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Alleviating poverty in the dry zones of Sri Lanka

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Abstract

This paper describes the experience gained by the dry zone Agricultural Project in four Dry Zone districts of Sri Lanka in alleviating poverty. The paper argues that mitigating poverty requires support in both institutional and technical aspects. It was established that one of the reasons for the success of the project is the partnership strategy it has adopted in both planning and implementing development initiatives. Ecologically sound agricultural techniques promoted by the project are described along with the best management practices associated with rain water harvesting.

Key words: Agricultural project, dry zone, management practices, poverty, Sri Lank

Introduction

The total area of Sri Lanka is 62,705 square kilometers of which 70% is the Dry Zone. The dry zone is characterized by unreliable, highly variable and bi-modal rainfall, estimated at 1500mm per annum (Panaboke *et al.*, 2002). Cooray 1948 (cited in Farmer, 1957) defines dry zone as the area where soil moisture falls below the wilting-point for at least two months in the average year.

The main season (*Maha)* starts in October and ends in January with the rainfall averaging 650mm, while the relatively shorter rainy season - *Yala* (April to May) has a lower expectancy value of 150mm (Sakthivadel, et al., 1996). The annual mean evaporation in the dry zone ranges between 1,700 and 1,900mm, exceeding the average annual rainfall (Panabokke, et al., 2002). Hence, the shortage of water.

DZADP

The dry zone remains one of the nation's poorest regions. Unlike the more developed western parts of the country, the Dry Zone economy has not diversified substantially away from agriculture. Over 70% of the rural people in the dry zone depend on agriculture for their livelihood. Income from agriculture is so low that many of them depend on remittances from outside. In fact, there has been an increasing migration of youth to other areas in search of employment. This makes the task of increasing returns from agricultural production even morechallenging.

In response to this, the DZADP was launched in September 1999 with an objective of increasing returns from agriculture in the dry zone. The project has been operating in four dry zone districts – Hambantota, Moneragala, Puttalam and Anuradhapura. Four activities were addressed

- Conservation of water resources
- Promotion of appropriate farming practices
- Institutional Development and organizational strengthening
- Business development

DZADP is a joint venture between the European Commission and the Government of Sri Lanka. CARE INTERNATIONAL administers the project.

DZADP partners include the department of agriculture, fisheries, livestock, the department of Agrarian Services and non government organizations. The main target group of the project is the poor farmer households cultivating marginal lands with earnings of less than USD 34 per month. The project reaches these households through the Farmer Organizations (FOs). FOs are village-based institutions that manage and use minor irrigation tanks for agricultural and household uses. The Agrarian Services Act No 59 of 1979 provides the FOs with the rights to manage and use water from minor tanks for agricultural and household needs. In the past, under the ancient *Rajakariya* system, the management of the minor tanks was a compulsory service performed by the farmers. The responsibility of releasing water from the tanks was the task of the *Velvidane* - in local terminology "the executive of the paddy lands" - who would receive a fee for his labor in bushels of paddy or its equivalent in money (see Panaboke et al., 2002 for details). The minor tanks, so vital for livelihood needs, have suffered from neglect due to various reasons. According to Pannaboke et al (2002) the main reason for the deterioration of minor tanks has been the demolition of the *Rajakariya* system in 1832 while Aponso (2003) has a different point of view who argues that the primary reason for the defunct state of small

tanks is malaria. With various invasions from across the Palk Strait, she argues the monarchy of Lanka shifted from the Anuradhapura and Polonnaruwa kingdoms to the mountainous regions, particularly, Kandy. With these invasions by various Indian kings, the general populace too abandoned the dry zone seeking for safety. During this era better opportunities was also offered by foreign nations, particularly the Portuguese, along the coastal belt contributing to the migration from the once fertile dry zone to other regions of the island. The vacuum that was caused by this migration caused the irrigation systems that made the dry zone once self-sufficient and fertile, to be abandoned giving way to malaria. With malaria gradually reigning supreme, small and large tanks fell into a state of defunct and was dilapidated. Today, out of an estimated 15,000 minor tanks in the country half of them are in a state necessitating rehabilitation.

