

# An Institutional approach for Technology Demonstration

through outreach centre in the Andamans

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FOR technology dissemination to other islands of the Union Territory, transport is the major bottleneck which hinders the efforts to evaluate the technologies in different socio-economic conditions and disseminates the technologies through different means. There is a lot of difference in natural resource base as well as socio-economic background of people in different islands, therefore, the technologies / varieties/ strains developed at Central Agricultural Research Institute, South Andaman cannot be straight way transferred to farmers from elsewhere and needs evaluation and refinement to suit local condition. To achieve this, an innovative approach for reaching the

unreached, an Out Reach Centre under the Farmers Technology Transfer Fund (FTTF) of NABARD, was established from July, 2009 at Diglipur of North and middle Andaman district, which is 290 km. by road and 180 km. by sea away from the capital city Port Blair.

### Time Line of Interventions

- 21<sup>st</sup> Jan., 09 : Proposal for ORC
- 27<sup>th</sup> Mar., 09 : ORC sanctioned by NABARD
- 30<sup>th</sup> Apr., 09 : Constitution of Project Monitoring committee (PMC)
- 9<sup>th</sup>-11<sup>th</sup> Jun., 09: Site Selection Team Visit to Diglipur
- 17<sup>th</sup> Jun., 09 : 1<sup>st</sup> PMC Meeting
- 15<sup>th</sup> July, 09 : ORC in Operation
- 24<sup>th</sup> Oct., 09 : Introduction of Rain Gauge
- Oct., 09 : *Rabi* Technological Demonstration
- June, 10 : *Kharif* Technological Demonstration
- 12<sup>th</sup> Aug.10 : Bio-Mass fired Copra dryer
- 25<sup>th</sup> Oct., 10 : Kiosk
- 10<sup>th</sup> Feb., 11 : Automatic weather station
- 17<sup>th</sup> April, 11 : Mini Dhal Mill installed
- July, 11 : Seed village concept of HYV of Rice
- June, 12 : Model Satellite Nurseries of fish

10<sup>th</sup> Nov., 12 : Mini Dhal Mill Operationalized

### Capacity Building for Farmers and other Stakeholders

Lot of emphasis has been laid on need-based training to the practicing farmers, farm-women and youth. Based on the felt needs and followed by feed back of the stakeholders training programmes of 3 to 4 days in interactive mode (both theory and practical) in the ratio of 60: 40 were imparted with an objective to deliver the know how and do how, furthering the development of knowledge, skill and positive change of other attributes of the target clientele. Scientists/faculty from CARI, KVK, NABARD and line departments were involved as resource personnel with pre and post evaluation as the main mandate of the program. Abstract of training and participation of the stakeholders is presented in Table 1.

The overall participation of trainees was in the tune of 80% males and 20% females, i.e. with a ratio of 3.94:1. Besides a database of the



*In the North and middle Andaman district, ORC has taken its ToT programmes in the mode of capacity building, technology application through front line demonstration, evaluation of location specific technologies and its refinement, maintaining demonstration units on scientific lines, conducting extension activities like field days, advisory services, exposure visits, providing feedback, maintaining functional linkages both intra and inter institute for optimizing resources and maximize benefits for ensuring holistic development and socio-economic upliftment of the villagers and the cluster of villages as a whole.*



**Table 1.** Abstract of training programmes (July 2009 - March 2013)

Enterprise	Training(Nos.)	Male	Female	Total	Trainee Days	Ratio
Crop Production	7	175	30	205	571	5.75:1
Horticulture	12	274	65	339	940	5.30:1
Livestock	5	114	29	143	489	3.93:1
Fisheries	9	220	33	253	886	6.66:1
NRM	6	174	66	240	795	2.64:1
Plant Protection	8	216	64	280	522	5.11:1
Post Harvest/ Processing	3	52	25	77	154	2.08:1
Others	2	32	07	39	102	4.57:1
<b>Total</b>	<b>52</b>	<b>1257</b>	<b>319</b>	<b>1576</b>	<b>4459</b>	<b>3.94:1</b>



Tapioca var. Suryaprakash



Low cost poly nursery introduced for cole crops (left and right)



