Mission Report

Version: Draft final 2

Study on the revitalization of the Treadle Pump market and supply chain in North Bengal

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May'02

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Executive Summary

1. Background of the study:

The Project Support Unit (PSU) of North Bengal Terai Development Project (NBTDP) had funded International Development Enterprises (IDE) from 1996 to 2000, to promote Krishak Bandhu (KB) treadle pumps in its project area in North Bengal, including introduction of Treadle pump, establishing dealer network and establishing productive capacity. During November'01, the Technology Mission[1] of PSU had raised concern over the sustainability of the supply chain of Treadle Pumps in its project area, following withdrawal of IDE from North Bengal. Again during March'02, the Technology mission tentatively observed, sharp decline in demand of treadle pumps in the marketing season 2001-02, KB supply chain being troubled, increasing low popularity of KB treadle pumps and KB pumps facing stiff competition from the diesel pump sets. However, the technology mission concluded that, despite all the above problems, there still exist a substantial group of farmers that have no access to engine operated pump sets and still depend on the availability of treadle pumps to cater to their needs. For this reason, PSU considered it essential to conduct a study with an objective of investigating new ways of re-establishing a viable supply chain.

2. Expectation from the study:

The detailed outcome of the study was, (a) to verify the status of KB treadle pumps, (b) to verify the state of demand and supply chain, (3) to identify possible reasons for the sharp decline of demand and supply chain, (d) to draw lessons from the experience successful introduction of treadle pump in Bangladesh and (e) to identify the possibilities of reviving both demand and supply chain in North Bengal.

3. Field visit

The total duration of the field visit was 27 days, between March to May'02. During this period I visited Dinhata, Sitai, Sitalkuchi, Tufanganj, Mathabhanga, Mekliganj, Mainaguri, Mal and Haldibari blocks of North Bengal and held discussions with farmers, mistris, KB dealers, KB distributors and KB super stockist. I also visited Bangladesh and held discussions with IDE Bangladesh staff, RDRS staff and TP manufacturers and TP dealers in Rangpur, Lalmonirhat, Thakurgaon, Nilphamari and Dinajpur. I also visited Kolkata and held discussions with KB Manufacturers. In addition I also discussed with the concerned IDE and PSU staff in Jalpaiguri, Coochbehar, Kolkata and Delhi.

4. Project area:

[1] *NBTDP technology mission report, March'02: Treadle pumps, market and supply chain*

NBTDP project area consists of 29 blocks from 3 districts of North Bengal. However not all the blocks are equally potential for treadle pumps, thus this project area can be divided into three potential zones. Zone-1 comprising of Dinhata, Sitai and Sitalkuchi has the highest potential for treadle pumps. Zone-2 comprising of Haldibari, Mekliganj, Jalpaiguri, Mainaguri, Mathabhanga, Coochbehar, Tufanganj and Kharibari are moderately potential. Zone-3 comprising the rest of the blocks has low potential. Quite rightly, IDE has focused its promotion activities in Zone-1 & 2.

5. KB treadle pump sales:

The drop in KB treadle pump sales following withdrawal of PSU funding was the basic reason for PSU to undertake this study. PSU funded IDE for promotion of treadle pumps from 1996-97 till 1999-00. During the period of PSU funding, the annual sale of KB pumps in North Bengal remained in the neighborhood of 3000 nos. of pumps per year for 4 years. But subsequent withdrawal of PSU funding, the sales dropped to nearly 1500 and 1000 in the following two years in 2000-01 and 2001-02.

6. Status of existing KB treadle pumps:

The strategy IDE adopted to promote treadle pump was using a concept of nucleus villages, from where the demand would spread using a ripple effect. IDE identified several nucleus villages and focused all its promotion emphasis in those villages. Hence most of the treadle pumps were sold in the nucleus villages. Therefore most treadle pumps were also seen mainly in the nucleus villages and very few outside them.

Heavy influx of diesel pumps into the villages of North Bengal and their easy availability on rent, has affected the use of treadle pumps. Diesel engines had affected the pattern of use of treadle pumps. Treadle pumps which were primarily purchased for irrigation, now is being used for various other uses like domestic water needs, backyard cultivation, priming of diesel engines etc. However nearly 40% of the treadle pump owners were not using the treadle pumps, primarily due to lack availability of washers, which has become really short of supply due to IDE withdrawal.

7. Demand for treadle pumps:

Demand for treadle pumps have certainly gone down in North Bengal for three main reasons i.e. (1) Heavy influx of diesel engines has made them easily accessible and affordable to the farmers. Wherever there is a marginal difference in cost-benefit, the farmers tend to prefer renting of diesel engines. (2) Lack of availability of spares in many areas for the last two years has spread a strong negative image about the treadle pumps. (3) Withdrawal of IDE also has spread a message that the treadle pump company is closed.

However despite the above, there is still a significant demand for treadle pumps in North Bengal. Cheap treadle pumps still being smuggled in substantial numbers from Bangladesh and many times openly sold in the market. The free market demand for treadle pumps only exist for

cheaper treadle pumps, not for the current treadle pumps. Secondly, a significant demand for the existing treadle pumps is coming from the Anchal offices.

8. Status of the supply chain:

The supply chain that IDE established essentially consists of 6 market players i.e. Manufacturer of rubber parts, Manufacturer of treadle pump, Super stockist, Distributor, Dealer and Mistri.

Dealer network is the one, which has got severely affected by the withdrawal of IDE. Dealers are the people who are in touch with the farmers directly and are responsible for the ultimate sale. Dealers are normally located in small market places and each market catering to 5-10 villages. During 1999-00, there were over 90 active KB dealers, which would be nearly 90% of the ideal number to cover the entire North Bengal. But, following the withdrawal of IDE, the number of active dealers has gone down to nearly 19. The most acute problem is that, there was not a single active KB dealer in Dinhata, Sitai and Sitalkuchi, which is the highest potential zone for treadle pump in North Bengal, having over 70% of the total treadle pumps sold in North Bengal.

Distributors are the critical link between the manufacturer and the dealers. During 1999-00, IDE also had 6 active distributors, which was just enough for the entire project area. But this number has gone down to 3, with the withdrawal of IDE. However all the distributors are still quite keen to continue treadle pump business.

Super stockist is the critical link between the manufacturer and distributor. With the withdrawal of IDE from North Bengal the biggest void in the supply chain encountered was the Super stockist. Previously IDE played the role of super stockist and had a good relationship with all the 6 distributors. Recently IDE has upgraded the Mathabhanga distributor (Rani Traders) to become the super stockist for North Bengal, who has started making required investments to do so. It is obviously another remarkable achievement. However its relationship with other distributors hasn't yet been established. Rani Traders is essentially playing the role of a distributor for Mathabhanga block only.

Currently there are two treadle pump **manufacturers** in Kolkata i.e. Roy Engineering Works and NR Industries. Both these manufacturers are engaged in treadle pump business for over 5 year now. In the division of territory, Roy Engineering is supplying to North Bengal. Both the manufacturers are quite active and are producing treadle pump. In my opinion biggest strategic error in the project, was to allocate North Bengal to Roy Engineering. Roy Engineering only produces for IDE, doesn't take initiative to develop his own network. He will always require external assistance to function. On the other hand, NR Industry has already opened up an office in Assam with one full time staff and two seasonal staff.

9. What went wrong for the supply chain ?:

There are several factors that have independently and jointly contributed to the current state of affairs of the supply chain. These factors are:

- Sudden removal of Marketing Assistants
- Excessive dependency of dealers on the Marketing Assistants
- Incomplete settlement of some MA accounts
- Lack of proper MA level account in the field
- Lack of wide product-price range
- Lack of availability of spares

- MAs bypassing the supply chain
- Super stockist not completely activated
- Wrong manufacturer allocated for North Bengal
- IDE plan didn't work in North Bengal
- IDE Senior Management tied up with Indianization.

(Details of each of these factors is provided in section # 9)

10. Lessons from Bangladesh:

North Bangladesh has nearly 9,00,000 treadle pumps and the whole of Bangladesh has 1.5 million. Now, sale of treadle pump still goes on in this area roughly in the range of 30,000 treadle pumps per year, though active promotion of treadle pump has stopped.

It is important to note that the treadle pump program of North Bangladesh is a result of the efforts of two large organizations independently promoting treadle pump, RDRS and IDE, for over 15 years with an investment of over 20 million US$. RDRS started working in 1971 to assist the Bangladesh refugees, because of the Bangladesh war of independence. During this time RDRS identified treadle pump as a technology, which can help the farmers resettle their agriculture activity. IDE started working in 1984 in Bangladesh and soon identified the treadle pumps as a product that has got tremendous potential in whole of Bangladesh including Rangpur and Dinajpur. It started promoting and marketing treadle pumps all over Bangladesh. IDE has gone through four phases in promoting treadle pump in Bangladesh i.e. 1984-89 Start up phase, 1989-90 Market creation phase, 1990-95 KB phase and 1995-till date Generic promotion phase. It is unwise to compare North Bangladesh program with the North Bengal program. However there are quite a lot of things that can be learned from the experience of North Bangladesh, which can contribute to the North Bengal program.

Product range: Bangladesh manufacturers produce double barrel treadle pumps as well as single barrel priming/drinking water pumps. In the market one can find 8 different kinds of pumps, lowest price being 200 Tk and the highest 350 Tk. The varieties are a result of different combination barrel diameters, sheet thickness, spout arrangement and socket arrangement.

Manufacture range: There is a wide range of manufacturers in Bangladesh. The biggest range of manufacturers once having produced 25,000 treadle pumps a year. Majority of the manufacturers would be small, producing about 1,000 treadle pumps a year. In total there would be around 30 manufacturers in North Bangladesh. It is extremely important to note that, the first lot of 8 manufacturers was promoted by RDRS with direct financial (grant) support, which kicked off the small scale manufacturing business in Bangladesh.

Dealer network: One of the most impressive to see was the dealer network in North Bangladesh. Practically every market of North Bangladesh has one or two dealers. It is important to note some of the local innovations that have taken place, without the intervention of IDE or RDRS. With so many manufacturers in a small area, there is a cutthroat competition among the manufacturers. The market has become highly price sensitive. The key to survival of the manufacturers is lower price. A Tk 10 difference in the pump can make sale or no sale. This has forced the manufacturers to think about introducing several small innovations that can marginally reduce the cost of the pumps.

11. Revival possibilities:

It appears possible to revive the demand and supply chain in North Bengal. But the biggest question is, who will do it and the biggest constraint is time. PSU leaving North Bengal in December'02, IDE current funding lasting till March'03 and CDHI institutionally not ready for such a technology-marketing program focus.

