

Status Report on MIRZAPUR (N)

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FALLOW LAND DEVELOPMENT PROGRAMME

The table below gives an idea of the area covered under the fallow lands cultivated, crops and output in quintals and yield per acre. These figures, however, are only for kharif cultivation, since only some coriander has so far been grown in rabi on fewer than 25% of the reclaimed fallow land.

Area cultivated and output of fallow land

| Year | No: of Tillers* | Acreage | | Total Area | Output (quintals) | | Yield (quintals per acre) | |
|-----------|-----------------|------------|---------|------------|-------------------|---------|---------------------------|---------|
| | | Green gram | Sorghum | | Green gram | Sorghum | Green gram | Sorghum |
| 1999-2000 | 25 | 17.20 | 27.15 | 44.35 | 28.40 | 71.75 | 1.65 | 2.64 |
| 2000-2001 | 53 | 48.20 | 57.00 | 105.20 | 69.50 | 138.00 | 1.44 | 2.42 |
| 2001-2002 | 17 | 24.00 | 20.20 | 44.20 | 25.25 | 45.50 | 1.05 | 2.25 |

Perceived benefits

The major benefits of the fallow land programme perceived by sangham women are the following.

- **Assured payment enables the use of tractors to plough fallow lands:** This is a re-statement of the objective of the fallow lands programme and its *modus operandi*, but it is nonetheless a positive impact in itself.
- **Uncultivated lands are being brought under cultivation:** For each sangham woman member, this is an average of around 2 acres; an asset brought back into productive yield through the application of credit.
- **Decrease in soil erosion:** While the soils were hard to till because of long years of non-cultivation, wind and water erosion has steadily eroded the topsoil, reducing future yields. After the start of active cultivation, members notice a decrease in erosion, largely because of the crop cover during the monsoon months.
- **Better food availability at the household level:** Given the preference of individual households to grow a mixture of crops for consumption (sorghum) and for market sale (green gram), a noticeable impact has been the increase in food availability at the household level. On average, each household got around 2 bags of sorghum – or 200 KGs – which provides for 4 months of consumption at the average rate of 50 KGs per household per month.

- **Women are able to check diesel levels at the time of ploughing:** This is the skill building that occurred when women had to pay for tractor costs out of the money given by CEC. Tractor usage is billed according to the amount of diesel consumed, with the thumb rule being a difference of 1 inch in the pre-use and post-use levels costs Rs. 50.

One indicator of the success of the programme, apart from those listed above, is that there is a growing demand from non-members of the sangham to be included in the programme. The chief attraction is the credit given for tractor ploughing, which in turn is necessitated by the non-availability of bullocks for ploughing.

LAND LEASE

The leased land cultivation programme started in 1996-97, but it is the last three leases over the period 1999 – 2000 that are of direct concern since they provided some of the input into the community storage bin in Mirzapur (N).

The Leases

The details of the last three leases taken up by the members of the women's self-help groups (SHGs), or mahila sanghams, in Mirzapur are given below:

Details of the Leased Land Cultivation in Mirzapur, 1999 - 2001

| | Start of Lease | End of Lease | Area leased | Lease value | Leased from |
|--------------|----------------|--------------|-------------|-------------|-------------|
| First lease | April 1999 | March 2001 | 4 acres | 18,000 | Sankarappa |
| Second lease | April 1999 | March 2003 | 9 acres | 28,000 | Kashinath |
| Third lease | April 2000 | March 2005 | 13 acres | 110,000 | Soor Reddy |

Crops Grown on Leased Land

The details of the area under different crops produced on these leased lands are given in the following table. The largest kharif area is under green gram and sorghum, which together account for 80 to 100 percent of the cropped area during kharif season. Pigeonpea is intercropped with sorghum. Black gram is the other crop grown during kharif season. In rabi season, chickpea crop occupies important place followed by rabi sorghum. Other crops grown during rabi season are dhanial/coriander and safflower. During rabi 2002, 70% of the leased land is lying fallow because of inadequate rains.

