

013-34



NBTDP III

Snippets from NBTDP III

Project Support Unit
NORTH BENGAL TERAI DEVELOPMENT
PROJECT PHASE III
PANDAPARA, BOWBAZAR, JALPAIGURI - 735 101

CONTENTS

Please find some briefing notes on various activities of the North Bengal Terai Development Project:

1. Physical achievements of main programme
2. Pump technology
3. Popularising pedal pumps in North Bengal
4. Irrigation management transfer
5. Rethinking on agricultural extension
6. Panchayat supported agricultural training
7. Agricultural quiz
8. Agricultural consultancy centres
9. Innovation awards in agriculture
10. Community Based soil conservation and agroforestry
11. Women in development
12. Water management

PROJECT ACTIVITIES AND PHYSICAL TARGETS FOR NBTDP PHASE III

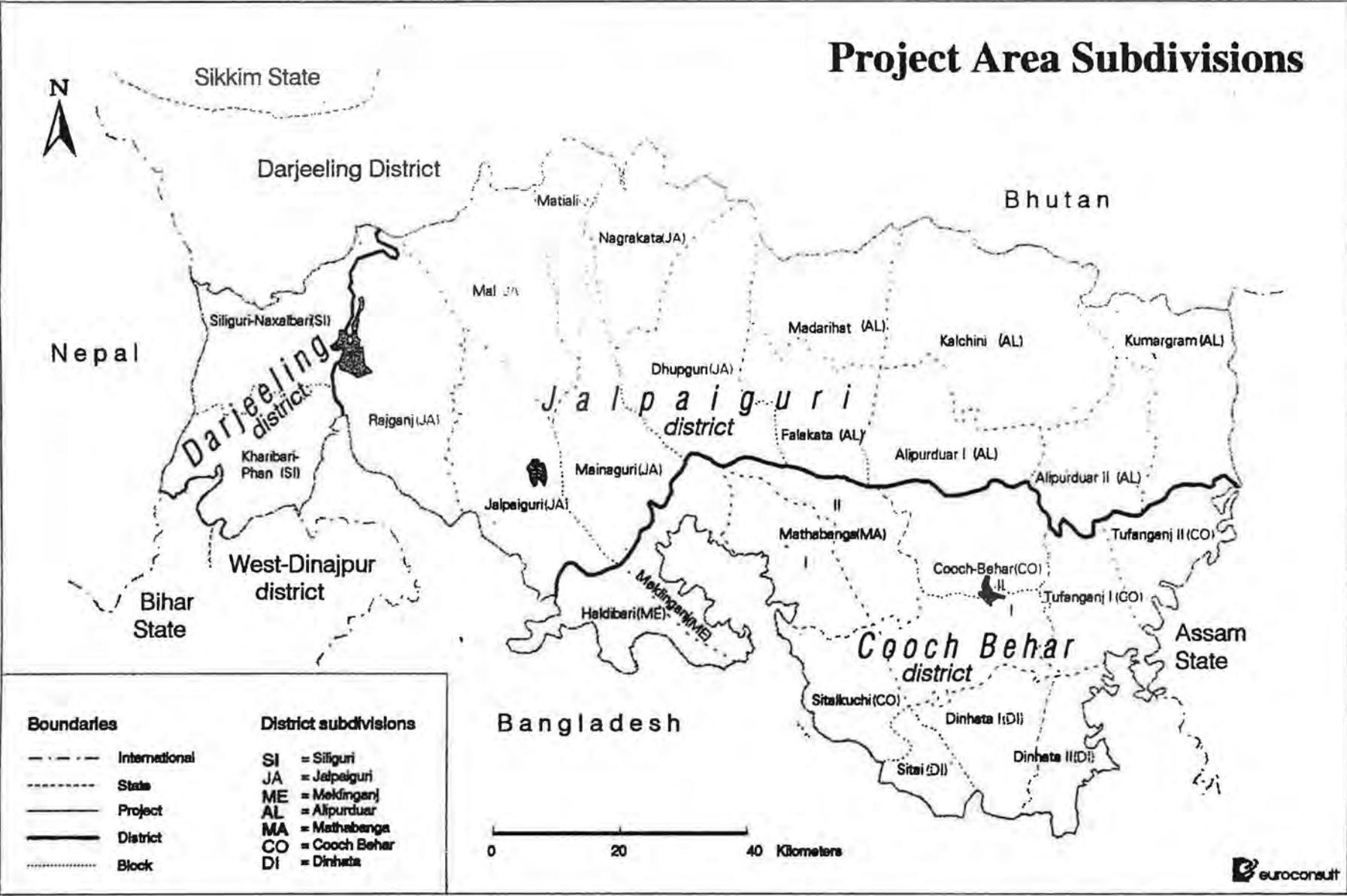
	Project document	Sanctioned GOWB
1. Construction of small-scale irrigation facilities		
— Hand tubewells	15000	15000
— Shallow tubewells	300	400
— Pump dug wells	100	290
— River lift irrigation	25	22
— Deep tubewells	10	9
— 4-ha units	500	500
— Improved power lines	*	—
2. Soil improvement and agro-forestry	(ha)	(ha)
— Soil improvement measures in sand-laden areas	5000	5000
— Agro-forestry activities	200	200
— Agronomic measures	750	750
— Soil survey	5000	5000
3. Women and Development		
— Vegetable cultivation demonstration plots (per year)	600	600
— Homestead fruit cultivation demo plots (in total)	1000	1000
— Training of female farmers	5000	5000
— Formation of women groups (in HTW clusters)		
— Recruitment of women KPS (Extension workers) in each of the 27 Blocks in the project area	27	--
4. Agricultural extension and farmers training	*	--
— Demonstration plots	*	--
— Farmers training	*	--
5. Organization of water users organizations/ beneficiary organizations	--	--
6. Infrastructure development		
— Development of rural markets	20	20
— Development of link roads	25 km	25 km

The targets can be subject to adjustment as consequence of annual work plans on which agreement is to be reached in the joint annual meetings.

* To be specified.

NBTDP, a multisectoral agri-irrigation project is dedicated to the small and marginal farmers from North Bengal

Project Area Subdivisions



MAIN PROGRAMME

**Programme planned & actually achieved:
Phase I, II and III**

NORTH BENGAL TERAI DEVELOPMENT PROJECT

North Bengal Terai Development Project - Sallent features

The North Bengal Terai Development Project is a bilateral project with the financial aid from Royal Netherland Government ,being implemented by the Deptt. of Agriculture, Govt. Of West Bengal as the nodal Deptt. This committed to alleviating the poverty of marginal and small farmers of the project area within the districts of Jalpaiguri , Cooch Behar and Darjeeling . It specifically aims at increasing the cropping intensity and modern package of practices. The project area covers 7 sub-divisions and 27 Agriculture blocks. The total geographical area is about 10,382 sq. Km. of which cultivable area is about 4800 sq. km. The remaining area is mainly under forest, tea garden, fallow and other residential and industrial areas.

The top soil in general shallow (0.2-1.5 m) and is super imposed on sand bed. The soil texture mainly classified as sandy loam though sand, and clay are found in very small pocket of the zone. Due to high and intensive rainfall the erosion of top soil is a common phenomenon which causes loss of fertility, and also due to very loose soil texture the percolation of water is very high which also causes leaching of fertility. Soil also contains very low organic matter. In general, ph. of soil is acetic which causes fixation of several plant nutrient (p2o5) causing less productivity of crop. The ground water table ,in general, is very high- even within 2 metres but is high in some areas upto 30 metres. In general it is said that the " North Bengal Soil is hungry but not thirsty ".

The annual rainfall in the project area ranges from 2500 m.m. to 4500 m.m. Though the total annual rainfall is very high, there is a tendency of erratic rainfall causing water stress condition in un-irrigated areas. At times, in the critical stage of crop, if there is no rain for 8-10 days even in the kharif-season a drought situation gets created. Total annual rainy days ranges from 120-150 days. The project area receives about 14% rain in the pre-monsoon season (Feb. to May) 85% in the monsoon season (June to Oct., i.e., Kharif season) and only 1% in the winter season. (Nov. to Jan).

The total population of the project area is 5.3 Million with a density of 910 Person per Sq. Km. 4.60 million population are residing in the rural areas 88% of the total population are cultivators operating over 4800 Sq. Km. of total cultivable land. A major portion of the population is S.C & S.T.

The nature of agriculture in the region is mainly rainfed, paddy (Pre-kharif & Kharif) being the main crop. Cash crops like Jute, Tobacco, Pineapple, Orange are also grown in the area. Tea is one of the main cash crop, but production is controlled by the big houses, where a considerable no. of labour are engaged for their lively hood.

Recently, high-yielding varieties of different vegetables like, cabbage, Cauliflower, Tomato and Potato also T.P.S cultivation increased many fold especially in the command area of H.T.W & S.T.W installed under N.B.T.D.P. Also some rabi crop like pulse, oilseed and boro are getting popular. In spite of having enormous natural resources, high rainfall, the area is backward in comparison to the southern part of West Bengal, due to its low productivity for various reasons i.e., poor soil, soil erosion, low irrigation intensity and also because of some socio economic constraints like illiteracy, shortage of capital etc.

The first phase of the project was implemented between 1984-1987. During the first phase emphasis was over building of infrastructure for irrigation and soil conservation. The target and achievements were as follows :

Sl. No.	Items.	Physical target	Actual achievement
1	Hand Tube Well	5000	1950
2	Pump Dug Well	250	66
3	Shallow Tube Well	150	203
4	Deep Tube Well	4	4
5	River Lift Irrigation	10	10
6	4 Hect. Unit	200	126
7	Pilot projector Soil Conservation	-----	33 hac.

Under Phase I it was possible to bring 2301.5 hectares of land under irrigation benefitting 4403 nos. of farm families with an total outlay of Rs. 137.39 Lakh (INR).

After the successful implementation of Phase I the Phase II of North Bengal Terai Dev. project was implemented between 1988 and 1994 as a continuous programme with an objective to induce better income for the small and marginal farmers special attention being given to S.C & S.T. population. Emphasis has also been given to involve women under different programmes.

The physical target and actual achievement of Phase II programmes was as follows :

Sl. No.	Item.	Target	Actual achievement.
1	Hand Tube Well.	20000	28029
2	Pump Dug Well.	300	300
3	Shallow Tube Well.	---	150
4	Deep Tube Well.	16	16
5	River Lift Irrigation.	30	30
6	4 Hect. Unit	1000	441
7	Soil Conservation (in hec.).	3000 hec.	5845
8	Farmers training.	-----	1949

At the end of Phase II an additional irrigation potential of 9305 hectare was created benefitting 53102 nos. of farmers. And with the two phases of N.B.T.D.P. additional intensity of irrigation of 2% was created, benefitting 12.3% of farmers, with an total outlay of Rs. 1394.90 Lakh(Indian Rupee).

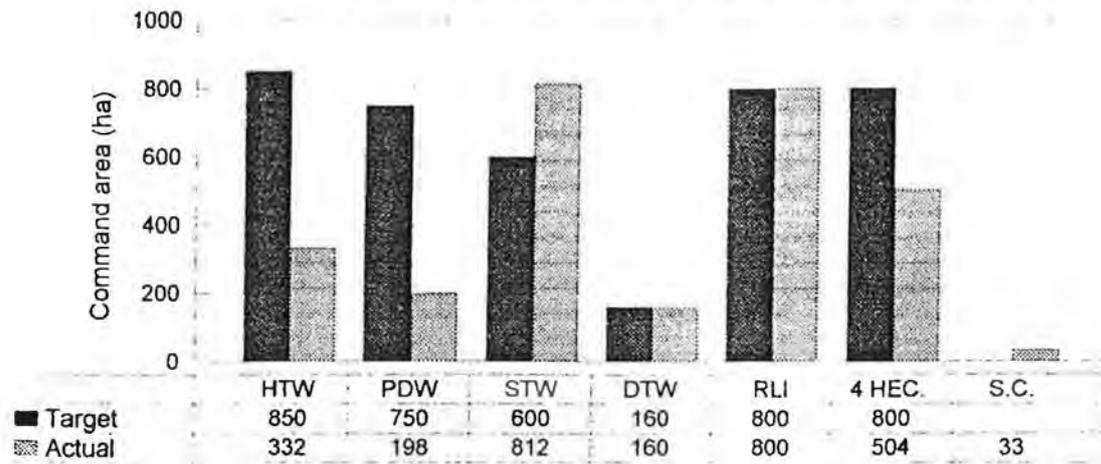
With the successful implementation of the two phases the Royal Netherlands Government agreed to extend the programme to phase III, after thorough evaluation of the programme. The phase III programme extends upto December 1999 with a broader objective and multiple activities like, market Development , women Development ,promotion of users managed irrigation system ,development of farmers friendly and demand driven extension, development of community managed soil conservation methodology and water management . A project support unit established during the phase is a special feature of the programme.

The projected target of different components of the project are as follows :

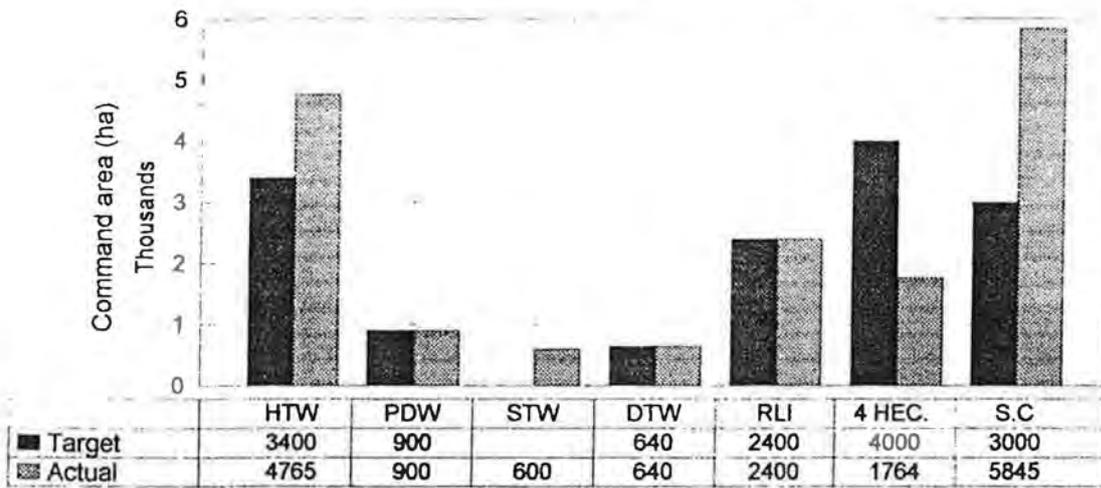
Hand Tube Well 15,000 , Pump Dug well 270, Shallow Tube Well 400, Deep Tube Well 9, Mini R.L.I. 88, Soil Conservation & Agro-forestry for 5000 hec. farmers training both for male & female farmer unit market Dev. 20 nos. and the Market Link Road for 25 K.M.s and various pilot programme under the assistance of P.S.U. with a total outlay of Rs. 3300.00 Lakhs. So far the project could achieve 6000 nos. of H.T.W., 200 nos. of S.T.W.(sinking going on). 60 P.D.W. (Construction going on), 1370 Hec. Soil Conservation works 25 hec., Agro-forestry 525 nos., farmers training 120 nos. D.C. in Pre-kharif & Kharif etc.

Besides the above several pilot programmes have been successfully tried and include ,testing of fuel efficiency of pumps, efficacy of pedal pumps, organisation of quiz and Panchayat supported training for the farmers as new methods of extension and opening of Agriculture Consultancy Centres as private channels of sevices for agriculture. During the next few years the programmes would be included in the main programmes of the government on being found suitable within the administrative frame of the government.

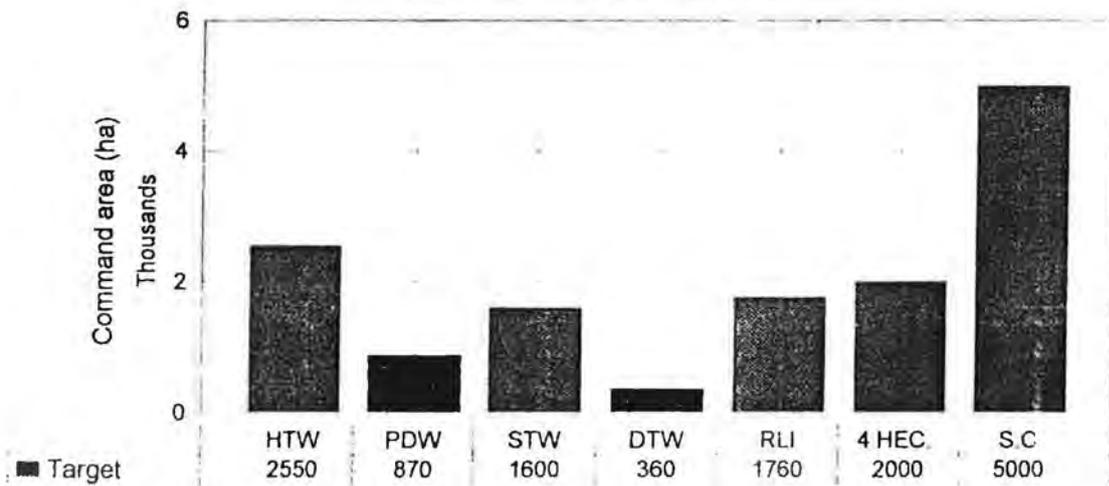
Programme planned & actually achieved under Phase I



Programme planned & actually achieved under Phase II



Programme planned under Phase III



HTW = Hand Tubewell DTW = Deep Tubewell S.C. = Soil Conservation
 PDW = Pump Dugwell RLI = River lift Irrigation
 STW = Shallow Tubewell 4 HEC. = 4 Hec Unit

PUMP TECHNOLOGY

Improving fuel efficiency of diesel pumpsets

NORTH BENGAL TERAI DEVELOPMENT PROJECT

IMPROVING FUEL EFFICIENCY OF 5 HP DIESEL PUMP SETS

1. Introduction

The North Bengal Terai Development Project is implemented by the Government of West Bengal under agreement between the Government of India and the Netherlands Government. Under one of the components of the project 384 pump dugwells and 353 shallow tubewells were installed. These pumps were operated with standard 5 hp diesel pumpsets of various brands (of farmers choice). In 1995 it was suspected that the fuel efficiency of these small irrigation installations left much to be desired. To investigate this issue further a number of field surveys were undertaken. Subsequently a number of modifications were made to the standard pumpsets. It was found that with inexpensive modifications diesel consumption could be reduced with more than 50% in North Bengal, where watertables range between 5-15 feet during the irrigation season. This paper presents the results of the surveys and field tests and is meant for discussion.

2. Surveys and tests

The following surveys and tests were undertaken.

- Field survey into 17 pump dugwell installations by the North Bengal Centre of the Institution of Engineers (July-September 1995);
- Field survey into 24 shallow tubewell installations by the North Bengal Centre of the Institution of Engineers (May 1996);
- Test on pump dugwell modifications by the North Bengal Centre of the Institution of Engineers (March-April 1996);
- Test on shallow tubewell modifications by the Project Support Unit of the North Bengal Terai Development Project (May 1996);
- Farmers field test of diesel pumpset modifications by the Project Support Unit of the North Bengal Terai Development Project (July-August 1996);
- Endurance test of diesel pumpset modifications by the Project Support Unit of the North Bengal Terai Development Project (July-September 1996).

2.1 Results of field surveys

Seventeen farmer operated pump dugwells and twenty-four farmer operated shallow tubewells were surveyed at various locations in Jalpaiguri and Cooch Behar Districts.

The field surveys into existing pump dugwells established that fuel consumption of the installations was high. Per hour fuel consumption was in the range of 1.2 l/hr for a discharge of 14 l/s, due to combined friction losses creating substantial extra head.

The study on the shallow tubewells established that on average fuel consumption was 0.98 l/hr with a discharge of 9.0 l/s. Some of the shallow tubewell gave an appreciably lower discharge, due to poor engine maintenance and partial choking of the filters.

2.2 Result of pumpset modification tests

A number of modifications were made to the standard pumpset. The impact of each modification in terms of changed fuel consumption was measured.

The following modifications were tested:

1. The removal of the flow restricter from the delivery pipe.

Most pumpsets in North Bengal have a 2.5" restricter attached to the 3" delivery pipe. These restricters serve to jet the water, give extra pressure for diverting the cooling water and give the possibility of connecting a tube, but at the cost of unnecessary friction losses. In the test this restricter was removed.

2. The attachment of a thermo-syphon cooling system (using a 25 liter drum)

At present farmers in North Bengal, like in other parts of the country, cool the engine by leading water directly from the pump through to the engine. As a result the engine is operating at a non-optimal temperature of less than 35°C, whereas the diesel engines are designed to operate at a significantly higher temperature. This conventional mode of (over)cooling was substituted by the attachment of a 25 litre waterdrum, mounted on a bracket welded to the delivery pipe. From the drum the water flows through a inlet hose connected to the bottom of the drum into engine, then circulates through the engine and next discharges back into the drum through a outlet hose fitted at about 15 cm below the top of the drum. The recirculated water usually stabilizes at 85°C and is replenished after about two hours of operation.

