONE DURING THE PERIOD

APRIL 2013 TO MARCH 2014

1. POVERTY REDUCTION THROUGH SUSTAINABLE AGRICULTURE IN SOUTHERN INDIA

This project supported by DFID, UK, under the Global Poverty Action Fund (GPAF) – Impact Window and co-funded by HIVOS, Netherlands is being implemented in Kancheepuram, Thiruvannamalai and Nagapattinam districts covering 9168 farmers from 79 panchayats of seven taluks. It is being done in partnership with Vrutti Livelihood Resource Centre (VLRC), Bengaluru. Village Agri Business Development Service Providers (VABDSPs) have been placed in all the panchayats to provide necessary services to the farmers. A total of 552 Sustainable Agriculture Self Help Groups (SASHGs), 74 Panchayat Agriculture Development Committees (PADCs) and five Cluster Agriculture Development Committees (CADCs) have been formed. Beneficiaries have been given support for seven tested successful packages like organic home gardens, seed production, complete organic farming, soil fertility improvement products, biopesticides, backyard poultry and value addition. Packages implemented by beneficiaries were reviewed and documented periodically. A total of 6,232 farmers have adopted proven technology advices such as improved quality of seeds, application of biopesticides and soil fertility enhancement techniques, adoption of SRI techniques and use of improved farm machinery. Community level biopesticide units (7), vermicompost units (14), value addition units (9) and mushroom production unit (1) have been set up in all the three districts. Fourteen Agriculture Machineries Facilitation Centres (AMFCs) have been established in Nagapattinam and Thiruvannamalai districts with a range of machineries to address the issues of agriculture labour scarcity and heavy cultivation costs. Agriculture value chains for paddy, groundnut and pulses for the improved returns through value addition and market initiatives have been developed. Two Agriculture Producer Companies - Marutham and Valanadu Sustainable Agriculture Producer Company Limited have been established in Thiruvannamalai and Nagapattinam districts with a total subscription of 4124 members. Training on a variety of package of practices for the beneficiaries, capacity building trainings for the VABDSPs, office bearers of

SHGs and producer companies and capacity building trainings for project staff were conducted intensively. Two studies on ‘Understanding SRI adoption’ and ‘Home gardens for seed conservation and supplementary nutrition’ have been conducted. Value chain studies have been completed for paddy, groundnut and pulses and the key findings have been shared with the farmers’ groups. Convergence of various government schemes have been availed for inputs, implements, SRI method of cultivation and for the activities of farmers’ clubs.

2. IMPROVING THE LIVELIHOOD AND FOOD SECURITY OF SMALL-HOLDER TRIBAL COMMUNITIES THROUGH WADI MODEL AND INTEGRATED SUSTAINABLE AGRICULTURAL PRACTICES

This project funded by the National Bank for Agriculture and Rural Development (NABARD) is in progress in Jawadhu hills of Thiruvannamalai district from May 2013 onwards. This project was formally launched by the District Collector of Thiruvannamalai Shri. A. Gnanasekaran in August 2013. The project activities are in progress in nine villages covering 305 beneficiary households and 150 acres in Kovilur panchayat. Baseline survey was conducted in the project area. Activities of this project are being implemented under two major components - WADI (small orchard) and other livelihood activities. Under the component on WADI, nearly 5000 saplings of fruit crops and border crops have been planted in 150 acres and being maintained by 182 beneficiary households. Crops like niger, horse gram, little millet varieties etc., have been cultivated as intercrops in the WADI fields. These WADI fields have been fenced properly and bunds have also been formed to conserve the soil from erosion. Soil analysis was done for the entire WADI fields. Seed production of breeder seeds of foxtail millet, pearl millet, kodo millet and barnyard millet was done. Necessary organic inputs and seeds for intercropping in the WADI fields have been distributed. Pitcher irrigation apparatus have been distributed to the beneficiaries as an additional irrigation facility. Under the component on other livelihood activities of the project, support has been provided to the beneficiaries to get involved in the microenterprises like rearing of cows, goats and pigs, tailoring unit, petti – shops, poultry incubation and fodder cultivation. Beneficiaries of both WADI and other livelihood components have raised kitchen gardens using 14 types vegetable seeds provided under the project and also conserved the seeds for the next season. Agricultural implements have been purchased and being maintained in the