Acreeage Under Different Crops on Leased Land in Mirzapur

All amounts in acres

| Year | Kharif | | | | | | Rabi | | | | | | |
|------|------------|-------|---------|-----------|------------|-------|----------|---------|-----------|-----------|---------|--------|-------|
| | Green Gram | Paddy | Sorghum | Red Gram* | Black Gram | Total | Chickpea | Dhanial | Safflower | Red Gram* | Sorghum | Fallow | Total |
| 1999 | 7 | 2 | 4 | | 0 | 13 | 6 | 3 | 0 | 4 | 0 | 0 | 13 |
| | 54% | 15% | 31% | | 0% | 100% | 46% | 23% | | 31% | | | 100% |
| 2000 | 13 | 0 | 9 | | 1 | 23 | 10 | 2 | 0 | 8 | 4 | 2 | 26 |
| | 57% | | 39% | | 4% | 100% | 38% | 7% | | 31% | 15% | 7% | 100% |
| 2001 | 15 | 0 | 3 | | 4 | 22 | 7 | 1 | 4 | 5 | 5 | 0 | 22 |

| | | | | | | | | | | | | | |
|------|-----|--|-----|--|-----|------|------|----|-----|-----|-----|------|------|
| | 68% | | 14% | | 18% | 100% | 32% | 4% | 18% | 23% | 23% | | 100% |
| 2002 | 12 | | 10 | | | 22 | 3.50 | | 3 | | | 15.5 | 22 |
| | 55% | | 45% | | | 100% | 16% | | 14% | | | 70% | 100% |

* Pigeon pea intercropped with kharif sorghum and harvested in rabi occupies independent area only in rabi.

These data bring out an interesting aspect of the leased land cultivation. Traditionally, pulse crops like green gram and black gram were sown in kharif to prepare the land for a subsequent sorghum crop in rabi. However, the above table shows that the area under rabi sorghum is less than the area under kharif pulses. For example in the year 2001 while kharif pulse crops – green gram and black gram – were sown on 19 acres rabi sorghum was sown only on 5 acres. According to the sangham women, this reflects both the past losses of the rabi sorghum crop (due to poor rains) and a preference for cash crops like chickpea, dhanian and safflower.

BENEFITS FROM LEASED LAND CULTIVATION

Three types of benefits are generated from leased land cultivation: grain for free distribution among sangham members, wages for sangham members, and cash income from grain sale. Each of these is detailed below for the period 1999 – 2002 in Mirzapur. It is important to note that all sangham women do not work on leased land. Of the 33 members of the sangham, only around 20 women appear to have worked on the leased land. It is these women who earn wages in kind or cash, while the entire set of sangham women benefit from free distribution and the sangham as a group benefits from earning cash income, which is used to repay CEC or to build up the corpus of funds for the future.

Distribution of Grain to Sangham Members

The grain output distributed among sangham members is detailed in the following Table. Only 12 quintals of grain from the kharif sorghum production in 1999 was put into the community bin from leased land production. The rest of the sorghum production in other years, as well as the output from other pulse crops and paddy was distributed free to each Sangham members as benefits of leased land production.

Leased Land Output Distributed to Sangham Members

All amounts in quintals

| Year | Season | Kharif Sorghum | Rabi Sorghum | Pigeonpea | Green gram | Chickpea | Paddy |
|--------|--------|----------------|--------------|-----------|------------|----------|-------|
| 1999 | Kharif | 12.00* | | | | | 8.00 |
| 1999 | Rabi | | | | | 1.00 | |
| 2000 | Kharif | 30.75 | | | | | |
| 2000 | Rabi | | 4.50 | 0.50 | | 3.75 | |
| 2001 | Kharif | 15.00 | | | 4.00 | | |
| 2001 | Rabi | | 10.50 | | | | |
| 2002 | Kharif | 19.50 | | | | | |
| 2002 | Rabi | | 9.00 | | | | |
| TOTALS | | 77.25 | 24.00 | 0.50 | 4.00 | 4.75 | 8.00 |

* Put into the community grain bin

Clearly the major grain distributed has been sorghum, followed by paddy, green gram and chickpea. As mentioned earlier, not all the sangham women work as agricultural labour on the leased lands, and this smaller group of women has an additional benefit of wages in either cash or kind.

