

CASE STUDY - LAND RECLAMATION PROJECT

BRIEFING NOTES FOR MANAGING DIRECTOR, UTTAR PRADESH BHUMI SUDHAR NIGAM

Gender mainstreaming

For addressing women's needs and empowerment, the project ensured women as co-title holders of all the newly allotted lands and established inclusive institutions (SIC and WSHGs) to make explicit the role of women in reclamation activities.

Rehabilitation and maintenance of main drains

Proper drainage is essential for the sustainability of land reclamation. The rehabilitation and maintenance of drains was undertaken by UP Irrigation Department (UPID) using appropriate design parameters. 7,620 km main drains were rehabilitated, which constitute about 36.4% of the drain network in the project districts. This resulted in efficient removal saline effluents from the reclaimed areas and also drained excess rain water from the other cultivated areas in these districts. The quality of drainage works was independently monitored by Consulting Engineering Services.

Technology dissemination

State, district, block and village level institutions have been developed which promoted effective inter-departmental coordination for implementation and monitoring of the project activities and dissemination of appropriate technologies.

Use of bio-fertilizers

- Green manure and farm yard manure on 48,915 and 41,048 ha respectively
- NADEP compost on 1,350 ha by 1900 farmers
- Vermicompost on 950 ha by 2,225 farmers
- Azotobactor on 2,136 ha by 6186 farmers
- Rhizobium on 1,670 ha by 3394 farmers
- Phosphatica on 2,264 ha by 4086 farmers

Management Agencies, namely, Agricultural Technology Management Agency(ATMAs) were setup in 8 project districts. In addition, 32 ATMAs were set up under the Diversified Agriculture Support Project.

Farmer Field schools

238 Farmer Field Schools (FFSs) covering all the project blocks and 2823 villages were established as community-based, demand-driven institutes for promoting farmer-to-farmer technology dissemination. The FFSs comprised of progressive farmers of 8-10 sodic villages located in a radius of 5 km.

A total of 2,533 Master Trainers on different subjects like -

- Agriculture,
- Horticulture,
- Animal husbandry,
- Credit,
- organic farming,
- soil testing,
- boring and pumpset maintenance,
- marketing,
- health, etc.,

were developed to provide training/support to the member farmers.

These FFSs were linked with different public and private institutions like State Agricultural Universities (SAUs), Krishi Vigyan Kendras, Departments of Agriculture and Animal Husbandry for technical backstopping. Some members of FFSs were nominated in block level Farmer Advisory Committees of ATMAs for raising farmer's voices in the district agriculture plans.

Libraries were established in all FFSs and computers were provided to establish *e-chaupals* in 15 FFSs.

The FFSs also helped in addressing issues critical to project sustainability like timely availability of agricultural inputs, credit, technical know-how and community awareness on drainage maintenance. 205 agriculture service centres managed by FFSs, facilitated timely availability of quality agriculture inputs. To sustain these FFS, business plans were prepared and implemented to ensure regular source of income.

- Farmer training programs,
- crop demonstrations,
- adaptive trials,
- wall writings,
- print and
- electronic media

were successfully used for dissemination of appropriate technologies to the farmers.

This helped in –

- promoting use of certified seed,
- timely planting of crops,
- integrated pest management,
- balanced fertilizer use and
- irrigation of crops

at critical stages. The recommendations emanating from the adaptive research component on various topics like –

- suitable medicinal crops,
- spice crops,
- sesbania and
- use of pressmud

were disseminated to the farmers through the extension units like ATMAs/DICCs/FFSs and the state extension system. The extension efforts promoted crop diversification after 2-3 cycles of rice-wheat rotation following land reclamation.

Upgrading farm to market roads

Upgrading of farm-to-market roads was included in the project to connect the isolated sodic villages with the main road network to enable the farmers to take their agricultural produce to the nearby markets. Selection of these roads was done as per the ranking formula agreed with the World Bank. U.P. Public Works Department (PWD) and U.P.

Rajkiya Nirman Nigam were the implementing agencies.

HUMAN RESOURCE DEVELOPMENT AND INSTITUTIONAL CAPACITY BUILDING OF SUPPORT SERVICES

Training programs

The human resource development and institutional capacity building of support services emphasised on staff training and institutional strengthening of Panchayats, NGOs and other line agencies, viz. Departments of Agriculture (DOA), Public Works, Irrigation, Panchayati Raj, Remote Sensing Application Center (RSAC) and UP Council of Agricultural Research involved in project implementation.