3. The reduction of the engine speed from 1500 rpm to 1100 rpm.

Most diesel pumpsets are operated at around 1500 rpm. As the pump under the North Bengal conditions requires only about 2.3 hp and the engine at 1500 rpm can provide 5 hp, the engine operates at part load and consequently at low efficiency. Decreasing the engine speed to 1100 rpm, which is the lowest possible speed, reduced the possible power output proportionally to 3.7 hp. The reduction of engine speed was effected through counteracting the spring on the fuelpump with a rubber band.

4. The removal of the footvalve or checkvalve and refitting of the handpump for priming.

The footvalves (in case of dugwell) and checkvalves (in case of shallow tubewell) create considerable friction losses, particularly when they get older and no longer open and close smoothly. To avoid these friction losses the footvalves were removed for dugwells. For the shallow tubewell the whole T-piece (including checkvalve) was replaced by a 90° bend. To be able to prime the pumpsets a hand tubewell was fitted on top of the delivery pipe.

5. The attachment of a flexible syphon to the delivery pipe.

A flexible syphon was attached to the pump outlet. This served to lower the discharging point to the groundlevel, which reduced the delivery head.

In both the pump dugwell test and the shallow tubewell test the impact of the removed flow restrictor and the attached syphon was found to be limited. The combined effect of the thermo-syphon cooling system, the removal of the footvalve and the reduction of the engine speed however ensured 57% reduction in diesel consumption for pump dugwells and 51% reduction for shallow tubewells (see table 1 and 2). The most important saving was made by the removal of the footvalve, followed by the reduction of the engine speed and next by the thermo-syphon cooling system.

Table 1: Impact of modifications on pump dugwell pumpsets

Modification	Static suction head (m)	Discharge (l/s)	Fuel consumption (l/h)	Specific fuel consumption (l/m ³ .m)	Relative improvement	Cumulative improvement
Original	4.5	12.7	1.01	0.0049	-	-
1. Increasing cooling water temperature from 35 to 75 °C	4.5	12.7	0.88	0.0043	12%	12%
1+2. Reducing engine speed from 1470 to 1100 rpm	4.4	10.1	0.50	0.0031	28%	37%
1+2+3. Removing footvalve	5.9	12.2	0.54	0.0021	32%	57%

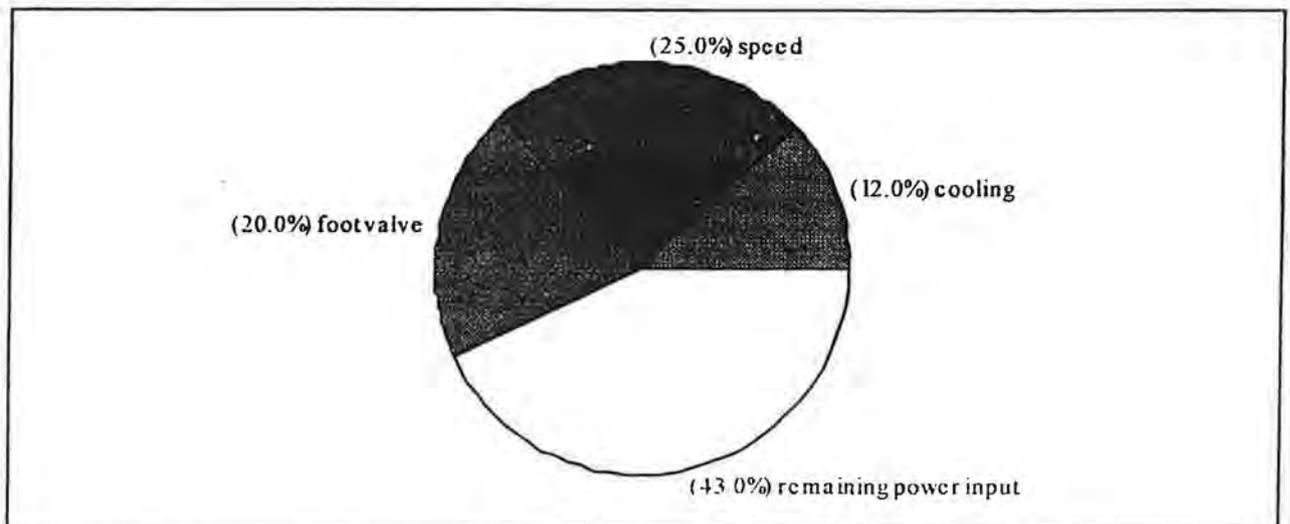


Figure 1: Impact of modifications on pump dugwell pumpsets

Table 2: Impact of modifications on shallow tubewell pumpsets

Modification	Static suction head (m)	Discharge (l/s)	Fuel consumption (l/h)	Specific fuel consumption (l/m ³ m)	Relative improvement	Cumulative improvement
Original	3.5	8.6	0.9	0.0083	-	-
1. Increasing cooling water temperature from 35 to 75 °C	3.5	8.6	0.78	0.0072	13%	13%
1+2. Reducing engine speed from 1470 to 1100 rpm	3.5	10.5	0.76	0.0057	21%	31%
1+2+3. Removing footvalve	3.5	10.3	0.55	0.0042	26%	51%

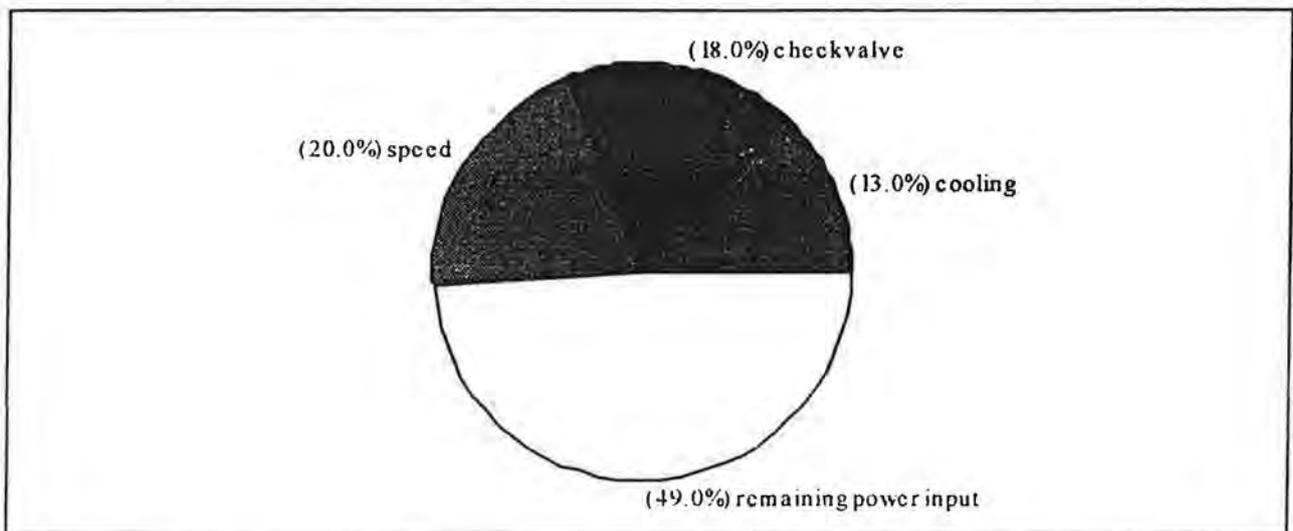


Figure 2: Impact of modifications on shallow tubewell pumpsets

2.3 Endurance test and farmers field test

An endurance test of 600 hours, which is the average annual number of running hours in North Bengal, was executed to determine how durable the modified pumpset is. This gave the following results:

- no problems arose during the 600 hours,
- the system could be operated for 24 hours continuously.

Farmers field testing was done in six farmer operated pump dugwells and five farmer operated shallow tubewells. Fuel consumption in standard and modified situation was compared (see results in tables 3 and 4). An improvement in fuel efficiency of 45% for the pump dugwells and 55% for the shallow tubewells was measured.

The farmers were subsequently asked to run the machine for 7 days, for at least 2 hours a day. During this testing the modified pumpset proved to be acceptable to the farmers. However, two problems were observed:

- The gland packings had to be replaced in most of the cases. The air leakage from the old and worn-out packings made priming difficult.
- The drum had to be replenished already after half an hour, due to vibration. A successful solution to this problem was to lower the fitting point of the outlet hose on the drum by an additional 5 cm, making the distance to the top 15 cm in total.

Table 3: Results of field testing in pump dugwells

no.	situation	speed (rpm)	fuel consumption (l/hr)	discharge (l/s)	static suction head (m)	spec. fuel consumption (l/m ³ .m)	saving (%)
1	standard	1500	1.15	11.0	3	0.0097	50
	modified	1120	0.58	11.0		0.0049	
2	standard	1500	1.20	11.7	3	0.0095	43
	modified	1120	0.76	13.0		0.0054	
3	standard	1380	0.90	7.7	3	0.0108	41
	modified	1020	0.47	6.8		0.0064	
4	standard	1420	1.75	11.7	3	0.0139	53
	modified	1060	0.75	10.7		0.0065	
5	standard	1500	1.00	13.1	3	0.0071	40
	modified	1180	0.60	13.0		0.0043	
6	standard	1480	0.96	10.2	3	0.0087	42
	modified	1120	0.60	11.0		0.0051	

Table 4: Results of field testing in shallow tubewells

no	situation	speed (rpm)	fuel consumption (l/hr)	discharge (l/s)	static suction head (m)	spec. fuel consumption (l/m ³ .m)	saving (%)
1	standard	1400	0.72	6.0	35	0.0096	47
	modified	1100	0.43	6.8		0.0050	
2	standard	1540	1.43	9.4	35	0.0121	53
	modified	1100	0.71	10.0		0.0056	
3	standard	1420	0.89	10.7	3.5	0.0066	53
	modified	1100	0.45	11.5		0.0031	
4	standard	1560	2.12	5.8	35	0.0292	66
	modified	1100	0.82	6.5		0.0100	
5	standard	1400	1.20	6.8	35	0.0140	58
	modified	1260	0.75	10.0		0.0060	

2.4 Sensitivities

In the experiments the following sensitivities were identified:

- The nuts of the pump gland packing should not be tightened too much. In the modified pumpset there is no external cooling of the pump shaft. If the packing is tightened too much it may overheat, which may result in:
 - difficulties in priming the pump as air is being sucked in alongside the shaft
 - high fuel consumption due to friction losses between the shaft and the packingIn many cases the packing may have to be replaced as air leakage already occurs during priming and nuts can not be tightened anymore.

Solution:

The problem of the gland packing was occurring too much, everytime the same problem arose. As a solution an additional cooling arrangement has to be made for external cooling of the pump shaft. Therefore a 8 mm dia tube can be directly fitted from the pump itself, like was initially done for cooling the engine. However, this time it is very limited flow.

- Air in the tubes and pitching off of the tubes that connect the drum and the engine has to be avoided as this will stop the circulation of water and therefor the thermo-syphon action.
- Water in the drum should not drop below the upper fitting point of the outlet hose to the drum, as this will also stop the circulation of water.
- To avoid any debris entering the suction pipe of a pump dugwell, a wire net filter has to be fitted on the suction pipe.
- For the cooling drum a second-hand container can be used, but quality of the bottom has to be checked as leakage may occur after some time.

3. Promotion campaign in North Bengal

It is clear that a 50% saving in fuel consumption will have a tremendous impact on the economic position of the small and marginal farmers. In order to spread this improvements a promotion campaign was carefully prepared and launched in november 1996. This campaign now is in full swing and focusses in the first stage on 8 blocks, in three different districts, covering about 73% of the total number of pumpsets installed under NBTDP programme.

The strategy followed is that on project level 4 teams of Master-Trainers teams of different sub-divisions are trained in the technical details of the retro-fitting and in how to give a demonstration. These teams are each responsible for two blocks. In collaboration with the Panchayat Samiti a meeting is organised in every block. In this meeting the Team gives training and demonstration to the local mechanics. Accordingly dates are planned for demonstration in the villages self. Every demonstration will be given by the Team together with the local mechanic. The farmers can place their orders with local mechanic afterwards who will do the retro-fitting.

In the meanwhile publicity is given through local newspapers and even rickshaw announcement in the village. Promotion posters giving a short overview of the different steps to be taken, are prepared for distribution to all agricultural offices, dealers, hardware shops, etc. A technical manual describing the modifications step by step is under preparation and will probably be published in English and Bengali .

4. Implications

The tests shows that much can be done in improving diesel pumpset operation. This will not only have impact for North Bengal, but can have a tremendous impact for India as a whole. The relevance of this is not to be underestimated as in many part of India irrigation depends on the operation of these small pumpsets.

With an estimated 5-10 million diesel pumpsets in operation in India the benefits of retrofitting in terms of reduced cost to the farmers and saving on energy imports is enormous.

The investments in retrofitting are, moreover, acceptable. In the field tests the total cost of retrofitting the shallow tubewells was about Rs 400 initially. However, it is possible to fit the suction pipe directly to the tubewell, reducing the costs to only Rs. 250. For a pump dugwell the costs were about Rs 550. With a diesel price of Rs 8/50 per litre and 50% saving, the investment can be earned back in 59 respectively 130 hours of operation.

Much depends on proper transfer of knowledge and promotion. This requires a coordinated effort of all involved; pump manufacturers, suppliers and relevant government departments. That is why on this issue a workshop will be organized in Delhi by the Royal Netherlands Embassy on the 19th of December 1996 to discuss what can be done on national level.

PEDAL PUMPS

Popularising pedal pumps in North Bengal

NORTH BENGAL TERAI DEVELOPMENT PROJECT

IDE NORTH BENGAL

POPULARISING PEDAL PUMPS IN NORTH BENGAL



INTERNATIONAL DEVELOPMENT ENTERPRISES (IDE)

IDE NORTH BENGAL

BACKGROUND

IDE (International Development Enterprises), a not-for-profit organization has its headquarters in Denver, USA. IDE's mission is to improve the social, economic and environmental conditions of the world's poorest people by identifying and marketing very low-cost, sustainable, appropriate technologies that can be manufactured locally and sold at a fair market price. Globally IDE is operating in India, Bangladesh, Nepal, Vietnam, Cambodia, Burma and Sri Lanka. In India IDE is promoting Foot Operated pump in the vast Terai comprising of Eastern Uttar Pradesh, Northern Bihar, North Bengal & Western Assam and coastal areas of Orissa & Andhra Pradesh. IDE also is promoting affordable drip irrigation systems in the Southern states of Karnataka, Andhra Pradesh, Tamilnadu & Maharashtra.

ENTRY OF IDE IN NORTH BENGAL :

IDE began its operation in North Bengal following an agreement with EUROCONSULT. The beginning was made by Field Testing and Controlled Testing of 54 Pedal Pumps by EUROCONSULT during October - November '95. The basic idea of the Testing was to Compare different Manual Irrigation Systems (i.e. Handpumps promoted by NBTDP, Bamboo-bucket pumps popularly used in this area and Pedal Pumps promoted by IDE.). However IDE started in August '95 to install the above Test Pumps. The agreement was "IDE to introduce Pedal Pumps in North Bengal (3500 between March '96 to February '97 and 7500 between March '97 to February '98) through the Private Sector involvement, establish Dealer network and Create Local Manufacturing capability". From November '95 to February '96 a Test Marketing was launched (With a Sale target of 500 pumps) to see the Market Potentiality for Pedal Pumps in North Bengal.

THE PROJECT AREA (NORTH BENGAL) :

North Bengal's Terai Area is situated in the North-Eastern part of India, comprising of three Administrative Districts i.e. Coochbehar, Jalpaiguri and a part of Darjeeling. These Districts are further subdivided into 27 Administrative Blocks. 10 Northern Blocks are in the foothills of Himalayan Mountain Range and are covered with Forests & Tea gardens owned by Large Business houses. 2 Western Blocks are also covered by large Tea gardens, while the balance 15 Southern Blocks are Agricultural area. Siliguri is the main Commercial town and Coochbehar & Jalpaiguri are the two District towns.

IDE NORTH BENGAL

TECHNICAL FEASIBILITY :

For the best result in Pedal pumps, the water level range we concentrated on is 4 - 5 mtrs Below Ground Level during Pre-Monsoon period and 2 - 3 mtrs during Post-Monsoon period. On this criteria 15 blocks that were found feasible i.e. Dinhata - I, Dinhata - II, Coochbehar - I, Coochbehar - II, Tufanganj - I, Tufanganj - II, Mathabhanga - I, Mathabhanga - II, Sitai, Sitalkuchi, Mekhliganj, Haldibari, Mainaquri, Jalpaiguri & Rajdani.

STRATEGY ADOPTED :

On a two year time-frame the basic strategy followed are as follows :

FIRST YEAR (1995 - 1996)

1. Prove the utility of the Pedal Pumps through the Test cum Demonstration pumps in the Field as well as in the Controlled Test, which went on from August'95 to November'95. 49 Pumps of both 3.5" Bamboo Pedal and 5" Metal Pedal were installed in 10 villages and 5 Pumps of 3.5" Bamboo Pedal, 3.5" Metal Pedal & 5" Metal Pedal were installed for Controlled testing to be done by EUROCONSULT.

2. Put maximum efforts in one Block for Promotion & Marketing (As the first year had only three months in hand i.e. from December'95 to February'96) to achieve the sale target at the shortest possible time & effort. At the same time put little effort in the neighboring blocks just to introduce the Pumps. Dinhata - I was selected as the Core Area and Dinhata - II, Sitai, Sitalkuchi, Coochbehar - I, Mathabhanga - I & Mathabhanga - II as the Peripheral Areas for future expansion.

3. Our first survey showed that, few farmers of Dinhata block who are staying in the border of Bangladesh knew about the Pedal pumps and some of them also had smuggled the Pumps from Bangladesh (The pedal pump program was launched in Bangladesh around 1987 and till date has over one million pedal pumps). These farmers knew about 3.5" Bamboo Pedal type. We therefore decided to concentrate only on 3.5" Bamboo Pedal with Bamboo Boring. We used the Bamboo Tubewell Drillers (Locally called *Mistris*) of the area to work as Commission Agents in selling the Pumps. The Field Office at Dinhata worked as Distributor and the Small Village Shops (i.e. Grocery shops, Pan shops, Cycle Repair shops etc.) worked as the Retail Outlets. The Pumps were bought from neighboring states like Bihar & Orissa.

IDE NORTH BENGAL

4. The total sale was 903 pumps as against the target of 500.

SECOND YEAR (1996-1997)

1. The Core Concentration areas are Dinhata- I, Dinhata - II, Coochbehar- I, Tufanani - I, Sitai, Sitalkuchi, Mathabhanga - I, Mathabhanga - II, Dhupguri, Mekliganj, Haldibari, Mainaguri .

2. The local *Mistris* are developed as the grassroots workers for Promotion, sale, installation and aftersales. The *Mistris* are tied up with the dealers and have 10% margin inbuilt in the pricing itself. The basic unit of promotion is a Weekly market (Locally called *Haat*) and of supply is a Daily market (called *Bazaar*). Each *Haat* has been allocated to a single *Mistri* and each *Bazaar* to a dealer. The whole project area comprises 206 *Haats* and 76 *Bazaars*. Permanent Bamboo Tubewells have been dug in all the 206 *Haats* and on the weekly market day the *Mistris* conduct live demonstration. Video shows on pedal pump is conducted in the *Bazaars* in selected days.

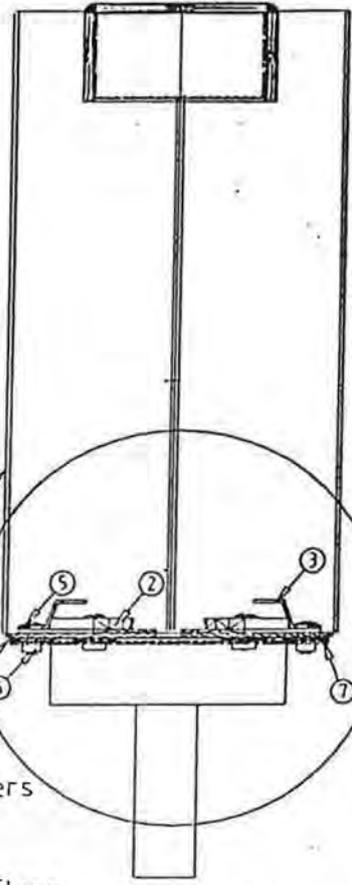
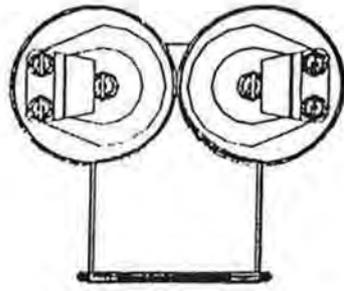
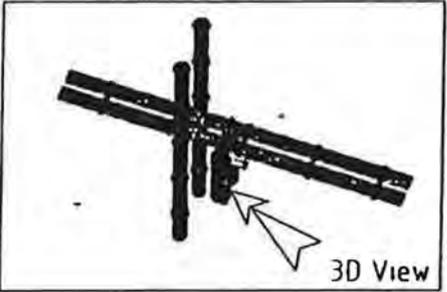
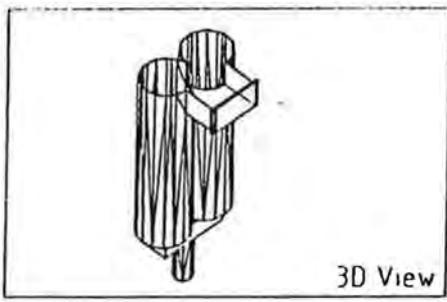
3. The team consists of one Regional Director, one Regional Marketing Manager, one Quality Control Manager, two District Marketing Managers, twelve Marketing Assistants and three Office Support staffs.