Wages from Leased Land Cultivation

In Mirzapur in general, women are paid in cash for weeding and in kind for harvesting. Cash wages for women are Rs. 20 per day, while wages in kind are 5 KGs (or 4 seers where 1 seer = 1.25 KGs) of grain per day. Wages have the first claim on harvested output, followed by the bullock man's share of one quarter of output. Only the remaining output is taken to the market and sold. The following Table details the wages paid in kind from leased land production.

Wages in Kind Paid to Sangham Workers on Leased Land
All amounts in quintals

| Year | Season | Kharif Sorghum | Rabi Sorghum | Pigeonpea | Green gram | Chickpea |
|--------|--------|----------------|--------------|-----------|------------|----------|
| 1999 | Kharif | | | | | |
| 1999 | Rabi | | | | | |
| 2000 | Kharif | | | | 13.90 | |
| 2000 | Rabi | | 1.00 | | | 0.32 |
| 2001 | Kharif | | | 1.80 | 1.20 | |
| 2001 | Rabi | | 2.00 | | | 0.85 |
| 2002 | Kharif | | | 3.00 | 2.00 | |
| 2002 | Rabi | | 1.90 | | | 1.00 |
| TOTALS | | | 4.90 | 4.80 | 17.10 | 2.17 |

This table shows that although sangham women worked on a variety of crops, green gram cultivation has been the main source of wages. The low wages from working on the most productive crop – sorghum – is striking, but perhaps understandable given the priority placed on free distribution: Bayamma and the other sangham women explained that a smaller number of women giving up wages for work on sorghum means more is available for distribution to the larger set of all sangham women.

Cash Income From Leased Land Production

The cash income from leased land production is mostly used to repay CEC for the working capital for the leased land production or put into the general corpus fund used to repay the loans taken from CEC (e.g., to pay the lease amount). The total cash income for these three years is given in the Table below:

Cash Income from Leased Land Cultivation

| Year | Season | Crop | Date of Sale | Qty sold (Quintals) | Sale Price (Rs. /Qtl) | Revenue Per Sale (Rs) |
|--------|--------|------------|--------------|---------------------|-----------------------|-----------------------|
| 1999 | Kharif | Green gram | 07-Oct-99 | 1.01 | 1627 | 1,643 |
| 1999 | Rabi | Dhania | 27-Dec-99 | 0.70 | 1130 | 791 |
| | | Linseed | 25-Jan-00 | 0.41 | 1400 | 574 |
| | | Chickpea | 25-Jan-00 | 5.29 | 1263 | 6,681 |
| | | Pigeonpea | 25-Jan-00 | 2.06 | 1439 | 2,964 |
| | | Chickpea | 16-Mar-00 | 3.11 | 1401 | 4,357 |
| 2000 | Kharif | | | | | 0 |
| 2000 | Rabi | Chickpea | 10-Apr-01 | 2.94 | 1729 | 5,083 |
| | | Chickpea | 10-Apr-01 | 0.88 | 1711 | 1,506 |
| | | Pigeonpea | 10-Apr-01 | 0.60 | 1200 | 720 |
| 2001 | Kharif | Green gram | 19-Sep-01 | 2.49 | 1829 | 4,554 |
| 2001 | Rabi | Chickpea | | 4.50 | 1300 | 5,850 |
| 2002 | Kharif | Green gram | | 3.90 | 1205 | 4,700 |
| | | Pigeonpea | | 10.00 | 1150 | 11,500 |
| | | Chickpea | | 4.00 | 1400 | 5,600 |
| 2002 | Rabi | Safflower | | 0.68* | | |
| TOTALS | | | | | | 56,524 |

*Yet to be sold

The above Table shows that a total of Rs. 56,524 was received as cash from sale of output produced on leased land.

ISSUES CONCERNING LEASED LAND PRODUCTION

There are two major issues surrounding leased land production, which may be useful to discuss, given the close relationship that leased land production has with the community storage bin.

Crop Failures

Production on rainfed leased land depends entirely on the nature of rainfall that year. The semi-arid conditions of the region ensure that leased land will not produce an output every season. Since continuous production confers the maximum benefits from leased land cultivation, this means that the sangham will almost never be able to reap the maximum benefits from leased land. Worse, if they insist on cultivating each season, they will invariably run up losses on account of working capital invested each season. For sangham women workers, however, these losses may be higher than if they worked on other farmers' fields since they forgo wages when crops fail on leased land.