A total of 690 trainings for 11,630 UPBSN staff, 1,066 trainings for 13,220 line department staff and 447 trainings for 6,461 NGO workers were organized. Additionally 12,647 multi-purpose workers of the GP and 104 Kisan Sahayaks of DOA were trained for providing extension support and technical back-up to farming community and FFS. A total of 106,345 core team members and MKs/MMKs were trained to serve as extension agents. Self-Help Groups (SHGs) promoted in the project were also strengthened through various training programs, workshops and exposure visits.

Need based Micro Enterprise Development (MED) trainings were provided to 1,675 members of the SHGs. These capacity building initiatives resulted in initiation of micro enterprises and other economic activities.

Strengthening of Panchayats

1,271 Panchayat Bhawans (PBs) were constructed to provide village communities, farmer groups, SICs and FFSs a platform for organizing trainings, setting up libraries, IT kiosks, holding meetings, and for other social activities.

1,342 libraries were established and 810 additional modules were constructed in the already existing PBs. These PBs are serving as a secretariat for village level local institutions and have also become a platform/hub for carrying out various developmental activities in the villages by the community-based organizations. The Government of UP has issued guidelines for strengthening and maintenance of PBs and library-cum –information centers.

Marketing

Initiatives for strengthening marketing of agricultural produce include setting up of 360 Sodic Haats (rural market hubs), out of which 46 were equipped with infrastructural facilities. 206 project villages were linked with Mandi Samitis. Construction of 1,197 zero energy cool chambers enhanced shelf life of perishable produce. Opportunities for marketing of horticultural produces were tapped through development of 19 Primary Horticultural Cooperative Societies. 338 project villages were linked with 125 milk routes with daily turnover of 31,754 litres.

One progressive farmer in each FFS was trained as Marketing Animator to promote backward and forward market linkages.

Adaptive Research

An international conference on “Sustainable Management of Sodic Lands” was organized in 2005 which provided an opportunity to develop international linkages and showcase the project accomplishments.

Project management

The project has been implemented through a well crafted Activity Schedules on the basis of which Annual Action Plans were prepared using a Computerized Project Management System which defined each project activity, the required critical path for completion, and displayed the proposed physical and expenditure targets. All the 23 Project Management Units were linked to the UPBSN headquarters (HQ). All the units at HQ were connected through LAN. This ensured a smooth flow of information and helped in effective internal monitoring.

The website www.upbsn.org with MIS and GIS mapping was developed and regularly updated. Procurement schedules for inputs were strictly adhered, and in the later years rake-wise, village-wise schedules for gypsum were developed resulting in significant savings, and ensuring timely supply of inputs at the project sites.

For assessing socio-economic and environmental impacts, and monitoring the project progress, third party independent external M&E agencies were hired.

Environmental management

The quality of ground water in the reclaimed areas was similar to the unreclaimed areas indicating that the leaching of salts has not produced any adverse effect on the quality of ground water. Similarly the quality of surface waters in the link drains, and at the outfall points where these drains join the main drains was within the permissible limits for irrigation quality standards. The floral diversity increased from 12 to 81 species, and the faunal diversity from 52 to 250 species as a result of reclamation. Microbial biomass increased from 52 to 418 milligram/gram soil after 10 years of reclamation.

ARRANGEMENTS FOR FUTURE OPERATION OF THE PROJECT

Sustainability strategy

A well crafted sustainability strategy was adopted. In the four years process of reclamation, exit policy exercises were conducted by the farmers themselves with the help of PRA techniques and developing issues matrix and sustainability index for each village. The critical issues identified during exit policy exercises were addressed through follow-up exercises.