Seeramarathur Agricultural Machineries Facilitation Centre for the use of the beneficiary farmers with a minimum rental charges. A total of 27 Participants Groups (PGs), a Village Planning Committee and seven Farmers' Clubs have been formed. Various training programmes comprising of technical trainings, institutional building, health and enterprises related techniques were conducted for the beneficiaries. In collaboration with the Department of Animal Husbandry in Jawadhu hills block, eight day long veterinary camps were conducted for the control of Foot and Mouth disease (FMD) in Kovilur panchayat.

3. EXPOSURE VISITS FOR PROGRESSIVE / LEAD FARMERS

This programme on organizing exposure visits for the progressive / lead farmers has been implemented between May - June 2013 with the financial support of the Institute of International Education under its Global Travel and Learning Fund (GTLF). The participants of the programme were - Village based Agri Business Development Service Providers (VABDSPs) from Kancheepuram, Thiruvannamalai and Nagapattinam districts of Tamil Nadu. A total of 42 VABDSPs including nine women were selected. These VABDSPs provide various agriculture related services to the farmers. Exposure visits were organised for these VABDSPs to three Producer Organizations namely Kazhi Kadaimadai Farmers' Federation (KKFF) in Tamil Nadu, Chetna Organic Farmers' Association (COFA) in Andhra Pradesh and Kabini Organic Farmers' Producer Company Limited (KOFPC) in Karnataka. Through these exposure visits farmers have learnt the functional procedures and strategies, organizational structure, roles and responsibilities, legal status, accounting procedures, share holdings of the producer companies etc. They also got a better understanding of capital raising and creating revenue streams for the Producer Company, assessing credit and credit linkages and putting in place the monitoring and accounting systems. These exposure trips have raised the confidence level of the participants. As a result, these VABDSPs have played a major role in the formation of the Farmer Producer Companies recently established in Nagapattinam and Thiruvannamalai districts of Tamil Nadu.

4. TOWARDS MAINSTREAMING AND UP SCALING SUSTAINABLE AGRICULTURE IN TAMIL NADU

This project supported by HIVOS is for a period of three years from September 2012. A major portion of this support is towards co - funding the DFID supported project on

poverty reduction, which has been mentioned separately. The main co - funding components would be towards providing support for some of the packages like value addition, backyard poultry, technical training, full package of services for organic farmers, market information and linkages. Activities under these components were completed as per schedule. A programme for the development of human resources for sustainable organic farming was also initiated under this project. An MOU was signed with the Sriram Vocational Training Centre and a batch of 37 students have attended organic farming lecture sessions and 10 selected students have undergone two months internship programme. After completion of the internship programme, based on their performance nine students were selected for placement in CIKS field areas. A second MOU was signed for 31 students and they have undergone rigorous training which consists of residential trainings and exposure visits. Besides this, staff capacity building initiatives on various technical and non-technical subjects also took place this year.