4. Presently five manufacturers in W.B., Bihar and U.P. are supplying pumps to North Bengal. IDE is acting as the Central stockist and supplying through three distributors.

5. The marketing season has started from November and will continue till May. We expect to sell around 13000 pumps this year. In the month of November we have sold 1200 pumps.

ENCL : Drawings of Body Sub-Assembly and Plunger Sub-Assembly

Revision Note	Date	Approved By



CONTROLLED COPY
 Control No. 27
 Issued on
 I.D.E.

22 AUG 1996

Inside front view from cut cylinders

- All Dimensions In m.m.
- Drawn In Third Angle Projection
- Unspecified tol as per IS-2102(I) 1993 Medium Class

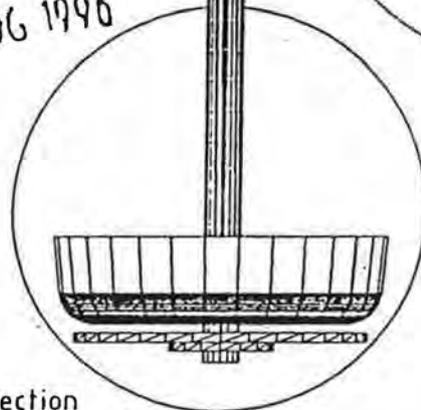
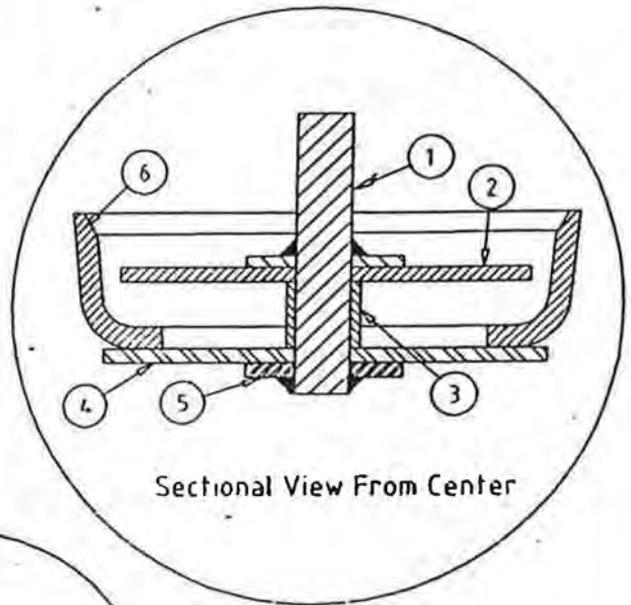
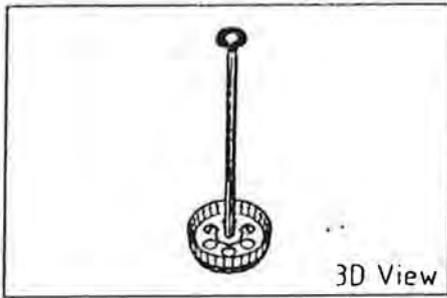
S.No	Part No.	Part Desc.	Matl	Size	Qty.	Remarks
07	Std	Washer Plain	Steel	φ25 × φ7 × 2	04	-
06	Std	Nut	Steel	1/4"	04	-
05	Std	Screw	Steel	1/4" × 3/4"L	04	-
04	KB-20351205	Washer - Rubber	Rubber	-	02	-
03	KB-20351204	Stopper - Valve	Steel	-	02	-
02	KB-20351200	Valve Sub Assembly	Steel	-	02	Sub Assy.
01	KB-20351100	Cylinder Sub Assembly	Steel	-	01	Sub Assy.

Material Spec..	Assembly Ref. PUMP ASSEMBLY BAMBOO	Quantity 01 No	scale N.T.S
Designed By/Date R.B.HYDE	Drawn By/Date RAHUL / 18.07.96	Checked By/Date DEEPAK / 18.07.96	Approved By DEEPAK / 17.08.96
INTERNATIONAL DEVELOPMENT ENTERPRISES A WORLD WIDE ENTERPRISE DEVELOPMENT ORGANISATION 65 (3rd Floor), Paschimi Marg, Vasant Vihar, New Delhi 110 057		Title/Name BODY SUB ASSEMBLY	
Drawing number KB-20351000		Edition (00)	Sheet 04

Revision Note

Date

Approved By



CONTROLLER
Control No. 27
Issued on
I.D.E.

22 AUG 1996

- All Dimensions In m m.
- Drawn In Third Angle Projection
- Unspecified tol. as per IS-2102(I) 1993 Medium Class

S No.	Part No.	Part Desc.	Matl	Size	Qty	Remarks
06	KB-20352005	Cup Washer	PVC	-	02	-
05	KB-20352004	Washer Stopper - Btm.	Steel	-	02	-
04	KB-20352003	Disc Bottom	Steel	-	02	-
03	KB-20352002	Spacer	Steel	-	02	-
02	KB-20352001	Disc Top	Steel	-	02	-
01	KB-20352100	Plunger Rod S/Assy.	Steel	-	02	Sub Assy

Material Spec.:		Assembly Ref. PUMP ASSEMBLY BAMBOO		Quantity 02 Nos	scale N.T.S.
Designed By/date R.B.HYDE	Drawn By/Date RAHUL / 18.07.96	Checked By/Date DEEPAK / 18.07.96	Approved By: DEEPAK / 17.08.96		
INTERNATIONAL DEVELOPMENT ENTERPRISES A WORLD WIDE ENTERPRISE DEVELOPMENT ORGANISATION 65 (3rd Floor), Paschimi Marg, Vasant Vihar, New Delhi 110 057			Title/Name PLUNGER SUB ASSEMBLY		
Drawing number KB-20352000		Edition (00)	Sheet 20		

Pedal Pump :Its a child,s Play for Deepak and Deepen

Shiven Burman (35) and Surbala Burman (30) from village Lafabari under Latapata GP of Mathabhanda II in Cooch Behar are the proud parents of two cute sons -Deepak Burman (5) and Deepen Burman (7). The 4-5 bighas of land that they have had been quite inadequate to sustain their small family. The couple ,in a completely flood devastated environment ,has been struggling to survive physically in the absence of a sustainable source of income .

Last couple of months back the family received a tredle pump through the NBTDP. It was an unfamiliar device for them which they were not quite used to operate and use. Gradually, they picked up the operational mechanism and irrigation to the 15 Kathas of land was almost assured . The hard work at other sites kept them often busy and there was not much time left to run the pump continuously. The elder son ,Deepen (7) has been attending school at Darikamar, some 2 Kilometers away, and this amounts to complete loss of day which he can devote to help his parents. The parents ,also ,do not want their son to be deprived of the bliss of education. They decide to adjust and allow the children to go to school.

The wise children ,however ,prefer to help their parents when ever they are free. The Youngest Deepak (5) is more free and contributes more to the operation of the pump. You may drop in to the family,s place and may be welcomed by them . If you you are inclined to know about the pedal pump the mother would silently bring out the pedals and the main equipment . Deepen is requested to fix the machine which he does with a mild reluctance. The mother ,then ,runs with a bucket to the nearby handpump and brings water to prime the pipe. Shiben ,the father , uses the initial pedals and continues doing so untill Deepak turns up around .He is requested to take over the father. Immediately the tiny feet are on the pedal and with very balanced moves continues the operation. It is amazing, the boy is continuing without any break-incredible indeed !

The mother would proudly inform the visitor(s) about the great love Deepak has developed for the pedal pump. The grand mother from the neighbour would say -, since morning when he leaves the bed it is Deepak who runs the pedal pump and the 15 kathas of land in front of the pump is regularly irrigated by him. On being asked- how the child manages to do the way he does the mother smiles indicating -the pump is nothing but a child's play for my children.

The family ,now,grows brinjal,radish and cow peas.This year they are trying with wheat -an unusually new change but this is a major shift in agriculture cycle -thanks to the tredle pump which has assured water for the wheat in the sandy soil.

(Case contributed by the Project Support Unit ,NBTDP)

IRRIGATION MANAGEMENT TRANSFER

NORTH BENGAL TERAI DEVELOPMENT PROJECT

PEOPLE'S PARTICIPATION
in
IRRIGATION MANAGEMENT

**Glimpses From The Field Under
North Bengal Terai Development Project**

Prepared by
Indian Institute of Bio-Social Research & Development

The Background

The NBTDP's (North Bengal Terai Development Project) mandate clearly envisages Participatory Irrigation Management of irrigation systems (RLIs & DTWs) to the farmers using the irrigation system. This, being a major shift, requires lot of mobilization and support activities to sensitise the Government functionaries, the Panchayats and the farmers toward the philosophy and the strategy of the Participatory Irrigation Management (PIM). IBRAD, in its background of mobilizing people, and facilitating people's institution has been involved in the facilitation of (PIM) by undertaking appropriate activities.

IBRAD as a facilitator to the (PIM) under North Bengal Terai Development Project phase III since August 1995. Three social organisers have been appointed and a unit has established at Jalpaiguri. IBRAD has started its activities in the field with the objective to sensitise and mobilise the farmers, Panchayat members and departmental officers towards the Joint Irrigation Management Programme and thereby creating a conducive environment in the area to promote the idea of peoples participation in irrigation management.

IBRAD's social organisers have been working in one existing RLI in each of the three Districts i.e., Jalpaiguri, Darjeeling & Cooch Behar, four mini RLIs in each of the three districts, two existing and two new MDTWS in the districts of Jalpaiguri and Cooch Behar.

The sites were selected by the Site Selection Committee under the Chairmanship of the respective Sabhadhipatis of the District and IBRAD had no role to play in the selection of the sites. The sites where IBRAD Social Organisers are working are as follows :-

Name of the Dist.	Type	Name of the Scheme	Name of the Block	
Jalpaiguri	RLI	Balason	Maynaguri	Existing
	Mini RLI	Beltoli - I	Dhupguri	New
	Mini RLI	Beltoli - II	Dhupguri	New
	Mini RLI	Jangalipara	Dhupguri	New
	Mini RLI	Satvendi	Dhupguri	New
Cooch Behar	RLI	Putimari Fuleswari	Cooch Behar-I	Existing
	RLI	118 Jikabari	Mekhliganj	Existing
	Mini RLI	Jhinaidanga	Cooch Behar-I	New
	Mini RLI	Tritiar Chhara	Cooch Behar-I	New
	Mini RLI	Kanibil Kankanguri	Cooch Behar-I	New
	Mini RLI	Maynaguri Kankanguri	Cooch Behar-I	New
Darjeeling	RLI	Kumar Singh Jote	Kharibari	Existing
	Mini RLI	Gourigach	Phansidewa	New
	Mini RLI	Paragach	Phansidewa	New
	Mini RLI	Bijlimoni	Phansidewa	New
	Mini RLI	Ram Prasadgach	Phansidewa	New

The DTW sites are -

Name of the Dist.	Name of the Scheme	Name of the Block	Status
Jalpaiguri	Satvendi	Maynaguri	Existing
Jalpaiguri	Dudumari Basti	Dhupguri	MDTW
Cooch Behar	Bajejama Sheoraguri	Dinhata II	MDTW

IBRAD's Social Organisers started working in Satvendi and Dudumari Basti but due to some administrative problems within the department the executive engineer himself requested them not to go to the field because they themselves are not sure whether they would continue work or not. At present the social organisers are working only in the RLI sites.

The S.O.'s got introduced with the concerned department personnels and started working in the field from the month of September 1995 though the sites were finalised and got proper sanction in the Districts of Jalpaiguri in October 1995 and in Cooch Behar in September 1995. The field work at Darjeeling District got stuck because the sanction of the site was not done due to ego problem between the District Minister and Sabhadhipati of the Mahakuma Parishad and got final clearance only in the month of January 1995.

The social organisers got introduced to and developed relationship with the concerned Panchayat Samity, Gram Panchayat, BDO, concerned departments (A.M and Agriculture) and with the villagers.

Social organisers went to the field along with the concerned Panchayat members and department staff.

They have conducted PRA exercises with the farmers to know about their village conditions. During the exercises they also could identify the local influential leaders, natural leaders, different institutions, village dynamics.

After identifying the resource persons they have approached them and tried to get them in confidence. In the process it was found that some persons who were negative in the beginning became positive.

They listened to and appreciated the problems of the concerned persons but never gave any solution to them rather encouraged them to solve their problems. In the process local leaders always gave importance and slowly they became committed to make the programme successful.

At the same time while working in the field a number of training programmes are being organised for the departmental officials starting from the top to the ground level staff on skills to involve people for irrigation management. These programmes helped in creating a team of motivated officers. The role of the social organisers have not been as the bridge between the department and the farmers but they are the facilitators. The staff and officers when equipped with the skills felt confident and develop relationship with the farmers themselves and thereby own the programme as their own.

Number of one to one sitting was made with the Panchayat members to sensitise them towards the programme. Workshops, seminars and meetings are being organised at the Zilla Parishad, Panchayat Samity and Gram Panchayat level to get the support of the Panchayat functionaries and administration, to prepare the plan of action and to make the whole programme transparent. Copies of the Draft Govt Order was translated into Bengali along with other papers and distributed to the concerned persons. All these helped us a lot to take any decisions where these persons are involved.

IBRAD team with full support and co-operation from the department and Panchayat started working in the field, mobilising the people, facilitating them to form committee, raising fund, selecting operator, fixing water tax, crop planning, networking with the concerned department etc.

As a result committees were formed in all the sites. The farmers raised fund. They have selected their operators. Though the systems are still departmental asset but in the existing systems the operators are running the machine as and when it is necessary.

In the new sites, farmers took active part during survey, selection of spouts, laying out of the pipe lines in the field. The committee members are taking active role in selecting supplying labours to the contractors for the work so that the quality of the work is assured. The committee members are also looking after the quality of the materials supplied by the contractors and department has given authority to them for doing so.

In the existing as well as new sites the rate of the water tax which will be economically viable was discussed among them taking into account of the energy charges, operators wage, depreciation cost, emergency fund etc and in all the sites they come to the conclusion that they will collect the tax on hourly basis and the rate will be between Rs 20 to 25.

As formal handing over of the assets could not be done till now due to some administrative problems in case of the existing RLIs and the new mini RLIs are not yet completed number of non irrigation activities are being carried out to sustain the unity and enthusiasm of the farmers. The farmers have arranged tree plantation programme despite severe flood during the time. Training Programmes were arranged with the help of agriculture department on Integrated Pest Management, proper use of chemical fertilisers and pesticides in jute, chilli, paddy etc. Quiz programme was conducted. Networking was established among the water management committee and the concerned departments. Panchayat and departmental officers exchanged information with the farmers about the opportunity for getting crop loans, power tiller, agriculture loans etc.

During this period IBRAD team got full support from the concerned departmental officials. We got an excellent team of very enthusiastic and encouraging officers right from the top to bottom. The team leader and working group facilitator of PSU enriched us with the skills of community mobilisation and through networking. But despite the constant effort of the departmental officials the progress of work was not very fast. Number of issues came in front during this phase which are to be resolved. The issues may be classified in the following order :-

- 1) Policy Issues
- 2) Institutional Issues
- 3) Social Issues
- 4) Infrastructural Issues
- 5) Physical Issues

1) Policy Issues :-

a) *Delay in Issuing Govt. Order* : Though it was mentioned in the terms of reference of the project between the Royal Netherlands Govt. and the Govt. of India and West Bengal that the irrigation systems after being completed will be operated and managed by the farmers themselves with the help of the Panchayat but the Govt. Order in this regard is still under progress. The district level officials and Panchayat functionaries were in the beginning apprehensive to carry out any ground level work without the govt. order. After number of one to one sitting with them, distributing copy of the existing Govt. Order (No- 920-M. I(i)/3E-7/88) on whose basis the present order may come, they became convinced. The Supdt. Engineer (A-M) had issued letter to all the concerned Sabhadhipatis to make them aware about the programme. We have also organised workshops at the Zilla Parishad and Panchayat Samity level including the People's representatives, bureaucrats, Engineers and Agriculture department officials and they are now convinced and rendered support to us. In the village level organisation also the farmers got organised with the help of the Panchayat but without the Govt. order the formal handing over of the assets could not be done. In some cases, reactive forces have been tried to utilise the opportunity by demotivating the people with political difference and other petty interests.

Local Panchayat representatives and departmental officials helped a lot to hold the enthusiasm of the people. In case of the existing and new mini RLIs even without the Govt Order concerned Sabhapatis and Panchayat Representatives either made the committees themselves or supported the committees made by the farmers.

b) *Difference in line of Administration* : BDOs are unable to take over the assets officially and carry out administrative functions (opening subsidiary cash book, opening separate PL account, collecting water tax etc.) without the Govt. Order as they are not in the same line of administration with the Engineering Department.

c) *Tender Procedure* : Centrally controlled tender procedure has made the progress of the work slower.

2) Institutional Issues :-

a) *Lack of Communication (Intra & Inter Departmental)* - In Cooch Behar the Panchayat Samity in the beginning was not at all involved as according to them they were not informed about the sites selected by the site selection committee under the Chairmanship of the Sabhadhipati. In Siliguri, sites were sanctioned by the local minister prior to the Sabhadhipati which again created ego problem and the work got stuck for sometimes.

b) *Miscommunication* - In the beginning the Panchayat representatives had this feeling in their mind that they will not at all be involved in the programme. In some places the rumour was spread that the farmers organisation would directly be paid 2 lakh rupees. All these created antagonism among them and in some places they were not at all ready to co-operate. But with number of sitting all these got cleared & the relationship became transparent.

c) *Apprehension among the ground level staff* - The ground level staff of the department viewed the involvement of the farmers in the management of the irrigation systems and their changing role as a threat to their career. They were not very much encouraged to be directly involved in this change process. The training programmes, workshops organised jointly with the department had helped a lot in removing this apprehension from their mind. The role of the senior departmental officers deserves special mention here for motivating their staff.

d) *Lack of Trust* - This was prevailing among the farmers, especially in case of the new proposed sites, they were not ready to form committee or to raise fund as in the past they were promised to be provided with various projects but most of them could not materialise. In the present case the approach of the Engineers are very sincere and transparent from the beginning which have changed the attitude of the farmers. In some cases Panchayat people also are not sure about the progress of the work of the department. But after creating a common platform now they have formed a joint caretaker committee to look after the work of the contractors as was proposed by the department itself.

e) *Political difference* - In some places political rivalry within the villagers blocked the process of formation of the committee, active participation of the people. In some cases it created lack of communication among the executive committee members, Gram Panchayat & Panchayat Samity who belongs to different political groups and in the process hampers the progress of the committee. In few other cases political rivalry within the villagers have created problems during selection of command area, spout location and donation of land for PDC and SDC.

3) Social Issues :-

a) *Attitudinal difference among different caste groups* - The attitude of the farmers in the three districts where we are working reflects some distinct characteristics. In Cooch Behar farmers are more united and are interested for cultivation. In Jalpaiguri, the local Rajbanshi people are not very active and not used to for growing crops other than paddy and jute whereas the people migrated from Bangladesh and Muslims are more enterprising and are interested for multiple cropping. It is those people who have started vegetable cultivation in the area. The Rajbanshi people lease out their lands on seasonal basis to the migrants for raising commercial crops in the Rabi season like potato.

b) *Opportunity to alternative sources of income* - In Siliguri Mahakuma there are number of tea gardens which provide alternative income to the people other than agriculture. The area is situated in the borderline of Nepal and Bangladesh and people are involved in number of activities through which they can earn quick money though the process may not be legal. Siliguri city is also not far off which provides sources of alternative income to them. Their interest towards agriculture is least among the three.

The social fabric in the area is also very complex where Rajbanshis, migrant Bengalees, people from Bihar, tribals all live together and those who work in the tea gardens are in general alcoholic which raises their demand for quick money.

c) *Expansion of the Tea gardens* - Another problem which is existing in the area (especially in Siliguri and parts of Cooch Behar) is the invasion of the tea gardens over the agricultural land. The rising input cost of the agriculture like the cost of fertilisers, insecticides, pesticides, cost of labour is driving the marginal farmers to sell their land to the tea garden owners where one of the family members is getting service in the tea garden.

d) *Cow lifting* - Cow lifting is another burning problem in the border area. The farmers of the area are still not accustomed with hand tillers or power tillers and dependent on bullocks for sowing their lands.

e) *Share Cropping* - Local Rajbangshi farmers of Dhupguri Block and in both the blocks at Siliguri lease out their lands to the big outside farmers for raising commercial crops during Rabi season. The big farmers who do not belong to the village have least interest to be involved in the programme. In the beginning local farmers did not want to involve them in their committee. The large farmers felt ignored and were not ready to accept the regulations made by the committee. The local farmers also got sensitised and understood the problem and involved the large farmers in the committee.