Maize crop in farmers field



Cabbage crop var. BC-76 in farmers' field

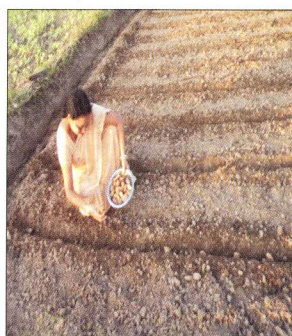
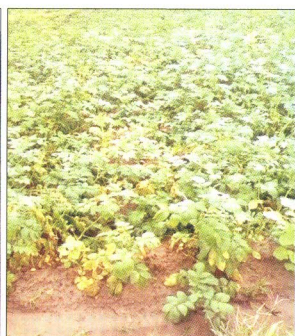


Harvested crop of cauliflower

trainees is also maintained for getting feedback and updating them on the latest knowhow and do how.

**Technological Application in farmers' field in Front line Demonstration mode**

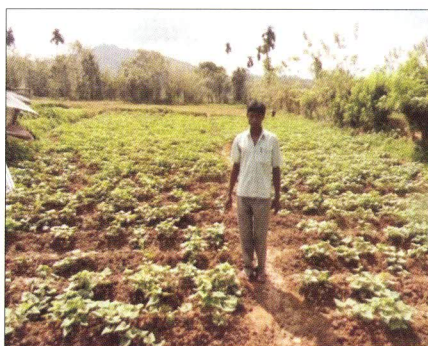
Front line demonstrations (FLD) were done using seeds of high yielding varieties to popularize cultivation of high yielding varieties of field crops, plantation crops, backyard poultry, fish culture and others with the overall participation of the farmers. The total demonstrations conducted were 114 in *rabi* season with crops viz. green gram, black gram, cauliflower, chilli, cabbage, groundnut, potato, okra, tomato covering 12.99 ha, whereas 137 demonstrations were conducted in *kharif* season with HYVs of rice and hybrids covering an area of 39.15 ha. Besides seed village production of rice in participatory mode, goat, pig, duck (Peking cross), model satellite nurseries of fresh water fish, mini dhal mill, copra drier, coconut dehusker, tuber crops (Elephant foot yam, tapioca, sweet potato), pheromone traps for control of rhinoceros beetle and rodent management traps were the other interventions carried out in farmers field. Regular monitoring of pest, disease, growth and yield attributes



Technological demonstration of potato at farmers' field (left, centre and right)



Green gram under arecanut



Sweet potato var. SP-2 in farmers' field



alongwith diagnostic and agro advisory services were also provided by the experts.

### Rabi Technological Demonstration (RTD)

During 2010-2012, 114 demonstrations in *rabi* season with crops viz. green gram, black gram, cauliflower, chilli, cabbage, sweet potato, groundnut, potato, okra, tomato covering 12.99 ha were conducted. The result in the farmers field showed that chilli var. Flame hot gave a mean yield of 10.0 t/ha, cabbage var. BC 76 (45.0 t/ha), cauliflower var. White marble (40.0 t/ha) and var. Kimaya (39.40 t/ha), okra var. US-7136 (5.6 t/ha), tomato var. Lakshmi NP 5005 (14.0 t/ha), green gram var. K851 (0.59 t/ha), black gram var. Tel Kalai local (1.1t/ha), potato var. K. Surya (8.13 t/ha) and K. Jyothi (1.88 t/ha), sweet potato var. SP-2 (11.2 t/ha), chilli var. Surya (2.08 t/ha), black gram var. T-9 (0.67 t/ha) and green gram var. CO-6 (0.70 t/ha), groundnut var. ICGS 76 (1.2 t/ha) were better than the local checks in the farmers' field.

### Kharif Technological Demonstration

During 2010-2012, 137 demonstrations were conducted in *kharif* season with HYVs of rice and hybrids covering an area of 39.15 ha. The result showed that under SRI, var. US 312 gave a yield of 5.86 t/ha. followed by var. VNR-2355 plus (5.74 t/ha), whereas under non SRI, var. Gayatri performed better and gave a mean yield of 5.30 t/ha followed by var. VNR 2355 Plus (4.24 t/ha), Ranjeet (3.88 t/ha), Varsha (4.77 t/ha), US-312 (3.78 t/ha), BPT-5204 (4.14 t/ha) and JGL (2.65 t/ha) respectively. CARI-5 (in problem soil) gave a yield of 2.65 t/ha. The results of hybrid variety of rice indicated that var. US-316 gave a yield of 7.08 t/ha followed by VNR-2355 Plus (6.75 t/ha).