Following are some general recommendations, which need to be done irrespective of the revival option:

- Make spares more openly available
- Introduce of a wider product range
- Not pursue the metal treadle system
- Staff to focus on facilitation, not become an sales agent of the supply chain
- A senior person skilled in capacity building must handle this phase
- Clear some sticky old accounts disputes
- Openly allow the Anchals to sell treadle pump

In my opinion following are the specific options that can revive the demand and supply chain in North Bengal. These are independently narrated for clarity of the points. However combination of these options should be adopted:

- Further strengthen Rani Traders
- Give North Bengal to NR Industries
- Rebuild confidence with KB dealers and mistris
- Support few Marketing Assistants establish local manufacturing units
- Support stronger Mistri cooperatives establish local manufacturing units
- Assist local fabricators produce and market Treadle pumps

(Details of each of these options is provided in section # 11)

1. Background

1.1 KB Treadle Pump Program in North Bengal

During Phase-III of North Bengal Terai Development Project, the Project Support Unit (PSU) identified Treadle pumps[2] as a technology to be promoted in North Bengal. It contacted International Development Enterprises (IDE) India, an international NGO that was promoting Treadle pumps in Bangladesh, India and Nepal. PSU provided funds to IDE for the promotion of treadle pumps in its project area North Bengal. The objective of the program was, "expansion of irrigated area through creation of self-sustaining private sector involvement in the sector". The expected outcomes of the program were, (1) Treadle pump introduced in the area, (2) Dealer network established and (3) Productive capacity established. To carry out these activities IDE established a team of 18 program staff (1 Regional Director, 1 Regional Marketing Manager, 1 Quality Control Manager, 3 District Marketing Managers and 12 Marketing Assistants). To maintain the desired quality, IDE standardized the specifications of the pump and institutionalised a strong quality control system. These pumps were branded as Krishak Bandhu (KB) pumps. PSU funded IDE for the treadle pump program for four years from 1996-97 till 1999-00. When the funding stopped in 2000, IDE still continued the activity in North Bengal with funds from other sources, but at a reduced scale and as a part of its overall program in West Bengal (later it became part of combined program in West Bengal and Orissa). IDE could place only 2 Marketing Assistants (which was further reduced to 1 in 2002) and part of 1 Area Manager (who is responsible for the whole of North Bengal, consisting of all the districts north of Malda district) in the project area.

During the technology mission[3] in November'01, PSU had raised concern over the sustainability of the supply chain of Treadle Pumps in its project area, following withdrawal of IDE from North Bengal. During the technology mission in March'02, it was further observed that, (a) there was a sharp decline in demand of treadle pumps in the marketing season 2001-02, (b) the supply chain is troubled, (c) there is an increasing low popularity and efficiency of KB pumps and (d) the KB pumps are facing a stiff competition from the diesel pumpsets. However the technology mission considered these observations as tentative, as that was only a survey and not an in depth study.

[2] *Action plan-4, NBTDP phase-III Inception report: Promotion of private sector involvement in manual irrigation*
[3] *NBTDP technology mission report, March'02: Treadle pumps, market and supply chain*

1.2 TK foot pumps initiative

Sometime during the last two years, PSU designed two types of foot pumps. The first one is exactly like the KB Treadle Pumps, but branded as TK[4] Pump. PSU got nearly 200 such pumps manufactured locally at a fabrication shop in Jalpaiguri and sold through the Mistri Cooperatives. The idea was probably to check if it will be possible for the local fabricators to produce treadle pumps and if these pumps could be cheaper than KB Treadle Pumps.

The second one is a completely new design of pump, with two basic difference from the existing pump, (1) the barrel size is 4", instead of 3.5" in case of KB pump and (2) has an in-built metal pedal system, where as in case of KB pumps bamboo is used to make stand and pedals. It may be worthwhile to mention here is that; in general IDE India promotes three kinds of KB pumps 3.5" Bamboo Pedal Pump, 3.5" Metal Pedal Pump, 5" Metal Pedal Pump and 5" Cement Concrete Pump. But in North Bengal it decided to only promote its cheapest pump i.e. 3.5" Bamboo Pedal Pump. Conceptually this TK pump is similar to Metal Pedal Pump (though the design and material used are different), with a different barrel size. Few prototypes of this TK pump were fabricated, which are currently being field-tested.

PSU was using Mistris for its own program of drilling of tube wells, modification of diesel engines and their maintenance. PSU is organizing the Mistris in the form of cooperative so that they can directly procure drilling contract from the Government, instead of working for the contractors.

[4] *TK stands for "Terai Kal", a brand name being given to the products directly promoted by PSU*

2. Expectation from the study[5]

The technology mission concluded that, despite the trouble with the supply chain and reduction of demand for treadle pumps, there still exist a substantial group of farmers that have no access to engine operated pump sets and still depend on the availability of treadle pumps to cater to their needs. For this reason it was considered essential to investigate new ways to re-establish a viable supply chain, if possible. PSU appointed me to conduct the above-mentioned study. I was chosen for this study, as I was involved in the initial two years of the treadle pump promotion in North Bengal during 1995-97 and was familiar to the program and the area. The study was expected to achieve the following:

1. To verify the status of KB Treadle Pumps in North Bengal.
2. To verify the state of demand and supply chain of KB Treadle Pumps in North Bengal.
3. To identify the possible reasons for the sharp decline of demand and supply chain of KB Treadle Pumps in North Bengal.
4. To identify the possibilities of reviving both demand and supply chain of Treadle Pumps (which include all kinds of Treadle Pumps including KB Treadle Pumps), albeit on a smaller scale than before. The alternatives to study should possibly include a role for:
   - Local production of the Treadle Pumps in the project area.
   - The potential of the newly developed 4" TK pump to revive demand for foot pumps.
   - Pump mistri's cooperative established in the area.
5. To make a brief assessment of the market and supply chain across the border in Bangladesh and see these findings as a reference for the proposed alternative approach (es).

[5] *Detailed Terms of Reference in section-12*

3. Field visit

3.1 Appraisal visit

The first part was an appraisal visit to the project area during 24 to 29 March'02. The primary purpose of this visit was to meet David Van Raalten, the Team Leader of the Project to get a common understanding of the study and to make a quick visit to the field to gather a preliminary idea of the problem to better strategize the future mission. During this visit I, (a) visited one Treadle Pump village each in Dinhata, Sitai, Sitalkuchi and Haldibari blocks, (b) met three KB Dealers in Mathabhanga and Haldibari blocks, (c) briefly discussed with three Ex-IDE Marketing Assistants and (d) discussed with the fabricator and PSU staff involved with TK pump.

3.2 Detailed visit

The second part of the field visit was a detailed mission during 11 April to 2 May'02. During this visit I (a) discussed with the concerned IDE India staff in New Delhi, North Bengal and Kolkata, (b) met several KB Distributors/Dealers and visited several Treadle pump villages in Haldibari, Mekliganj, Mainaguri, Mal, Mathabhanga, Sitai, Sitalkuchi, Dinhata and Tufanganj blocks, (c) discussed in details with two Ex-IDE Marketing Assistants, (d) discussed with two KB manufacturers in Kolkata and (e) discussed with PSU staff involved with TK pump and Mistri cooperative. The consultant also visited Bangladesh where he, (a) discussed with IDE staff in Dhaka and Dinajpur, (b) discussed with concerned RDRS staff in Rangpur, (c) discussed with several manufacturers and dealers in Rangpur, Lalmonirhat, Thakurgaon, Nilphamari and Dinajpur districts and (d) visited several Treadle pump villages in these districts.

4. Project Area

The project area of NBTDP consists of 4 blocks of Darjeeling district, 13 blocks of Jalpaiguri district and 12 blocks of Coochbehar district.

Treadle pump is manual water lifting device and its efficiency vis-à-vis effort required to lift the water depends on the depth of availability of water. Closure the depth of water table to the ground level, higher is the efficiency of the treadle pump. Based on this the project area can be broadly divided into three zones (with possibility for local variations) with regard to the availability of groundwater and hence the technical feasibility of the treadle pump.

Zone-1 provides the highest feasibility for treadle pump, the area that is farthest in the south from the Himalayas i.e. Dinhata, Sitai and Sitalkuchi blocks. This area is known for growing tobacco during winter season and summer paddy (*boro rice*) during summer season. These areas account for nearly 70% of the total treadle pump sales in North Bengal and most of the pumps are used to irrigate summer paddy.

Zone-2 is moderately feasible covering Haldibari, Mekliganj and parts of Jalpaiguri, Mainaguri, Mathabhanga, Coochbehar, Tufanganj and Kharibari. Farmers in these areas have started growing vegetables during summer season. Treadle pump owners in these areas also irrigate their vegetables during summer season. These areas account for nearly 20% of the total treadle pump sales in North Bengal.

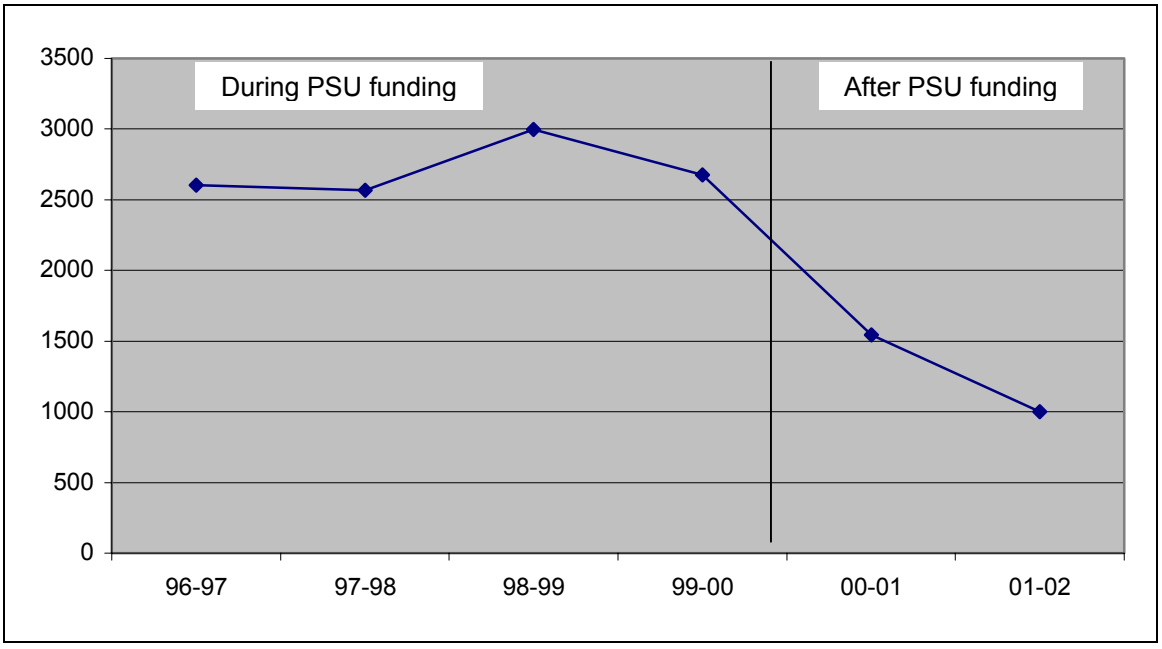
Zone-3 provides very less scope for treadle pumps, though there could be small pockets of depression, with high water availability. These areas account for nearly 10% of the total treadle pump sales in North Bengal.