4) Infrastructural Issues :-

Lack of dependency upon the Govt. run irrigation systems in the adjoining areas due to delay in repairing, time-bound attendance of the operators created mistrust among the farmers towards the whole system. But it on the other hand helped in motivating them towards self management of the systems to remove the constraints.

The example of some farmers who have suffered loss by raising vegetables due to lack of storage facilities or marketing channels had demotivated others to raise Rabi crops. The tendency to grow one particular seasonal crop by all at a time without proper planning is also responsible for the situation. Co-ordination with the concerned departments is necessary to overcome this. Now it was decided at the Block level and the Agriculture department is helping them for crop planning.

As they are all small and marginal farmers their readiness to accept new ideas is not very fast. They want to make trial in small areas to begin with so the risk factor will be less.

4) Physical Issues :-

a) *Changing Course of rivers* - The course of the rivers is changing very fast. In one of the proposed mini RLI sites at Siliguri it has already started shifting.

b) *Frequent Flood* - Severe flood in more or less in every alternative year is also creating problem of shifting the course of the river and river bank erosion. In one of the Proposed mini RLI site at Dhupguri the land which was donated for constructing PDC has been eroded by the river. In another site at Cooch Behar District the underground pipeline was severely damaged due to the flood. The main metalled road has to be opened for repairing.

c) *Nature of the soil* - The nature of the soil is such that it can not retain moisture. As a result the soil is not suitable for Boro Paddy cultivation. Farmers are very much interested for boro cultivation as the productivity is very high and storage problem is also not there.

THE ACHIEVEMENTS

Case from Balason

We have started working in the Balason existing RLI in the month of December 1995. The system was then run by diesel. The farmers in the beginning has got number of doubts against the system. They also had lots of mistrust against the department. There was inter political rivalry within the village and there was also conflict between the two caste groups. After conducting two three PRA exercises with the villagers along with the Panchayat the attitude got changed and a common platform was created where the farmers, Panchayat and department officers started sitting together to come to an agreement regarding joint irrigation management. The villagers who in the beginning was not ready to form the committee, got organised and formed a committee in January 1996. They started taking irrigation water from the system for the first time during the Rabi season of 1995- 96. They have irrigated 32 acres of land during Rabi season.

The committee members with the support of majority of the farmers selected two operators namely Tirthabasi Mallick and Mahendra Nath Roy in a general meeting. Now they are helping the OCM to operate the system like opening the spouts, filling the suction pipe, operating the machine during night or in early morning.

The committee members decided to repair 39 leakages in the pipe line and selected four farmers to do the job. The Agri Mech dept supplied the pipe and solvent cement. After completion of the work the dept gave the committee Rs 500/- as honorarium as the token for their good work. The system got electrified in the month of August 1996.

The farmers have identified the prevailing pests and diseases of the important crops and wanted to know their remedies. Though it was not in the schedule of the agriculture

department but looking into their interest they have started the ten week long Integrated Pest Management Training. According to the training rules 30 farmers are essential. It was discussed with the farmers in the beginning and they have promised to make the attendance regular and on time. Through out the training it was found that more than 30 farmers were present on time in all the classes even in Bandh and the festival days. At the last day of the training the farmers and the department arranged a joint picnic. Department supplied mutton for the lunch and rest of the items were supplied by the farmers. The trainees were divided into five groups and a quiz was conducted to evaluate the effect of the training. The local ADO was the quiz master and the Joint Director of Agriculture was the Judge. All the groups participated very actively and scores were very high. After the successful completion of the training the farmers demanded more training on vegetable cultivation and the department promised to do so.

The committee members decided that they would not allow to give irrigation water to those who will not deposit the subscription for the committee fund. They have divided the farmers into three categories like large, medium and small and rate will be 101/-, 51/- and 31/- respectively. One of the farmers who was taking irrigation without giving the subscription (he falls under the category of large farmer) was stopped by the committee members. Then the committee members called a meeting and invited the operator and it was decided that the operator will forward the application for depositing the water tax to the BDO only after it is signed by the secretary of the committee. The farmers decided that they will deposit the subscription by 10th Aghran (26th November 1996). Though most of the farmers of Balason RLI are motivated and organised but only three of them are trying to sabotage the programme due to their petty interest. One of them wanted to make his son the operator of the system but majority of the farmers didn't select him and found the other two to be more effective. Another two have different political affiliation. These three farmers were trying to campaign within the village against the Joint Irrigation Management programme but they were identified by the farmers and the Panchayat members as the hindrance towards the movement. All of them took it seriously and the matter was discussed even at Zilla Parishad level. In a meeting with the SE, EE and AE they purposely let these farmers to express their views. On the other hand the rest of the people along with the Panchayat members expressed firmly their willingness and conviction towards the joint management programme. Thus these three people became isolated in the open meeting and started supporting views of majority of the people.

The farmers along with the Panchayat sat among themselves and decided to fix the water tax between Rs 20 to 25 per hour tentatively.

As the Govt Order has not yet come it could not be officially handed over to the Executive Officer of the Panchayat Samity.

There is a DTW adjoining the RLI. The farmers could not get irrigation water from the DTW during the current season as there was number of large cracks in the pipelines and the

operator surrendered that he would not be able to give them irrigation in the rabi season. The farmers of the DTW came to know about the water management committee of the Balason RLI and invited the RLI committee members and the Social Organiser to facilitate them to solve the problem. The farmers estimated the cost of repair with the help of the OCM which came to about Rs 300. The RLI committee members threw the option before the farmers whether they themselves could do anything or would wait for the govt to come. The farmers agreed upon to contribute the money from themselves and decided to give Rs 5/- per head. They also selected the mason and labours and decided to contribute more if it is necessary. They have collected the money and repaired the cracks. It is an example of how the message of strength of peoples involvement has its spreading effect.

Future Strategies

IBRAD is constantly taking initiative to strengthen the farmers institution through process development. The effort has been taken to mobilise & sensitise the panchayat functionaries as well. As a result the RLI management committee is going to be formalised by the panchyat Sabhapati and this itself is a threat to the reactive forces within the village. They are becoming side tracked and joining the main forced.

RETHINKING AGRICULTURAL EXTENSION

Experiments from North Bengal

NORTH BENGAL TERAI DEVELOPMENT PROJECT

RETHINKING AGRICULTURAL EXTENSION: EXPERIMENTS FROM NORTH BENGAL

1. Background

As in many areas, government agricultural extension services in West Bengal were greatly expanded in the years of the agricultural revolution. The introduction of packages of hybrid seeds, fertilizers, pesticides and irrigation water required an extensive agricultural education drive. This was given shape in Training and Visit System, which introduced a tight schedule of meetings of extension workers with contact farmers, of extension workers and subject matter specialists and agricultural researchers.

However, now that the agricultural revolution has run its course it is time to rethink government agricultural extension services. This was the background to a number of trials in agricultural extension methods and farmers training undertaken in North Bengal by the Department of Agriculture under the North Bengal Terai Development Project. There were three particular points of departure for these experiments:

▪ Need to increase coverage

Whereas the number of farmers increased in North Bengal, the number of field extension workers (KPS) did not. Moreover apart from vacancies the field extension workers are drawn into various non agricultural duties, such as literacy drives, censuses and election duties. It also fair to say that the effectiveness of the field extension workers is impaired by their lack of mobility. At the level of the block-level Agricultural Development Officer and below no one has access to independent transport, which is unlike the situation elsewhere. Needless to say that under these circumstances there is a need to increase coverage.

▪ Need to cater for very specific demands for knowledge by farmers

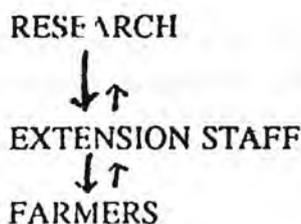
Present day North Bengal sees a large number of farmers cultivating cash crops. Often land holdings have become so small that the only recourse to sustain a family is to grow high value crops, such as potatoes, hybrid tomatoes and other vegetables. What is striking is the 'hunger for knowledge' of many farmers. The demand for knowledge, moreover, often concerns very specific questions, such as what pesticide dose to use, what quantity of fertilizer to use, etc. One could say that farmers have 'graduated' or in the terminology of the Training and Visit system: unlike the past, a large number of farmers are now 'progressive'. As a result there is a need for to cater for very specific demands for knowledge of farmers, rather than giving standard recommendations.

■ Need to involve the private sector

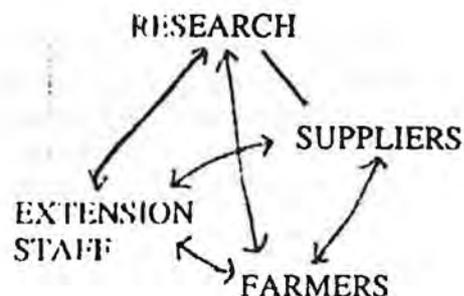
In the past two decades a substantial agri-service sector has come into being, consisting of seed dealers, fertilizer shops and agricultural hardware merchants. These outlets are often the most important source of information for farmers, next to radio broadcasts and discussions with other farmers. As a result, there is a need to involve the private agro-service sector and improve the quality of information they provide. Diagram 1 depicts the change.

Diagram 1: Players in agricultural information supply: past and present

Past



Present



2. Six experiments

To improve coverage, to cater for the specific demands and involve private players six experiments were undertaken (see table 1). The early results of these experiments are discussed in the following:

Table 1: Experiments in agricultural extension

Improving coverage	Involving private players
Panchayat training	Prized brochures
Agricultural quizzes	Agricultural consultancy centres
Group demonstration centres	Private sector promotion

■ Panchayat training

In West Bengal panchayats are vibrant and effective. This was the reason to have agricultural training organized through the panchayats. Under the 'Panchayat Training' experiment the Agricultural Representative of the Panchayat Samiti organized in-situ training in all Gram Panchayats in his area. Accommodation and food was arranged by the panchayats and by the farmers. This latter point, though seemingly trifle, stood for an important change in service-attitude. In training given by the Department of Agriculture in the past, farmers were usually provided by 'tiffin' and a small allowance. By doing away with this practice, it became obvious that it was the farmers who invited the extension staff to the training, rather than the other way around.

The training was given on site by resource persons from the Agricultural Department. Prior to the training farmers prepared a list of topics in which they would like to be educated. This ensured that the training catered to the information requirements of the farmers.

The first training of this kind was completed recently and covered 15 gram panchayats. Training took place in five Gram Panchayats simultaneously to allow exchange of specialist depending on the specific demand of a particular Gram Panchayat. The training were attended by 30 persons on average for two days. The response was good: hardly no farmer did not attend the second day and the most important conclusion of the evaluation was to have 'more of this'. As the training contents were demand-driven, a large number of crops and cropping practices could be discussed.

■ Agricultural quizzes

The second experiment to increase coverage and reach a large audience of farmers were agricultural quizzes. These quizzes were organized at night and saw two groups of farmers competing one another in answering pre-prepared questions on cropping practices. The arrangement of the quizzes (sitting arrangement, microphone and amplifier) were made by the village, that hosted the quiz. Staff of the Agricultural Department served as jury and quizmaster. A token price was given to the winners.

The quizzes were a pleasant and relaxed way of learning. Attendance of the quizzes was very high (between 150 to 500 farmers). Remarkably was the large attendance of female farmers at these events. In several of the quizzes one or two of the two competing groups consisted of female farmers. Remarkably these often did better than their male rivals. Apart from having them as special events, quizzes were also used in combination with other training, to recap the salient point of an agricultural training or to summarize the lessons from a demonstration centre (see below).

■ Group demonstration centres

Under the third experiment group demonstration centres were set up, as an improvement over the conventional single farmer demonstration centres. These single demonstration centres often fail from the same weakness that marks the Training and Visit system on the ground, which is the reliance on a contact farmer. It was found that it is in many cases erroneous to assume that knowledge spreads from the designated contact farmers to another. Besides in the Training and

Visit system, the designated contact farmers was hardly ever replaced, de facto limiting extension workers contact to a few farmers that he was familiar with.

To overcome these weakness group demonstration centres were established. Informal groups of male farmers and groups of female farmers were established. The group members - in dialogue with the extension worker - jointly planned a demonstration centre. As the specific requirements of the demonstration centre were not known in advance, a lumpsum of Rs 1000 was made available for each centre, which was adjusted later. During the cropping season the extension workers organized a number of meetings to discuss the results of the demo-plot. This was repeated over a number of seasons.

This experiment was undertaken in forty venues. The groups generally consisted of 30-50 persons. As all these members came to know of demonstration, the impact was clearly larger than that of the conventional single farmers demonstration centre. The importance of special women groups was obvious from the fact that in mixed groups women generally disappeared out of focus. Where women extension groups were organized, this appeared to be the basis of other joint activities, such as the participation in group saving and income generation activities. In this respect, even women from restrictive Muslim communities were induced into agricultural extension and self organization.

Some drawbacks of the group demonstration centre experiment should be recorded as well. One problem was that the implementation of the group demonstration centres relied heavily on the field extension workers (KPS), for whom joint planning required a drastic reorientation. In some case the notion of demand orientation was misunderstood with the KPS planning the demonstration centre.

Apart from this drawback another drawback were the administrative difficulties in getting the lumpsum to the extension workers quickly so that the crop, that was demonstrated could be sown or planted in time. Also, other than the panchayat training for instance demonstration centres are 'single message', concentrating on one crop and one cropping practice only.

■ Agricultural consultancy centres

The first experiment undertaken to cater for the specific demands of farmers through private channels was the establishment of Agricultural Consultancy Centres (ACCs) in several market places (haats) in the area. The ACCs serve very much like a clinic. During market days an agricultural consultants sets up a shop in the market centres, providing advice to farmers against a small fee. During the trials the fee was set at Rs 5 per prescription. The consultants were generally retired staff of the Department of Agriculture, though also young graduate opened a centre. They were provided with basic equipment (microscope, soil testing kit, furniture), a small budget for promotion activities and for the first six months a an allowance of Rs 1000 a month was given, which was reduced to Rs 500 in the following six months. After that they were to stand on their own feet.

Six centres were opened, the limiting factor being the number of persons available and qualified to provide advice. Attendance of the centres was good, ranging from 25 to 150 farmers monthly, depending on the season. The rabi season attracted most information seekers. The clientele included marginal farmers as well. In fact, the fact that farmers had no problem in paying for agricultural advice was an eye-opener. Ironically, some of the consultants, being retired Department of Agriculture staff, had more difficulty in accepting payment than farmers in paying.

The experiment is too young (one year) to assess the long run financial sustainability of the consultancy centres, but a hike in fee and a diversification of activities (selling brochures for instance) appears necessary.

One very important achievement of the consultancy centres was that they provided an excellent overview of the farmers need for information in the various season, because copies of the prescription were kept and tabulated. An overview of the consults given in Dhupguri ACC is given established for instance that in this vegetable growing area almost 75% of farmers queries concern pest management of the major vegetables grown in the area. There was hardly any demand for information on crops like jute or paddy, which are also grown in large parts of the area.

■ Prized brochures

A second experiment in using private sector information suppliers was the preparation of colour-print booklets on several important crops in North Bengal. Five brochures were prepared: on the cultivation of potatoes, tomatoes, cabbage, cauliflower and chilies respectively. The contents of the brochures were approved by the Department of Agriculture. They are made available at Rs 10 per copy through local dealers, agricultural consultancy centres and at farmers training. These private suppliers pay cash for the booklets and are allowed to take a commission of 25 to 35%, depending on the quantity.

Again farmers appear to have no difficulty in paying for information, provided it is of good quality. In the first month after publication 4500 copies were sold already. There may be some difficulty for very small farmers to buy the booklets though, as was observed by the slight lower sales of the chilies brochures, which typically is a poor man's crop.

A positive development of the prized brochures was that farmers were often very selective in deciding which brochure to take, which indicates that they only buy what has a value for them. Also some farmers were found to share brochures. The intention was to set up a revolving fund for the printing and preparation of brochures. At this stage it is too early to see whether this will be possible.

■ Promotion of new implements through private channels

The final experiment concerned the introduction of treadle pumps (foot pumps) in North Bengal. There is all reason to be confident that treadle pumps will be a very useful asset in the context of North Bengal. They are available at a cost of Rs 375. In combination with a bamboo well of Rs 80

to Rs 150, they provide a source of irrigation to farmers at a cost of approximately Rs 500. They lift more water than a hand pump at less effort. The treadle pumps were however neither known nor available in the area.

To promote treadle pumps it was decided to make use of private suppliers. For this purpose mistri's, with experience in installing bamboo wells, were trained in the use of treadle pumps. These mistri were next given to promote the treadle pumps at haat days. On these occasions the mistri are also taking orders from prospective clients to install the bamboo well plus treadle pump. At the same time efforts are made to make treadle pumps widely available through a network of distributors and dealers. On behalf of the Department of Agriculture the treadle pump promotion activities were undertaken through IDE, a NGO that specializes in this area.

In the first season treadle pump promotion was also undertaken on a very limited scale, but already 900 pumps were installed. For the coming season expected sales are 15,000, a figure which is to further increase in the future. The advantage of this method are obvious. First, promotion is cheaper than giving away agricultural implements for free. Secondly, the availability of the implements is assured, as well as the proper after care services through the development of the mistri-dealer network. The treadle pump promotion, once it is on its way, it becomes self-propelling, since there are many persons with an interest in selling these worthwhile products. Finally, market performance is the test case of the usefulness of a product. This lesson was learned earlier, when a heavier and more costly model of the treadle pump was tried out. When farmers were asked about their preference, they chose to be 'given' the heavy treadle pump. Yet no sales were generated for the heavy model, because when buying farmers decided to go for the lighter and cheaper model.

3. Conclusion

These experiments in methods of agricultural extension show that with relatively easy changes the coverage and the quality of services in agricultural extension can increase substantially. Yet a reorientation is required: in making agricultural information supply more 'demand-driven' and in learning 'to play the players' and incorporate panchayats as well as private suppliers in agricultural extension.

PANCHAYAT SUPPORTED AGRIL. TRAINING

**Facilitating Initiatives for Farmers Training:
Panchayats as Facilitators**

NORTH BENGAL TERAI DEVELOPMENT PROJECT

Facilitating Initiatives for Farmers Training : Panchayats As Facilitators

The Background

North Bengal Terai Development Project (NBTDP), currently in its third phase, has a strong mandate for farmers' training and Human Resource Development (HRD) for the functionaries and officials from the department of agriculture, the nodal department for the implementation of the project which has interrelated components of irrigation, soil conservation, training and extension, development of farm women, development of market and water management. The intention is to facilitate capability building of the department so that training and extension activities can sustain through the department without depending on the external support. During the third phase there is a provision for a Project Support Unit (PSU) to try and test innovative programmes in the designated sectors in active collaboration with the government departments participating in the project. The PSU has a team of specialists in different fields who support in organising the innovative programmes on pilot basis. According to the existing arrangement the pilot programmes which prove their viability and efficacy are incorporated into the main programme of the department.

The note presents the process analysis of a facilitation with a Panchayat in innovative planning and implementation of farmers training in agriculture practices. Dhupguri Panchayat, where the facilitation took place, is one of the several Panchayats under the administrative jurisdiction of Jalpaiguri district in North Bengal (West Bengal). There are 15 Gram Panchayats (GPs) under the Panchayat. Dhupguri is one of the prominent Panchayats which has intensively gone for the diversified cultivation of high yielding varieties of vegetables and other crops. Over the last one decade the Panchayat has emerged as a major producer of potato, tomato, cauliflower, chilly and wheat. The new high yielding varieties attract pests and diseases with which the farmers were not quite familiar in the recent past.

Dhupguri, like any other Panchayat in West Bengal, has the provision of an Agriculture Development Office (ADO) with a team of an Agriculture Development Officer (ADO) and village level extension workers known as Krishi Prayukti Sahayaks (KPSs) to cater to the specialised needs of crop husbandry under the Panchayat. The famous Training and Visit (T&V) system, as propounded by the World Bank, is in practice as an extension method. The KPSs have to cover a definite (approximately 800 farm families) number of farm families every month and offer them specific support in their agriculture practices. They visit designated locations (Venues) and interact with the key (Progressive farmers) farmers who, in turn, are expected to spread the message to other farmers. The system is reported to have worked quite well. Over the years, because of the

faster pace of crop diversification and coming in of the new crops ,the crops demand greater care and upkeep with upto -date knowledge and expertise. The extension officials and functionaries, on the other hand, have pressing demands not only in the farmers fields but also else where -they have to attend to serval administrative demands during elections ,census ,natural calamities and implementation of externally aided programmes . They also face constraints related to their mobility -no provision for fast moving vehicles ,inadequate travel support and so forth . Couple with this there is no systematic mechanism for the renewal of their knowledge and provision of relevant literature to offer them the necessary update.The condition, necessarily, renders them only partially effective. The farmers supplement their knowledge through the dealers and suppliers of different inputs and interaction with the peer groups.

The Panchayat has the provision of a Krishi Karmadhyakho (the member incharge of agriculture development) to attend to the issues related to agriculture development. He is mainly concerned with the distribution of mini kits and ensuring implementation of various programmes sanctioned for the Panchayat. There is no definite plan of action for training and extension within the existing system of Panchayats . In the absence of an internal mechanism within the system the training provided independedtly by the department of agriculture remais sporadic and unrelated . It was there fore, suggested to try integration of farmers trainings with the Panchayats and supplement the resources of the department with that of the Panchayats and the farmers.

