CIRDAP Trains Women in Post-harvest Loss Prevention

In countries such as Bangladesh, women are directly linked with post harvest operations. Increased food supply is in turn linked with post harvest loss prevention (PHLP). Training women in PHLP thus can save grains otherwise lost, provide food security and enhance income at the household and farm levels.

IN the two decades after 1970 cereal production in the Asia-Pacific region increased sig-nificantly due to the adoption of advanced farming technology. Yet, many countries in the region are still unable to meet their total food grain requirements and are therefore compelled to import the shortfall. One cause of the shortfall is the high percentage of grain losses which occur after harvesting. A FAO study has estimated that about seven per cent to 35 per cent of grains are generally lost during post harvest operations. Thus, reduction in post harvest losses would be as important to overall food supply as are efforts to increase productivity and yields. Minimizing post harvest losses will, on the one hand, lead to an increase in supplies at the national level without further inputs and on the other hand, give greater food security and enhance income at the farm level.

In the Asia-Pacific region over 90 per cent of post harvest operations, starting from the collection of the harvest to storing the grains after milling, are handled by women. Women are also involved in making decisions regarding storage of grain seeds for the next crops, for consumption and for marketing. Recognising the importance of post harvest loss prevention and the fact that an overwhelming proportion of post harvest activities are undertaken by women, CIRDAP started a project in 1987 in Bangladesh, India, Indonesia, Philippines, Shri Lanka and Thailand to train women in post harvest loss prevention. The project has successfully completed two phases.

Phase- I of the project identified how women should be trained in adopting technology that would reduce post harvest losses; developed a training curriculum with messages relating to post harvest loss prevention practices that should be imparted to women; and identified the institutions that could train the extension personnel to carry these messages to the rural women.

In December 1988, a training-cum-action research project was initiated by CIRDAP in two villages in each of the six countries. In the project the training curriculum was pilot-tested over a period of two years. Based on this pilot test a training module was recommended for adoption by the countries participating in the project.

In Bangladesh, 12 extension workers and 100 village women were trained in post harvest loss prevention for Aus4 paddy, Aman5 paddy, wheat and pulses. The focus of the training was on reducing storage loss. In the Philippines, 90 women from organised farmers' groups and cooperatives were trained at least a month before each harvesting season. Emphasis was placed on preserving the nutritional quality of grains and preventing the accumulation of aflatoxin in corn. In Shri Lanka, extension workers were given theoretical and practical training in new post harvest loss preyention technology, while in Thailand the focus of training was on preventing losses of rice and maize during storage due to pests, microflora and mycotoxin. In India, training concentrated on storage structures, fumigation techniques and prophylactic measures for reducing storage loss of grain.

In all six countries it was found that although women in the project villages had been involved in post harvest activities, before the initiation of the project they had never received any training or information relating to such activities.

Women learn the technical way of reducing grain loss

Their response to the training was positive and where the training was conducted over an extended period it significantly changed their attitudes and practices. An evaluation of the project showed that after the training, women were found to be more involved than before in family decisions relating to harvesting and storing of grains. There were also strong indications that post harvest losses were minimised as a result of the training given to the women. Some issues that became evident from this project and that need to be focused on at a national level are given below:

BANGLADESH - Improved implements such as mechanical threshers can be used. However, credit is needed to purchase them.

THE PHILIPPINES - As it was found that women would learn and adapt better when trained in organised groups, training may be imparted to members of the existing women farm groups.

THAILAND - Using local broadcast towers to disseminate information on post harvest loss prevention was found to be effective.

SHRI LANKA - Regular and frequent contact between women farm leaders and training extension officers contributed significantly to the high rate of adoption of post harvest loss prevention techniques by the farm women. This highlights the importance of training and motivation of extension workers and that of training extension workers first and using them to train the rural women later.

Some of the messages on post-harvest loss prevention that were carried to the rural women during the project were:

Harvesting - at the correct maturity (75- 85%) of grain prevents grain shattering.