IDE program essentially concentrated on high and moderately feasible areas. The consultant also concentrated on these areas (less the district head quarter blocks of Jalpaiguri and Coochbehar) for the study.

5. KB treadle pump Sales

To understand the basic reason for which this study was commissioned, it important to look at the sale figures of KB treadle pumps in North Bengal.

PSU funded IDE for promotion of treadle pumps from 1996-97 till 1999-00. It can be noticed that during the period of PSU funding, the annual sale of KB pumps in North Bengal remained in the neighbourhood of 3000 nos. of pumps per year. However the sales dropped to nearly 1500 and 1000 in subsequent two years after withdrawal of PSU funding. First part of this study is aimed at investigating the reasons for such reduction of sales, following withdrawal of IDE from North Bengal.



KB treadle pump sales in North Bengal

6. Status of existing KB pumps

The technology mission observed that, they did not find a single pump on the ground while crisscrossing the area for 2 days, where apparently 12000+ treadle pumps have been sold. Hence during this survey I tried to find out from, where the KB pumps exist in North Bengal and what the owners are doing with them. Before going to the use of treadle pumps it is important to understand two important elements that have affected the distribution and use of treadle pumps i.e. (a) The concept of nucleus villages and (b) Heavy influx of diesel engines. Both these elements are explained below:

Nucleus villages

IDE used Mistris extensively to promote treadle pumps and to enter into a new area. IDE also adopted a concept called "Nucleus village", a village, which adopts treadle pump first, and then treadle pump would spread in concentric ring of villages using the principle of ripple effect. These nucleus villages are the ones that showed very high immediate potential for treadle pumps, either because of previous exposure to treadle pumps or because of active interest showed by the mistri to push it in the village. IDE instead of promoting treadle pump everywhere, adopted a strategy of identifying potential nucleus villages and pushed all its promotion efforts in those villages. As a result, most of the sale took place in those nucleus villages. Time of intervention was probably too short for the treadle pumps to have spread too much from the nucleus villages to the other villages. Most of the dealers had 1-3 such nucleus villages, where most of their sale used to take place. This is also the reason, why treadle pumps are normally not seen in villages other than these nucleus villages. The following table shows the names of some nucleus villages, which have more than 100 KB pumps; few of these villages also have more than 300 KB pumps:

Dinhata
1. Gitaldah
2. Okrabari
3. Gosanimari
4. Matalhat
5. Baxirhat
6. Laxmibazar
7. Bhetaguri
8. Rukir kuti
9. Dewanhat
10. Nachni
11. Solmari
12. Kutimari
13. Khochabari
14. Madhupur
15. Haribhanga
16. Torsakuti

Sitai
17. Chamta
18. Chorgona
19. Baromaricha
20. Amol
21. Nakarjan
22. Satsingi mari
23. Padma mari
24. Sati bari
25. Kaitar bari
26. Bharali

Sitalkuchi
27. Nida pada
28. Kasapada
29. Pancharhat
30. Sarbeswar
31. Joram
32. Gadopota
33. Jatamadi

Mathabhanga
34. Dakghar
35. Bairagirhat
36. Chanakata
37. Nalangibari
38. Sikarpur
39. Nayahat
40. Hajrahat
41. Buraburi

Haldibari
42. Diyabari
43. Bholarhat
44. Beltoli
45. Hemkumari
46. Harimandir
47. Gagoledenga
48. Samilabas
49. Sinjarhat
50. Uttar daribas

Diesel pump sets

In the last few years a large number of diesel pump sets have come into the area, which has greatly affected the use of treadle pumps for irrigation. Most of the diesel pumps have been distributed to the farmers on subsidy. In many villages as many as 20-25% farmers now own diesel pump sets. These pump sets are not only used by the owners themselves, but also is available on rent to the non-owners. One can find the pump owners adopting innovative ways of attracting customers for renting.

Diesel engines are now available on rent on much more favourable terms compared to previous years. Not only the rent has gone down to Rs.40 per day (+ diesel), but also the farmer has an option of paying it on harvest of the crop. Some owners are offering irrigation contract for the whole crop i.e. at Rs.200 per bigha for summer paddy. Also because of lot of diesel engines in the area the overall agricultural activities have gone up, which has opened up very good market for wage employment for different agricultural operations. The wage rate has gone up to Rs.50 per day.

What is happening to treadle pumps already bought?

I visited many nucleus villages. It was quite satisfying to note that, by and large, the farmers who have bought the farmers are using them. They have not willingly discarded this product. The only farmers who are not using the treadle pumps are the cases where the washers have been severely damaged and the farmers are not getting washers in the market. Unfortunately extent of such farmers is quite large, to the tune of nearly 40% of the treadle pump owners.

However, what has changed is the pattern of use of treadle pumps. Most of the farmers had purchased treadle pumps to irrigate their main field, at a time when they had no access to mechanized irrigation. The kinds of use of treadle pumps I found were the following:

6.1 TPs being used to irrigate their main field

These are still many villages, where treadle pump is being extensively used for irrigation, even in the background of use of diesel engines. Most of such villages are absolute bordering villages like Gitaldah, Chamta and Katiarbadi etc. Gitaldah and Chamta are the villages I had seen during my stay in North Bengal in 1996-97. In that time itself, these two villages had achieved saturation from treadle pump point of view, two of the largest nucleus villages of North Bengal. Both these villages had over 500 pumps each. Early in the mornings one could see hundreds of farmers pedaling the treadle pump. That time farmers used to say, in three years time, they will shift to diesel engines. After 5 years when I visited these villages again I still saw almost the same number of farmers still pedaling the treadle pump, though there were many more diesel

engines visible on the fields. This scene was there despite the fact that I could not see many treadle pumps on the way from Coochbehar to Gitaldah and from Mathabhanga to Chamta.

It is not just in bordering villages; treadle pumps are being used even today for irrigation. It was quite satisfying to see treadle pumps being used for irrigation in villages of Haldibari, where there was no prior history of treadle pump use. Beltoli is a small village, reasonably far from the block market. Unlike other villages of the area, this village also grows high value chilli and tomato. This village has a small market and this market had a highly enthusiastic KB dealer and a KB mistri. Contrary to the villages in Dinhata and Sitai, this area did not have a prior exposure to treadle pumps from Bangladesh. This village alone purchased over 150 KB treadle pumps. When I visited Beltoli farmers were seen operating the treadle pump for their vegetable crop. Farmers here are still using treadle pumps despite the fact that, many of them genuinely complain about availability of washers. There was a farmer in this village that has lost one washer, but still uses the treadle pump using one barrel. Similarly in few places on the road near Haldibari and near Mathabhanga twin bamboo poles (which normally shows that treadle pump is being used) were while travelling on the road.

6.2 TPs being used partly for irrigation

Many treadle pump owners now find it attractive to irrigate their own land with rented diesel engines, and they go out for wage employment for intercultural operations. Most farmers believe that, this helps them in two ways (1) it is turning out to be financially a better option and (2) even in case of marginal difference; they find intercultural operation is less painful than pedalling operation. Many farmers who have little money to spare are now comparing the money required to irrigate with diesel engine (owned or rented) with the labour required to irrigate with pedal pump.

6.3 TPs being used for domestic water needs

Hemkumari is yet another village, which has over 100 KB treadle pumps, most of the pumps were seen, installed in the backyard. These pumps had multipurpose use, bathing, drinking water and irrigating the backyard. Farmers were seen owning both diesel engine as well as treadle pump. Diesel engine was being used in the main field, where as the treadle pump was being used for domestic water and irrigating the backyard. Many a places treadle pump was also seen being used as priming pump. The following page shows some pictures of various current uses of treadle pumps, when they are not being used in the main field.

I am not too much worried on the number of treadle pumps sold in North Bengal. As per a rough calculation:

I have noted 50 nucleus villages, with high treadle pump concentration. Out of this at least 20 villages with an average of 300 pumps, with a total of 6000 pumps. The other 30 villages have an average of 150 pumps, with a total of 4500 pumps. I am sure there are at least 100 spread

out villages with an average of 25 KB pumps, with a total of 2500 pumps. This itself makes a total of 13,000 pumps, which is pretty close to the sale figure of IDE.

One of the reasons why treadle pump is not a common sight is that, most of the treadle pumps have gone into the selected nucleus villages, often located in interior locations, as per IDE's marketing strategy. One point it certainly proves that, though treadle pump was available in the open market, it had never becomes a self-moving open market product. It required lot of persuasion to sell. Mistris and IDE MAs performed that role.

I am also not too much worried about the use of treadle pumps by the farmers who have bought them. Treadle pump is certainly a useful product. For many treadle pump owners, their active use has got reduced in light of the availability (own / rented) diesel engine. Even in such cases these treadle pump owners have found alternate use of treadle pump, domestic use, backyard irrigation, priming pump etc. However there are still a significant number of treadle pump owners, who still use the treadle pump for irrigation.

However what is certainly worrying is the non-availability of spares (particularly washers and in some cases plungers), which makes treadle pump truly defunct.

7. Demand for treadle pumps

The overall demand for treadle pumps have certainly gone down in North Bengal. This has happened primarily because of the following major reasons:

The heavy influx of diesel pumps in the area has made diesel pumps easily accessible on rent. Quite understandably, the general tendency among the farmers in North Bengal is not in favor of doing hard labor. Hence if there is a marginal difference in cost, farmers prefer to go to diesel engine than to treadle the treadle pump.

Lack of availability of spares (washers and plungers) in many areas for the last two years, has spread a strong negative image about the treadle pumps. The general comment is, why buy a product whose spares are not available in the market.

The withdrawal of IDE from the area has spread a message that the treadle pump company is closed. During 1998-00, there was a very strong hype towards the activity of IDE. There was lot of promotion activity going on in the villages. Hundreds of Mistris were moving around the villages actively persuading the villagers to buy treadle pump. All of a sudden, everything was closed down. No one comes to the villages; the Mistris also stopped talking about it.

