

The Integrated Agriculture Development Programme



**Progress Report
2003-04**



Samrakshan Trust
Village Agraa, District Sheopur
Madhya Pradesh

PART I: INTRODUCTION

Samrakshan Trust has been working with the villages displaced from Kuno wildlife sanctuary since September 1999, after undertaking a brief assessment of the status of village rehabilitation. We found that the presence of a third party was needed urgently in this area to act as a bridge between the government and the villagers, to enable the people to access the rehabilitation facilities that they were entitled to. Accordingly, the activities undertaken by Samrakshan during this phase included information dissemination to villagers about their entitlements under the rehabilitation package and liaison with the forest department on behalf of the villagers for solving rehabilitation-related problems related to drinking water, inclusion in list of beneficiaries, changing bad plots of land and release of house construction grants.

However, in the process it emerged that there were significant gaps in the government's delivery of essential livelihood resources to the displaced villages, which did not seem likely to be fulfilled immediately through the facilitative approach mentioned above. Consequently, Samrakshan sought to widen the scope of its activities to include direct interventions towards natural resource management, including soil and water conservation and agricultural improvement, such that limited natural resources can be managed more efficiently for sustained livelihood. The uncertainties associated with rain-fed agriculture make it a complicated and challenging livelihood activity, and familiarity with prevailing practices among farmers of this area strengthened our belief that there are immense opportunities for improvement in this field.

Samrakshan started the agriculture development programme in 2002. A total of 100 farmers were selected and supplied them with good quality seeds (procured from Agriculture College, Gwalior), with the aim of enhancing crop yield and assisting in the formation of a seed bank. However, experience showed us that the approach was not holistic and was subject to a range of uncertainties associated with rain-fed agriculture. The year 2002 witnessed extreme drought and crop production for the entire region fell to almost zero, further strengthening our belief that an integrated approach to agriculture needed to be developed for the region and disseminated widely through training and capacity building.

The main impediments to agriculture in the area are

- a. Lack of irrigation facilities, due to which farmers are unable to save their crops in periods of erratic rainfall
- b. Lack of, or high cost of infrastructure required to safeguard standing crops from wayward cattle and wild animals
- c. Extremely low availability of water and fodder for cattle: Surrounding common land, which has been de-notified from its earlier status of reserve or protected forest, has been cleared of all vegetation to resettle the families displaced from Kuno wildlife sanctuary; thus vegetation cover has been reduced drastically, while population density after relocation has increased significantly. This reduces farmers' access to manure and draught animals, making them dependent on purchased fertilizers and rented tractors.
- d. Low rainfall during 2000-01: The forest and scrubland available around the displaced villages is inadequate for supporting cattle, more so because of recurring droughts and increased competition for scarce commons. Thus, most households find themselves unable to retain cattle, and tend to leave the animals stray, thus worsening crop raiding and habitat destruction.

PART II: THE PROGRAMME

Learning from this experience, Samrakshan went through a series of exposure and training visits during 2001-02, and finally, in 2003, evolved the integrated approach to dryland agriculture described below.

Main areas of intervention

Keeping in mind the prominent constraints outlined above, the following areas for improvement were identified to develop agriculture as a sustainable livelihood option in the long term:

1. Soil improvement. Since the soil in the region is critically shallow, it needs a good amount of biomass to enrich its fertility and develop the texture.
2. Irrigation. Keeping consecutive droughts in mind, assured access to protective and productive irrigation is critical, even for saving the monsoon crop.
3. Fodder. Given their extreme poverty, most small and marginal farmers cannot afford to buy fertilizers (or manure) or pay for ploughing of their fields by a rented tractor. Most of them, because of crop failure, had not been able to pay back previous tractor hiring charges during 2002, and have become indebted to tractor owners. Assured access to fodder can potentially serve two purposes; it could ensure biomass for soil fertility, and timely ploughing of the fields, apart from providing other cattle products like milk to the farmers.
4. Crop improvement: Interventions for enhancing yield from and sustainability of agriculture include seed improvement, protection of crops, and improved methods of cultivation, handling, storage and marketing. Of these, the present intervention has focused mainly on seed quality and methods of cultivation.

Thus, under the integrated approach adopted since 2003, Samrakshan proposed to assist farmers with not just improved seeds and implements, but also other crucial inputs (most importantly adequate water supply and inputs towards soil conservation and soil productivity enhancement).