5. DEVELOPMENT AND FIELD TESTING OF BIOPESTICIDAL OILS FORMULATED AS SOAPS - A PILOT PROJECT IN TAMIL NADU

This project implemented in Nagapattinam district from August 2011 onwards with the support of the Department of Science and Technology concluded during this year. In our insect rearing laboratory in Sirkazhi, *Spodoptera litura* and *Aphis carccivora* have been reared. Bioassays were conducted on these pests using biopesticidal oil soaps, *Melia azedarach* extract, *Annona* and *Andrographis Kashaayam* developed by CIKS. Preparation procedure and dosage for Neem and Pongam oil soaps were standardized by CIKS team. Detailed literature survey was conducted on the use of Neem and Pongam oil as biopesticides on various crops such as vegetables, groundnut, pulses etc. A total of 36 experiments were conducted under the laboratory conditions using Neem oil soap, Pongam oil soap and mixed oils soap at different concentrations. Four pot experiments and three field experiments were also conducted. The efficacy of Neem and Pongam oil soaps were tested in crops such as green gram, bhendi, cluster bean, tomato, paddy and other crops. Neem oil soap has been distributed to 53 farmers for field testing. Neem oil soap distributed to the farmers of Andhra Pradesh through WASSAN (NGO working on rainfed agriculture) has successfully managed *Helicoverpa* population in redgram crop. A survey on cost of cultivation of bhendi, brinjal and chilli was conducted in 12 villages. To disseminate the technology of usage of biopesticidal oil soaps, 20 training

programmes were conducted for the women groups in Nagapattinam and Thiruvannamalai districts. The technology of usage of Neem and Pongam oil soaps for pest management was also disseminated to the officials of the Department of Agriculture, Karaikal, students of Agriculture and Arts and Science Colleges. A neem oil soap production unit has been established in Ilaiyamadhukoodam village and the unit is being maintained by the members of Selliyanman women's group.

6. SCIENCE AND TECHNOLOGY INITIATIVES FOR SUSTAINABLE AGRICULTURE – DST CORE SUPPORT PROGRAMME – PHASE II (2013 - 2018)

CIKS has been recognized as an institution for Core Support by the Department of Science and Technology of the Government of India since 2002. The previous period of Core support had concluded in March 2013 and the new phase of Core support is for a period of five years 2013 – 2018. Various activities were carried out during this year in Thiruvannamalai and Nagapattinam districts of Tamil Nadu. In Thiruvannamalai district, a total of 81 tribal beneficiaries from seven villages of Jawadhu hills were selected and trained on agriculture related livelihood technologies like vermicomposting, rearing of milch animals and mushroom cultivation. Following this, 15 individual vermicompost units and a community mushroom cultivation unit were established. Efforts are in progress to startup the work on field testing of non-chemical weed management techniques and millet seed production. In Nagapattinam district, 31 experiments have been conducted under laboratory condition on target pests *Spodoptera litura* and *Aphis craccivora*.

A community neem oil soap production unit has been established in Ilaiyamadhukoodam village. Traditional paddy varieties have been conserved in 168.33 acres by 144 farmers in six villages of Vedharanyam taluk. Detailed documentation on drought situation in Nagapattinam was done followed by a discussion meeting held in Collector's Office in Nagapattinam in December 2013. A total of three technical training programmes on vermicomposting were conducted for the five women SHGs involved in the production at community level. A brainstorming meeting on weed problems in the rainfed paddy eco-system was conducted in Nagapattinam in September 2013. As a follow up, an exposure visit was organized to the Agriculture Engineering College & Research Institute in Trichy. Two staff capacity building trainings were organized at Gandhigram in

Dindigul and Kuthambakkam panchayat in Kancheepuram. Under the component on institutional building, a one day orientation training on Producer Company formation was conducted at Allivilagam village in February 2014.

7. WOMEN'S TECHNOLOGY PARK FOR PROMOTING ORGANIC AGRICULTURE

This project supported by the Department of Science and Technology is in progress in Kancheepuram, Thiruvannamalai, Nagapattinam, Cuddalore, Thiruvarur and Ramanathapuram districts of Tamil Nadu from July 2013 onwards. Detailed baseline survey has been conducted in Kancheepuram, Thiruvannamalai, Nagapattinam and Ramanathapuram districts. A total of 1400 women beneficiaries have been selected under this project. Training programmes were conducted for these women beneficiaries on vermicompost production – harvest, storage and packing, fodder, *azolla* and mushroom cultivation. A total of 12 community vermicompost production units and two mushroom cultivation units were established in Kancheepuram, Thiruvannamalai and Nagapattinam districts. Business plans and bankable proposals were also developed for these units. Construction of a mushroom production unit is in progress in the Sukkankollai farm. It will serve as a demonstration unit. Demonstration of *azolla* production, vegetable seed production and fodder cultivation are also in progress in the farm. Three *azolla* production units have been established in the Kancheepuram district. Trained beneficiaries are involved in fodder cultivation at their backyards and utilizing it for their cattle.