However, not every thing is lost. There are still a substantial number of farmers using treadle pumps, like they used to do in the past, for their living. This is proved from the fact that despite closure of this great effort, treadle pumps continue to be smuggled[6] from Bangladesh in substantial numbers and sold in many parts of Dinhata, Sitai and Sitalkuchi. I also saw treadle pumps of Bangladesh sold in the shops of Sitai. These are of course of the cheapest model of pumps of Bangladesh, being sold for Rs.200 in Sitai market. Baburam, an ex-Marketing Assistant belonging, was engaged in smuggling of Bangladesh pumps for his living. After being removed from IDE, he has partly gone back to the same activity. He says, he has sold 700-800 pumps smuggled from Bangladesh.

Who are those farmers who still need treadle pumps ?

These are essentially those farmers, who are not so fortunate / influential enough to avail diesel engines on subsidy. It is very difficult to say, if there is a socio-cultural reason for this group of farmers to accept treadle pump and accept working eight hours a day on treadle pumps. On the face of it, what appears is that, most of these farmers are spread absolutely along the border of Bangladesh, almost living along to the BSF camps everywhere. If one looks at the social profile of the farmers of North Bengal, these lots of farmers appear to be the most neglected and disadvantageous lot.

[6] *The word "smuggled" here should be seen in a positive connotation. In my opinion this smuggling is not an offence. I have used this word, due to lack of a better word.*

The cultural[7] factor that appears to play some role is that, most of these farmers belong to *Muslim* religion, migrated from Bangladesh. The popular belief in the area is that, these people are more hardworking than farmers of other category here in North Bengal.

Increasing demand from *Anchal*[8] offices

Anchals are the body through which most of the development schemes of the Government are implemented in West Bengal. These Anchal offices controls lot of Government resources, essentially to provide subsidy to the farmers. Anchals were quite instrumental in providing large number of diesel pumps on subsidy. Most of the Anchals are quite keen to promote treadle pumps on subsidy too. They normally have a fixed budget for subsidy. Most of Anchals are quite convinced about the appropriateness of treadle pumps for irrigation in North Bengal. They feel, if they provide subsidy on treadle pumps, they can benefit at least 10 times more farmers than diesel engines. For the Anchals, the current price of treadle pump is quite affordable. A treadle pump, with drilling and pipes cost only about Rs.1000. In the local context in North Bengal, the distributors have a very good rapport with the Anchal offices, as a major chunk of their business happens through the Anchals only. Many of the Anchal offices are contacting the local distributors and IDE staff to sell to the Anchals. Even the distributors try to convince the Anchal offices to promote treadle pumps. Most of the treadle pumps, which are currently being sold in North Bengal, are being sold through these Anchals.

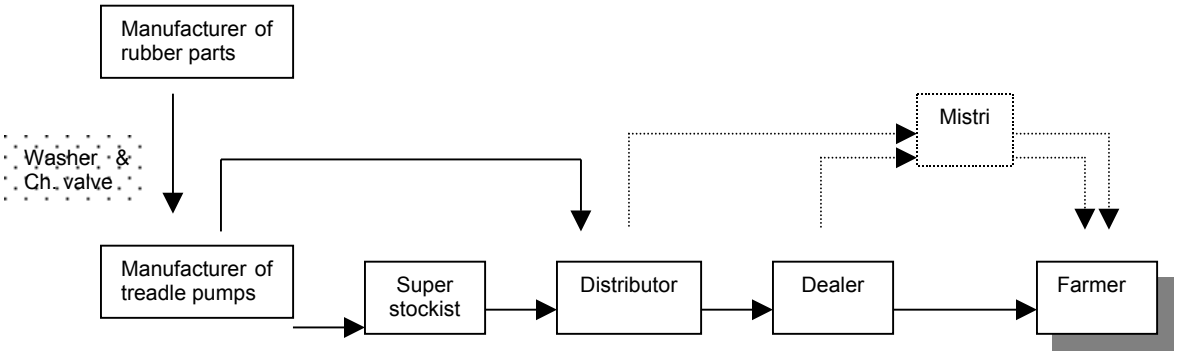
Ultimately, despite the change in the local economy in the last 4-5 years in North Bengal, there still appears to have a significant demand for treadle pumps. The free market demand for treadle pumps exist only for cheaper treadle pumps, not for the current treadle pumps. However there exist a significant demand for the existing treadle pumps from the Anchal offices. I don't want to get into the debate of whether subsidy is good or bad. The point I am trying to make here is that, there is a significant demand for treadle pumps to be sold under subsidy.

[7] *I am making this point with lot of caution, as many pointed this out to me during the survey. This observation is not intended to offend people from any religion.*

[8] *Anchal is a local word used to denote the lowest level of local self governance, quite popular and powerful in West Bengal, it being a Communist state*

8. Status of the supply chain

The supply chain that IDE established essentially consists of 6 market players i.e. Manufacturer of rubber parts, Manufacturer of treadle pump, Super stockist, Distributor, Dealer and Mistri. The interrelation among these players is shown below:



8.1 Dealers and Mistris

Dealers and Mistris are the people who are in touch with the farmers directly and are responsible for the ultimate sale. Dealers are normally located in small market places and each market catering to 5-10 villages. Outreach of any product (including treadle pump) depends on the size of the dealer network. More the number of markets that are covered with the dealer network, more villages/farmers the product could reach.

I visited nearly 80% of the markets in high potential and moderately potential areas, where IDE was most active. What was most striking to note that, during 1999-00, over 90% of these markets had an active KB dealer, which is indeed a truly commendable achievement. But unfortunately, following the withdrawal of IDE, over 70% of these dealers could not continue dealing with KB treadle pumps.

Following table shows the markets (from among the markets visited by the consultant) where the KB dealer is currently not active:

Sitai
1. Sitai
2. Gidari
3. Nalbazar
4. Pancharhat
5. Nutun Bazar
6. Bhaberhat
7. Giridhari

Sitalkuchi
8. Sitalkuchi
9. Gosairhat
10. Baromaricha
11. Golakganj

Haldibari
12. Haldibari
13. Bholarhat
14. Beltoli
15. Berubadi
16. Hemkumari
17. Dewanganj

Dinhata
18. Baman hat
19. Choudhury hat
20. Contuler hat
21. Dhapra hat
22. Madhupur
23. Najir hat
24. Salmara
25. Panishala
26. Khochabadi
27. Sahebganj
28. Basantir hat
29. Bhuri hat
30. Gitaldah
31. Okrabadi
32. Bhangni
33. Sholmari
34. Petla
35. Gosanimari

36. Matla hat
37. Nasina
38. Dewanhat
39. Bhetaguri
40. Putimari

Tufanganj
41. Balrampur
42. Charta Chakadara
43. Panishala
44. Maruganj
45. Chilakhana
46. Kestopur
47. Balabhut

48. Chekadera
49. Tolliganj
50. Sabirhat
51. Shalbari
52. Nagurhat
53. Bhatibari
54. Dholpol
55. Chotarampur

Mekliganj
56. Mekliganj
57. Changrabandha
58. Dhapra
59. Ranihat

Mainaguri
60. Kranti
61. Jalpesh
62. Helapakri
63. Lataguri
64. Gangadevi
65. Maulani

66. Nagrakata
67. Metli

Mathabhanga
68. Bairagirhat
69. Ramthenga
70. Athpukri
71. Paradubi

Following table shows the markets (from among the markets visited by me) where the KB dealer is currently active:

Haldibari

1. Sinjarhat
2. Ghugudanga

Tufanganj

3. Tufanganj
4. Deodanga
5. Salmara
6. Kamakhyaguri
7. Khuadanga
8. Nataguri

Mekliganj

9. Jamalda

Mainaguri

10. Mainaguri
11. Kathambari
12. Chengmari

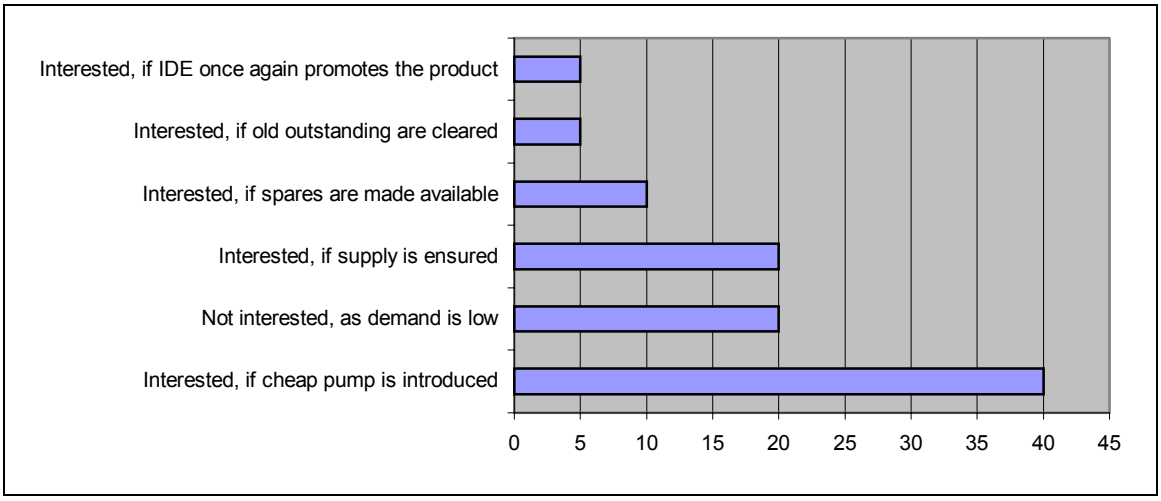
Mathabhanga

13. Mathabhanga
14. Nishiganj
15. Hindustan more
16. Nayarhat
17. Mainatuli
18. Hajrahat
19. Gosairhat

- More acute problem that the above is, there was not a single active KB dealer in Dinhata, Sitai and Sitalkuchi (zone-1), which is the most potential zone for treadle pump in North Bengal, having over 70% of the total treadle pumps sold in North Bengal. The complete focus of the remaining IDE staff during the post withdrawal hase has shifted from high potential to the moderately potential areas, where the program is still active though in a reduced scale.

- There is a huge demand for washers, for the treadle pumps that have already been sold in the area. Many of the dealers want to stock washers, but don't know where to get them. With the pressure from the farmers, many such dealers have removed the KB dealer signboard and saying to the farmers that, they are no longer dealing with KB pumps.

- From among the currently inactive KB dealers, the indicative patterns of the most critical response (with percentage wightage) to restock KB pumps are as follows. This shows that 40% of the dealers are interested to continue if cheap pump is introduced and only 5% if IDE once again promotes the product.