The strategy

Samrakshan decided to approach the problem of sustainable agriculture through a two-pronged strategy:

- A. Adopting a suitable village for multi-faceted support to a large group of marginal farmers with the aim of collective crop security: For this initiative, village Agraa was selected and various interventions were taken up through the Village Development Committee (VDC) fostered by Samrakshan.
- B. Initiating a pilot project with a small number of farmers to encourage them to adopt cutting-edge techniques as a demonstration to others: For this initiative, 10 farmers scattered over 10 different villages were selected under the pilot project for crop security.

PART III: WORK PROGRESS

A. Village Intervention: Agraa

For the village level intervention Samrakshan decided to work with village Agraa, where nearly 80 tribal families were organized into 11 groups to implement the livelihoods initiative. We devised a three-pronged approach to the initiative, involving

- Digging open wells for providing access to irrigation for each group of farmers
- Engaging the farmers in bunding of their fields for soil conservation
- Assisting the farmers to construct a common stone fencing around their fields to prevent crop raiding by stray cattle and wild herbivores

Progress and Impact

In the first stage of the initiative, which was initiated in March 2003, we organized the village into 11 groups on the basis of kinship ties, location of fields and other affinities. Intensive mobilization work preceded the formation of these groups, to ensure that the group members understand and discuss their internal dynamics adequately. Simultaneously, meetings were held with the beneficiary families to organize them into a larger body that was given the name of the *Gram Vikas Samiti* or Village Development Committee (VDC). The VDC in Agraa was formed through election by all beneficiary households, and consisted of five members, of which two were women. One member was appointed the Chairperson and another as the Treasurer through a collective decision of the beneficiaries. All subsequent decisions pertaining to the livelihoods initiative in Agraa have been made and implemented by the VDC. All accounting, bookkeeping and fund disbursement has been carried out by the VDC under the guidance of the Samrakshan team, and the key members of the VDC have been given basic training in various aspects of their formal functioning by the field team of Samrakshan.

Irrigation wells: The VDC of Agraa has supervised the digging or deepening of 11 open irrigation wells for the beneficiary families. As a consequence, each of the 80 families were assured of protective irrigation for the monsoon crop of 2003, and most of these families have also cultivated the winter crop in 2003-04 on the assurance of irrigation from water retained in the irrigation wells at the end of the rainy season. Successful implementation of the agriculture initiative in 2003 has assured access to irrigation and double cropping in Agraa after a gap of many years, and this would contribute significantly to security of livelihoods in this village.

Field bunding: The beneficiary families are presently engaged in bunding of their individual farmland to conserve soil moisture and to prevent erosion. As part of the agreement of village Agraa with Samrakshan, the villagers would receive no wages for field bunding, making it an entirely voluntary effort on the part of the village.

Crop protection wall: Once all families have completed field bunding successfully, Samrakshan would again mobilize the village for construction of a common stone boundary around the village agricultural land. A major part of this stone boundary has already been constructed and as a direct consequence of this, pressure on surrounding forests, from where the villagers typically extracted biomass for the construction of individual field fences, has been reduced. Simultaneously, Samrakshan is encouraging villagers in Agraa to cultivate fodder species on a small part of their farmland, to ensure access to fodder for their livestock so that their dependence on forest-based grazing, as well as on purchased manure and on hired tractors (for ploughing) goes down. In any case, a successful monsoon crop has ensured that fodder from the crop stubble is available to all cultivators, since the residual plant matter in crops like *bajra* acts as a rich fodder source for livestock. This has already reduced cattle pressure on the common land around the village, and access to fodder is likely to increase with harvest of the winter crop.

B. Pilot Project for Crop Security

This initiative was aimed at demonstrating possibilities of sustainable and secure farming even under the extreme dryland conditions that prevail in this region. Samrakshan found that the main hindrance to secure agriculture in this semi-arid region arises from the lack of irrigation, poor soil quality, high rate of erosion and low rainfall. The combination of these results in a three-pronged shortage of food, fodder and water, each of which feeds on the others to worsen the chances of secure agriculture. Moreover, in the absence of assured access to food, water and fodder, the dependence of small and marginal farmers on the local moneylenders and traders worsens, leading in the short-run to depletion of the surrounding natural resource base, and in the long run to phenomenon like indebtedness, land alienation and eventually migration and displacement.