8. COMPREHENSIVE PILOT (CP) PROGRAMME FOR REVITALISING RAINFED AGRICULTURE (RRA) IN THE JAWADHU HILLS BLOCK OF THIRUVANNAMALAI DISTRICT OF TAMIL NADU

As part of the efforts of RRA network, CP programmes were launched in nine different locations in India for integrated development of rainfed agriculture. In Tamil Nadu, the programme was anchored by CIKS. The programme was located in the Jawadhu hills block of Thiruvannamalai district and concluded in this financial year. In continuation with the work carried out during the previous year the baseline survey was completed. Field activities were continued with respect to enhancement of soil fertility, seed production, setting up of home gardens and enhancement of water resources capacity. The

millet processing unit constructed in Seeramarathur village was upgraded and seed processing is in progress. Seed production of millet varieties was taken place. Linkages were established with various Government Line Departments. A comprehensive proposal for the development of the block was submitted to the National Rural Livelihood Mission (NRLM) at the block level.

9. REVITALISING RAINFED AGRICULTURE (RRA) PROGRAMME : SEED NODE (PHASE – II)

The second phase of this programme commenced in September 2012. During this period, various groups carrying out Comprehensive Pilot (CP) programmes were visited for support. A workshop on “Seed Technology and Seed Systems” for the various CPs was held at the CIKS Technology Resources Centre in Sukkankollai village of Kancheepuram district between 29th and 31st July 2013. A set of 10 publications on various aspects of seed production, storage, certification, seed treatment techniques, home gardens for seed conservation and seed situation analysis were published.

10. PROGRAMME FOR SUPPORTING SUSTAINABLE ORGANIC FARMING IN NAGAPATTINAM DISTRICT OF TAMIL NADU (NABARD UPNRM–PHASE II)

The second phase of this project supported by NABARD is in progress in the Sirkazhi taluk of Nagapattinam district. The project is in progress with the components like - Procurement and sale of organic paddy seeds, procurement and sale of organic paddy, milling and sale of organic rice, procurement and sale of organic paddy (*Kuruvai* season) and enhancement of livelihoods of women through bio gas units. With technical support from CIKS and periodical monitoring the activities are in progress successfully. Under the component on Enhancement of livelihoods of women through bio gas units, a total of 12 units have been constructed in Allivilagam and Aadhamangalam villages. During kuruvai 2013, certified seed production was taken up in 11 acres by four farmers and a total of 15.7 tonnes of ADT – 43 paddy seeds were produced. In samba 2013, certified seed production of ADT-38, CR-1009 and Improved white ponni paddy varieties was taken up in 24 acres by 10 farmers and 28.3 tonnes of seeds were produced. In January 2014, 10 tonnes of organic paddy grains and rice have been procured from the farmers. Nearly 27.2 tonnes of organic paddy, rice and value added products produced by women SHGs were sold. Training programmes on paddy

seed production techniques, organic farming certification procedures, control of Foot and Mouth disease, formation of Producer Company and legal procedures, strengthening of community enterprises etc., were conducted for the beneficiaries. As part of this programme, SOFA participated in Farmers' festival (*Uzhavar Peruvizha*) in Nagapattinam, Paddy festival (*Nel thiruvizha*) in Aadhirengam village, Consumer awareness programme in Pondicherry, an exhibition at CP Art Centre in Chennai etc.