Mistris play various different kinds of roles. Their main business is drilling of tube wells, including tube well required to install treadle pump. They have one to one relationship and trust with the farmers. During IDE program time, Mistris were extensively used for promotion as well as sales agent. They normally have two margins, one on the tubewell drilling and second a margin that was included in the price of treadle pump. Many a times the Mistris were also directly used by distributors, as dealers in places where there was no formal dealers. It is needless to say that in a product like treadle pump, which requires lot of persuasion, Mistris are absolutely critical and the backbone of the sales.

During 1999-00, Mistris were actively engaged in promotion and sale of treadle pump. Each dealer would have at least 3 Mistris attached to him. Hence the total number of the Mistris engaged in the program would be at least 250. With the reduction of the number of active dealers, proportionately the number of Mistris has also got reduced. Many of the Mistris felt proud to be attached with IDE, now have no idea where IDE has gone. With the business opportunity with treadle pump gone down drastically, most of the Mistris have now shifted to STWs (Shallow Tube Well – for diesel engines). With the purchase and renting of diesel engines going up the market for STWs also have gone up. Most of the Mistris have now got engaged with drilling of STWs. With the number of diesel engines going up in the area, even the market for repair of diesel engines have gone up. Many of the Mistris have now acquired additional skill of diesel pump repair and are engaged in that business. Though a large number of Mistris are not associated with promoting / selling of treadle pump, there still exist a tremendous amount of good will about IDE, in the minds of the mistris.

8.2 Distributors and Super stockist

Distributors are the critical link between the manufacturer and the dealers. Usually the numbers of dealers are so many and they are so spread that it is impossible for the manufacturer to deal with each on of them directly. Normally the block headquarter have bigger markets where the distributors are located, who also have the financial capacity to order large quantities of material from a distance and distribute in smaller quantities to the dealers. It was noticed that during

1999-00, IDE also had developed a very good distributor network, quite sufficient for North Bengal. However only 50% of this distributor network is currently active. The status of this network is shown below:

Name of the market	Name of the KB distributor	Blocks covered	Currently active: Yes / No
Dinhata	Santa Mahato	Dinhata I & II, Sitai	No
Tufanganj	Ganesh Pal	Tufanganj	Yes
Mathabhanga	Rani Traders	Mathabhanga, Sitalkuchi	Yes
Mainaguri	NB Hardware	Mainaguri, Mal	Yes
Mekliganj	Prasanta Das	Mekliganj	No
Haldibari	Ashok Enterprise	Haldibari	No

IDE had introduced the concept of super stockist, primarily because the manufacturers were in Kolkata, 12 hours by road from North Bengal. The super stockist becomes the essential link between the manufacturer in Kolkata and the distributors in North Bengal.

During 1999-00, IDE itself played the role of the super stockist, with the material stock being available at all its offices in Siliguri, Jalpaiguri, Mainaguri and Coochbehar. The Distributors procured materials from these local offices.

With the withdrawal of IDE from North Bengal the biggest void in the supply chain encountered was the "Super stockist". Recently IDE has upgraded the Mathabhanga distributor (Rani Traders) to become the super stockist for North Bengal. It is obviously another remarkable achievement that, Rani Traders has agreed to play the role of the super stockist and has started making required investments to do so. However its relationship with other distributors hasn't yet been established. Of the existing distributors, both Tufanganj distributor and Mainaguri distributor have got old stocks procured from IDE. Hence in the current year, Rani Traders is essentially playing the role of a distributor for Mathabhanga block only.

It was quite interesting to note that; there was a tremendous amount of interest among all the distributors, including the ones currently not active, to deal with KB pumps. Infact the distributors of Haldibari and Mekliganj were quite wild during my interview that IDE (or its substitute) is not contacting them for the last two years. Every distributor is concerned that, because of IDE's withdrawal from active promotion, the open market demand for KB pumps has gone down. On the other hand all the distributors strongly feel that, there exist a huge demand for treadle pumps from the *Anchal office* (Gram Panchayat). In fact most of the distributors have contacted *Anchal offices* in their own area

8.3 Manufacturers

Currently there are two treadle pump manufacturers supplying to West Bengal (including North Bengal), both based at Kolkata i.e. Roy Engineering Works and NR Industries. Both these manufacturers are engaged in treadle pump business for over 5 year now. Both the manufacturers are quite active and are producing treadle pump.

Roy Engineeering Works (Roy) owns one metal fabrication unit and one ice cream unit, with staff common for both the units. During the treadle pump production season i.e. the winter season, Roy totally concentrates on producing treadle pump. During the off-season for treadle pump i.e. the summer season, Roy shifts completely to the ice cream business. From Roy's point of view, both these business complement each other quite well in terms of their seasonality. In the division of area between Roy completely supplies to North Bengal, which is north of river Ganges including NBTDP project area. This year Roy has produced in the range of 5000 treadle pumps. Roy is completely dependant on IDE to sell his pumps and collect payment. Roy only does production and transportation. Roy feels very strongly that he can't operate on his own, if IDE completely withdraws.

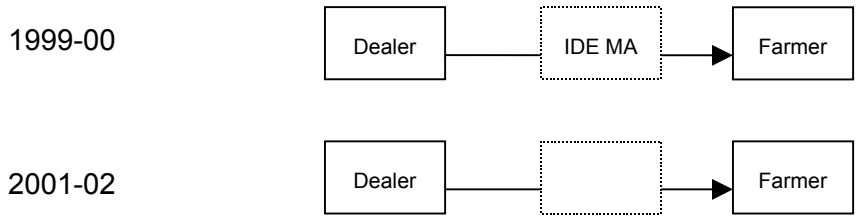
NR Industries is a full-fledged small-scale agriculture implement factory. NR produces a wide range of agriculture implements and some other press items (like cover of electric meter), which can be produced with existing equipments. NR is a much more professional manufacturer, using computer, using CAD for designing etc. In the division of area, NR has been supplying to South Bengal, North East and any place in India, which falls short of supply. NR produces the complete range of treadle pumps IDE promotes, BPP, LCP, STP, 3.5"MPP and 5" MPP. BPP is the one, which is sold in North Bengal. STP is a new pump, which is essentially like 3.5" BPP, but is mounted on a stand. In principle, it is like the TK pump. LCP is a low cost BPP, which IDE plans to promote in North Bengal. It uses 18 swg sheet instead of 16 swg, used in case of the normal BPP. This year NR has produced in the range of 10,000 pumps.

9. What went wrong for the supply chain ?

Many reasons appear to have contributed to the current state of affairs of the supply chain, which are narrated below, in the order from operational reasons to strategic reasons:

9.1 Sudden removal of Marketing Assistants

Removal of Marketing Assistants has been the single largest factor to the break of the supply chain at the grassroot level. Though in books, there existed a direct relationship between the Dealers and the Farmers, but in reality it could not happen that way during 1996 to 2000. The Marketing Assistants of IDE had to intervene between the Dealer and the Farmer to make the chain work. The Marketing Assistants did lot of field functions of the dealers almost as their sales agent. They coordinated with the Mistris, got the farmers to purchase from the dealers and in most cases also collected payment from the farmers. The sudden removal of MAs created a big break in this supply chain, as depicted below.



(Note: Break in the channel, due to absence of MA)

There were roughly 15 MAs and 90 dealers, making an average of 6 dealers per MA. With the removal of 13 MAs till April'02, nearly the above break occurred for 78 dealers, which is also quite close to the total inactive dealers i.e. 71.

9.2 Excessive dependency of dealers on the MAs

Linked to the above factor, was the excessive dependency of the dealers on the Marketing Assistants. To begin with, there is no doubt that a person like MA was necessary to begin the market for an alien product like treadle pump. However, critical question, which is open to debate, is that, at what stage the question such a person like MA should be removed. Theoretically, such a person should have been removed once a direct chain between the dealer and farmer is established or when some other person fills the position of the MAs. None of these things had happened, when the MAs were removed and the dealers had developed a great deal of dependency on the Marketing Assistants.

9.3 Incomplete settlement of some MA accounts

There was a special problem relating to Dinhata and Sitai, which made it impossible even for the existing MAs to probably keep Dinhata, Sitai and Sitalkuchi functioning.

Debesh Burman was the MA for Dinhata and also belonged to Dinhata itself. When he was removed from IDE, he believes his accounts were not properly settled. He claims he was not

even paid salary for 7 months, which comes to Rs.14,000. Towards the fag end of Debesh's stay with IDE, he had persuaded the Anchal office of Najirhat for 100 pumps. This order was approved and order was given to K.C.Jain, KB dealer at Najirhat. Jain got 100 pumps from IDE, worth Rs.30,000 by paying an advance of Rs.15,000 (plus Rs.6,000 later) and supplied to the Anchal for Rs.40,000. In the meantime, Debesh was removed. As his claim was not settled, he told the Anchal office, to hold the payment of treadle pumps. The Anchal office, quite happily did that. Now the matter is stuck for last two years in a vicious circle. IDE's Rs.9,000 is stuck with Jain, till Jain's Rs.40,000 is stuck with the Anchal, till Debesh's Rs.14,000 is stuck with IDE. Jain is quite wild and determined to recover his Rs.40,000 from anyone who comes from IDE. Most people feel, the existing IDE MA avoids coming regularly to Dinhata as he may get pulled into this fight.

Baburam Burman was the MA for Sitai and later for Sitalkuchi too. He also belongs to Sitai. He was a very good MA and once got the IDE national award for the best MA of the year. Baburam has a very good rapport with all the dealers of Sitai and Sitalkuchi. He also lost his job and says, his accounts were also not fully settled and the dispute amount is Rs.7,000. Though Baburam's case is not as complicated as Debesh, some still feel that, the existing MA does not come to Sitai and Sitalkuchi as he has to face Baburam.

In both the above cases it is very difficult to say, what is right, because even the concerned DMM has also been removed from IDE two years back. However it appears a quite cost ineffective dispute, just for a dispute of Rs.21,000 the program seems to be loosing the supply chain of the three highest potential blocks of North Bengal.

9.4 Lack of proper MA level account in the field

Credit sales were also in practice at the dealer level in the field. In most cases MAs were the contact person with the farmers on behalf of the dealers. MAs were getting the farmers to the dealers and getting them pumps on credit. There was an unwritten understanding that the MA would recover money from the farmers and deposit it with the dealer. There was no accounting of this transaction. This went on where the MA was prompt enough to deposit the money with the dealer. However few MAs were not so prompt. Ramkrishna Burman was one MA, lot of dealers of Haldibari complains that, he used to keep this money and not deposit in time or completely. With the removal of Ramkrishna, lot of these field accounts remained unsettled. Dealers are quite wild as lot of their money is stuck in the market because of the MA, they don't know where and how much. Some dealers are loosing interest to deal with IDE, because of such an approach.