Monitoring and evaluation

- Every project village was monitored at least once
- Development indicators and physical performance indicators were developed and regularly monitored
- Environmental monitoring was done by Remote Sensing Application Centre
- Impact of reclamation on bio-diversity was assessed by National Botanical Research Institute
- Quality of road and drainage works was monitored by Consulting Engineering Services

Steps for sustainability

- Only those sodic lands were selected for reclamation where ground water was 2 meter below ground surface to avoid reversion of sodicity
- Budgetary provision made for maintenance of sodic drains and a corpus fund “AnurakshanNidhi” established for meeting 10% farmer contribution
- FFS set up at the block level to ensure institutional arrangements for farmer-to-farmer technology dissemination
- SIC merged into Water Management Committee of Gram Panchayat providing it a constitutional status and ensuring link drain maintenance
- Panchayat Bhawans and Sodic Haats will be maintained by Panchayati Raj Department
- SHGs linked with banks for institutional credit during the post project period and for sustaining the project impacts. GOUP has prepared a proposal for the follow on project which is being processed by GOI.

BRIEFING NOTES FOR WORLD BANK MANAGER

Micro-Credit Action Research (MCAR)

MCAR was launched as a pilot in two districts, and the NGO and the bank worked together for promotion and strengthening of SHGs, aiming people's empowerment and rural livelihood generation, sustainable outreach and access to micro credit for consumption, production and investment purposes. The credit coverage reached 91% and sustainable linkages of SHGs with banks helped rural poor in accessing institutional credit. Application of learnings of MCAR helped in strengthening of SHGs and promotion of clusters.

A total of 165 clusters, networking 1,716 SHGs were developed to support groups in –

- auditing,
- record-keeping,
- conflict resolution and
- initiation of marketable MEDs.

To sustain the SHGs, endeavours were made to link them with various mainstream Central and State sponsored Programs related to

- literacy,
- health care,
- sanitation, etc.

As such, 162 WSHGs started implementing mid-day meal scheme of Government of India.

Borrower's Performance

UPBSN's performance is rated as Highly Satisfactory, although frequent change of project management was an issue. The Government of UP (GOUP) allowed UPBSN substantial flexibility and authority for implementing project activities. It took steps to adapt the project design to emerging challenges.

For example, when the original funding mechanism for main drain maintenance did not work well and the issue of sustainability of institutions set up under the project came up in the OED review of the pilot project, UPBSN and GOUP were quick to develop and operationalize sustainable institutional arrangements for addressing these weaknesses.

Women Self-Help Groups (WSHGs)

Mobilization of 7,193 WSHGs not only supported 84,526 farm households with supplementary savings of Rs. 85.77 m but also empowered women by enhancing their role in decision-making and provided them opportunities for income generation. 6,743 WSHGs were linked with banks for cash credit limit and loans of Rs.17.7 m were disbursed.

In addition, these Groups inter-loaned Rs 263.7 m from their savings, 68% of which was used for financing agriculture and other economic activities. Promotion of MMKs facilitated technology interface between project and women farmers and enabled gender sensitive environment in the project villages.

Maintenance of main drains

For the maintenance of main drains, a funding mechanism has been developed and operationalized which includes 90% budgetary support by GOUP through UPID, and 10% contribution by the farmers. For meeting the 90% budgetary support, a separate line item in UPID has been created since FY 2005-06 and an amount of Rs. 17.9 m per year has been provided specifically for the maintenance of sodic drains. This arrangement would continue in the post project period. For meeting the 10% farmers' contribution, UPBSN has established a corpus fund "UP Bhumi SudharAnurakshan Nidhi Niyamawali 2006" out of the small levies collected from farmers on inputs provided to them under the project. An amount of Rs. 125.98 m was deposited in this corpus @ 8.35% interest/annum (now raised to 10.5% per annum). UPID has prepared the maintenance plan for the UPSLRI and IIP drains for the next five years. With this provision, both the UPSLRI and IIP drains will be maintained.

Bank's Performance

The Bank performance is rated as Highly Satisfactory. There was continuity of the Task Team, although the Task Leadership changed three times. Issues critical for improving implementation, technology transfer and sustainability were regularly raised; and workable solutions were provided to address the identified weaknesses. Despite the technical nature of the project, social, participatory, environmental and poverty issues were emphasised by the Bank team.

Project Constraints and Areas of Concern

Although the project achieved or exceeded the original targets, there were a few constraints. The major area of concern for the Bank missions was the frequent change of Project Manger.

Another constraint was lack of continuity of middle level and technical staff during the later years of the project since as per GOUP rules staff from the line Departments had to be repatriated back after completing five year deputation term.

There was no concrete plan to address the gaps identified during the Exit Policy exercises in the project design,

although during the later stages these were addressed, and convergence strategy was formulated to hand over the ongoing activities to the relevant Departments.