The Process

The existing state sponsored training arrangements were observed and discussed with the government officials.It was realised that there is a need to step up efforts at strengthening the training and extension strategy with the support from the panchayat and the farmers. Earlier a team of ADOs were sent for refresher training courses with the reputed training centres in the untry. Having observed the training and the participation of different officers and after a thorough post training analysis it was realised that :

1. The officers were quite capable of designing and organising various training programmes for the benefits of the farmers ;
2. Although they were hard pressed for time they could manage time for different programmes provided they were planned well in advance ;
3. They required relevant literature and back stopping in the design and organisation of the training programmes ;
4. They were more in favour of an indigenous ,demand driven realistic course contents and methodology rather than alien and top down .

5. They could function quite effectively if the minimum of logistic (basically transport) support and even a token incentive was provided to them.

Since the Panchayats have the resources and are in constant touch with the farmers it was decided to have a discussion with them and articulate strategy for action. First of all the Krishi Karmadhyakho (Member incharge of Agriculture) who is incidentally the deputy chief (Sahkari Sabhapati in the local colloquial) of the Panchayat Sammittee, was contacted. The issue of training to the farmers was presented before him who showed serious concern about the inadequacy of training activities in the light of the growing crop diversification over the past few years. He also offered to provide/supplement support to any such programme facilitated by the department. The matter was subsequently discussed with the Sabhapati (Chief) of the Panchayat Sammittee who shared the concern and agreed to the proposal discussed with the Krishi Karmadhyakho. It was decided to have a meeting with the Pradhans (Chiefs) of the GPs and some progressive farmers. There was an intensive brain storming among the partners—the representatives from the department of agriculture and the PSU, functionaries of the Panchayats, and the farmers. The following recommendations emerged from the discussion:

1. Considering the functional needs of the farmers training should address to their specific needs and should not cover a thinly spread subject. A thorough need assessment exercise should be conducted ;
2. The Pradhans would identify and select 30 farmers to be invited for the training. Two -three farmers from among the prospective trainees should participate in a training need assessment exercise to be subsequently organised ;
3. The respective Pradhans, with the help of the farmers, would provide for the lodging and boarding of the resource persons during the training ;
4. The duration of the training would be two days. Training would be organised at each of the GPs either in the GP office or a community hall/club or a school or any other place convenient to the participants ;
5. Resource persons and the required course materials would be arranged by the department of agriculture and the Project Support Unit ;
6. The training should not be a one time affair and a constant monitoring and follow-up should be attempted jointly by the Department of Agriculture and the Panchayat.

The arrangement agreed upon indicate the following :

1. There is a strong need for training felt by both the Panchayats and the Government department of Agriculture ;

2. There is preference for focused need based training ;
3. There is a willingness to offer support for the training provided it is relevant and need based;
4. There is added emphasis over continuity and internal capability building at the local level by creating a cadre of trained farmers who could subsequently work as the reference group of trained farmers.
5. The Government officers are ready to explore possibility of an effective system of training and monitoring and
6. For that they are ready to devote time and their professional expertise with the minimum of support .

The exercise further suggests a willingness ,on the part of the local institutions like the Panchyat ,government department and the farmers ,to break from the traditional practice for a more effective one using multilateral support and resources all directed toward creating a synergic impact on the local level capability building . In the whole exercise the role of a facilitating institution has been considered crucial which can facilitate sharing ,help mobilise resources and partners for a synergic role and coordinate activities toward the above .

The Organisation of the Programme

Once the partners agreed on the contents, process and the possible outcome of the programme they were engaged in various activities leading to the final organisation of the training at the different locations within each of the Gram Panchayats. In the following section an attempt has been made to describe the activities and steps involved:

Constitution of Team of Resource Persons : As has been mentioned earlier one of the basic objectives of the exercise was to build the internal capability of the department and Panchayat at the local level, the team consisted of the local officers ,retired agriculture scientists and the key farmers of the area. The Officers who had already undergone training were screened by the Joint Director of Agriculture . Others, considered to be effective with the aptitude for training and extension ,were also included in the team. There are several retired agricultural scientists working in the area who were also invited as resource persons. A joint meeting consisting of the potential resource persons and the senior officers from the range was organised where everything in detail was discussed. The subjects included preparation of course materials ,logistic arrangements, coordination at various levels, incentives and honoraria and post training monitoring and follow-up. The dates for the training were also finalised. The basic idea was to share every detail and have the consensus of all the

partners so that no body had any excuse or complain later on.

According to the general agreement:

1. Dates of training were fixed during the 2nd to 4th week of the September . The agriculture scientists suggested that the period was crucial most because the Rabbi cultivation starts immediately after in which the knowledge of the training could also be utilised and tested ,
2. The resource persons would be involved in a training need assessment and would subsequently be involved in preparing course materials on their own. The Project Support Unit (PSU) would provide relevant materials and stationery for the same.
3. The materials prepared by the individuals would be discussed jointly in a workshop and moderated accordingly. A team of Agriculture officials headed by a senior officer of agriculture , would facilitate moderation and finalisation of the course materials.
4. The Project Support Unit would arrange transport for the resource persons while the concerned GPs would be offering local hospitality and other arrangements at the local level.
5. The ADO Dhupguri would coordinate the movement of the teams at the local level and the KPSs would be attached to each of the teams at different venues.

Training Need Assessment : The Panchayat organised a need assessment workshop at its head quarters. One official and a farmer from each of the GPs together with the resource persons attended the workshop and had indepth brainstorming about the training needs occurring in different GPs. There were some variations in the needs depending upon the cultivation of particular variety of crops. The farmers suggested to have focused training catering to the specific needs of the farmers. The workshop recommended the following :

1. The training should focus around agriculture practices specially use of inputs , their quality , scheduling , availability and application . Occurrence and prevalence of specific disease and pest and preventive and curative measure should be specifically dealt with .
2. While covering crops priority will have to be fixed so that a crop which is predominantly grown is given first priority while others should follow next according to the intensity of a particular crop in a particular GP.
3. The training should have , as much as is possible , discussion , demonstrations

,examples and illustrations and not one way lecturing .

4. The training should have a strong component of follow-up and monitoring and the farmers ,trained during the first programme ,should disseminate information to the fellow farmers.

Preparation of Course Materials: Having assessed the training needs and realised the intricacies of agricultural practices the team of resource persons had intensive interaction among themselves and finalised a clear course. Literature were procured and pooled to be used by the resource persons in formulating the course. The interaction was divided into - short presentation, group discussion, visual illustration, field demonstration and evaluation. Having prepared the materials the resource persons organised a joint discussion followed by a pretesting . The course material, thus prepared, represented the needs of the people and actual involvement of those who finally had to administer it during the training. Since only a small number of farmers had indicated irrigation issues as the subject of the training irrigation was kept as small component of the programme .A core team of 3 experts in water management offered their input to the main team. Additionally ,it was decided to organise them into a mobile team to visit different training venues and interact with the farmers on water management issue.

The Preparation at the Panchayat Level:After the training need assessment session the Panchayat had a good number of preparatory meetings at various levels fixing responsibility with different members. The Krishi Karmodhyakho (Member Incharge Agriculture) had the over all coordination responsibility. The Pradhans of respective GPs assumed the responsibility for each of the venues under their respective GPs. The Pradhans had distributed the responsibilities among other members. The Panchayat arranged accommodation and lodging at the Government bungalows for those resource persons who were visiting from outside. The local resource persons were staying at their respective place of residence and commuting regularly. The training was organised at the schools/GP offices/Clubs or community places. During the lunch the participants and the resource persons shared food together arranged by the Panchayat. The GPs also arranged stationary and writing materials for the participants .

The Training Methods : Training was scheduled from 10:00 to 5:00 PM. However ,it was often delayed (mostly on the first day) by an hour and had an extended session -in several case it continued beyond 1-2 hours. To have more involvement of the local people and the members of the GPs the programme started with a brief ceremonial address by the members of the Panchayat. This was followed by a brief introduction about the objective of the training as an exercise at disseminating the technology with active involvement of the Panchayat ,the government officials and the farmers. The resource persons would subsequently ask for a recap on the different issues the farmers would like to have discussion on. The resource persons, subsequently , revise /modify their presentation .Subsequently ,the

subjects were introduced for a discussion ,dialogue and group reflections. The visual illustrations made the exercise easy to grasp and understand. At the end of the two day session an evaluation through quiz was conducted and the two best participants were offered token awards –often a spade or a bucket or a sprayer. The participants also filled up a questionnaire giving full details of their cropping pattern ,use of inputs ,opinion about the training and suggestions for improvement in the training.

Monitoring and Follow-up

As has been discussed earlier ,the monitoring and follow-up was considered to be one of the most important components of the programme and subsequently the partners involved in organising the training had agreed to participate in the monitoring and follow-up. Immediately after the training it could be gathered that the members of the GPs and the participants, at the training, were keenly discussing the training programme among the fellow farmers. A discussion with the Krishi Karmadhyakho indicated that the Panchayat was monitoring various aspects of the training programme in their meetings at different levels. The ADO and the KPSs are also designing strategy to have follow up actions in the light of the training already organised and imparted. The PSU sent a letter to all the GP pradhans requesting them to follow-up the programme and let the PSU have idea about the actions being contemplated. A follow-up meeting with the resource persons discussed the follow-up action to be initiated which also agreed to organise some more programmes in different Panchayats. It has been decided to visit different villages from where the farmers participated in the programme and take stock of how the training inputs are being used in the field. The visiting scientists from various levels would also offer on the spot feed back to the farmers on different aspects. A monitoring sheet has been developed which the farmers would use and maintain to keep record of the package of practices used by them and the consecutive changes taking place. This would provide substantial data for analyzing the relevance and adequacy of the training inputs and subsequently bring about necessary modifications in future. The officers and the KPSs would participate in the exercise.

The Outcome of the Training Exercise

In the absence of adequate time series data on the impact created by the training it is difficult to predict the summary outcome . However ,the process indicates to a number of possibilities which can be tentatively discerned .The following section explains some of the possible scenario generated in the process of organising the training programme.

Horizon of Panchayat's Autonomy Expanded: Autonomy is often talked about in pure political ,administrative and financial terms as a precursor to sustainable development.However, these aspects of autonomy can multiply the pace of development if the dimension of technology is also added to it. Technology ,in this

context would include information ,knowledge ,methods and implements applied to effect changes in the existing system. In the context of the Panchayats the political , administrative and financial autonomy offers a conducive environment to play its role effectively . Dependency on external support, so far technology is concerned ,often restricts the Panchayat from playing its role effectively more so in the context of sustainable agriculture development which is its mainstay . The present intervention ensured capability building at the local level. The key farmers and the panchayat members ,once exposed to the appropriate contents and methods of crop husbandry during the training ,are likely to ensure that the technology is available within their reach and would create expanding spiral bringing more and more people within its effective functional coverage. The subsequent interaction with the experts-which may include both local and outside persons , would only enrich and consolidate the technology base within the Panchayats. The process, which is a major shift from the existing one ,if institutionalised ,is likely to facilitate a strong and effective system within the purview of the panchayats.

Creation of a Synergic and Win - Win Impact:The existing constitutional provisions suggest strong interface between the Panchayat and the Government departments. There are ,however ,veiled apprehensions and threat which often impede their strong and effective collaboration even in the sectors of mutual interest and official jurisdiction. The fresh provisions made under the Seventy Third Amendment of the Constitution offer much more pervasive authority and control of Panchayats over the departments covering wide ranging subjects. The constitutional reality is not fully acceptable and internalised by the officers working with different departments of the Governments. There is often a situation of shift in responsibility and in a subdued note each one prefers to fix responsibility with the others in case of failures while there is a strong temptation to own the success. The situation proves to be dysfunctional as lack of a coordinated collaboration minimises the net outcome which otherwise might occur .

Considering the above reality attempt was made ,from the very beginning ,to work out collaborative strategy for the Panchayat and the department of agriculture in which each partner could benefit from the strength of the other. Panchayat has the local base and its proximity with the people offers opportunity for a realistic appreciation of the situation. Additionally ,financial and administrative autonomy offers adequate elbow room for mobilising the required financial resources and also try various alternative strategies. On the other hand the department of agriculture has the support of a strong team of experts and extension officers who could put in concerted efforts to realise its goal of sustainable development which otherwise is constrained because of restricted financial flow and a very formalised system guiding it. An examination of the process suggests that when the Panchayat and the department of agriculture joined hands together each partner created a win- win situation for the other in which apprehension for any kind of loss has been greatly minimised. It has been a wining game both ways. The synergic effort ,thus made, has created a far

reaching impact which otherwise has been missing.

Need Based Approach : Having assumed a collaborative partnership the Panchayat and the department of agriculture have been able to make a realistic understanding of the training needs and devise appropriate methods .An observation of the two day training programme indicated that the farmers were quite inquisitive and receptive about the contents of the training .Since the course was based on the realistic understanding of the agriculture setting the resource persons never faced the apathy of the farmers.It was relevant and interesting. On the other hand this also offered an opportunity for the resource persons had access to additional information about the aspects of agriculture which they would attend to in future. Opportunity for a continuing education seems to have been created.

Promotion of Participative Methods: The classical training paradigm, using a banking mode of teaching /learning , does not offer opportunity for effective sharing and mutual learning . It follows top down unidirectional teaching in which the learners are supposed to be passive recipients. In the present mode the participants training ,the experts and the functionaries from the Panchayat had effective participation at various levels. This made the training mutually rewarding .In a broader sense the exercise laid good ground for a participative planning process which is the essence of the Panchayati Raj Institution.

Exposure to the Basics of Agriculture : The above outcome has a long run implication which can be judged after some time. A post training evaluation ,however,indicated that the participants have been exposed to the basics of agriculture to a very great extent. Response to the questions on the subjects dealt with during the training greatly reveals this contention. Once the basics are within the participants further deductions are likely to made in the process of exploring alternative solutions to the emerging issues. Positive response favouring organisation of such training programmes systematically further authenticate the relevance and scope of the training programme already organised.

Conclusions and Lessons Learnt

What does one conclude from the outcome and what are the lessons one can draw? The question can be answered at different levels. A basic fact that gets revealed is the relevance and urgency of organising need based participative training for the farmers as an effective strategy to ensure sustainable development. The Panchayats, to be effective , must facilitate building of local level capability by encouraging innovation in different fields. Things can improve and changes can take place within the existing resources and provisions.What is required is a willingness to change and a sincere appreciation of others'efforts and capability matched by coordinated efforts of different actors at different levels.The catalytic role of different institutions /individuals can facilitate the required

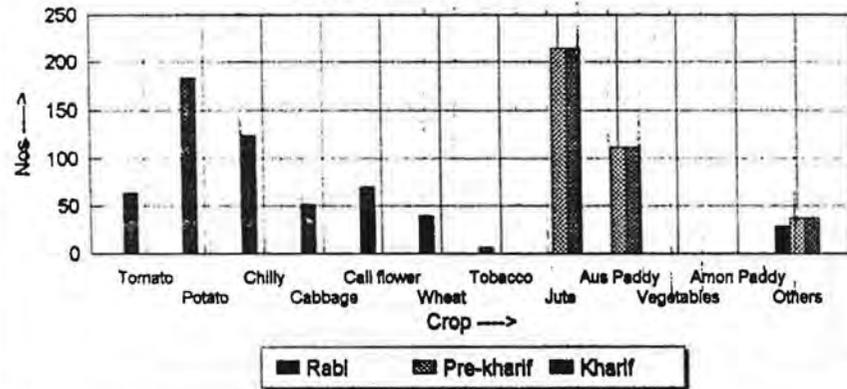
changes .

The training programme ,discussed above , amply demonstrate that the autonomy of the Panchayats, as provided for in the constitution ,can be put to optimum use in ensuring a sustainable technological base for agriculture development. The collaborative role of the government departments interwoven across relevant programmes and activities can add greater meaning to the philosophy and process of devolution of power.The concentric force created by the government department ,the Panchayat ,the farmers and the catalyst institutions like the NGOs/farmers organisations etc. can definitely strengthen the innovative base of the Panchayts.

Analysis of Farmer's Training

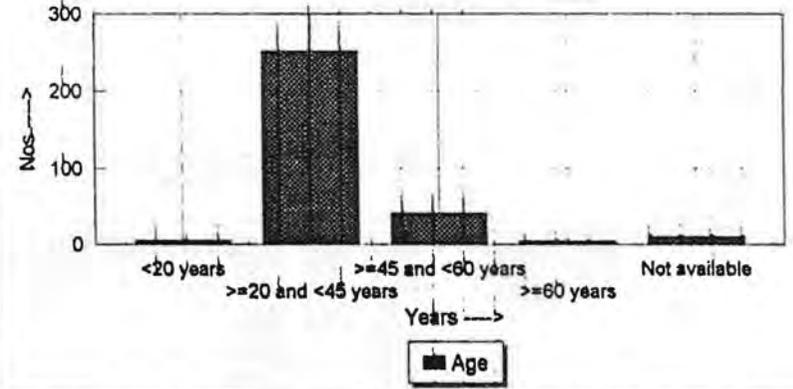
Crop	Rabi	Pre-kharif	Kharif
Tomato	64	0	0
Potato	183	0	0
Chilly	124	0	0
Cabbage	51	0	0
Calli flower	70	0	0
Wheat	39	0	0
Tobacco	6	0	0
Jute	0	214	0
Aus Paddy	0	112	0
Vegetables	0	0	2
Amon Paddy	0	0	32
Others	28	37	4

Classification of crop



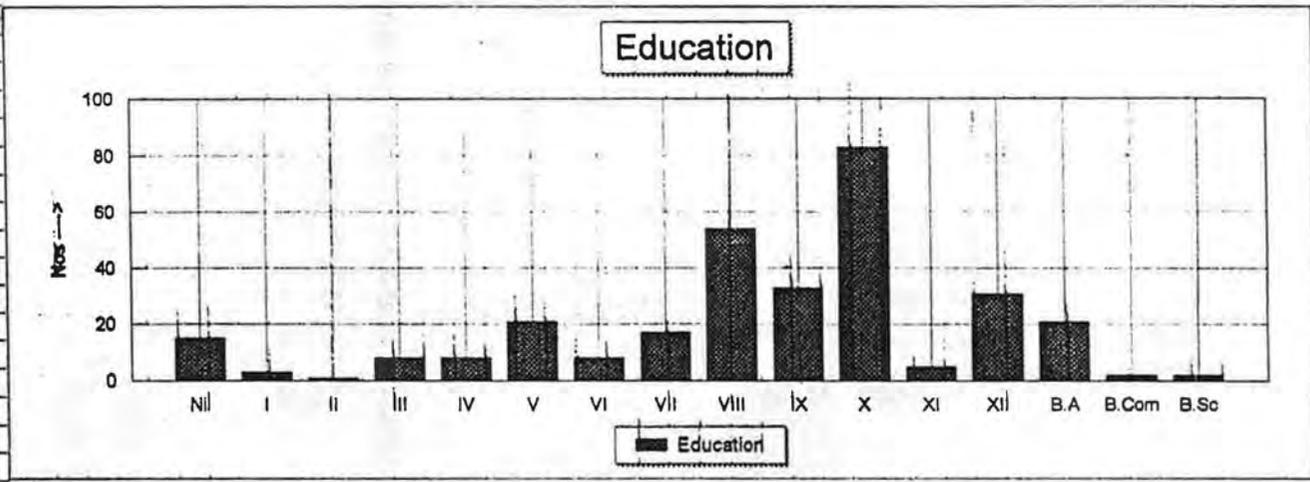
Age description	Nos
<20 years	5
>=20 and <45 years	252
>=45 and <60 years	41
>=60 years	4
Not available	10

Age description



Analysis of Farmer's Training

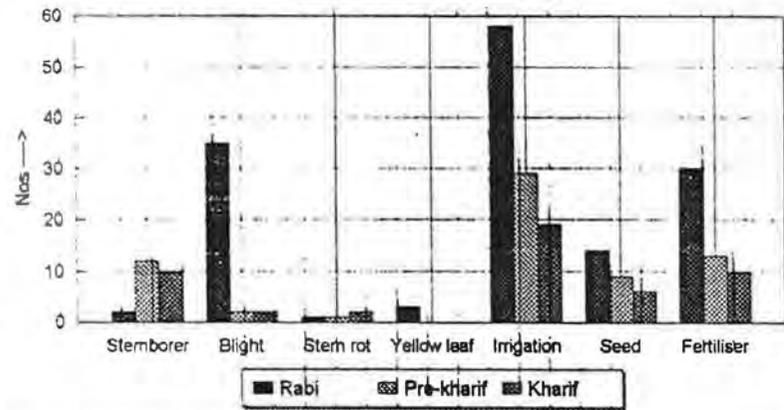
Education	Nos.
Nil	15
I	3
II	1
III	8
IV	8
V	21
VI	8
VII	17
VIII	54
IX	33
X	83
XI	5
XII	31
B.A	21
B.Com	2
B.Sc	2



Analysis of Farmer's Training

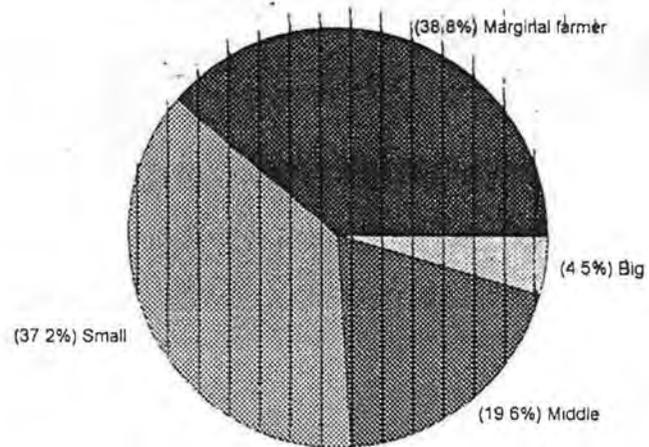
Problem	Rabi	Pre kharif	Kharif
Stemborer	2	12	10
Blight	35	2	2
Stem rot	1	1	2
Yellow leaf	3	0	0
Irrigation	58	29	19
Seed	14	9	6
Fertiliser	30	13	10

Problems faced



Classification of farmers	Land	Total
Marginal farmer	< 7.5	121
Small	>= 7.5 to < 15	116
Middle	>= 15 to < 30	61
Big	>= 30	14

Classification of farmers



AGRICULTURAL QUIZ

Facilitating Local Institutions for Technology Transfer

NORTH BENGAL TERAI DEVELOPMENT PROJECT

Facilitating Local Institutions for Technology Transfer

(Peergroup Learning in an informal Setting)

The Background

North Bengal Terai Development Project (NBTDP), under both its phases, has offered immense benefits to the farmers by providing various irrigation and allied inputs. The region, with limited crop options in the past, has emerged as a major producer of vegetables and cash crops with high yielding varieties. In terms of diversity and intensity the region has witnessed an unprecedented growth. A conservative estimate puts the gross benefits accruing to about 7% of the total farming families residing in the area both in terms of physical coverage and improvement in the quality of life.