The net result is that it could take a long period (perhaps 3-4 years) to break even on each lease, given the frequent crop failures that beset agricultural production in such semi-arid regions.

Crops for Sale versus Consumption

One question faced by sangham women working on leased land is crop choice. The pattern adopted so far seems to indicate that they cultivate the major crops being grown in the region, but the allocation of acres within the total area leased shows their preference for production for market sale versus consumption. But in order to do so, it is necessary to first compare the costs and revenues from each of these crops. The preference for green gram over sorghum in kharif, despite the almost constant failure of green gram in the three years of the lease period, suggests that the group would like cash income (since cash returns from green gram are nearly twice as high).

The preference for chickpea over sorghum in rabi however is curious since not only is the per-acre profit higher for rabi sorghum but also it is also preferred for its taste. This seems to suggest that Bayamma and the other sangham women prefer achieving food security through earning enough money to buy food, rather than by growing food themselves.

GRAIN STORAGE

By the time the decentralised food security programme supported by the UNDP started the bin in Mirzapur (N) with the capacity to store 13 tonnes of grain became operational.

Purchases of Grain for the Mirzapur (N) Grain Bin

| | Date | Seller | Quantity purchased (quintals) | Price | Amount paid |
|---|------|-------------------------|-------------------------------|-------|---------------|
| 1 | 2000 | Mirzapur N Fallow land | 38.00 | 550 | 20,900 |
| 2 | 2000 | Mirzapur N Leased land | 15.00 | 550 | 8,250 |
| 3 | 2000 | Malkapur Leased Land | 4.70 | 550 | 2,585 |
| 4 | 2000 | Mirzapur B Leased Land | 12.00 | 550 | 6,600 |
| | | TOTAL in 2000 | 69.70 | | 38,335 |
| 5 | 2001 | Mirzapur N Fallow Land | 54.12 | 400 | 21,648 |
| | | TOTAL in 2001 | 54.12 | | 21,648 |
| 6 | 2002 | Mirzapur (N) | 10.00 | 750 | 7,500 |
| 7 | 2002 | Mungi | 9.00 | 750 | 6,750 |
| | | Total in 2002 | 19.00 | | 14,250 |
| 8 | 2003 | Mirzapur (N) – Thresher | 11.00 | 400 | 4,400 |
| | | Mungi - Thresher | 9.00 | 400 | 3,600 |
| | | Total in 2003 | 20.00 | | 8,000 |

In the first year, grain was purchased from the fallow land programme of Mirzapur (N), and the leased land programmes in the three villages of Mirzapur (B), Mirzapur (N) and Malkapur.

Withdrawals of Grain from the Mirzapur (N) Grain Bin, 1999 - 2001

| 1999 – 2000 | | | | |
|--------------------|------------------------------------|---------------------------------|-------------------------------|---------------------|
| Date | No: of Sangham Women buyers | Quantity Sold (Quintals) | Price (Rs. /quintal) | Amount (Rs.) |
| 05-Aug-00 | 17 | 7.25 | 550 | 3,988 |
| 11-Aug-00 | 16 | 7.50 | 550 | 4,125 |
| 20-Aug-00 | 9 | 2.20 | 550 | 1,210 |
| 30-Aug-00 | 8 | 3.20 | 550 | 1,760 |
| 05-Sep-00 | 9 | 4.90 | 550 | 2,695 |
| 10-Sep-00 | 25 | 7.25 | 550 | 3,988 |
| 25-Sep-00 | 11 | 4.60 | 550 | 2,530 |
| TOTAL | | 36.90 | | 20,295 |
| 2000 – 2001 | | | | |
| Date | No: of Sangham Women buyers | Quantity Sold (Quintals) | Price (Rs. /quintal) | Amount (Rs.) |
| 05-Aug-01 | 17 | 8.50 | 4.00 | 3,400 |
| 10-Aug-01 | 25 | 10.75 | 4.00 | 4,300 |
| 02-Sep-01 | 26 | 14.00 | 4.00 | 5,600 |
| TOTAL | | 33.25 | | 13,300 |
| 2001-02 | | | | |
| Date | No. of Sangham women buyers | Quantity Sold (Quintals) | Price (Rs/per Quintal) | Amount (Rs) |
| August 2002 | 33 | 19.00 | 750 | 14,250 |
| TOTAL | | 19.00 | | 14,250 |

The grain in the bin was sold to sangham members at the same price paid to purchase the grain, i.e., Rs. 550 per quintal in the first year, and Rs. 400 in the second. Sales were during August and September, which is in the lean season. While sangham women bought 36.90 quintals from the bin in 2000, they purchased 33.25 quintals in 2001. During the year 2002, sangham members purchased 19 quintals at the rate of Rs. 750 per quintal.