9.5 Lack of product range

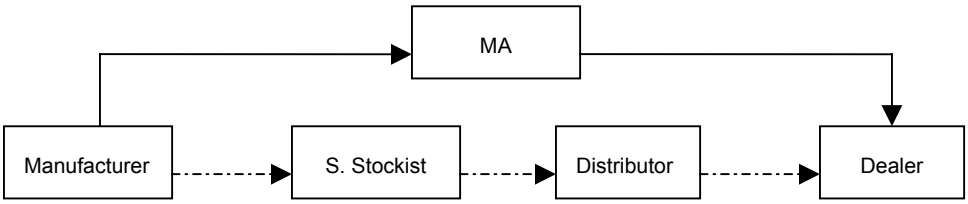
For over 5 years now, IDE has been promoting one model of treadle pump in North Bengal. This pump is of a very good quality, with the farmer price of Rs.430. However this pump is unable to compete with the cheap pumps of Bangladesh, which is available for Rs.200 and increasingly becoming popular among farmers. This pump, though cheaper than the Indian pump, farmers don't perceive any difference in the basic performance between these two pumps. There is a belief among the farmers that, a treadle pump is worth Rs.200 (value for money). Many people (including Prof. Tushar Shah in his evaluation) have suggested introducing in the market a wide range of quality with a wide range of prices, to give farmers a choice. Only this year, IDE has approved production of a Low Cost Pump (LCP) to be sold to farmers at Rs.300. Just one more model doesn't really solve the purpose, the market still needs one more, still cheaper than the above pump.

9.6 Lack of spares

For the last two years, in all the places where KB dealers are not active, lack of availability of washers is a serious problem for the 13000+ farmers who have already bought the pumps. This not only is affecting the current farmers, but also is affecting the market for future farmers. Farmers feel; if spares are not available, why buy a product. As far as the spares are concerned, there are actually three main parts that need replacement i.e. Washer, Check valve and Plunger.

9.7 Bypassing the chain

This is a specific case with the Jalpaiguri MA that I noticed. Haldibari and Mekliganj are the two places, where there are no active distributors, but the existing MA of Jalpaiguri was working[9] in these two blocks. What is quite strange is that, in both these places, the existing distributors were quite keen to work with IDE. Both of them were very good distributors, with apparently very good track record working with IDE.



(Dotted line indicating the main channel, but being bypassed)

But the MA, instead of strengthening the Manufacturer-Super stockist-Distributor-Dealer chain, started bypassing them. He started getting direct supply from the manufacturers and supplied to the dealers. The distributors are quite wild, wandering what is going on.

Secondly, I met the MA when he was sitting in Bhotbari Anchal office, negotiating for an order of over 150 pumps. He eventually got this order, but passed in on to the dealer at Jamaldah, 25 km from Bhotbari. He did this, even when there was a KB dealer at Changrabandha responsible for Bhotbari. He had already initiated a dialogue also at the Dhapra anchal. The distributor was quite wild, as the MA was doing all the sales in Mekliganj without even contacting him.

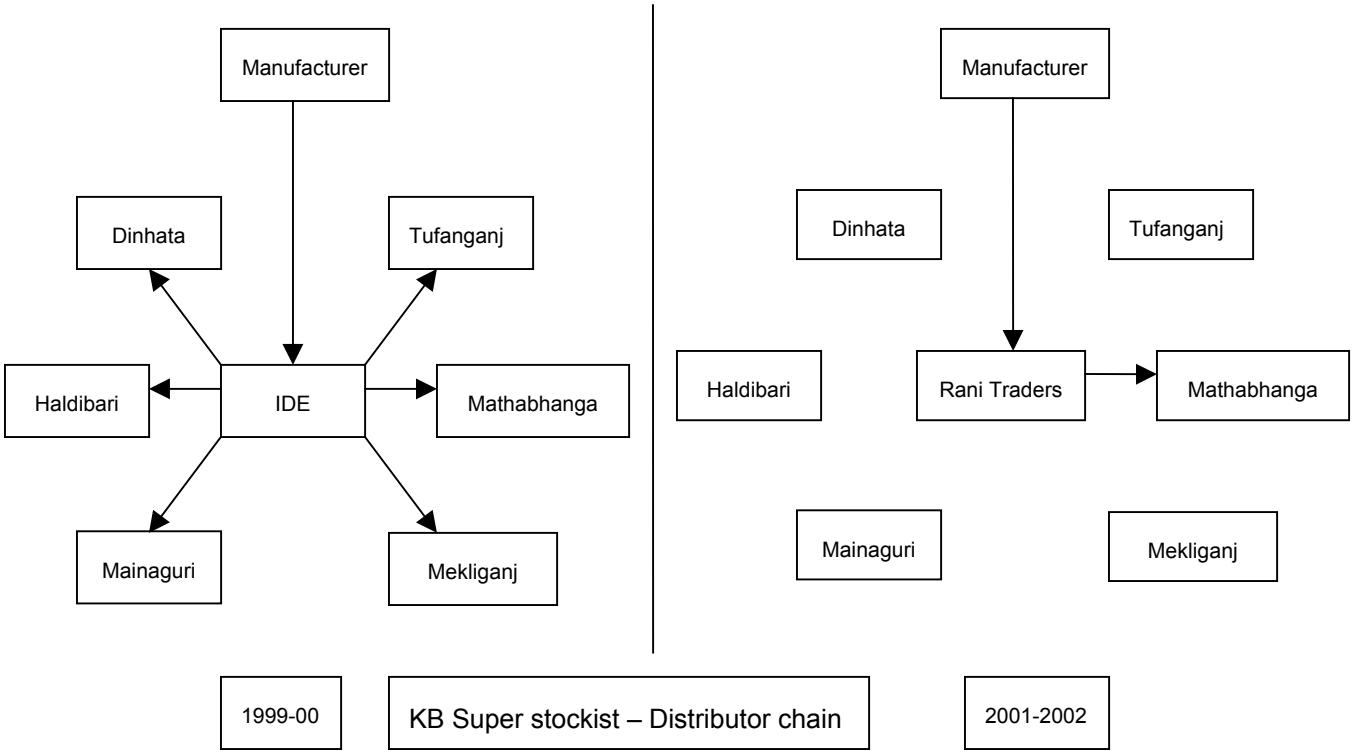
A similar practice was also happening in Haldibari block. Alan Parmanik is an active dealer at Sinjarhat, who has already sold 50 KB pumps this year and expects to sell 100 more. He gets his supply directly from the MA, evenwhen there exist a distributor at Haldibari.

Talking to the MA, it appeared as if he was only working for achieving his sales target, instead of working for strengthening his supply chain. He had no idea, what should be his changed role in the sustainability phase. Quite surprisingly the MA blamed on his predecessor and said, he was not handed over the complete list of dealers and distributors and therefore he had to start all over again.

9.8 Super stockist not completely activated

[9] *Till April'02,now removed*

I have already explained that, the super stockist is the critical link between the manufacturer and the distributors. IDE had played this role in the past, which is now being taken over by the distributor of Mathabhanga. Though he himself is ready from investment point of view, but his trade relationship with the distributors is not yet established. The following chart depicts the status of Superstockist – Distributor chain, as it exists in North Bengal.



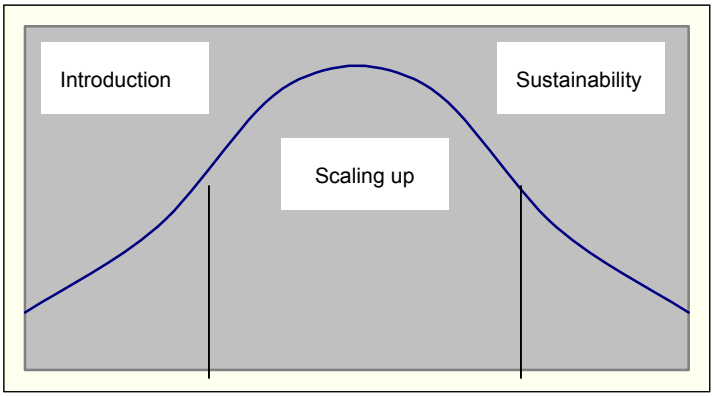
(Note: The missing linkage of the channel in 2001-02)

9.9 Wrong manufacturer

In my opinion one of the strategic error has been by allocating North Bengal to Roy Engineering, instead of NR Industries. Roy's pumps are being sold in North Bengal for over 5 years now; even then he is still dependant on IDE for his present and future sales. This is in contrast to NR Industries, who supplies to North East. NR has already open up an office at Guwahati allocating one full time staff and three seasonal staff. NR also has opened up a godown in Guwahati. With the similar reduction of IDE staff in Assam, NR has started taking over the supply chain. It is unrealistic to believe that IDE will be in North Bengal (being an NGO) forever. Ideally Roy should have slowly taken over from IDE also to manage the supply chain of North Bengal. Even today Roy is not ready for this. Unfortunately he tells, in the event of complete withdrawal of IDE, he will go full time to his ice cream business.

9.10 IDE plan didn't work in North Bengal

This appears to be the core strategic issue, which led to all other operational issues discussed earlier. IDE had a very ambitious plan for North Bengal. Undoubtedly this was the star project of IDE in India, in terms its total potential. IDE had a nearly 9-year time frame to work in North Bengal, divided into 3 funding cycles of 3 years each. The first 3 years for **introduction**, second 3 years was for **scaling up** and the last 3 years for **sustainability**. Conceptually Scaling up is the highest level of activity and during the sustainability phase constructive disengagement takes place. IDE had a very nicely worked out plan to implement this. The funding from PSU was viewed as the funding for product introduction. IDE had the confidence that it will be able to raise other funds for scaling up and sustainability. However things didn't happen that way. IDE did get some money from other sources also for North Bengal. However this money was for sustainability, hence at a much more reduced level. IDE had to very quickly fire all the staff; it had acquired to implement the scaling up phase and trained during the introduction phase. It had to abruptly withdraw many of the promotion activities.



9.11 IDE Senior Management tied up with Indianization

With all the strategic and operational problems, this is the most important institutional problem that affected the program not only in North Bengal, but also in some other parts of IDE program in India. Year 2000 and 2001 were also the critical years for IDE in India, when IDE decided to become an Indian organization from being a liaison office of an US organization. This step was quite critical for IDE's survival in India and had to be done with extreme care. Unfortunately this was the time when even the North Bengal program required support of the senior management. Unfortunately, in 2000, IDE lost its Program Director of the treadle pump program (and the replacement was only found in 2001). But the choice for the IDE senior management was very clear, let's first survive.