Issues in Agriculture Development

Crop diversification and emergence of improved variety of crops has, simultaneously, brought with it several problems and issues the farmers were not familiar with earlier. Need for new and higher products has brought in the need for examining the appropriateness of soil conditions, water requirement and its proper management, pest and disease management, storage and warehousing, marketing, recycling and reinvestment of finance. The predominance of small and marginal farmers with lower literacy and educational level further complicates the situation so far keeping pace with the problems by using emerging technology is concerned.

West Bengal Government, however, has a strong network of extension service spread down the villages to help the farmers acquaint themselves with the relevant information to be used and practised while managing their agriculture. Additionally, West Bengal also has a strong Panchayat system working at the grassroots level which supports and help the extension service of the government in channelling their services to the farmers in an effective manner. Using Training and Visit (T&V) system the extension service has been proving quite effective in catering to the needs of the local farmers.

Need for more User's friendly Extension System under the NBTDP

The evaluation mission of the second phase underlined the need for a much more elaborate and systematic out-reach programme with commensurate Human Resource Development (HRD) strategy to help the functionaries better in organising the out-reach and extension services. The T&V system, under its current operational form, does not provide for an extensive and multi channel sharing and dissemination. The 'key' farmers, because of various reasons, do not play an effective role as conveyors of the knowledge and information as shared and suggested by the KPSSs during their visits. The KPSSs on their part have multiplicity of tasks which often constrain them to ensure a convincing coverage to the large number of farmers under their jurisdiction. Additionally, lack of adequate logistic support for mobility often come in their way of regular visits to the areas and have interaction with the farmers.

Agriculture scene is constantly changing. Everyday new breakthroughs are being made in different fields of agriculture. To keep pace with the changing scenario the extension functionaries will have to keep themselves abreast with the upto date knowledge. To meet this requirement ,naturally,there is a need for systematic training and HRD for various levels of extension workers. In the project area there are two institutions which could possibly perform this role-Agriculture Training Centre (ATC), Cooch Behar and Punibari campus of the BCKV .The ATC does not have a fully developed faculty to offer training and in the absence of a proper coordination the facilities at the BCKV are not fully utilised.

An observation of the training methodology adopted by the ATC suggests that it is more oriented toward a teacher-taught relationship than being participative. Under the circumstances the training offered and provided serve only half purpose. It imparts training in a closed jacketed format rather than stimulating mutual learning process. The procedure of organising training is also quite cumbersome -the principal of the ATC has to send the requisition to the Subdivisional Agriculture Officers(SAOs) to identify and send the farmers /KPSs for different training . This often creates communication gap as a result of which the attendance at the training courses remain less than planned. More importantly the training does not reflect the needs of the clients . The organisation of training programmes also become a matter which is often dependent on the inflow of financial resources following a government approval.

To conclude the present practice of organising training for the dissemination of technology related information has the following limitations:

1. Training to the extension functionaries and the farmers is an adhoc rather than a systematic exercise,
2. Such trainings always have the consideration of administrative convenience rather than being need driven,
3. The programmes are mostly state funded rather than being supported ,even,partially by the users (farmers) resulting into partial to total indifference by the farmers ,
4. The trainings follow a teachers -taught mode rather than following a mutual sharing and participation mode,
5. Such training programmes depend ,largely ,on the external experts and draw little from the local knowledge base,
6. As a result of the above ,the trainings become totally externally determined exercise without any involvement of the local people resulting into static transfer of knowledge from one person to another rather than being a need driven,internally supported and mutually stimulating exercise. The sustainability of such programmes become the greatest victim without having a local anchorage both in terms of physical support and knowledge.

Need for an Alternative Strategy

Keeping in view the above limitations and in order to optimise the gains of the NBTDP there is a need to design alternative strategy to facilitate

technology dissemination . Obviously ,there is further need to bring in commensurate human resource development which is the ultimate resource to design and implement the dissemination process. The strategy has ,necesarily ,to be need driven,anchored to the local knowledge base and socio-cultural and economic milieu and should encourage mutual learning and collective sharing. Such a strategy should consider dissemination as an enjoyable exercise rather than being repetitive ,boring and mechanical. The ultimate aim of the exercise should be to build a local level institution to sustain the exercise as an innovative act with strong network rk/link for sharing and exchange.

The proposed Strategy

The Project Support Unit (PSU), created during the third phase ,has the responsibility to test and try innovative ideas in several sectors of the project and recommend for their integration in the main programme of the government if found suitable. Keeping in view the recommendations of the evaluation report PSU together with the project authority planned a programme for a multi level training programme in which possibility of designing a convenient channel of technology dissemination has been explored. The strategy being proposed emanates from the following assumptions:

1. Training in its present form is seen as a mechanical exercise and follows the classical mode of banking system of teaching /learning offering little scope for mutual sharing .
2. Training follows a very formalised system in which dependence on external direction /guidelines is overwhelmingly required
3. The absence of a stable faculty often results into crises management which leaves the impact less than desirable,
4. The already overworked agriculture functionaries find it difficult to monitor and follow up the training,
5. As a result of the above the training fails to emerge as a systematic process which would create opportunity for an exciting and stimulating exercise and rovoke opportunity for mutual learning and sharing with innovation.

The proposed strategy has the following objectives:

1. To create an entertaining competitive situation for training where learning\ teaching is based on mutual sharing and help,
2. To strengthen local resource base for training where the inputs are created and recycled at the local level i.e. local officials and functionaries together with the farmers and the Panchayat.
3. To make training need based and endogenous and foster building of a location specific small /informal innovative institution for facilitating scientific explorations and seeking answers to the global issues at the local level.
4. To facilitate building of a bridge between the farmers and the Panchayat on the one hand and the government functionaries on the other and

5. To make training an exercise of the local people supported by the experts and officials from the government department.

The Process

First of all the concept was discussed with the project authority and the teamleader. Subsequent discussions were held with the different levels of the government officials i.e. the Principal Agriculture Officer (PAOs), Agriculture Development Officer (ADO) KrishiPryukti Sahayaks (KPSs) and Key Farmers (KFs).

The ADO, Dhupguri and his colleagues, KPSs, after a little hesitation agreed to take it as a challenge and subsequently the first pilot programme was designed to be organised in Dhupguri. Yet another consideration in favour of Dhupguri was its close proximity with Jalpaiguri where the PSU is located. It was considered convenient to monitor the programme for its proper functioning.

The programme

It was decided to organise agriculture quiz at selected places with the farmers group. Considering the current as well as the forthcoming crop season it was decided to organise quiz covering Rabi and pre-kharif crops. The KPSs agreed to construct relevant questions relating to the different crops. The questions covered preparation of land, procurement of appropriate seed, process of sowing, irrigation, manuring, identification of pest and diseases, use of insecticide and pesticide, harvesting and post harvesting technology etc. The questions were pooled together and discussed with the agriculture experts and the farmers of the area. They were finally validated and answers were decided.

At the village level the farmers who were participating in the demonstration programme of the project were invited for a discussion about the organisation of the quiz at different places. They offered their suggestions and agreed to participate. Their opinion with regard to the award and logistics was quite useful. Dates were fixed after considering the convenience of the KPSs who are the key persons in the total programme.

The Process

Once the dates were fixed the KPSs and the farmers became quite active. Places were fixed and invitation to the neighbouring villagers and the Panchayat members sent. The farmers (both male and female) worked seriously to make the show in their respective villages better than the other. The ADO and the Work Group Support Officer from the PSU monitored the preparation as they were not ready to leave any thing to chance. As per the schedule the programmes were organised in each of the villages with demonstration plots,

In the first round five villages were covered. In the last village i.e. Mallik Sabha the KPSs and ADOs from the adjoining Blocks/villages were also invited to witness the quiz. The quiz was followed by a review cum dinner meeting at the Dhupguri. The ADO and the KPSs from Dhupguri first, evaluated the programme and identified some of the shortcomings and limitations. They also made suggestions to bring about improvement in them. The ADOs and KPSs from the adjoining areas also made commitments for the future. Some of the Panchayat members came forward to carry over the programme through their own initiative.

At the predetermined places the participants used to trickle down little before the programme was scheduled. The Panchayat members and other key persons reached in between. The organisers would fix blackboard, make space for the participants and the visitors. The scorers and the time keepers were identified and delegated their respective roles. The quiz masters, who were either from the agriculture department or the PSU would first explain the rule of the game. The participants occupied seats in two groups each group having a team leader. The quiz master would throw first question to a group and would wait for a minute for the answer. In case the group was not able to offer correct answer the question would automatically go to the other group which would get a bonus point of 5 in case it offers the correct answer. Each group had to lose 5 points in case it risked to speculate a wrong answer. The scorer would provide feedback to the group about their performance. At the end of the show every group was able to see his/her score on the board. The result was subsequently announced and one of the persons-either a panchayat member or a senior villager would offer the award. (A detailed living presentation of a live programme is attached).

Before the award was given there was a good discussion on several of the questions and the answer. The implications were discussed threadbare and the farmers asked questions which often bothered them. The experts from the agriculture department including those from the Agriculture Consultancy Centres (ACCs) often participated in the programme. The programme started and concluded with a light cultural programme which was presented by the local people both male and female. At the end some a commitment was obtained from the farmers about the possibility of organising the programme on their own without any outside support. In case they required expert support they would invite the local experts available with the agriculture department. In all cases the Panchayat has offered overwhelming support and promised to organise similar programmes in future. Some of the members would, subsequently, move toward the villages and sit for some time. It was found that in several cases the farmers came out with specific cases of disease and other problems afflicting their crops. The local experts were able to offer them concrete suggestions.

The Lessons Learnt

Although the programme has been organised only at 5 locations it offers certain tentative lessons. An attempt has been made, in the following section, to explain the main lessons:

It is quite evident from the organisation that the quiz created an occasion for the KPSs and the ADOs together with other higher level functionaries to relate their knowledge with the real life issues in a concrete creative manner. At times anxious moments were quite visible on their face when ever they were not able to find answers. Interestingly enough they never gave in- they made attempts for finding answers /solutions. They consulted senior people, farmers or looked into the available literature. This offers us a good lesson about how best the lowest level functionary can have an auto shaping of his knowledge base. Additionally, it is mutually rewarding and creates an informal channel of creating learning which is often missing.

The farmers, over the period, have lost trust in the government officials and functionaries. They are investing enormously in exploring several avenues where they can get the needed information. Similarly they themselves have very little of communication among themselves. One of the key farmers once revealed that he would not like to reveal the secret of

his high yielding tomato because it was something like a trade secret. The occasion, however, had facilitated creation of an informal communication where the mutually rewarding information were shared.

It is true that local level government functionaries are overworked and the existing training arrangement do not provide much scope for learning and wider coverage. In the present case the local functionaries do not take it as an extra piece of work. The joy of learning takes away their feeling of overwork. Similarly, if the arrangement continues the farmers will develop into an innovative institution where the functionaries will play the role of a supporter rather than being more involved as the main actor.

The farmers under the existing socio-political and administrative system have developed a serious sense of dependency on either the government or other institution. This has adversely effected their sense of initiative. In the present case the farmers and the government functionaries were working as partners rather than being providers and recipients. The farmers were quite forth coming in mobilising resources. This goes a long way in the political economy of a system fostering so much of dependency at various levels.

A related issue is the limitation of the government in providing service to the large multitude of the population. Ideologically, the government may promise anything but considering the large population to be served it is not possible to provide them effective service. The exercise proves beyond doubt that the large number of farmers can be served if the people and the government join themselves together and work toward the common goal. Situation for the common stake will have to be created. This exercise provides insight into the possibility of creating a common stake.

The participation of women farmers in the whole programme was tremendous in all aspects. They never found themselves in an inferior position - they mobilised resources well, they scored quite well and their discussion in the panel discussion was admirable.

The belief that the knowledge with the 'elite scientists' can alone provide the needed solution is creating a sense of inferiority among the natives and the locals. They feel shy of their own knowledge. Such opportunities take away their hesitation and encourages them to try and proclaim their own ideas and expertise as effective tools.

It is interesting to discuss one incident in which the KPSs from other areas were highly critical of the programme and in a way termed it as a product of sheer imagination of a group of crazy persons. The team was totally discouraged. However, on the occasion of final round of the programme the KPSs were again invited to witness the quiz. In a subsequent review meeting the same group of KPSs not only appreciated the programme but also made commitment to try the activity in their own area. This testifies the contention of 'seeing is believing' in which people realize the impact only after seeing rather than being repetitively preached.

The farmers and the group leaders have mobilized local resources to organise the programme. Similarly the Panchayat members have also provided the token support which can subsequently increase. Looking at the impact several of the Panchayat members have volunteered to support such innovative activities. Looking at the influence of the Panchayat in West Bengal their support can be of tremendous importance in making the programme sustainable strongly rooted into the local milieu.

More than anything else, the exercise creates an opportunity for social harmony and inter /intra group support. On several occasions the participants were seen prompting their opponents. This showed their concern for their own people.

The Recommendations

Considering the implications of the pilot quiz it seems that this can be tried and tested for a more coverage and the government should consider integrating it into the main programme. This will involve the following:

1. Some more area should be identified and brought under the programme. The government can issue necessary instruction to the line staff.
2. The exercise would involve reorientation of the field as well as the middle level. An orientation training for various level of functionaries is recommended.
3. The role of Panchayat, in the exercise is crucial. The Panchayat can facilitate the process and can ensure the availability of experts from various sources including the government functionaries. The Panchayat can also work as a support for mobilising resources required for organising the programme.
4. The quiz mode can be tried in other programmes like transfer of management of irrigation. The managerial and technical role can be easily disseminated to them following this mode.
5. The involvement of women in the programme was found to be tremendous. The exercise can be used in gender development programmes to sensitise and open up their hesitation.
6. The functionaries and farmers from the adjoining areas attended the function in large number. It was subsequently observed that those attending the function in one village were able to improve /innovate in the next programme. The peer group learning/learning by seeing has certainly worked. While organising programmes in future this component must be kept in mind.
7. The field functionaries at the block level hold the key to the success of such programmes. During the organisation of this programme the enthusiasm and involvement of the functionaries, especially the ADO and the KPSs, was of a very high order. However, looking at the available infrastructure support to them it is not possible for them to sustain their enthusiasm. It is, therefore, recommended that these functionaries be provided with adequate infrastructure support like a vehicle, audiovisual and some literature.
8. The exercise calls for a systematic mobilisation of the farmers and organising them around innovation. This requires special skill and training. The social scientists and /NGOs with the necessary orientation can play this role more effectively. Their services should be enlisted and utilised.
9. The complain of a resource constraint appears to be a myth to some extent. If the officials and the functionaries make sincere effort the farmers would never feel shy in mobilising the needed resources. The

outsiders will have to prove that they really want business and are serious about their cause. The farmers in the villages have already shown this possibility. It is recommended that with the Government's initial policy and logistic support the grassroot functionaries should make effective rapport building with the farmers and ensure their involvement and support.

10. Other departments like Agri-Mech , Soil Conservation , and others can benefit from the lessons already learnt. Well within the purview of the project such community based activities should be included in their programmes. The PSU can provide the initial support in the form of orientation training and procuring the materials.

AGRICULTURAL CONSULTANCY CENTRES

NORTH BENGAL TERAI DEVELOPMENT PROJECT

AGRICULTURAL CONSULTANCY CENTRE (ACC)

Objective : The objective of this activity is to try out a supplementary and demand driving channel for the provision of the agricultural knowledge.

Number of ACC established : 6*

ACC : A Profile

SINo	Name of the resource person	Place	The days for consultancy in a week
1	Naresh Sarkar	Dhupguri Dist : Jalpaiguri	Saturday Tuesday
2	Samiran Chakrabarty	Haldibari Dist : Coochbehar	Saturday Tuesday
3	Annada Shankar Som	Tufangang Dist : Coochbehar	Monday Thursday
4	Swapan Pandit	Belacoba Dist ; Jalpaiguri	Wednesday Saturday
5	Subal Banik	Maynaguri Dist: Jalpaiguri	Tuesday Friday
6	Bhupendra Nath Nag	Marichbari Dist : Coochbehar	Monday Friday

At present consultancy charge is Rs 5. In the period September-December the queries almost exclusively concerned vegetable cultivation, particular on disease. In the period January-March most queries concerned potatoes (particular disease control), chilies (disease control), tomatoes (disease control), beans (general management) and watermelons (general management). The farmers visiting the centres were mainly marginal farmers, travelling from often 10-15 Km to the market centre, where the ACC resides.

Of the four consultancy centres established last year, one stopped (Mathbanga) due to the death of the consultant. At present three well-functioning centres (Dhupguri, Balacoba, Marichbari) continued to attract 60 to 75 clients in a month.

* In Mathbanga ACC was stopped due to the death of the Consultant.

INNOVATION AWARDS IN AGRICULTURE

NORTH BENGAL TERAI DEVELOPMENT PROJECT

Innovation Award in Agriculture

Background

NBTDP has been providing minor irrigation facilities in North Bengal Terai region for the last 10 years which have started bearing fruits in the form of intensive crop pattern, more yield and new products being possible and tried. All these require an effective market. Hence marketing assistance need is a logical outcome of the main objective of the project. To concentrate on improvement of agriculture marketing several activities have been planned in the third phase of NBTDP to develop and to support to planning of market centres, farmers and traders training in marketing and new product development. **Innovation Award** is one of these activities which intends to stimulate local growers and traders to go for and to explore new product, new methods of processing, cultivation and marketing.

Traditional system of agriculture and marketing is well developed and has sustained its importance in the village economy for ages. Under the present situation it would always be meaningful to develop the system of the farmers choice and for any such development private enterprise is the only answer. This plan is purposely designed to encourage the farmers and traders and their private efforts in this region who are practicing new ideas in improvement of agricultural marketing by -

- reducing the risks of marketing, resulting out of significant increase in agricultural production, diversification of production i.e., new product development
- exploring new and indigenous methods of cultivation and marketing
- and processing

Objective

Reduction of the risk of marketing failures by encouraging crop diversification through the introduction of new crops
Improving storage, processing and marketing of agricultural produce.

Working Methodology

The competition was meant for farmers, traders and persons related to agricultural activities. The first competition was open upto 15 December 1995.

Announcement of the award was made through -

News letter " Terier Chithi " published by Project Support Unit
All India Radio
Handbills distributed in different haats, markets
Advertisement in local news paper

The applicants were asked to send details of their working in Bengali in plain paper.
Within the stipulated period as announced 18 numbers of application were received.

Of these 18 applications 4 were for Mulberry, 2 for Brinjal, 3 for potato, 2 for tomato, 1 for Chilly, 1 for coffee, 1 for bean, 1 for bamboo, 1 for Elephant foot and 2 for all vegetables.

To evaluate these applications a five member jury was constituted as following -

Joint Director Agriculture
Deputy Director Agricultural Marketing
Agronomist BCKV University
Agricultural Economist BCKV University
Former Director Agriculture

The jury analysed the applications on the following criteria

The submission should concern an innovation in crop production/ crop processing/ marketing new to North Bengal region.

The innovation means a substantial improvement in income.

The innovation is developed or introduced to the North Bengal Region by the applicant himself.

The proposed innovation has the potential to be applicable in the larger area, say of at least 100 acres.

The first prize was of Rs 25000. The second prize was Rs 15000 and the third prize was Rs 7500.

All the applications were summarized in an overview and this overview along with the more detailed description as given in the application were sent to the jury. At first all the members of the jury gave their individual opinion in writing separately .