### Seed Village Production of HYV of rice

Under the plan and guidance of division of field crops of the host institute, production of truthfully labeled seeds of HYV of rice in participatory mode was taken up in



Farmers reap good harvest of crop

association with ORC at Diglipur. As per this seed village production of HYV rice 2011 was carried out for the first time of its kind in Diglipur in the area of 0.95 ha with 11 varieties involving 6 farmers in a year 2011, wherein a total of 3 tonnes of truthfully labelled seeds were produced and taken in buyback system. During the year 2012, with 7 varieties involving 10 farmers of four villages in 3.33 ha could produce 10 tonnes.

### Extension activities

The ToT programmes, since its inception, have taken up a group approach rather than an individual farm family approach. Result demonstrations followed by method demonstrations in the farmers field were carried out with a view to convincingly educate the farmers regarding the feasibility of increasing the yield per unit area of the land, to its maximum potential. Field days were organized to familiarize the innovative technologies, followed by method demonstration to show how to use them. Farmers were also taken to the host institute to see the models developed and participate in the interaction with the scientist. This helped in monitoring the impact of various modern technologies disseminated and bringing about the motivational change. Finally, it fetched in the first hand information as the feedback from the practicing farmers, so as to enable the scientists

to take up immediate and effective follow up in improvement. Consequently, there has been a visible change in the varietal pattern of sequential crops at farmers fields, improvement in the land utilization and in annual gross revenue to the farmers. In addition to the field days, Kisan mela, exhibitions, wide publicity was managed through all feasible media, Scientist farmer interactions followed by personal and group contacts, have resulted in better utilization of the extension programmes. The Extension activities of ORC is presented in Table 2.

### Achievements

- Technological Interventions for livelihood viz., Model Satellite Nursery of fresh water fish, Pig, goat farming, Peking cross ducks under backyard, SRI of rice, Mini Dal Mill, HYV of rice, pulses, tuber crops, oil seeds, Seed village concept of production of rice, Pheromone traps for rhinoceros beetle, Rodent and pest management in paddy were introduced.
- 52 trainings were conducted in agricultural and allied fields, wherein 1576 farmers got trained with overall participation 80% males and 20% females representing 32 cluster of villages in North & Middle Andaman.
- Under *kharif*, 137 nos. of technological demonstration with HYV's of rice, covering 39.15 ha in 32 cluster of villages was conducted.
- In *rabi*, 119 nos. of technological demonstration with HYV of pulses, vegetables, tuber crops and oil seeds covering 12.99 ha were done.
- Under SRI, rice variety US312 yielded 5.86 t/ha, whereas in non-SRI Gayatri (5.30 t/ha), CSR-36 (4.60 t/ha) and CARI-05 (2.65 t/ha in problem soil).
- In Black gram, var. T-9 yielded 0.67 t/ha, and Tel Kalai (1.1 t/ha), Green gram var. CO-6 (0.70 t/ha), and Jhad Kalai (0.59 t/ha), Sweet potato (SP-2) (11.25 t/ha), Chilli var. Suriya (2.08 t/ha) and Flame hot (10.0 t/ha), Cauliflower var. White Marble