10. Lessons from Bangladesh

North Bangladesh comprising of districts of Rangpur, Gaibandha, Kudigram, Lalmonirhar, Nilphamari, Dinajpur, Thakurgaon, Panchagarh, Nilphamari and Jaipurhat, are adjacent to North Bengal of India. From socio-cultural point of view, North Bengal and North Bangladesh have lot of similarity. This is also the area where treadle pump has been promoted actively. North Bangladesh has nearly 9,00,000 treadle pumps and the whole of Bangladesh has 1.5 million. Now, sale of treadle pump still goes on in this area roughly in the range of 30,000 treadle pumps per year, though active promotion of treadle pump has stopped.

Word of caution

A caution must be exercised, while reading this section, not to compare the two programs. The programs of North Bangladesh and North Bengal simply can't be compared (like it is not possible to compare apples with oranges). Just to give some reason why both the programs can't be compared are; North Bangladesh treadle pump program is at least 15 years long program, while North Bengal is only about 4 years; two big agencies RDRS[10] and IDE were aggressively promoting the program in North Bengal, while in India it is being by IDE alone; the total fund that might have been spent in North Bangladesh by both the agencies would easily cross US$20 million, where as in North Bengal it is not even US$1 million; North Bangladesh program had started at least 10 year ahead of North Bengal, when it had to compete with lesser developed technology like bucket tied up on bamboo. North Bengal started when mechanization in agriculture had already started and treadle pump had to compete with subsidized diesel pump sets.

The purpose of stating this is to avoid comparing both the programs. However lot of things still can be learnt from the North Bangladesh experience, that can be implemented in North Bengal too, which is the focus of this section.

10.1 Institutions

RDRS started working in 1971 to assist the Bangladesh refugees staying in the refugee camps in Coochbehar district of North Bengal, because of the Bangladesh war of independece. After independence it went along with the refugees to Bangladesh to resettle them. During this time RDRS identified treadle pump as a technology, which can help the farmers resettle their agriculture activity. RDRS developed a workshop in Rangpur, where it produced the treadle pumps and provided free of cost to the farmers in its project area in Rangpur and Dinajpur to begin their agriculture activity. Number of such pumps must be in the range of 1-2 lakhs. Few years back RDRS stopped promoting treadle pump in its project area.

[10] *Rangpur Dinajpur Rural Service*

IDE started working in 1984 in Bangladesh and soon identified the treadle pumps as a product that has got tremendous potential in whole of Bangladesh including Rangpur and Dinajpur. It started promoting and marketing treadle pumps all over Bangladesh. IDE has gone through four phases in promoting treadle pump in Bangladesh. 1984-89 was called **Start-up phase**, when IDE played the role of direct service provider. During this phase IDE demonstrated the product, provided technical assistance to partner producers, directly controlled quality, established quality benchmarks and sold treadle pumps with 15% margin. 1989-90 was called **market creation phase**, when IDE played the role as a market facilitator. During this phase IDE withdrew from direct sales function, established supply chain. 1990-95 was called **KB phase**, when IDE established a company called KB Company managed by IDE. The idea was to build a flagship company, self-sustaining business entity to deliver treadle pump. IDE aggressively promoted its own brand called KB. 1995-till date the current phase is called **generic promotion phase**, when IDE is promoting treadle pump in general, no more just KB treadle pumps. The key words during this phase are: promote, train and facilitate.

10.2 Product range

Bangladesh has a wide range of products being sold in the market. These could be broadly classified into; product type, sheet thickness and barrel length.

Product type: Bangladesh has 5 types of pumps being produced by the treadle pump manufacturers and sold in the treadle pump market. These products are:

- 5" treadle pump[11]
- 3.5" treadle pump with nipple
- 3.5" treadle pump with socket
- Drinking water pump
- Priming pump.

Sheet thickness: There are three sheets that are used in Bangladesh i.e. 16, 18 and 20 swg[12] (16 swg being the thickest). The most popular and cheapest pump is of 20 swg. Some manufacturers do produce pumps of 18 swg. However pump with 16 swg is a rare shight, only produced on order. It may be noted that some manufacturers did try producing 22 swg, but it did not work, farmers rejected it. The picture is a display of different thickness of pumps that was placed in IDE office in Dinajpur. During the generic promotion stage IDE uses this to demonstrate pumps with different thickness. Just to put it in perspective, the pumps that are sold in North Bengal is of 16 swg. The low cost pump that is being introduced for North Bengal is of 18 swg. The pumps that get smuggled from Bangladesh to North Bengal are of 20 swg. When I spoke to IDE in Bangladesh about the quality of pumps with respect to the sheet thickness, the

[11] *Which is actually 4.75"*
[12] *Measure of thickness, popularly called gauze*

answer I got was that; the sheet thickness only increases the life of the pump, it does not impact the efficiency of the pump in terms of water output. When the 16 swg pump can last for 7 years, the 20 swg pump will last for 3 years. The price difference between these two pumps would be almost half. In Bangladesh farmers don't expect a treadle pump to last for more than 3 years (because they want to switch to diesel engine in 3 years), they don't view a 3-year life pump bad quality.

Barrel length: 14" is the normal length of the treadle pump barrel. However in Bangladesh, to reduce cost manufacturers are also trying to reduce the length of the barrel. RDRS in now trying to introduce 10" pumps and has already installed 27,000 pumps of this type. The logic given by RDRS is that, the maximum stroke length of the pump is only 6" and hence one doesn't need more than 4" of idle length. Other manufacturers in Bangladesh have already come to 12". This photograph has been taken in RDRS factory in Thakurgram to show the visual difference between the 10" and 14" pumps.

Price: The price of the pumps that were available in Lalmonirhat, is given in the following table:

S.N.	Pump type		Sheet thickness (Swg)	Dealer price (Tk)	Farmer price (Tk)
1	5" BPP / 14" long	With spout	16	330	350
2	5" BPP / 14" long	Without spout	16	280	300
3	3.5" BPP / 14" long	With nipple	16	240	260
4	3.5" BPP / 14" long	With nipple	18	190	210
5	3.5" BPP / 14" long	With nipple	20	180	200
6	3.5" BPP / 14" long	With socket	16	250	270
7	3.5" BPP / 14" long	With socket	18	200	220
8	3.5" BPP / 14" long	With socket	20	190	210
9	Priming pump		16	160	170
10	Priming pump		20	110	120
11	Drinking water pump		16	110	120
12	Drinking water pump		18	105	115

10.3 Manufacturer range

There is a wide range of manufacturers in Bangladesh. The biggest range of manufacturers would be North Bengal Agricultural Workshop of Lalmonirhat, once having produced 25,000 treadle pumps a year. Majority of the manufacturers would be small like Mahabub Machineries of Sukhrerhat, producing about 1,000 treadle pumps a year. In total there would be around 30 manufacturers in North Bangladesh. The following pictures would provide a visual idea of the type of manufacturers exist in Bangladesh.

10.4 First treadle pump manufacturers of Bangladesh

RDRS played a crucial role in kick starting small scale manufacturing business in Bangladesh. Initially RDRS had its own manufacturing unit, which it closed down. This unit had 8 staff, which had to be sacked. RDRS provided financial help (grant) to these 8 staff to set up a treadle pump manufacturing unit in Rangpur. This unit was called 8-star. Subsequently RDRS facilitated these 8 staff to separate and establish 8 different manufacturing units spread around in different parts of North Bengal. These 8 manufacturing units established small scale manufacturing as a viable business. One of these units is located in RDRS campus in Thakurgaon. Jewel Das who owns this workshop, provides all the pumps needed for RDRS program. RDRS also uses this workshop to try out all its new ideas.

10.5 Dealers

One of the most impressive to see was the dealer network in North Bangladesh. Practically every market of North Bangladesh has one or two dealers. The picture is of Babu Store, Garakgram bus stop in Nilphamari district. He has displayed the range of treadle pumps he sells from 5 different manufacturers. He also sells spares. Farmers from 5 villages in 3-km radius come to purchase from him. This season he has sold over 200 treadle pumps.

10.6 Local innovation

It is important to note some of the local innovations that have taken place, without the intervention of IDE or RDRS. With so many manufacturers in a small area, there is a cutthroat competition among the manufacturers. The market has become highly price sensitive. The key to survival of the manufacturers is lower price. A Tk 10 difference in the pump can make sale or no sale. This has forced the manufacturers to think about introducing small innovations that can marginally reduce the cost of the pumps. Some of such innovations that have taken place are:

- Use of ring, in place of plunger upper disc. This was not only cheaper, but now seems more efficient than the normal plunger. This also reduces the requirement of drilling of the disc, or purchase of a punched disc from a larger manufacturer with a power press. Now a days most of the pumps locally manufactured in Bangladesh use these rings.

- Direct bending of spout: The normal practice for making the spout is to first cut the spout piece from the barrel sheet. Once the barrel is rolled, the spout piece is welded on to it. Now the local manufacturers have got away with this welding.

- Cutting of plunger lower disc: The normal practice for making a plunger lower disc is either to purchase it from a large manufacturer with a power press or to get it grinded from a manufacturer with lathe. Most of the small manufacturers don't have lathe. They simply decided to use the cut plunger disc, without grinding it. Fortunately it didn't make any difference in the performance of the pump. Now this has become the normal way in most small manufacturers.

11. Revitalization strategy

The key question is “Is it possible to revive the demand and supply chain in North Bengal ?”

My answer is “Yes”, but the biggest issue is “Who will do it, Who will bell the cat ? Biggest constraint I see is the time.

- Funding from PSU to IDE stopped in 2000 and since then IDE is barely managing to survive in Bengal with very little funds from other sources. This funding will also come to an end in March 2003.

- PSU funding is getting over in December 2002. PSU will cease to function in North Bengal in December 2002.

- PSU has formed a local NGO called CDHI to continue its activities in after its withdrawal. CDHI does not have the resources and the required technical and marketing experience to make such a rival strategy happen. On the other hand, if it is done without a proper strategy, CDHI might repeat the same mistakes made by IDE.

The idea of putting these organizational constraints integrated in the revival plan is to raise the issue, so that the concerned parties can sit together and find an institutional way out.