On 27th March 1996 they sat together, judged once again and gave their final opinion.

Almost all the applications could only fulfill a part of the criteria laid down in the terms of reference of getting the award. Hence members of jury did not agree to offer the prizes as 1st, 2nd or 3rd as announced earlier by the project. However, it was unanimously decided by the juries to offer four appreciation prizes of Rs 5000 each considering their efforts on new crops/technique/innovative ideas. These applicants are

Madhab Chandra Dey	for Coffee
Nripen Chaki	for True Potato Seed
Surendra Mohan Das	for True Potato Seed
Ramesh Chandra Barman	for Elephant Foot

The Winners : A Profile

A. Name: Madhab Chandra Dey
Crop : Coffee
Type of Innovation: New Crop

Madhab Chandra Dey is the first person in North Bengal to start coffee cultivation and at present he is the only person in this region who has started processing as well. After grinding and roasting he is selling coffee powder privately. He has been cultivating coffee for the last 4 years on his 6 acres of land.

B. Name: Surendra Mohan Das
and
Nripendra Nath Chaki
Crop: Potato
Type of Innovation: Both of them were awarded for cultivating potato through True Potato Seed (TPS) , a new effort in this region.

Surendra Mohan Das and Nripendra Nath Chaki are among the path breakers to try TPS for potato cultivation instead of traditional way of using whole tubers or cut tubers in this region of North Bengal. They got significant amount of success in their field. TPS gives more yield, prevents pests and diseases better in comparison to others and can also resist water in case of excessive rain. TPS can bring a new era in potato cultivation in North Bengal Terai region.

C. Name:	Ramesh Chandra Barman
Crop :	Elephant Foot
Type of Innovation:	New variety

Ramesh Chandra Barman in his area is the first person who brought the Kavoor 3 , the recent most developed variety of Elephant Foot from South Bengal and got a good result in the very first cultivation. His effort has another significance as he has grown this crop in char area (soil conservation area) where reclamation of land has started very recently after flood. After getting success in his field he has now taken effort to spread this variety in the entire area.

After completion of First Innovation Award announcement for Second competition has already been completed. The last date of submission is 30th November.

SOIL CONSERVATION

Community based soil conservation and agro-forestry

NORTH BENGAL TERAI DEVELOPMENT PROJECT

Community Based Soil Conservation and Agroforestry

The Background

During the earlier phases of NBTDP physical achievements of the soil conservation and agroforestry has been quite impressive. Large track of flood ravaged and degraded landscape have been brought under productive cultivation through a number of rehabilitation measures. The benefit to the small and marginal farmers have been quite high who have witnessed large scale crop diversification.

Encouraged by the achievement the third phase has taken good care of this component and has envisaged to undertake large scale rehabilitation programme for the soil conservation and agroforestry. Under the third phase emphasis has been given to the involvement of the community in both the planning and implementation of the programme.

The Design of the Programme

Under the current design the community undertakes to organise itself in to a viable group with Panchayat providing an overall support. Location is identified jointly by the officials from the soil conservation department, the panchayat and the farmers. Using participative methods of planning, priority with regard to the species is jointly fixed. The members of the group are provided training in different activities both by the officers from the department and the local knowledgeable people. Nursery is laid jointly and post nursery care is done by the group. An initial financial support is provided to the group by the PSU under the TA support.

After the plantation the community ensures the upkeep of the plants for one complete season which is verified by a team consisting of the officers from the department /people from the agriculture university. Based on the surviving plant the community is paid according to an agreed rate.

The Programme

During the initial year of the pilot activity two locations in Cooch Behar were taken for community based agroforestry and soil conservation programme. The Department of Soil Conservation, the Panchayat and the Project Support Unit (PSU) undertook a collaborative planning exercise. The villagers were organised into beneficiary committee which identified the location and selected plants and species. Plants were grown on the embankments and the common land. Before hand a training in nursery raising was organised. Large number of women and youths participated in the programme. After the plantation the beneficiary committee undertook careful protection of the plants. Meanwhile the group activities continued in which strategies for future programmes were articulated.

After nine months the plants were, first, counted by a representative from the department of soil conservation and the beneficiaries committee. Subsequently, an independent expert and a representative from the PSU made a sample check of the account. It was found that the survival rate of the plants was about 75 % which is quite encouraging. The beneficiary committee was paid according to the surviving plants. An interesting feature of the programme was a willingness of the beneficiary committee to replace and protect the plants which died during the period. Encouraged by the payments the farmers had been planning different activities including formation of credit and thrift groups.

Land marks in Agroforestry Activities

Programme Initiated in April 1995

Meetings and organisation of groups: From the planning to the evaluation of the programme 12 meetings have been organised by the farmers. Consisting 9 members, an Executive Committee has been formed. Three of them were women.

Nursery Training: In May : A one day Nursery Training programme has been organised. Local expert on nursery trained the farmers how to raise the saplings.

Plantation : 12,400 Saplings has been planted

Final Evaluation: February 1996 final counting of the survived trees and the evaluation has been done by the active participation of the people.

Balance Sheet

Total Surviving Plants : 10,710 **Trees :** 9516

Horticultural Plants : 1186

Women Credit and Thrift Groups : Four women groups have been formed in Madhupur under Agro-forestry programme. One group has already started sericultural activity. Another group is using their savings as credit fund.

Irrigation Groups : Farmers has formed one irrigation co-operative to provide irrigation in their land. They have purchased one pumpset on their own.

The Outcome

The outcome of the programme should be considered in both the quantitative and qualitative terms. The following section would make an attempt to discuss the outcome:

Survival Rate is High :

As is clear from the result the survival rate of the plants is very high compared to the current practice adopted under the social forestry programme of the government. This has been possible because of the focused attention of the farmers following the condition of payment based on the surviving plants. Additionally, the group based activities further sensitised the farmers for collective action toward protection and upkeep of the plants.

Organisational Strength of the Group Increased :

Following their involvement in the group based programme the farmers have been able to form themselves into a strong collective force. After the plantation work was complete the farmers, especially the women, have involved themselves into credit and thrift activities. The experience suggests that over here it was much easier to train and sensitise them.

Spiral for Self-help Expanded :

Following the successful implementation of the group based agroforestry activities the farmers have been sensitised for undertaking and expanding self-help activities for their own benefits. The impact on the Government functionaries is tremendous who have made significant shift in their style of functioning -from a subsidy oriented approach to a self-help one. A case in point would reveal a self-help action by the farmers facilitated by the officers and staff from the soil conservation department

The case of obtaining irrigation system : In the main programme

Last year 45 bigha of land has come under bannana cultivation in Lafabari. As the land is sandy so irrigation was required for survival of the plants. From long time farmers were eager to have a irrigation system by the Govt. However their demand could not realise. Without depending further more on outside aid they decided to purchase a STW on their own. Every one gave Rs 300. After raising a common fund with the money they purchased a STW. The farmers formed a committee consisting Secretary, casier and a president. They also framed some rules to manage the system. Now Rs 15 is fixed for per hour rent of the pump. However, for a non member it is Rs 25.

A Replicable Programme :

The Soil Conservation officers from the adjoining Jalpaiguri district made a visit to the project site and observed the functioning of the group based agro- forestry programme. All the hesitations were replaced by an enthusiasm to try a similar programme under their jurisdiction. Subsequently, a programme has been launched in Dakhin Changmari (Jalpaiguri) over 50 Ha of Command area .Within command area 67 House hold are involved. Taking lessons from the earlier project in Cooch Behar use of Participatory Rural Appraisal (PRA) was effectively made in identifying the community priority and sensitising the partners.

Like earlier programme large number of women have been involved in the programme and an important aspect of the programme has been the organisation of four women credit and thrift groups with challenging agro based enterprises as the future agenda. Details of programmes and land marks are given in the following table:

Time when the programme was intiated : February 1996	
Nursery Training	: April 1996 by the local nursary expert.
Plants and species	: Total plants 15000 (Sisu, Neem,) pine apple, fodder, spices, elephanfoot demonstrations
Land covered	: 50 Ha Private : 32 bigha Homested : 67 H H
Credit and Thrift Groups	: 5 women group has been formed. 115 women are involved.
Total deposits	: Five groups have already deposited Rs 65,000
Future plan	: out of five groups ,two have planned to do paddy business with their saving. Two group have decided toutillise their savings as credit fund and one for goatry.

Special Features of the Programme

What do the two pilot group based agro-forestry programmes reveal? It is not possible to make a summary conclusion based on the two programmes which have functioned only for some time. However, the initial indications suggest that the programme can be a good alternative to be integrated into the main programme of the Government. The arguments infavour of this are based on the following considerations.

1. It takes into account the strength of the community both in terms of physical support and native wisdom.
2. The initial support provided to the group provides comfortable cushion to the community to initiate the programme and plan for the proper upkeep of the plants.
3. The condition for payment based on the surviving plants keeps the community/group alert and vigilant.
4. The payment made at end of the season after proper counting creates a collective fund which can be utilised for further collective enterprises.
5. The process leads to greater bonding among the local farmers which can reinforce other community based activity.
6. Considered on yet another plank ,the exercise offers opportunity for creative users friendly planning process by both the government functionaries and the members of Panchayat and
7. The programme is quite in consonance with the policy of the West Bengal Government favouring devolution of power to the people and a participative development model in which the Panchayat plays the crucial role.

WOMEN IN DEVELOPMENT

NORTH BENGAL TERAI DEVELOPMENT PROJECT

Women in Development (WID) Activities Under NBTDP III

The Background

North Bengal Terai Development Project (NBTDP) has a very strong and effective participation of women in its programme and activities since the beginning of the project. They have been the major recipient of the Hand Tube Wells (HTWs) and today their number has crossed 30,000 mark. The evaluation mission of phase II appreciated the benefits of HTW programme in improving the quality of life of the women and more importantly ensuring them the direct access to a government programme which, so far, was absent. On a number of occasions women have been displaying a very high level of aspiration for themselves and their children, more importantly to the education of their daughters. The evaluation mission further suggested to create opportunity where the advantage gained through the HTWs could be augmented and expanded in terms of skill development in agriculture and development of independent entrepreneurship in various fields, emphasis being given to agriculture and allied sectors.

The third phase had great consideration for the recommendations of the evaluation mission and provided for special inputs for the participation of women in the project activities. Two programmes have specially been tried during the pilot phase of the project which include:

1. Group Demonstration and
2. Group based enterprise development through formation of credit and thrift groups.

In the following section details of the programmes and their impact is being described in detail:

Group Demonstration: North Bengal, compared to the Southern part, is considered less developed. The agriculture, though the mainstay of the people, has not offered even a subsistent livelihood to the people. Till recently the area is reported to have been producing only rice and potato, that too only traditional low yielding varieties. For the last few years the agricultural scenario has undergone a sea change and the farmers are moving toward crop diversification. To create a demonstration effect toward the improved agricultural practices and varieties organisation of Group Demonstration was recommended. A group demonstration is the demonstration of improved practices and varieties in the identified plots. The women farmers, usually 20 in number, organise together into a group and participate in the demonstration programme as group and not as individual farmers. The process includes :

1. Identification of 20 number of women farmers willing to participate in group demonstration.
2. Facilitation of training in group dynamics and identification of relevant crops suitable for a given area.
3. Provision of inputs for the identified crops and training in package of practices of cultivation for a given crop.

4. Monitoring of agricultural practices and sharing of the critical points among the group members and exchange of feedback with the extension functionaries of the Government, mainly the Kripsi Pryukti Sahayaks (KPSs).
5. Crop cutting experiments to determine the yield.
6. In a given group the input support is rotated to a fixed number of farmers who do actual farming on their plots while the others participate in the training and monitoring activities and observe the agriculture in others field.

During the last rabbi and pre-kharif season 10 women groups participated in the demonstration. During the rabbi it was mainly wheat and during the pre-kharif it was mainly jute laid in the demonstration plots. On the basis of the last year's experience the following facts have come to the fore:

1. Women farmers have positive orientation for working in the group.
2. The crop cutting experiments show considerable improvement in terms of yield per unit of the area.
3. Awareness about improved farm practices has increased and the inputs are being judiciously used.
4. Training following informal and entertaining modes are creating better appreciation about the technology. The training using quiz proved quite effective.
5. Demonstration through group has created greater "we feeling" and bondage among the women farmer.
6. Group demonstration has induced a sense of planning among them.
7. The male farmers have recognised their potentials and are offering all support to them.
8. Constant interaction with the extension functionaries and members of the Panchayat has been able to widen their cognitive horizon.

The Women Credit and Thrift Groups

This programme has emerged as one of the most favourite and effective programmes for the women. A group of 20-25 women as beneficiaries of any of the programmes under the project are organised into a credit thrift group. The membership to the group is voluntary but should be acceptable to the majority of the women in a group. The KPSs and the members of PSU facilitate formation of the group by organising a series of meetings and sensitising the women toward credit and thrift activities. According to the arrangement each member of the group pays a monthly contribution of Rs. 50 during seven months. This amount is equivalent to the 10% of the cost of a hand pump which each beneficiary has to contribute as her share. In

between, the members select a cashier and a convener from among the members and the local panchayat. The office bearers manage the collection and deposit of the fund in a joint account operated by the office bearers.

Meanwhile the members discuss and decide the modalities for utilising the amount from the common fund. They also decide the vocations and trades the group would pursue either as a group activity or an individual based activity. After the vocations are decided, training and linkages are worked out so that the group enterprise becomes effective. The following section would describe the activities and performance of the credit and thrift groups.

Quantitative Performance: So far 18 women credit and thrift groups have been formalised. The groups have different ages; while 14 have completed their 7 months cycle and stabilised, 4 are yet to complete. The figures in the appendix would present the profile of each of the groups. The groups are conducting their regular activities systematically as non of the groups have ever proved defaulter in depositing the contributions after they have been collected from the individual members.

Formalising and Following the Norms : All the groups have formalised their norms which are more or less similar. Some of the important norms suggest that the deposits would not be utilised for consumption purposes and the vocations would be finalised collectively. Other operative norms are in the process of being evolved.

Trades Finalised: It is quite interesting to observe the trades being finalised to be pursued by the members. The choice for vocations are being moderated by the KPSs or the members of PSU. While some of the vocations have emerged out of a desire to go toward non traditional sectors, others are the copies of similar programmes being run by other groups in the area. It would be worthwhile to examine the evolution of some vocations in the non-traditional sectors:

In Mallik Sabha the Group under the dynamic leadership of Tamina Begam had big plans - the group wanted to buy a power tiller and subsequently lend it to other farmers. The amount at their disposal, however, was quite inadequate to support the proposal. The matter was discussed with the bank officials and the Agricultural Development Officer (ADO) who also indicated that the proposal was resource heavy and could be a risky proposition. Subsequently the group decided to go for collective cultivation of potato over a leased land. The group feels that they will be able to generate some more money out of the sale of potato. The fund may be utilised to buy a power tiller. The proposal may sound unrealistic but the determination of the women indicate that yes the proposal may be a dream, but a dream which has the chances of being true. May be the women from Mallik Sabha turn this dream into reality with their spirited endeavour and an articulate planing.

Establishing Linkages : The fund with the groups may be inadequate but there are ways the fund could be augmented and multiplied. There are programmes and financial support available with either the government departments or the financial institutions. A workshop

was organised in which office bearers from different groups and representatives from the government departments and the financial institutions participated. There is a promise to have linkage with different departments and institutions so that entrepreneurial pursuits could be supported. Some groups have already started having such linkage:

The Madhupur Women Group in Cooch Behar has completed seven months of its function. In order to have meaningful vocation the group tried several options. The sericulture department has come forward and is organising training programme for the group members in sericulture processing including plantation and rearing of cocoon.

Now with the maturity getting nearer every group has its own range of activities being pursued. The most interesting spread over and consolidation effort can be found in one group helping a group of other women to organise themselves and the groups continuing their contribution even beyond the project commitment. The women development programme within the project is looking up and seems to have diversified it self. No external pressure - it is all a self evolving process.

Women Development Programme in Madhupur

The groups : Madhupur No 1 , Madhupur No 2, Madhupur No 3 and Adibashi Tearai Mahila UnnyanDal

Gram Panchayat : Madhupur

Block : Coochbehar II

District : Coochbehar

**Total Number of women
Involved in the programme : 80**

Most of the women are Scheduled Caste and Scheduled Tribe .

Life cycle of the groups : Madhupur No 1 and No 2 , these two groups have been formed February 1996. They are now in 11th month of their joint activity. The other two groups has been established in the month of November 1996. The women of these groups felt interested in the programme seeing the other two group's activity so far. More women of this area, of small and marginal farmer families, are showing interest to form group. All these groups have been formed in soil conservation area under NBTDP

Name of the Bank involved : Madhupur No 1 and No 2 deposited their money in United Bank of India, Madhupur Branch and the other two groups have opened their account in the local Mini Bank.

Deposit of the groups :

Madhupur No 1 :	Rs 17,500
Madhupur No 2 :	Rs 5,000 (This group is using their fund for mulberry sapling raising.)
Madhupur No 3 :	Rs 1400
Adibashi Dal :	Rs 1700

Activities : Madhupur No 1 group is at present using their money as credit fund. Madhupur No 2 group has started raising mulberry saplings. For this they got 21 days training from Sericulture Department. The other two groups are in the process of savings.

* In the entire programme the local Panchayat and Panchayat Pradhan played a very important role.

Name of the group : Malliksova Terai Mahila Unnyan Dal

Village: Malliksova
Gram Panchayat: Sakoajhora II
Block : Dhupguri
District : Jalpaiguri

Total number of members : 20

The Executive Committtee : Secretary: Hosneara Begum
Cashier: Tahmina Khatun
Convener: Surendranath Roy

Life cycle of the group: This group formed in the month of February 1996. They opened an account in the Bank in that month and started depositing their savings i.e, Rs 50 per month per member, a total of Rs 1000 per month. Project contributed the same amount (Rs 1000) per month to encourage the group.

The group completed their 7 month savings period upto which they received Project's contribution. At present it is the 11th month of group's activity.

Name of the Bank : Syndicate Bank.
Thakurpat, Dhupguri.

Total Deposit of the Group: Rs 17,800
(Rs 10,800 The group's own Contribution + 7000 Project's Contribution)

** After 7 months the group decided to save further even without Project's support

Activities : The group started thinking of their future activity in their regular meetings. At last they decided to start agricultural activity jointly. In this rabi season they are cultivating potato taking land on lease. For this the group underwent a one day training on potato cultivation.

Name of the Group : Chikanmati Teral Mahila Unnyan Dal

Village : Chikanmati

Gram Panchayat : Chathat

Block : Phansidewa

District : Darjeeling

Total member : 23
Most of them are from Muslim Community

The Executive Committee : Secretary : Padamani Barman
Cashier ; Subera Khatun
Convener : Md Maghu

Life cycle of the group : The group formed in the month of May 1996. They already saved Rs 16,100 and it is the 8th month of their joint activity.

Name of the Bank : Central Bank of India.
Bidhannagar Branch

Activity : With the fund the group members are thinking to go for potato cultivation. In the last month's meeting they passed a resolution to have a training programme from the Project. They also decided in that meeting to continue their savings programme by their own.

Women Group Profile under NBTD

Name of the Group	Name of the Branch	District	Under which activities	Group Executive Committee	Name of the Bank	Saving start	No of saving month	Group's own saving	Project's cost	Total dep. as in the Bank	On going activities of the group
1. Barangun Teru Mohla Unayon dal	Barangun Teru Mohla	Barangun Teru Mohla	STW	J. Sit. S. Barun : Subir Anon Barun : Anon Sop Roy	Kandari Chura Bank	Pub. 96	11	6540	5250	11,790	Group has already started potato cultivation in rabi season. A one day training has been completed. The gr. will continue to save Rs 25 per month per member with out any matching grant from project. do The gr. will continue to save Rs 20 per month per member. At present the fund is used by the member as Credit fund. For this, certain rules and regulations has been evolved by the group members.
2. Mohla Teru Mohla Unayon dal	Barangun Teru Mohla	De	STW	J. Sit. S. Barun : Subir Anon Barun : Anon Sop Roy	Sydhara Bank	do	11	10800	7000	17,800	The gr. will continue to save Rs 20 per month per member. At present the fund is used by the member as Credit fund. For this, certain rules and regulations has been evolved by the group members.
3. Modapur No I Teru Mohla Unayon dal	Modapur No I Teru Mohla	Co. Chhatra	Sol. Chhatra	J. Sit. S. Barun : Subir Anon Barun : Anon Sop Roy	BOC Sahap. Dham	do	11	8750	8750	17,500	The gr. will continue to save Rs 20 per month per member. At present the fund is used by the member as Credit fund. For this, certain rules and regulations has been evolved by the group members.
4. Modapur No II Teru Mohla Unayon dal	Modapur No II Teru Mohla	Co. Chhatra	Sol. Chhatra	J. Sit. S. Barun : Subir Anon Barun : Anon Sop Roy	BOC Sahap. Dham	do	11	4810	4550	9360	A scheme has been taken by the Gr. to raise mulberry sapling taking lead on less. Gr. has already been gone through a 21 days tr. by Sanchura Day. The Group will continue to save Rs 10 p.c. month per member.
5. Pachapur Teru Mohla Unayon dal	Pachapur Teru Mohla	Barangun Teru Mohla	STW	J. Sit. S. Barun : Subir Anon Barun : Anon Sop Roy	Bank Sahap. Dham	Apr. 96	9	5250	5250	10,500	Gr. has started potato cultivation in the Rabi Season. They have already taken a one day tr for this. They have also decided to save Rs 25 per month per member without Project support.
6. Nandapur Teru Mohla Unayon dal	Nandapur Teru Mohla	Barangun Teru Mohla	STW	J. Sit. S. Barun : Subir Anon Barun : Anon Sop Roy	Bank Sahap. Dham	May. 96	8	5800	5800	11,600	The group is thinking to invest their money individually in vegetable cultivation buying seed pump.