Another concern since the beginning of the project was the main drain maintenance after the project closure since effective drainage system is very critical for sustainable reclamation.

Lessons Learnt

- Sodic areas with ground water within 2 meter from the surface or within 500 meter on the sides of canals should not be taken up for reclamation as the chances of reversion of sodicity are high.
- Selection of area should be done jointly by the technical staff and farmer teams. Ground truthing by involving farmers facilitates right selection of sodic lands.
- Awareness creation and social capital building are essential pre-requisites for effective land reclamation.
- “Convergence Action Plan Matrix” should be made an integral part of training modules from the beginning of the reclamation process.
- Horticulture should be promoted only in B+ category land and that, too, on the fields of “Willing farmer” only.
- Focussed attention should be given to marketing of agricultural produce.

BRIEFING NOTES FOR CHAIRMAN, FARMER GROUPS (ADHYAKSH, KISAN SAMOOH)

The project adopts participatory approach where participating farmers are involved in important decisions related to various project stages –

- planning,
 - implementation,
 - monitoring and evaluation, etc.,
- through their community-based institutions.

In this connection –

- Site Implementation Committee (SIC),
- Water User Groups (WUG),
- Self-Help Groups (SHGs) and
- Farmer Field School (FFS)

are some of the major community institutions created under the project.

- MitraKisan,
- Mahila Mitra Kisan and
- Animators

are major ***community development change-agents*** under the project with well-defined roles and responsibilities.

Self-Help Groups have been promoted under the project as a support mechanism to the agriculture.

The ***Farmer Field Schools (FFS)*** promoted under the project have emerged as a forum where farmers are using their traditional knowledge (ITKs), experiences, skills in development & dissemination of local-specific, farmer-friendly, cost effective technologies.

Master trainers on different subjects have been developed to provide training/support to the member farmers. Under UPSLRP-II, 238 Farmer Field Schools have been formed covering 2588 villages. The membership base of the club comprises of 15505 members and 2180 master trainers.

These FFS have demonstrated commendable success in addressing the key issues affecting project sustainability like –

- timely availability of agriculture inputs,
- credit availability,

- providing updated technical know-how and
- drainage maintenance, etc.

Women in problem areas heavily depend on natural resources and are natural partners for managing/protecting them. Organizing women as groups for savings & thrift and credit linkage for taking up micro-enterprises has ensured their participation in natural resource management. Self-Help Groups have been promoted under the project as a support mechanism to the agriculture activities. These Groups have further been linked with banks for cash credit limits and additional income is being generated through initiation of various income-generating activities among the members of SHGs.

Under UPSLR-II P, 7938 Women Self Help Groups have been formed and their savings amount to Rs.788.31 lakh. 5031 Groups have been linked with bank, with total disbursements of Rs.814.37 lakh. The Groups have inter-loaned Rs 1553.65 lakh for various consumption and production purposes.

Similarly 4769 Men Self-Help Groups have also been formed, and their savings amount to Rs 379.23 lakh. 1737 Groups have been linked with bank, with total disbursements of Rs 328.56 lakh. The Group members have inter-loaned Rs 572.65 lakh among themselves. Most of the SHGs nurtured under the project have emerged strong and sustainable.

Even more striking is the change in the women themselves - they are more assured and more assertive. Today, impelled by their collective strength, women in these villages have taken charge of their lives in a hundred different ways. They have orchestrated regular visits by medical workers; they have set up Grain Banks and have even initiated their own literacy programme.

To link producers directly to the market and to strengthen the marketing of agricultural and non-agricultural produce, a two-pronged strategy has been adopted.

Under ***backward*** support linkage strategy, farmers are being educated to preserve their produce and forward support strategy emphasizes on developing a market-oriented ambience for farmers. The farmers are being educated about the zero energy cool chambers. Vegetables kept in this zero energy cool chamber remain fresh for long. It enhances their shelf-life which can then be marketed on better prices.

To ensure ***forward*** linkages, farmers are being motivated to link up with various rural markets and where there is no such market in the vicinity, the farmers are motivated to establish ***sodic-baat*** to serve as a platform for marketing of their produce. Efforts have also been made towards entrepreneurship development. Project beneficiaries are now taking up various food-processing and milk-processing related activities having proper marketing tie-up.