Cleaning - as foreign material and dust attract insects, grains need to be cleaned before storage.

Threshing - which involves the detachment of paddy kernels from the panicle is done by trampling, impact and stripping. Trampling done by human beings, animals or tractors, is not efficient. Mec-hanical threshers which use the impact and stripping methods are more efficient than manual threshing. Power threshers are also suitable.

Drying - is done in all countries by exposure to the sun. The right moisture content has to be ensured to prevent the growth of fungi and other microflora. Loss during drying can be minimized by using polythene mats.

Parboiling (rice) - makes shelling of husks easier; makes the kernel hard and thus prevents breakage during milling. Parboiling should be done in steam instead of in water. Parboiled rice has to be dried to 14-16% moisture content to prevent mycotoxin growth and rancidity. Uniform drying of parboiled rice is essential to avoid breakage during milling.

Storage - mixing old and new grains causes quality deterioration. Construction of a storage that will minimize infiltration of moisture and heat is essential to prevent fungal growth. Air-tight storage ensures death of insects due to oxygen depletion.

The project was successful in raising the awareness of the women trainees about the losses incurred in grain post harvest operations and introducing them to some improved technologies which could reduce post harvest losses.

— CIRDAP

A Development Strategy for Bangladesh-II

by Md. Kamruzzaman Khan

IT is a bitter truth that our cultural heritage and the way of life are not conducive to one-child-family (OCF) concept. Illiteracy, proverty, religious dogmas are powerful factors that influence the life of the commonman. High rate of infant mortality, old age uncertainty, the property disposal law, are all detrimental rudiments for even a conventional family planning approach. Besides, in the labour-oriented economy, children are considered as sources of family income. So, it will not be an easy task to introduce and popularise the one-child-family concept to the general mass. Neither, it desirable to introduce it in the autocratic way. For that will raise more questions than the answers available in its' favour. So, the whole programme shall have to be carefully drawn absolutely on incentive and disincentive basis and implemented in a democratic spirit.

In view of the above some essential steps are outlined below:

1. Constitutional steps to amend the present family property disposal law to enable the only child, even if it is female one, to inherit properties of the parents and to establish the rights of women conducive to the OCF concept.

2. Introduction of incentive measures such as social security schemes and welfare services to the concerned couples, health and education care for the child, specially the female child.

3. Establishment of an effective institution ensuring direct participation of the concerned couples in it's operation and management.

4. Creation of adequate physical facilities to provide necessary services to the concerned couples at their door steps.

5. A massive national movement to popularise the OCF concept across the country.

6. Mobilization of adequate resources to finance the programme.

Constitutional Steps

Surprisingly, population control or family planning is not included in the policy objectives of the constitution of the Republic. This has got to be included to make it a constitutional commitment.

The next, but immediate step required is to amend the Property Disposal Acts. Bangladesh contains followers of the great four religions of the world viz, Islam, Hinduism, Christianity and Buddhism. Muslims and Hindus constitute over 90 per cent of the total population. Family property disposal laws of these two major creeds are based on their religious doctrines. In both the cases, female child inherit only a small fraction of her parents properties. That is why couples seldom adopt family planning till a male child is born. After all, no parent likes to see that his or her child is deprived of the hard earned properties; on the contrary, these go to the people who have no contribution to earn them. So, until the property disposal laws, are amended to ensure that the only child, even if it is a female one, shall inherit all the properties of the parents, it will not be possible to induce couples having their first female child to accept the OCF concept. Needless to mention that religions are not barriers to this effect. For, the Muslim Family Law which is in force in Bangladesh and the Hindu Family Property Disposal Act — 1956 (of India) are already great shifts from the religious principles on concerned issues. The proposed amendment will be just a minor addition to those changes.

A central agency called the Population Reduction Commission should be established to organize, promote and provide with legal, logistic and financial supports as well as to guide, monitor and audit the activities of the TPRS.