Women Group Profiles under NBTD

Team of the Group	Name of the Facilitator	Block	District	Under-which sub-district	Group name	Number of the Group	Meeting start	No of meeting	Group's meeting venue	Project's credit	Final day credit	Outgoing activities of the group	
6. Changanal Development 1 Terai Mahila Udayan Dal	Chamanal	Mul	Jajpur	Sad conservation	20	Spec. Pradhan Bhanu	Bank	June 96	7	800	800	16,100	The group has decided to start business of poultry in the coming season. A tie up of chicken and developed cooking system is expected by the group members.
7. Changanal 1 Terai Mahila Udayan Dal	Chamanal	Prasabhera	Dijpur	ERTV	23	Spec. Pradhan Bhanu	Changanal Bank of Terai	May 96	8	800	800	16,100	The group is thinking to go for poultry cultivation.
8. Changanal Development 1 Terai Mahila Udayan Dal	Chamanal	Mul	Jajpur	Sad conservation	22	Spec. Pradhan Bhanu	Bank	June 96	7	800	800	16,100	The group has decided to start business of poultry in the coming season. A tie up of chicken and developed cooking system is expected by the group members.
9. Changanal Development 2 Terai Mahila Udayan Dal	da	da	da	da	17	Spec. Pradhan Bhanu	Bank	June 96	7	800	800	15,900	da
10. Changanal 1 Terai Mahila Udayan Dal	da	da	da	da	24	Spec. Pradhan Bhanu	Bank	June 96	7	800	800	12,300	Group members have taken a decision to buy good cow but they are waiting for a provision of their special fund (Rs. 500 or 600 per month) and a saving of Rs. 20 per month per member until the amount they also will be increased. And again they will decide focus on this. They have taken the decision to utilize their money in credit fund.
11. Changanal 2 Terai Mahila Udayan Dal	da	da	da	da	25	Spec. Pradhan Bhanu	Bank	June 96	5	620	620	12,500	Group members are thinking to buy cow or goat but they are not taking any final decision. In the coming season they are going to cultivate wheat. For this a cow day thinking is to be held on 16th Dec-96. This is for thinking for provision buying their own land.
12. Durbha Kalyan Terai Mahila Udayan Dal	da	da	da	da	25	Spec. Pradhan Bhanu	Bank	June 96	5	620	620	12,500	Group members are thinking to buy cow or goat but they are not taking any final decision. In the coming season they are going to cultivate wheat. For this a cow day thinking is to be held on 16th Dec-96. This is for thinking for provision buying their own land.
13. Mahabharat Terai Mahila Udayan Dal	Krishna	Mahabharat	Changanal	Changanal	25	Spec. Pradhan Bhanu	Bank	June 96	5	620	620	620	Group members are thinking to buy cow or goat but they are not taking any final decision. In the coming season they are going to cultivate wheat. For this a cow day thinking is to be held on 16th Dec-96. This is for thinking for provision buying their own land.
14. Mahabharat Terai Mahila Udayan Dal	Krishna	Mahabharat	Changanal	Changanal	21	Spec. Pradhan Bhanu	Bank	June 96	4	420	420	8,400	Group members are thinking to buy cow or goat but they are not taking any final decision. In the coming season they are going to cultivate wheat. For this a cow day thinking is to be held on 16th Dec-96. This is for thinking for provision buying their own land.
15. Adhikar Terai Mahila Udayan Dal	Krishna	Changanal II	Changanal	Changanal	23	Spec. Pradhan Bhanu	Bank	June 96	2	820	820	1700	Yes to be finalized

North Bengal Terai Development Project

Women Group Profile under NSTDP

Name of the Group	Name of the Panchayat	Block	District	Under which activities	Group Executive Committee size	Name of the Bank	Saving start	No of saving month	Group's own saving	Project's contribution	Total deposit in the Bank	On going activities of the group
16. Madhupur No 3 Terai Mitha Umyan Dal	Madhupur	Coochabhar II	Coochabhar	Soil Conservation	17	Sec: Parvata Berman Cashier: Subbala Berman convener: Lakshmi Das	Nov'96	2	700	700	1400	Yet to be finalized
17. Madhupur No 3 Terai Mitha Umyan Dal	Madhupur	Jalpaiguri Sadar	Jalpaiguri	KVAFSU	14		Dec'96	1	700	700	1400	
18. Bhudabhar Terai Mitha Umyan Dal	Pachagar	Mechabhatnagar I	Coochabhar	Demonstration	18	Sec: Soma Berman Cashier: Soma Berman Convener: Pulin Chandra Berman	Dec'96	1	900	900	1800	

WATER MANAGEMENT

**Farmers Friendly Technological Options:
Testing Irrigation Channels in Abasthali**

NORTH BENGAL TERAI DEVELOPMENT PROJECT

Farmers Friendly Technological Options: Testing Irrigation Channels In Abasthali

The Background

The earlier phases (phase I&II) of the North Bengal Terai Development Project (NBTDP) provided large number of irrigation systems. River-Lift Irrigation (RLI), Deep Tubewell (DTW), Shallow Tubewell (STW), Pump Dugwell (PDW) and Hand Tubewell (HTW) were constructed for the small and marginal farmers in the, so far, agriculturally backward districts of Jalpaiguri, Cooch Behar and foot hills of Darjeeling district comprising of the Siliguri subdivision. The HTWs have been given basically to the women headed households. The systems, according to the evaluation reports, have not created the desired impact. It has been found that several of the systems have covered much less than the desired command area. The figures in the table indicate the designed command areas and the monitored actual coverage of the various systems.

irrigation system	designed command area	actual coverage	percentage
RLI	80 ha	33.8 ha	42%
DTW	40 ha	32.9 ha	82%
STW	4 ha	3.5 ha	87%
PDW	3 ha	1.5 ha	50%
HTW	0.17 ha	0.16 ha	94%

Note: Results from Transect and Plain Tabling Crop Surveys

As is clear from the data the performance of the systems in terms of command coverage has been much less than for which it has been designed. Besides social-economic reasons, issues related to land and water management do play a considerable role. A sandy subsoil with low retention capacity, poorly designed field channels and improper preparation of land and mismanagement of irrigation water in the fields, is resulting into considerable loss of water.

Several precautions have been suggested during the third phase. It has been proposed to work out proper crop water and irrigation requirements and suggest a rational irrigation and alternative conveyance systems. During the earlier period of the project a student from the Netherlands carried out field studies on the water requirements and the efficiencies of the field application and of the conveyance systems being used for different irrigation systems. The findings were quite revealing, showing serious lack of understanding about the optimum water requirements for certain crops and improper management of field irrigation as well as lack of maintenance of field channels. The following table presents important highlights of the result.

	Prevailing belief	Results of study
water requirements and field irrigation efficiency	<ul style="list-style-type: none"> - crop water requirements are unknown and are expected to be high - soil is sandy soil in the Terai region, with low retention capacity and high infiltration rate, therefore the application efficiency is also very low and the total irrigation requirements will be high 	<ul style="list-style-type: none"> - crop water requirements are low due to low evapotranspiration - top soil of about 50 cm is sandy loam, with reasonable retention capacity, subsoil is sandy with low retention capacity - infiltration rate is slow due to fine texture topsoil and existence of hard pan - irrigation requirements are low, but light frequent irrigation required
conveyance efficiency	<ul style="list-style-type: none"> - conveyance efficiency is very low due to sandy character of soil - therefore lined channels are essential 	<ul style="list-style-type: none"> - conveyance efficiency is low, but due to improper construction and maintenance of field channels by farmers - present type of lining is not cost-effective

The result were shared with the local experts in water management , government officials and the farmers. The feedback was quite useful and it was decided to undertake an elaborate study covering more villages in different areas using different irrigation systems and conveyance technology. An International Water Management Expert together with an interdisciplinary team consisting of hydrologist, meteorologist, agronomists and social scientists designed the study to look into the issues mentioned earlier. One of the issues was to try different types of lining that could be more cost-effective, another issue was to do more research on the water requirements. Farmers Reference Groups from the study villages participated as active collaborators. The following table gives an idea about the location of the experimental sites, with different irrigation systems and tried lining materials.

Village	System	Lining material
Abasthali	PDW	soil-cement, clay tile, plastic sheet, lime-brickdust, plastic tube
Pashanerdanga	RLI	soil-cement, clay tile, plastic sheet
Sailani	HTW	clay tile, plastic tube, plastic sheet
Boxiganj (planned)	HTW	soil-cement, lime-brickdust, clay pipe, cowdung, plastic tube
Satkhamar (planned)	DTW	soil-cement, lime-brickdust

Abasthali: From Indifference to Active Participation

Abasthali, a small village under the Mainaguri Block of Jalpaiguri District has been one of the experimental villages, for the early experiment conducted by a Dutch Student. When the pilot programme was finalised it became the natural choice of the team. From a purely evolutionary perspective it represents an interesting story of farmers participation starting with indifference and dependency to active participation as effective collaborator in the whole exercise. Before presenting a process account, let us first see Awasthli through its geo-demographic profile.

Geo-demographic Profile of Abasthali

Groundwater depth:	throughout the year between 2-3 metre	
Soil Conditions:	loam to sandy loam	
Total area:	275 acre	
Cultivated area:	250 acre	
Sources of Irrigation:	tubewell, dugwell, river	
Under NBTDP:	6 dugwells	
Under Panchayat:	3 dugwells, 4 tubewells	
Privately owned:	6 tubewells	
Main Crops:	rice, jute, potato, cauliflower, cabbage, tomato, carrot, brinjal, chilly pepper	
Population: 1200	Male: 675	Female: 525
Literacy: 80%		
Occupational Distribution:	farmer, daily agricultural labour, service employee, small business, labour	
Distance from the Pucca Road:	1.5 km	
Infrastructure Facility:		
School: 1	Primary Health Centre: none	
Bank: none	Market: none	
Electricity: none		

Process Analysis

Initially the members of the team visited the village on several occasions and started building rapport with the farmers. Gradually, a reference group of the farmers, willing to participate in the experiment, was finalised. The objective of the programme and their possible role was thoroughly discussed with them. It was discussed to constitute cluster level groups responsible for the identification of the course of channels, excavation, and monitoring of the channels after they were constructed and made operational. The construction materials and labour charges for the masonry was to be provided by the project. There was complete agreement and the work progressed as planned. Within months the channels were complete and operational. The following table gives an idea about the length of different channels constructed during the first phase of the experiment.

PDW number	Type of lining material	length
1.	plastic sheet	120 m
2.	lime-brickdust	100 m
3.	soil-cement	120 m
4.	plain clay tile	80 m
5.	soil cement	133 m
6.	V-shape clay tile	76 m

The channels were used for the rabbi and the pre-kharif crops (1996) with varying degree of efficiency. The whole process was reviewed in the team together with the farmers. It was found that:

1. The efficiency of the improved channels, by and large, had increased compared to the conventional mud channels being used by the farmers.
2. The farmers were able to assess the difference in the time of transmission using both the conventional and the new channels who found that the new channels allowed smoother flow of water and reduced losses. The farmers were convinced of the substantial saving in time leading to further saving in fuel used in the operation of pump sets
3. Of the different types soil cement was the preferred choice of the farmers.

The review, on the negative side, observed that:

1. The farmers were not maintaining the channels properly; cattle and children were damaging them, bunds were in poor condition and during construction the soil was not properly compacted.

2. They were not positive in making contributions beyond the present level of passive supervision.
3. They were not active in exploring ways to support further spread of the technology.

The matter was discussed within the group. It was observed that if the technology was perceived to be useful the farmers should come forward and either explore ways to spread it or should put in good attention to maintain what ever length was made available to them as a contribution from the project. It was argued that the technology required further testing before it could be recommended for mass adoption and in this process the involvement of the farmers could be ensured from the very beginning on an enhanced scale beyond a notional supervision. It was subsequently ,decided to go for some more length with increased farmers involvement.

First Round of Meetings: Indifference Revealed

The first meeting basically had the agenda to decide on strategy for enlisting farmers active contribution in designing the technology as well as providing financial support. The members of the project team reached the venue of the meeting only to find a locked school building (the planned venue of the meeting) and only some children playing football on the ground in front of the school. Some of the members of the team preferred to participate in the game and continued to play for some time. Meanwhile the information about the arrival of the team travelled down to different persons. One, two, three ... key persons showed up only to inform that every body was not available. The team preferred to stay and have discussion with who ever was present. The discussion veered around general issues of agriculture and condition of the channels. Meanwhile the farmers kept on trickling in and silently occupied a seat. When a representative number of farmers gathered the issue of constructing more channels and the corresponding contribution from them was brought in for a discussion. The farmers preferred to maintain silence. After some persuasion they collectively burst into an unanimous 'no'. They were poor and incapable of making any contribution. For them buying of essential inputs like seed, manure and insecticide was more important than investing in channels. The members from the team had their own logic and economics but nothing could change their mind. The meeting decided to spend some more time before a final course could be decided.

The next few meetings were further accounts of indifference with farmers coming quite late, insistent on their stand and unthoughtful comments. On the positive side the farmers were agreeable to continue the dialogue.

The Second Level Interactions: Readiness to Lend Positive Ears

The second level interactions were marked by concrete exercises to work out economics and attempt a cost benefit analysis. Using Participative Rural Appraisal (PRA) techniques the farmers were sensitised to the issue and prepared themselves for exploring ways. The presence of the Panchayat member in one of the meetings and his feedback about the possibility of channelling Panchayat fund to the programme helped in creating a positive environment. At least the farmers were ready to consider the proposal positively . Subsequent walk throughs along the channels and participative planning exercises brought to the fore the following facts:

1. The farmers were convinced of the economic viability of the channels being tested.
2. They were willing to maintain the channels which were already constructed.
3. They were ready to explore avenues to mobilise resources which they could use as their contribution, pending which they were ready to contribute sand, soil and physical labour.
4. On the technical side they had to make substantially sound suggestions; there has to be strong compaction in the bed of the proposed channel, bunds need to be big enough and also properly compacted, use of gravels in the bed could ensure the strength and durability of the channels and so forth.

This was an important breakthrough: from indifference to a conditional readiness. There was a sign of positivism and the farmers were on the task. The subsequent meetings brought more participants on time, more positive solution oriented comments and feedback and of course arrangements for light which otherwise was missing during the long evening sessions. The arrangement for a spacious polyethylene sheet to be used as a carpet for the meeting was an indication that the proposed idea had found a place with the farmers.

The Collaborative Planning Exercise : The Nature Plays Havoc

A solid ground for a collaborative planning exercise having been laid, the farmers and the project team had been undertaking serious homework. A meeting scheduled for the same turned out to be a day of gloom and despair; the previous day the village had been struck by a serious hail storm damaging the standing robust jute crops - all hope of a splendid crop stood belied. The meeting prefers to empathise with the farmers and the damage caused to the crops - no discussion about the channels There was, however, a discussion about the possible reliefs made available to the farmers on such occasions by the Government. The farmers were not very optimistic about it as it often took a long time. The Panchayat has already carried out an assessment about the extent of damage. The Pradhan was quite positive about his efforts and the farmers seemed to trust him. Alternative strategies were discussed to compensate/minimise the loss. Ultimately all hopes were fixed on the rabbi vegetables and other crops. The scarcity of resources for procuring the basic inputs was again discussed. The high cost on diesel for the pumps seemed to stare all of them.

Pump Efficiency Test : Silver Lining in the Gloom

The anxiety of the farmers was quite genuine and the subsequent efforts were directed toward finding solution to their problems. During one of the interactions the result of the pump efficiency test was shared with the farmers. According to the available result a simple modification in the pump could result in saving of diesel to the tune of 50%. Converted into pure monetary terms the saving meant a lot of money for the farmers. The idea was floated to explore the possibility of modifying all the pumps at the six clusters. An economics was jointly worked out which indicated involvement of Rs. 500 per pump for its modification. The farmers agreed to the proposal and, almost instantaneously, several of them contributed Rs. 100 per

farmers as their individual contribution. The collection was used in procuring the necessary fittings and fixtures for the modification. The farmers got enthused and were actively participating in organising the test including procuring the materials. The day for the test was a special day for the farmers and the technical experts guiding the test. The successful test resulting in 50% of saving in the fuel consumption convinced the farmers of the intentions the experiments had. In quick succession pumps at all the six clusters were modified, making Abasthali the first location with modified pumpsets. The farmers had a good saving and the economics of further reduction in the operational cost, because of the improved channel, further convinced them of the viability of investment in the channels. Economic hardship still persisted and made them hesitant in extending the channels with proportionate contribution. The exploration, however, was on to look for alternative strategies.

Demand for Training : Growing Confidence in the Experiment

The pump test proving successful the farmers evinced greater interest in the experiments which they perceived as initiatives leading to their economic wellbeing. To compensate the high cost on agriculture management they desired for a need based training covering various facets of agriculture and water management. Like the pump testing, the modalities were jointly worked out. On the logistics side the project had to organise the resource persons and course materials and the farmers agreed to offer boarding and lodging for the resource persons and stationery for the participants. Later on it was learnt that they had a very tight economic consideration and after series of discussion among themselves they agreed to contribute Rs. 12 per farmer toward meeting the cost on lodging and boarding. This was a significant step toward a participatory process which was often constrained by a subsidy consideration all around the rural areas.

In a rigorous brain storming the training needs were jointly worked out and course materials prepared. The training for a two day duration was conducted very seriously. At the end of the training the participants have been provided with a plot monitoring format which they are using for their cultivated plots. Necessary information pertaining to the use of the training inputs in their agriculture practices and the corresponding observed changes are recorded in the format. It is quite interesting to find some of them doing it meticulously and systematically while others are demanding more formats. Although the result will be clear only after the rabbi the process indicates to a growing interest in scientific process which has eventually evolved.

Institutionalising a System: Initiative toward Sustainable Change

The channel building, pump efficiency test and the training, all seem to have created a positive effect among the farmers, who now are willing to pursue them systematically. The monitoring of agricultural practices following the last training has created a need for institutionalising the process. The farmers have decided to organise meetings every alternative Wednesday and discuss the issues related to agriculture and other matters. They, during the meetings, attempt solutions to the problems based on their experiences and if needed it is forwarded by them to the concerned experts who plan a visit to the village and offer solutions. The Project Support Unit (PSU) plays the facilitators role. The exercise has helped in building bridges between the farmers and the Government officers to a very great extent.

The construction of channel, notwithstanding the financial constraint, has become a priority for the farmers who are eager to expand it beyond the present clusters. As a solution to the financial problem an arrangement has been worked out between the project and the farmers. According to the arrangement the farmers would contribute to the tune of 50% of the cost including labour, sand and money. The cash component, at the moment, will be spent by the project. The farmers have agreed to reimburse their contribution latest by the 31st of December by when they expect to have accruals after the sale of vegetables and crops.

The idea is to further plough back the money paid by the farmers into a common fund created by them. They plan to use the fund only during exigencies as an emergency step. The idea seems to be gaining ground and the farmers are quite enthusiastic about it. They cite last year's example of the devastating hail storm which ruined them completely and in the absence of a financial cushion they could not manage themselves. Now they want to prove more prudent and create a common resource pool. There is a further plan to have an independent office to conduct the activities of the farmers group. Two farmers have already been elected as leaders to guide the activities as planned.

Conclusion

Abasthali holds a number of promises for the farmers of the area. The villagers have the capability to run and manage their own affairs. What is required is a meticulously designed planning exercise in which each of the farmers is allowed to participate and helped to unfold themselves. The solution to the problem lies in the village and with the farmers themselves. Similarly there is a need to allow the strategies to evolve themselves and not be planted from outside. The external catalytic institution /individual can facilitate initial action to be carried out by the farmers subsequently. Abasthali can not be replicated in totality. At the most, it provides a direction of change in which things can move depending on the village specific realities.

Abasthali : A Balance Sheet

The following table contains a balance sheet of what ever has been achieved so far.

Physical Achievements	
Length of Channels Constructed:	629 m in NBTDP dugwells
Length of Channel Planned:	506 m in NBTDP and 500 m in Panchayat and private schemes
Total number of Pumpsets modified:	6 pumpsets
Human Resource Development Activities	
Training in Water Management with 30 participants	
Training in Agricultural Practices with same number of participants	
Farmers are monitoring the application and outcome of the training on field level	
Institution Building	
Fortnightly meeting being conducted:	5
Process to create innovative farmers club already initiated:	proposed
Process to constitute farmers Credit /Thrift Society:	proposed
Contributions already pooled:	proposed by 31st December
Impact on Agriculture	
Land already brought under fresh cultivation:	not yet assessed