BRIEFING NOTES FOR DISTRICT PROJECT MANAGER

A common complaint was that the farmers sold their gypsum to contractors, brick kiln owners and construction agents. This was a deep rooted nexus.

It is interesting to note that gypsum can be used as a fertilizer, is the main constituent in many form of plaster and is widely mined. In fact, it is useful in a wide variety of purposes, including the following applications which often compete with each other in rural areas:

- Gypsum Board is primarily used as a finish for walls and ceilings, and is known in construction as drywall or plasterboard
- Gypsum Blocks are used like cement blocks in building construction
- Gypsum Mortar is an ancient mortar used in building construction
- Gypsum is used as fertilizer and soil conditioner

Diversion of gypsum supplied for land reclamation for other purposes amounted to leakage, pilferage and corruption, apart from negating the desired outcome of reclaimed land. As a result, during mid-term review of Phase-II of the Project, the World Bank had rated it as 'unsatisfactory' in 2005.

This issue was discussed with agricultural scientists and underlined the fact that gypsum could be used in the fields and leaching could be done only before the onset of monsoon. It was concluded that any gypsum supplied after that was useless for the farmer and would certainly be sold by him. The cycle had become such that gypsum supply from Rajasthan continued throughout the year.

In this complex situation, a very simple solution, took a very simple decision (though it was viewed by most as a diktat) that no rake of gypsum will enter the State after 30th June, i.e. a fortnight before the arrival of monsoon. This simple step, coupled with raising awareness amongst beneficiaries, did the trick. The change implied less supply of gypsum and consequently, less reclaimed area (theoretically, on paper) in that year. But the strategy prevailed in the succeeding years; more are was reclaimed than targeted in Phase-II, in fact 20% additional are was reclaimed (of course, this was possible due to many other factors also leading to cost saving). This was a pragmatic, though radical innovation that delivered more sustainable results in the long term. The World Bank rated the Project as 'satisfactory' in 2007.

Rivers and streams had become silted by the runoff caused by heavy rains. As they filled with soil, their capacity decreased, thereby reducing their capacity to drain, consequently increasing sodality, apart from causing floods. Thousands of kilometers of drainage network required rehabilitation, remodeling and maintenance with the objective of removing leach effluents, excess rain and irrigation water from rehabilitation, remodeling and maintenance with the objective of removing leach effluents, excess rain and irrigation water from reclaimed and adjoining areas. This was expected to result in increased drainage capacity, relieving the area from water logging.

In general, the silt is fertile in nature and farmers would love to have the desilted material into their fields. But this aspect was, so far, unnoticed, inconsequential and unimportant. The local farmers' attention to this alluvial soil, 'real gold', and made them natural partners in the desilting process by announcing that the silt removed from the river bed would be distributed to the farmers (according to a formula arrived at after wider consultations). This simple announcement made them stakeholders in the process.

Meetings were held with various interest groups – beneficiaries, implementing agency, NGOs, village leaders, people's representatives and other identified groups.

Each farmer became aware of the advantage and wanted to have the maximum possible silt for himself. They became an interested group having local influence and hence able to influence and persuade the contractor (another local man) to do his job well, removing all the desired silt from the bed.

Desilting needs to be done by skilled labour under supervision of technical persons.

The Impact

There was no need of a strict outside supervision (equally powerful and influential) locals were keeping a vigilant eye on the operations. The job was completed so well that the World Bank officials got it videographed; the Chief Minister personally appreciated the work that the 67 villages would no remain flood-free for next 10 years, in addition to the problem of sodicity being tackled.

Project Impacts

The impacts of the project are multifold -

- The Project has helped improve the well-being of more than 3,69,000 poor families in 3,591 villages of 22 districts.
- More than 1,89,715 hectares of unproductive land has been reclaimed for agriculture, of which over 1,27,000 hectares is being cultivated for the first time.
- Annual household income has gone up by more than 50 Percent
- Cropping intensity has risen from 49 percent to over 200 Percent
- Land prices have increased more than three times.
- Local employment has increased five-fold and migration has decreased by 10%.
- 7938 WSHG and 4769 MSHG have been formed and many linked to bank for micro enterprises.
- The Project has helped set up 350 small market points called *sodic-baats* and has helped link 1415 sodic villages to the formal agriculture marketing system.