11. INTRODUCING ORGANIC FARMING IN ALANGADU VILLAGE

This project commenced in 2009 and the sixth phase of the project is in progress. The Alangadu irrigation channel was cleaned and desilted. Two oil engines were purchased and being utilized by the beneficiaries for irrigation purpose with minimum hiring charges. Beneficiaries are involved in organic cultivation of various crops and demonstrating various technologies. Crop loans were provided for 16 farmers covering 13 acres through Sirkazhi Organic Farmers' Association for organic cultivation. Support has been provided to the Sivasakthi Sustainable Agriculture Self Help Group in Alangadu through Shri Ram Investments in Thiruvarur for the purchase of milch animals in order to enhance the productivity of the vermicompost unit maintained by the group. Vermicompost produced in the community vermicompost unit is being sold to the farmers of Alangadu. Members of Samba Sustainable Agriculture Self Help Group are involved in the production and sale of biopesticides. Beneficiaries were trained on various organic farming and allied technologies. An exposure visit was organised to Sittilinghi village in Dharmapuri district to learn the technologies of cultivation, processing and value addition of millets. A total of 36 beneficiaries have raised organic kitchen gardens at their backyards and reduced the cost of Rs. 300/- per month spent towards vegetables. The evening tuition centre *Arivumaiyam* has over 52 students (1st to 10th std) enrolled and two teachers appointed, it is maintained with the overall monitoring by CIKS staff and members of the *Akilandeshwari* farmers' club. Apart from agricultural activity, women group members are involved in the activities like tailoring, production of paper bags and palm based handicraft products.

12. FARMERS' FIELD SCHOOLS UNDER THE ATMA PROGRAMME OF THE GOVERNMENT OF TAMIL NADU

This programme has been implemented with the support from the Government of Tamil Nadu under Farmers' Field School (FFS) of Agricultural Technology Management

Agency (ATMA) programme. This programme mainly provides the vital link between the achiever/ progressive farmers and others in a village. This programme was implemented in Kuthalam and Kollidam blocks of Nagapattinam district and Parangipettai and Keerapalayam blocks of Cuddalore district. In Kuthalam and Kollidam blocks, training sessions on organic cultivation of paddy and black gram, integrated farming, organic farming technologies, organic input production etc., were conducted. In Parangipettai and Keerapalayam blocks, training sessions on pest and disease management, post harvest technologies in paddy cultivation – drying, bagging, storage, tagging, milling and processing, black gram cultivation etc., were conducted. A total of 79 farmers participated and get trained. An educational material and organic inputs were distributed to the participants.

13. CREATION OF A CADRE OF VILLAGE BASED YOUTH FOR ORGANIC FARMING (VYOF)

Centre for Indian Knowledge Systems, Chennai and Shriram Vocational Training Centre at Thiruneermalai have signed a Memorandum of Understanding to develop a cadre of village based youth for organic farming. As per the designed components, two programmes were completed for two batches each during this year. For the first batch of students, there was a series of class room sessions on various organic farming technologies viz., Importance of organic food, Global warming, Seed production and certification methods and Biological pest control methods. Ten students were selected and placed in Jawadhu hills, Desur, Sukkankollai, Chengalpattu and Sirkazhi field areas for a period of two months. After the completion of the internship programme, nine students were selected for placement in CIKS project areas. Meanwhile, a second batch of 31 students attended the 12 day residential training programme during the month of September 2013. They were trained on harmful effects of chemical farming, importance of organic farming, organic soil improvement, non chemical pest control measures, seed production techniques, organic package of practices, production of various organic inputs, organic certification etc. Following this, they were divided into two groups of 15 each and taken to the field areas in Jawadhu hills in Thiruvannamalai district and Sirkazhi in Nagapattinam district for a five day long exposure visit and on-farm trainings.