During the years 1999-2000 and 2000-01 some of the grain stored in the bin could not be sold to villagers. During 1999-2000 the surplus grain was bought by CEC to distribute in the drought hit villages in Nalgonda district at the price of Rs. 550 per quintal.

The remainder of the next year's that is 2000-01 grain was sold on the open market at the rate of Rs. 300 per quintal as the grain cannot be stored for long and there were no buyers in the village. During the year 2002-03 they have stored 20 quintals of kharif grain in the bin. This year also they do not see demand for this grain in the village as members have got enough stocks. They propose to sell it in the open market.

TEACHNICAL ISSUES

The masonry grain storage bin constructed in Mirzapur in 2000 cost nearly Rs. 36,000, which at today's prices comes to about Rs. 42,500.

Total Construction Costs and Annual O&M Costs of the Mirzapur Bin

(All in Rs.)

| Cost Components | Original Costs (@ 2000 prices) | Current Costs (@ 2001 prices) |
|--------------------------------------|-----------------------------------|----------------------------------|
| Materials Cost | 24,104 | 26,809 |
| Labour Cost | 6,840 | 10,140 |
| Other Construction Costs | 5,050 | 5,500 |
| TOTAL | 35,994 | 42,449 |
| Annual Operation & Maintenance Costs | | 10,860 |

The members of the women's sangham were generally happy with the location and size of the bin. In their words, "it is better to have a big one than an insufficient one". But they are unhappy about certain other features of the bin.

- **The lack of a partition:** They now feel that it would have been better to have a partition in the middle to hold kharif and rabi grain separately.
- **The heaviness of the lid:** They also find the RCC lid too heavy and it is difficult for women to climb on top of the bin and open it. Several women have hurt their fingers and hands trying to open it. Instead, they now feel it would be better to have a fibreglass or metal lid.
- **Pest Infestation due to Moisture:** Moisture in the bin is one factor responsible for pest infestation in the bin, seeping in from the outlet. The present outlet was not fitted properly and the cement plastering was also not up to the mark, because of which small quantities of rainwater settles near the outlet causing dampness, which is favourable for pest growth. The sangham women now feel a stone structure with a light and smooth finish in cement is ideal. Such a bin would be better than the RCC bin but metal would not, since rust could be a problem.

During the review of these issues with the technical personnel of IGMRI it was felt that partitioning of the bin at this stage will not be possible. Any attempt to partition the bin may affect the structure of the bin itself. The other two problems were seen to be successfully solvable. To solve the inlet lid problem a fibre glass lid was obtained at a cost of Rs.750. To address the pest infestation at the outlet lid necessary repairs were carried out at a cost of Rs. 300. Anti-fungus pain was also applied in side the bin. Towards this Rs. 370 cost was incurred.

Solarisation:

Apart from moisture entering the bin, there were also two specific problems with the grain in the bin, both of which could contribute to pest infestation:

- **Foreign matter:** A recent sample study showed that the grain stored in the bin contained more foreign matter compared to grain stored in individual homes, which could lead to higher pest infestation inside the bin.
- **Insufficient drying:** The IGMRI feels that single layer grain drying is essential to avoid pest attacks. The grain that needs to be cleaned and dried before storing is not put through such vigorous process (largely because of space constraints) and that becomes a reason for pest attacks.