Selection of farmers

As part of this pilot project, we proposed to focus on a select set of farmers and work with them holistically, to help them demonstrate effectively the possibility of taking a good harvest as well as overcoming the problems of fodder and water shortage through adoption of sustainable agriculture practices. In all, ten farmers were to be selected from 10 different villages. The criteria for selection were:

- The farmer must be hard working
- He should not be from an affluent background.
- His family should be working on their own plot for last two years and not leasing it out to others under a share-cropping arrangement
- He must not have any other major source of income

Each farmer selected under this initiative has an agricultural plot of 2 hectares, and each of them is also digging his own irrigation well the financial help from the forest department. Samrakshan is supporting these farmers with financial assistance on a one-time basis, and technical assistance on an on-going basis, for procuring all inputs necessary for sustainable agriculture. This includes funds for field bunding, procurement of organic manure, stone fencing of their plots and obtaining improved varieties of indigenous seeds. We are also helping these farmers to initiate plantation of useful trees on their field bunds.

After prolonged consultations, the following farmers were selected for the Agriculture Pilot Project:

| Name of the Farmer | Village |
|----------------------|---------------|
| 1. Gariba Adivasi | Meghpura |
| 2. Hira Adivasi | Chak |
| 3. Janved Jatav | Paira Jatav |
| 4. Lalaram Adivasi | Jakhoda |
| 5. Mangu Adivasi | Paira Adivasi |
| 6. Munna Adivasi | Palpur |
| 7. Ramnivas Adivasi | Barrer |
| 8. Samanti Adivasi | Khallai |
| 9. Ghanshyam Adivasi | Durreri |

The Agreement

All the selected farmers agreed to the following conditions before joining the pilot project:

- Their inclusion in the programme was to be provisional, and advancement from one stage to another was to be conditional upon successful completion of the previous stage.
- Each farmer was to return two times the quantity of seeds that he will receive, to a common seed bank being created under the pilot project. This was to ensure that the quantity of seeds increases so that they could be distributed to more farmers in the next round.
- Each farmer agreed to work on his own field to construct farm bunds, for which Samrakshan undertook to pay wages. However, the farmer would have to bear half the cost of bunding in the form of labour contribution. Accordingly, the rate for payment of wages was fixed at Rs.12 per meter of bund length. The idea behind this was to enable the farmer to earn a living wage during the critical months before onset of rains, during which usually the farmers tend to migrate in search of wage labour.
- Each farmer was required to open a savings account at a bank in Vijaypur, or in local post office. At the time of payment of wages for field bunds, Rs.7 per meter will be given to the farmer in cash, while Rs.5 per meter will be credited to his account. This money will then be available for hiring a tractor at the time of ploughing, and for meeting household expenses of the farmer during the rains.
- Samrakshan undertook to advance emergency loans to the farmers for accessing irrigation in case of rain failure. However, each farmer was to return all costs incurred in irrigating his field (including the rent and running costs of diesel pumps) immediately after the harvest.

The Process

Mapping: After the farmers had been selected for the programme, Samrakshan prepared maps of their fields to identify the location of the bunds required for maximum utilization of rainwater for irrigation purpose. Once the maps were ready, it was again explained to the farmers how the wages for the construction of the bunds in their fields would be paid. Thus during March 2003, maps of the agricultural fields were prepared and regular meetings with the selected farmers were held to explain various aspects of the Integrated Agriculture Development Programme and the contribution expected from them. These meetings also provided a platform to discuss and remove their doubts and apprehensions about the programme.

Bunding and fencing: The farmers were paid wages every alternate day, according to the length of the bunds or the boulder fencing (*Kotra*) constructed during that time. A part of these wages was paid in cash while the rest was credited to the accounts of the farmers.

Accessing good inputs: Samrakshan also helped these farmers to meet the expenses incurred over ploughing and sowing, since they did not have bullocks and had to pay the tractor owners for the same. The farmers were encouraged to use natural manure instead of chemical fertilizers. For the monsoon or 'kharif' crop, good quality seeds of indigenous variety of Bajra and Urad were procured from the Agriculture College at Gwalior and provided to the farmers.

Training and capacity building: The farmers and the Samrakshan team felt that they would benefit greatly from learning about agricultural practices like tilling, weeding, sowing, and preparation of manure and water conservation in the agricultural fields. Accordingly, Samrakshan arranged a two-day training of farmers and their wives at the Agriculture College, Gwalior during 29-30 September 2003. The first day at the training consisted of discussion on soil and water conservation, indigenous varieties of seeds, use of manure and a field visit to a model farm. The second day focused on use of pesticides, preparation of vermi-compost, and nutrients essential for the growth of crops.