Birth control is more a woman's affair than the man's. In a patriarchal society like ours establishment of the rights of women to opt for birth control at their will is a very important factor in the case of an effective population control programme. For, in the lower stratum, the husband's will is always the dominant force concerning adoption of family planning. Only through constitutional steps such anomaly can be removed.

Incentive — Disincentive Measures

Incentive — disincentive measures shall be powerful tools to popularise the OCF concept among the general mass. In the first place, it is essential to introduce social security scheme for the parents having the only female child. For, in the this society the daughter leaves the parents home after she is married. It is estimated that only ten per cent of the total population attain parenthood. About half of them, i.e approximately five per cent of the total population shall have to be included in the social security scheme over a long period of time. That means, the social security scheme for parents of one female child shall not be that expensive as some may guess. The insurance institutes can play an important role in this regard. This incentive alone will be of great help to induce many couples to adopt the OCF concept.

Next comes the question of health and education care of the child. Annually, the government spends a large sum of money on health and education programme. A portion of this sum can be diverted to finance the OCF programme in the following manner:

1. The female child of the OCF group shall enjoy free education facility upto post-graduate level. (But this facility will be withdrawn as soon as she is married).

2. The male child of the OCF group shall enjoy free education facility upto HSC level.

3. The children of OCF group shall enjoy free medical facility till they become adults.

In these cases also financial institutions like banks and insurance companies have immense opportunities to render their services to the nation.

Besides the above incentives, the OCF couples should be given preference as regards to other social services provided by the government including relief and rehabilitation as well as food for works programme.

Institutional Development

An appropriate institution is the canopy for sustenance of life of a project.

To avert lapses, the institution for implementation of the PRP shall have to be build on the foundation of concerned couples. The people shall implement the programme themselves and the governments role shall be limited to providing legal, logistic and financial supports.

To this end, the programme should be implemented on area coverage basis, through organizing formal social groups called the Population Reduction Society (PRS). If a thana is determined as a project area, concern couples shall form the PRS named after that upazila (TPRS). A fixed number of elected persons (elected by the members only) shall constitute the Board of Directors of the UPRS who shall be responsible for policy formulation of it's management and operation and act as co-ordinators between the government agency and the concerned couples. To make the task easier as well as to extend the services nearer to the commonman. Union committees may be form and in that case, the heads of the union committees may formed the UPRS Board of Directors. In any case, the TPRS shall be the nucleus of all activities pertaining to the implementation of the PRP.

A central agency called the Population Reduction Commission should be established to organize, promote and provide with legal, logistic and financial supports as well as to guide, monitor and audit the activities of the TPRS. All government establishments concerning population control should be merged with the commission.

The commission should be an autonomous body, entrusted with sufficient authorities to operate as independently as possible, and should be directly responsible to the head of the government.

Physical Facilities.

To make the programme a success adequate physical facilities at the door step of the concerned couples shall have to be established. At present, there are in some unions small family planning units. These units shall have to be remodeled into Union Family Planning Complex having clinical facilities, families services wing (storage and distribution of birth control aids), office accommodation for employees, residential accommodation for essential staff, a Board Room for Union Committee's meetings and an open yard for public meetings. Every union must have a complex which shall be the centre of activities of the union programme.

National Movement

A great deal of success depends upon how the message of the new concept of life is disseminated to concerned people, the technique of approach and motivational capability of the exponents. To meet this end, a massive national movement shall have to be launched by the commission at the grass-root level, across the country.

The main objectives of the movement will be:

1. To make people aware of the miseries caused by population explosion and it's future consequences.

2. To explain to the people the aims and objectives of the PRP as well as various aspects of the OCF concept and it's impact on the future generations.

3. To inform people about various incentive measures including the constitutional steps taken by the government to promote OCF concept.

4. To organize couples into formal social groups to adopt the OCF concept, as well as to promote the programme.

5. To remain vigilant against anti-PRP activists.

Financial Planning

For obvious reasons, the PRP shall gradually demand a large amount of fund for it's effective implementation. In the context of present resource constraints which the nation cannot overcome within a foreseeable period of time, mobilization of additional fund for the programme is almost an impossible proposition. The fund shall have to be managed from within the present sources through re-organisation of the development programme.