To address pest infestation the members of the sangham were introduced to solarisation of grain. Admixture of insecticide with the grain is not advisable. Alternative non-chemical means have to be explored. Farmers in Andhra Pradesh and other states are already very familiar with drying their crops by spreading them on the ground. Frequent sun drying and cleaning by picking and winnowing is used to control insect infestation. In order to protect the stock to be put in the silos, without resorting to the use of chemical pesticides, solarisation of sorghum is attempted since this is very similar to existing practice. Whereas farmers redry their grain by putting it in the sun, the objective of solarisation is not to dry but to heat the grain and hold it at a high enough temperature to kill any insects that may be present. This new treatment of grain against pests does not involve any chemicals and ordinary people with out any expertise can use it. Also, it is not costly and within the reach of poor rural women.

Solarisation will also bring down maintenance costs as the inputs involved are not recurring and costly. A 10-meter polythene transparent sheet cost was Rs. 170 only and this can be used many times over. Also, this does not need a technical expert each time they follow this method.

INSTITUTIONAL ISSUES

The community grain storage bin is officially managed and operated by a 5-member Food Security Committee. Bayamma, a founder member of the women's sangham in Mirzapur, however, takes most of the decisions concerning the bin. The major decisions taken in connection with the construction include choosing the location of the bin and the size of the bin. Bayamma and the other women discussed the options with CEC and IGMRI and finally decided on 1.3 tons as the size of the bin. They also decided to have a reinforced cement concrete (RCC) bin, rather than a metal bin.

Purchase and Sale of Grain

Bayamma and the Food Security Committee of Mirzapur decide, after discussions with CEC staff, on the quantity and price of grain purchased for the bin, and the quantity and price of the grain sold from the bin. While there were no problems reported with the purchase of grain for storage in the bin, several issues were raised concerning the sale of grain.

Restrictions on Sales: Members' Views

Sangham members interviewed mentioned that grain from the bin is sold to members only when Bayamma (on behalf of the Food Security Committee (FSC)) decided to sell it. But sale is strictly on the basis of cash since Bayamma and the FSC does not like giving grain on credit. Also, these members reported that the FSC (or Bayamma) does not allow let them buy small quantities (1-2 KGs) from the bin (presumably because of the problems of opening the bin and taking grain out). This forces them to buy grain from the open market, at higher prices – even when cheaper grain is available in the bin.

Finally, non-members pointed out that sorghum from the bin is not usually available to non-sangham members.

Difficulties in Sales: Committee's Views

According to Bayamma and the others in the Food Security Committee (FSC), there were no takers among the sangham members for the grain of 2001 kharif stored since sorghum prices in the open market are low and most members have sufficient left over grain in their houses. In fact, there was pressure to sell the grain stored in the bin since it must be emptied to store the next rabi crop that is due to come in February/March. Ultimately this grain was sold on the open market.

An important issue in this is coping with the defaulters. If this is not addressed this may bring down the whole scheme. The whole design of the scheme is based on the idea that the members will have access to low priced grain on favourable terms during lean season when their sources of income are nil or very limited. This includes providing grain as loan which can be repaid during the next cropping season.

This was raised repeatedly with the members of the sangham and they were asked to think about alternatives. During the crop year 2001-02 they decided to give grain on loan to the members and the same can be recovered later, with out involving any interest. If the grain is to be provided to non-members it will be on cash basis only. Accordingly the rabi jowar collected from the 2001-02 year was distributed among all the members as loan. This also became necessary because the kharif crop of that year was near total failure because of untimely rains at the time harvesting damaging the grains and rendering most of it unfit for consumption.

This also points to the need to develop dispute resolution mechanism and there by reducing defaults in order to sustain the decentralised food security which is basically local community based endeavour.

LINK WITH LAND LEASE PROGRAMME

The operation of the community storage bin in Mirzapur is strongly linked to the land lease programme. The sangham women were clear that while they would dry and store grain from their own lands in their own houses, the grain from the community enterprise on leased land would be stored in the bin. In other words, in the absence of a leased land programme, they had no use for a community bin. The appearance of threshing machines with the women's sangham also has its impact. They obtained the threshing machine under the UNDP supported programme. After using it for their threshing needs they are hiring it out to other farmers in the village. For threshing one

quintal of jowar they get three kilograms as hiring charges. Now grain collected through this activity is also being stored in the bin. Now the bin is not tied to lease land programme only. Nevertheless, it is clear that a community bin needs some community activity like land lease by the sangham as a whole, thresher owned by the sangham or other such community activity.