Assuring Women's Involvement

Since women in this region spend an equal or greater amount of time than the men on farming activities, we felt that women's participation in the decision making process is essential for bringing any long-term improvement in the agricultural practices. Accordingly, we have tried to involve them actively in the pilot project at each stage.

In June 2003, after the Kharif crops had been sown, the first meeting of farmers was held in which their wives also participated in the discussion. It was decided in this meeting that all the farmers, along with their wives, would meet every Monday to discuss about activities to be taken up further under the agriculture development programme. It was further decided that a fine of Rs 102 would be imposed in case a farmer and his wife both did not attend the meeting, and a fine of Rs 51 would be imposed if one of them were absent in the meeting.

The farmers' meetings held subsequently provided an excellent opportunity for sharing experiences and discussing problems. Attempts were made by other farmers and the Samrakshan team to find collective solutions to these problems.

Progress and Impact

Nine out of the ten selected farmers have continued to be associated with the pilot initiative, while one has dropped out due to complications relating to his land. The wages provided by Samrakshan for activities like field bunding and digging farm ponds helped these farmers to tide over the critical pre-monsoon months without having to resort to wage labour on other farms or outside the region. Meanwhile, the on-farm assets created during this period have proved critical in enhancing farm productivity in the rainy season.

Each of the selected farmers has completed field bunding in keeping with scientific principles of rainwater harvesting and prevention of soil erosion. Subsequently, Samrakshan has assisted them with purchase of improved varieties of indigenous seeds

from the Agriculture College at Gwalior, and with application of farmyard manure to their fields.

During the first week of August, the men and women farmers were taken for a training and exposure visit to the Agriculture College at Gwalior to help them learn enhanced skills for the cultivation of the monsoon crop.



Subsequently, the nine farmers came together in August 2003 to form a Self-Help Group (SHG), so that they can initiate small savings and credit to meet their ongoing needs of funds over time in a self-reliant manner. The agriculture coordinator and village level worker at Samrakshan also join the selected farmers for regular meetings to review work progress and plan for the future. These meetings are held outdoors, at the field of any one of the selected farmers, on a weekly basis. From September 2003, the membership of the SHG has increased to 17, and each farmer is contributing regularly to the SHG fund on a weekly basis. Samrakshan now plans to begin training the members of the SHG in techniques of accounting, bookkeeping and credit management.

Each of the members of the farmers' SHG has opted for cultivation of the winter or rabi crop, consisting of a combination of mustard, black gram and wheat. Samrakshan has made additional start-up capital available to the SHG, and individual farmers have taken loans from the group to purchase inputs required for cultivation of the rabi crop. It is expected that at the end of the cropping season, the money will return to the SHG through sale of harvest, and from that point onwards, the dependence of this group on Samrakshan for financial support would become negligible. However, Samrakshan would continue to provide capacity building inputs to these farmers towards further improvement in crops, and would also use these farmers as trainers for imparting these techniques among the other agriculturalists in the region.

Farm bunding: Bunding of the agricultural fields has helped farmers in various ways like

- Checking the flow of water in fields, thus increasing the water retention capacity of soil
- Increasing the moisture content in soil, essential for the growth of Kharif crops
- Promoting growth of large quantities of grass on the bunds, which would later be used as fodder
- Increasing groundwater level in the nearby area, thus enabling the farmers to meet irrigation requirements of the monsoon crops through open wells.

Boulder Fencing: Fences are traditionally constructed in this region using locally available boulders (the boulder fences are called *Kotra*). Boulder fences are extremely durable (unlike fences made out of hedges and bushes), and would last for many years with proper repair and maintenance. In Agraa, construction of a 5.7 km long boulder

fence has successfully prevented crop damage by cattle, and has enabled farmers to reduce time spent on the fields for crop protection.

Crop Production: The farmers grew Bajra (a millet crop) and Urad (a lentil crop) during the Kharif season in 2003. An estimation of the production for each farmer on an agricultural plot of 2 hectares shows that output has increased significantly compared with 2002. Even if we take into account the fact that the year 2002 witnessed a severe drought, comparison over the last 3 years shows that crop output for each farmer has increased dramatically during 2003.