Next source of fund should be surplus from the revenue budget. At present approximately Tk 14 billion is paid to various agencies as subsidy. To get rid of this evil, government must do away with sick establishments within a reasonable period of time, even if it demands closure of those establishments.

A huge amount of surplus revenue can be mobilized either through diverting resources from idle establishments to the PRP of through expenditure cut.

This is the concluding part of the feature

Small, Beautiful and Sustainable

by Don Hinrichsen

Employment has dramatically changed the lives of Mayan's working women. For one thing, it has given them some decision-making authority our their own lives.

"GANDHI was right when he said that what India needs more than anything else is appropriate technological development," says Ashok Khosla, president of Development Alternatives, a Delhi-based non-governmental organization (NGO) specialized in sustainable development. "Unfortunately, the economics of small-scale appropriate technology has been lost in India's rush towards development, Western style."

In a country bound up with serious resource constraints, Dr Khosla says it makes little sense to follow the Western prescription for economic development, which was based largely on access to unlimited timber, water, minerals, and other natural resources. India, like many developing countries, is already pushing the "red line" of resource use. "Increasingly we are faced with a growth of limits, not limits to growth," he says, paraphrasing ecologist Norman Myers.

There seems little doubt that India's limits are growing. By the beginning of 1990, the country had less than 14 per cent forest cover, far below the government's target of 25 per cent. Land degradation was reducing crop yields across one million square kilometres. In many areas, water and fuelwood are in short supply.

India's population growth rate of 2.1 per cent per year adds an additional 13.6 million people to the country's huge population base every year. Population growth, rapid urbanization, widespread poverty and poor resource management have combined to reduce India's capacity to provide basic infrastructure and services to its 860 million people, eroding the country's potential for future economic growth.

Development Alternatives, or DA, prides itself at overcoming resource limits. Its headquarters building, situated on a quiet, tree-lined plot on the edge of New Delhi, is a model of appropriate technology and efficient resource use. Looking somewhat like an elaborate adobe dwelling with domes and arches, it was built entirely of a new type of brick made from sand and clay.

The novelty is in the composition of the bricks: they consist of only 20 per cent clay, as compared with 90 per cent in normal construction bricks and breeze blocks. Furthermore, these bricks don't need to be fired in a kiln to be hardened; they are compressed under high pressure using a machine invented by DA. The process saves precious fuelwood, which often has to be brought to Delhi by rail from as far as 700 kilometres away, and reduces the amount of land torn apart by clay diggers.

The "magic bricks," as they are sometimes called, have one more advantage over their conventional counterparts — they make buildings "heat proof." Even in the searing heat of May, when Delhi bakes under a merciless sun and temperatures seldom drop below 40 degrees centigrade, DA's employees don't have to resort to expensive air conditioning.

Set up in the early 1980s, DA has a unique organizational structure for a developing country NGO. It is run like a regular business, and is built up around three primary networks:

•The Innovative Network identifies, generates, develops and designs environmentally sound and socially appropriate technologies, products, services, and systems;

•the Production Network manufactures, assembles, and packages the products; and

•the Marketing Network sells the products, provides after-sales service, and feeds back marketing information to the innovative Network.

Much of DA's research and development is aimed at people forgotten by mainstream development or displaced by environmental collapse. "Our first concern is the rehabilitation of people," says Khosla.

"We concentrate our activities on the urban and rural poor, people who are often overlooked or ignored by government programmes."

Khosla and his crew have learned that the environment is easier to rehabilitate when people are given sustainable livelihoods. DA has demonstrated this in the village of Datia near Jhansi, in central India. Here, villagers rehabilitated an abandoned wasteland. After the site was cleared, the entire area was converted to tree plantations. Villagers planted neem, ipil ipil, teak, and bamboo. The native neem and fast-growing ipil ipil trees are harvested for fuelwood and fodder, and used to make charcoal, briquettes, and biogas. They also add nitrogen to the soil, helping to ensure that yields will not drop. Teak and bamboo are felled to make furniture and baskets, and the logging waste is used to generate both wood-gas and biogas.