11.1 General recommendations

The following are some general recommendations, if there is an agreement in principle to revive the treadle pump in North Bengal. These are applicable irrespective of the strategy adopted:

- **Make spares more openly available:** This is first and foremost activity that must be pursued in North Bengal. Washers, Plungers and Check valves must be openly available in the markets in North Bengal. Currently washers and check valves, though produced by a different manufacturer than the treadle pump manufacturer, they still come through the treadle pump manufacturer. If possible, a direct supply chain should also be built between the washer & check valve manufacturer to the super stockist. Washer is one component; the farmers are not willing to compromise on quality and are willing to pay a higher price for a better quality. The farmers really appreciate the blue washer introduced by IDE.

- **Introduce of a wider product range:** It is extremely important to give farmer a choice of the products. The wider the choice, the more is the chance of a wider range of farmers being covered. Bangladesh market has a range of 12 products in the market (ref: 10.2). I strongly recommend having a critical look at all these products and seeing how many of them are feasible to be introduced.

- **Not pursue the metal treadle system:** There is no doubt that, North Bengal is a highly price sensitive market. Anything that can be avoided to reduce cost must be reduced without compromising the basic performance (yield of water) of the pump. In this connection, I strongly recommend not to further work on the TK metal treadle pump. Introducing a 4”

pump is fine, but it should be with the same bamboo treadle system. I also feel PSU now not to pursue something new, that can't be completed before withdrawal in December'02.

- **Facilitate, don't provide:** The time has come when the promoting agency i.e. IDE and/or PSU to play the role of market facilitator. The mistake that is being made by the current MAs is that they are unable to perform a facilitating role required during the sustainability phase. They must stop getting involved in getting orders, getting materials transported, getting the money collected etc. They should clearly practice the key words of this phase: **train and facilitate**. This is also applicable for PSU. It appears, PSU staff in a hurry to introduce an alternate approach, repeating the same mistake that IDE field staff made. The 200 treadle pumps that were sold this year with PSU initiative, PSU played a direct role in placing order to manufacture, purchasing from the manufacturer, getting the pumps transported in its own vehicle, getting the pumps delivered to the mistris etc. PSU must be involved in promoting treadle pump, but truly in the role to **train and facilitate**.

- **A senior person to handle:** Explained above is that the need of the hour in North Bengal is to facilitate. However facilitating is a completely different skill than providing. The results of Provision function is much more concrete, which can be seen in terms of number of pumps sold. My guess is it is beyond the capability of persons like Marketing Assistants or Area Managers to first conceptually understand this function and then handle all the activities required for it. A senior person skilled in facilitating must handle this function.

- **Clear some sticky old accounts disputes:** The problem has been elaborately narrated in 9.4. It is important to identify places where accounting disputes are hampering the good will of IDE. I recommend clearing the final settlement dispute of Debesh Burman and Baburam Burman with IDE. I also recommend seeing how some field outstanding that can be cleared; including Ashok Enterprises, Haldibari (credit sale by Ramkishan), Partho Beej Bhandar, Dewanganj (credit sale by Ramkishan); and Shshil Ghosh, Lataguri (credit sale by Tapan Bal).

- **Openly allow the Anchals to sell treadle pump:** This recommendation may be little difficult to accept, as ideologically both IDE and PSU are against subsidy. I am also against subsidy. Let me give my logic of why I feel it should still be accepted. Firstly, looking at the fact that the treadle pump market has been by and large lying defunct for last two years, a big push in the market is now again required to reactivate it and neither IDE nor PSU are in a position to it now. Secondly, we may be against subsidy, but our strongest competitor "diesel pumps" are being flooded in the villages with subsidy. The reality of life is this heavily subsidized product is killing our non-subsidy initiative. If treadle pump has to now compete with diesel pumps, it can only do it by adopting the same practice. Thirdly, we look at Bangladesh as our role model. Today Bangladesh has thriving open market. But everyone tend to ignore the role of RDRS subsidy in making this happen. My guess is, the first few lakhs of pumps were absolutely distributed free of cost by RDRS. Lastly, selling through subsidy is the current practice anyway. The existing IDE MAs are actually getting their current sale happen through the Anchal offices. Hence it is a matter of accepting it openly.

11.2 Specific recommendations

The following are some specific revival options. They are independently narrated, to explain the points better. However a combination of these strategies could be adopted simultaneously.

- **Further strengthen Rani Traders:** It is an extremely remarkable achievement to have Rani Traders agreed to be upgraded from a Distributor to the Super stockist, though it came little late. I feel Rani Traders is ready to go ahead. But he still needs assistance for his links to be established to other distributors (ref. 9.8). I noticed, there is also a question about his acceptance by the other distributors; all the distributors are used to deal with IDE directly.

- **Give North Bengal to NR Industries:** In my opinion one of the biggest strategic errors in North Bengal was made by allocating Roy Engineering to supply treadle pumps exclusively to North Bengal. Roy was good in production, but when it came to taking initiate (after over 5 years of support) to directly come to the market, Roy is not willing to do so. It appears, Roy would forever require external support to sell his treadle pumps. I strongly recommend, before loosing any more time, NR Industries should be requested opening direct operation in North Bengal. I had a detailed discussion with NR. He just needs a green signal from IDE; he will never do anything that will harm the interest of IDE. Roy is already directly active in Guwahati and also has started on his own in Bhutan for treadle pumps. Siliguri is certainly of strategic interest for NR Industries. In my opinion, some incentive must be given to NR for him to immediately do it without any second thought. This incentive could be in terms of providing some subsidized infrastructure for a limited period or subsidize his staff cost for about a year or so. In addition NR must be introduced to the complete supply chain by IDE and complete Government network by PSU.

- **Rebuild confidence with KB dealers and mistris:** It is incredible to see that IDE had motivated over 500 people (nearly 100 dealers and 400 mistris) to promote treadle pumps. It is practically impossible for any other agency to create such a vast network. Though IDE is not in touch with this complete network for last two years, still IDE claims a tremendous good will in the minds of most of these people, for the four years of highly active association. Everybody really felt proud to work for IDE or KB. With little effort this whole network can come back to work for treadle pumps. I strongly recommend IDE must not loose this opportunity and make this happen.

- **Support few Marketing Assistants establish local manufacturing units:** Marketing Assistants were the backbone of the IDE program in the field in North Bengal. They are most knowledgeable about exact places of demand of TP, as the demand exists not in the open market, but in some interior clusters. They also have the contact and trust with the local dealers, local mistris and farmers. They are the true marketing experts of TP. Some of them now gone back to the mistri business and some smuggle pumps from Bangladesh and sell in the villages. In this option I am recommending providing grant to select lot of say 6 old Marketing Assistants to establish local fabrication units in 6 strategic locations like, Dinhata, Sitai, Mathabhanga, Tufanganj, Mainaguri and Haldibari. This option will probably cost Rs.1 lakh each. Most of these persons have at least 4 years of association with IDE and still carry a tremendous good will for IDE, barring some issues on final settlement of accounts. This option is almost like what RDRS had done to initiate local manufacturing in Bangladesh. This in my mind the most sustainable option, though it might take little more time than the previous option.

- **Support stronger Mistri cooperatives establish local manufacturing units:** This option is quite similar to the above option. Mistris are the backbone of the PSU program in North Bengal as well as treadle pump sales for IDE. Mistri cooperative is an initiative to organize the Mistris into effective groups. PSU is working towards developing a network of Mistri cooperatives, starting from Panchayat level to Block level and ultimately to federate them at the district level. Mistris are also quite knowledgeable about exact places of demand of TP,

as the demand exists not in the open market, but in some interior clusters. They also have the contact and trust with the local dealers and farmers. Some of them now gone back to STW business. In this option I am recommending providing grant to select lot of say 6 block level Mistri cooperatives to establish local fabrication units in 6 strategic locations like, Dinhata, Sitai, Mathabhanga, Tufanganj, Mainaguri and Haldibari. This option will also probably cost Rs.1 lakh each. This option is also like what RDRS had done to initiate local manufacturing in Bangladesh. This in my mind also the sustainable option.

- **Assist local fabricators produce and market Treadle pumps:** There are many fabricators (owning welding machine, grinding machine and/or a lathe. In Bangladesh these kinds of persons comprise of the main lot of manufacturers. From a long-term sustainability and spread point of view this is the best option, but this option does not seem feasible before December'02 (PSU withdrawal from NB) or March'03 (likely IDE withdrawal from WB). However it could be carried out by CDHI, if it continues as a local NGO of North Bengal.

12. Terms of Reference

Study on the revitalization of the Treadle Pump market & supply chain in North Bengal

Background

During the end of 2001, and with further confirmation in February 2002, it was observed that both the demand and the supply chain of KB Treadle Pumps in North Bengal appear to have collapsed. This happened during and after the withdrawal of IDE in North Bengal. The organization was engaged by the Project Support Unit of the North Bengal Terai Development Project, and was responsible for the promotion of treadle pumps and setting up of market chain. At present it is till active in the region through one last Marketing Assistant.

At the same time, field observation show that farmers are still obtaining pumps from local manufacturers, or even from across the border.

There seems to be still a substantial group of farmers that have no access to engine operated pump sets and still depend on the availability of foot pumps to cater for their needs. For this reason it is considered essential that new ways should be investigated to re-establish a viable supply chain, if possible.

Required output

1. Verify the status of KB Treadle Pumps in North Bengal[13].
2. Verify the state of demand and supply chain of KB Treadle Pumps in North Bengal.
3. Identify the possible reasons for the sharp decline of demand and supply chain of KB Treadle Pumps in North Bengal.
4. Identify the possibilities of reviving both demand and supply chain of Treadle Pumps (which include all kinds of Treadle Pumps including KB Treadle Pumps), albeit on a smaller scale than before. The alternatives to study should possibly include a role for:
    a. Local production of the Treadle Pumps in the project area.
    b. The potential of the newly developed 4" TK pump to revive demand for foot pumps.
    c. Pump mistri's cooperative established in the area.

[13] *This point was not there in the original TOR and was added later.*

5. Make a brief assessment of the market and supply chain across the border in Bangladesh and see these findings as a reference for the proposed alternative approach (es).

6. Convene a workshop in which the findings of the study will be discussed by all parties concerned i.e. NBTDP, IDE, Dept. of Agriculture, local government officials, supply chain members etc.

Tentative programme

The study shall be undertaken in a period of 2 months between March to May 2002. The tentative work plan is:

24 to 29 March: Initial appraisal of the task, to be consolidated in an Appraisal Note.

9 to 30 April: Field survey (including one week visit to Bangladesh).

6 to 11 May: Report writing. 11 May – Submission of Draft report.

20 to 25 May: Sharing of the findings and preparation & submission of final report.

Consultant

The assignment will be done by Mr. Guru Naik, Micro-Enterprise Development and Rural Marketing Specialist. The advantage of involving Mr. Naik is that he was involved in the initial two years of the Treadle pump promotion campaign in North Bengal, during 1995-1997.