14. INCREASING THE INCOME LEVEL THROUGH EMPOWERMENT OF FARMERS FOR THE ADOPTION OF SUSTAINABLE AGRICULTURE BASED MICRO ENTERPRISES

A total of four consecutive phases of this programme was implemented in Thiruvannamalai, Nagapattinam and Kancheepuram districts of Tamil Nadu with the financial support of the National Bank for Agriculture and Rural Development (NABARD) under their Micro Enterprises Development Programme (MEDP) for matured Self Help Groups (SHGs). Two phases of this programme was implemented in Thiruvannamalai district from February 2012 – June 2013 in Esakulathur, Kadambai and Peranamallur villages and from September 2013 – February 2014 in Visamangalam, Gengampoondi, Vangaram, Avanavadi, Desur and Perungkadampathur villages. In Nagapattinam district, the programme was implemented between 13th – 23rd September 2013. In Kancheepuram district, it was implemented from December 2013 – February 2014 in Rettamangalam and Kavanoor Puducherry villages. A total of 133 one day training sessions were conducted for the beneficiaries of Thiruvannamalai, Nagapattinam and Kancheepuram districts. A total of 332 beneficiaries including 202 women beneficiaries from 69 Self Help Groups participated and benefitted through these training programmes. These participants were trained on sustainable agriculture based micro enterprises like vermicompost and biopesticides production, value addition, backyard poultry, home gardening, seed production and handicrafts production with necessary background on economics and business plans. These training programmes are comprised of power point presentations, group discussions and exposure visits. As a follow up to these training programmes, six community vermicompost units, four community biopesticide units, three value addition units, two handicrafts units, 30 home gardens and six backyard poultry units have been established by the beneficiaries.

15. TRAINING PROGRAMME ON SUSTAINABLE AGRICULTURE TECHNOLOGIES – CAPACITY BUILDING FOR ADOPTION OF TECHNOLOGIES

This programme supported by NABARD under its Capacity building for Adoption of Technologies scheme was implemented in Nagapattinam district between 20th – 21st August 2013. A training programme on “Solar food processing of vegetables and fruits for value addition” was conducted with the help of SEED, an NGO based in Hyderabad.

SEED is a Centre accredited by DST, Delhi as Core Group since 2009 and also awarded as best entrepreneur by NABARD during March 2013. A total of nine farmers (including men and women) participated in this programme and learnt the value addition techniques like preparation of mango bars, mango squash, malted ragi flour and dried vegetable flakes. They also visited the Indian Institute of Crop Processing Technology (IICPT) in Thanjavur and learnt the technology of value addition of mango. Following this training programme, Mankani Women's SHG in Kathiripulam village has started the preparation and sale of mango and gooseberry based value added products.

16. TRAINING PROGRAMME ON SUSTAINABLE AGRICULTURE TECHNOLOGIES – CAPACITY BUILDING OF THE VILLAGE BASED AGRI BUSINESS DEVELOPMENT SERVICE PROVIDERS (VABDSPs) AND LEAD FARMERS

This programme supported by NABARD under its Capacity building for Adoption of Technologies scheme was implemented in Kancheepuram district between 30th August - 1st September 2013. In Kancheepuram district, a total of 24 beneficiaries including six women beneficiaries from 11 villages at the ratio of one VABDSP and one lead farmer from each village was selected and trained. The training programme was held in CIKS Technology Resource Centre in Sukkankollai village of Kancheepuram district. Beneficiary farmers were trained on sustainable agriculture technologies related to seed, soil, plant protection measures and storage techniques. These training programmes comprised of power point presentations, group discussions and demonstrations. Demonstration of biopesticide preparation and vermicompost production were also done. As a part of the training programme, beneficiaries were taken out for an exposure visit to Nangavalli village in Salem district to learn the organic production technologies and activities of farmers' groups.

17. COMPAS PROGRAMME ON BIOCULTURAL COMMUNITY PROTOCOLS (BCP)

This programme was meant to create awareness and educate the farming community and rural leaders on various aspects of legal and regulatory framework relating to Natural Resources Management. All the activities had been completed during the course of the previous year. The final writing of the report was concluded during the course of this financial year.