"I am no longer at the mercy of my husband"

"This is an example of how local initiative can be harnessed not only to reclaim a wasteland, but to provide sustainable income-generating activities for an entire village," observes Khosla. "They are converting biomass to useful, value-added products, and managing the environment in the process." Value-added products include furniture. They are the outcome of local manufacturing, and as such contribute more to the local economy than do raw-material exports.

DA has been particularly successful at launching income generating activities for poor rural communities. At the tiny village of Mayan on the edge of the Rajasthan Desert, Dr Sandhya Chatterji, head of DA's women's unit, has set up a women's weaving collective, using hand looms developed by DA technicians. The output of these sophisticated looms is comparable to that of power looms, but at a fraction of the cost.

To date, the project employs 26 village women full time, 12 of them as weavers and the others as administrative and support staff. There are two permanent posts: a master weaver and a production manager, both from the village. Another 10 women get part-time work.

Around 15-20 per cent of what they produce is sold locally, at prices reduced to accommodate lower incomes. The rest is exported to Delhi and other cities where DA's marketing arm sells it to local retailers. Although DA acts as a marketing intermediary, it takes no money for its franchising work. All profits are ploughed back into the projects.

"This particular weaving collective has been a catalyst for our R&D (Research and Development) work with the hand looms," says Dr Chatterji. "These women tested out the first looms when the (Mayan) project started in 1988 and helped our technicians improve on the initial designs. They are now using the fourth generation loom, one they helped perfect."

The looms can each produce up to 20 metres of cloth a day and the women earn between 800 and 850 rupees per month, a higher than average wage, particularly for this depressed part of the country where most of the men are unemployed day labourers. With a number of village women bringing home real income, their status within the family and the community has improved considerably.

"When the project first started," Dr Chatterji recalls, "most of these women were wary of outsiders and afraid to participate in the project. Generally, they had a low opinion of themselves." Today, they show self-confidence and humour as they work the looms. They no longer cover their faces when strangers visit the factory.

Employment has dramatically changed the lives of Mayan's working women. For one thing, it has given them some decision-making authority over their own lives. Sunita, an unmarried 18-year-old, has finished secondary school and is saving her money for further education; something that would have been impossible before the project. As it is, she has more schooling than anyone else in the collective.

Santosh, a mother of two married to a long-distance lorry driver, recently decided to have a tubectomy. She uses her money to improve her domestic life, buying a pressure cooker and other household appliances and depositing what is left in the bank.

Engine of development: The Mayan village women's weaving collective.

For Bharpai, who has five children and a husband who drinks up his own meagre wages as a seasonal agricultural labourer, her steady income allows her to run the household. She is now better able to feed, clothe, and educate her children. More importantly, "I am no longer at the mercy of my husband," she says with a grin.

The project has had several important spin-offs for the village. Literacy has improved considerably, especially for the women, and they are now practising family planning. Birth rates for Mayan are falling steadily as more women follow Santosh's example and have tubectomies. "I don't want any more children," Santosh affirms.

"We can't really afford more, and I want my two children to have better opportunities in the future."

As for the future, staff at DA say they hope to spark village-level development all over the country, using examples like Mayan and Datia to attract more investment and government support. Already, the Haryana state government wants DA to duplicate the Mayan experience in other low-income areas. Dr Chatterji is cautious. "The authorities want us to take on large-scale projects," she explains. "But our success is based on careful planing and training, aimed at improving the income generating potential of poor villages. It can't just be up-scale and made to work."

What Development Alternatives can do, staff say, is more of the same: demonstrating that local initiative can be harnessed to build sustainable economic development. It is a viable alternative for poor rural areas of India, neglected by big development, and one that is beginning to receive serious attention.

— Populi