**Table 2.** Extension activities of ORC (From July 2009 to March 2013)

Activities	No.	Beneficiaries (Nos.)
Vocational Training	46	1401
Customised Training	06	175
<i>Kharif</i> Technological Demonstration (No/ha)	137 Nos. (39.15 ha)	
<i>Rabi</i> Technological Demonstration (No/ha)	119 Nos. (12.99 ha)	
Seed Village production of HYV of rice	0.95 ha in 2011, 3.33 ha in 2012 & 2.0 ha in 2013	
Model Satellite Nursery of Fish	05 Nurseries	
Kisan Gosti	04	217
Technological backstopping	02	75
Scientists'-farmers' interaction	04	257
Exposure visit during Kisan Mela	03	163 farmers representing Diglipur, Mayabunder, Nimbudera, Baratang
Khudhiram Bose and Diglipur Vikas Mela	Participated in Kudhiram Bose Mela on 14 <sup>th</sup> Dec. 2012 and Diglipur Vikas Mela from 10 <sup>th</sup> -16 <sup>th</sup> Jan 2013	
Field visit of experts/staff	1784 visits were undertaken for selection of farmers for technological demonstrations, training, exposure visit, monitoring the crop and feed back	
Farmer visit to ORC	1548 clientele visited for discussion on crop and training, reading technical books for updating information and interacting with experts	
Telephonic Advisory (6 <sup>th</sup> Feb 2010 onwards)	39 advisories on pest, disease, management of crop, livestock, fish were given by experts of the host institute.	
Village covered	32 cluster of villages at Diglipur including Mayabunder, Nimbudera, Basanthipur have been benefitted through training and demonstration programme.	
Visit of Experts and Others to ORC	105 (scientists of host Institute, PMC member, Pradhan and Line Development Department)	
Doordarshan and AIR	One programme each	
Awareness Campaign (02)	Importance & Management of Plant genetic wealth of A&N Islands, Potential fishing zone, wherein 114 male & 23 female totalling to 147 participated.	
Farmer Club	Farmer club members regularly attending for taking up income generation activities	
PMC meeting	Seven meetings have been conducted from time to time to review the activities carried out by ORC	
Field Day	Two field days one each on "Mini Dal Mill and seed production of HYV of rice var. Ranjeet" was conducted on 10 <sup>th</sup> Nov. 2012.	
Recognition to Farmers	A total of eleven farmers for adopting technologies in agriculture and allied field, have been awarded/recognized during Island Kisan Mela and Farm Innovators meet 2011-2013.	

(40.0 t/ha), Cabbage var. BC 76 (45.0 t/ha), Okra var. US-7136 (5.6 t/ha), Tomato var. Laxmi (14.0 t/ha), Potato var. Kufri Surya (8.13 t/ha), Ground nut var. ICGS 76 (1.2t/ha), Tapioca var.H 226 (34.30t/ha.) and Sri prakash (42.0t/ha), Elephant Foot Yam, var. Gajendra (1.50 -6 kg/plant) respectively.

- Seed village concept was introduced in 0.95 ha in 2011, in 2012 in 4.13 ha and 2.0 ha in 2013 for production of truthfully labeled seeds of paddy with the guidance of Division of Field Crops.
- Data base of 1700 farmers linked

with ORC has been made.

- Database on market price of agricultural and allied sectors developed.
- For technology dissemination Kisan gosti (04 nos.), scientists-farmers' interaction(05 nos.), Exposure visit during Kisan Mela and Farm Innovators meet (04 nos.), Awareness campaigns(02 nos.), 1784 field visits by experts and staff, 1548 clientele visits to ORC for advisory, information sharing and feedback, 39 telephonic advisory, field days (02) and participation in Block Mela (02 nos.) were done.
- 11 farmers were awarded during

Kisan Mela and Farm Innovators Meet for adoption of technologies in agriculture and allied field as a livelihood options.

## SUMMARY

ORC has played a pivotal role in First Line Transfer of Technologies. It acts as a centre stage between the researcher, line departments and front line extension worker to cater to the needs in agricultural and allied fields of the stake holders.

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## Water

Even though households are relatively low consumers of water, population growth and expanded water use have outweighed the effect of water saving technology and behavior.

- Less than 3% of the world's water is fresh (drinkable), of which 2.5% is frozen in the Antarctica, Arctic and glaciers. Humanity must therefore rely on 0.5% for all of man's ecosystem's and fresh water needs.
- Man is polluting water faster than nature can recycle and purify water in rivers and lakes.
- More than 1 billion people still do not have access to fresh water.
- Excessive use of water contributes to the global water stress.
- Water is free from nature but the infrastructure needed to deliver it is expensive.

– See more at: <http://www.unep.org/wed/theme/water.asp#sthash.kf5vg3lB.dpuf>

Courtesy: United Nations Environment Programme website – <http://www.unep.org/wed>