Since its inception in September 1999 the project has rehabilitated 80 minor irrigation tanks or reservoirs involving 262 farmer organizations. Minor tanks have been defined as those that have the command area of 80 hectares of land or less. Over 500 staff from partner organizations have been trained in various technical and organizational skills. Women participation in development activities has increased from almost nothing to 30% in project promoted FOs. For example, Out of 95 official positions available in 38 project supported FOs 38 positions were held by women (Table 1. Through organized marketing initiatives the farmers have been able to sell their produce in local markets at competitive prices. Local farmers have established funds to maintain the tanks. Farmers, particularly those cultivating the marginal uplands, have been able to increase their income from cultivation of cash crops. All these have been made possible mainly due to the application of appropriate strategy by the project, adoption of best farming practices.

DZADP is not a research project per se. it rather seeks to test the successful innovations tried elsewhere and adopt project implementation strategies that are likely to be sustainable and relevant. It collaborates with research and development institutions to borrow, test, fine-tune and replicate management practices that best fit its target groups. Therefore, it seeks to make use of the innovations tested and promoted by the research institutions. By learning from others, the project has been ensuring good use of time and financial resources.

Best management practices

Poverty is a result of many factors. Inadequate food production is one of them. Many research and development projects have been launched in order to explore ways and means of increasing agricultural production, but often have overlooked the institutional aspects such as the market, food distribution, support services, information and farmer/ partner capacity building. As a result poverty alleviation programs have. The paper describes the strategy and best management practices adopted by the project and finally highlights the management practices that could be replicated in other areas. For example, if crop production programs are not complimented with marketing aspects, then farmers may end up not being able to sell their crops which may end up alevating poverty rather than alleviating it. One major reason for the success of DZADP has been due mainly to the emphasis it has placed in both institutional and technical aspects. The best management practices described in this paper are drawn from both technical as well as institutional aspects. They are as follows.

Working in partnership

The implementation strategy adopted by the project is the partnership approach. In fact this is a paradigm shift within CARE which has moved away from implementing the development initiatives by itself to working with the local partners from government and non-government sectors. The project recognizes that not all the partner organizations are at the same level in terms of their technical and organizational capacities. Therefore, about 30% of the budget is allocated to capacity building of project partners and FOs. Capacity building is not only confined to skill development initiatives but also to the provision of equipment such as computer and audio-visual aids. Support for hardware activities carries a maximum of USD 2,000 which is used for buying equipment.

Asset protection

The importance of minor tanks are well understood by local farmers. However, the lack of solidarity and inadequate negotiation skills have denied farmers their access to financial and technical resources to rehabilitate and maintain the tanks. Through various training effort, the farmers have built up their capacity to participate in the bid and monitor the civil work including the establishment of a tank maintenance fund which is about 10% of the total cost of rehabilitation. The money is used for attending to technical problems that require external assistance. Minor problems are generally attended to by the community through a (voluntary labor). In order to induce an element of ownership DZADP requires local communities to contribute 20% of the cost of tank rehabilitation which is made in the form of labor. The technical supervision is done by the Department of Agrarian Services. The approach taken by DZADP in tank rehabilitation has been adopted as a model in the Hambantota and Anuradhapura districts by the Department of Agrarian Services.

Developing marketing skills

Crop production programs can produce a negative impact if e farmers are unable to secure a market and the price that is commensurate with their efforts. Failure to secure a market has often demoralized the farmers past in the Dry Zone in Sri Lanka. Through its business development component, the project has been building the capacity of FOs in organized marketing. Today, over 30% of the project-supported FOs are able to secure a market and a good price for their produce. However, this has limited to cash crops

Table 1. Number of women members in sampled farmer organizations in Hambantota and Anuradhapura supported by DZADP (N=38)

Location	Total members	Men	Women	Official positions		
					Men	Women
Hambantota	976	788	188	95	72	23
Anuradhapura	974	727	247	95	80	15

Source: DZADP field survey, June 2004.

Table 2. Changes in yield following rehabilitation of minor tank and use of appropriate farming practices.

Crop	Yield in kg/ha		
	Before rehabilitation	After rehabilitation	Percent change
Paddy	1685	2130	27
Finger millet	470	675	44
Groundnut	554	700	26
Chilli	403	739	83

Source: DZADP field survey, June 2004.

such as onion (*Allium cepa*), chilly, okra *(Hibiscus esculentus*), tomato (*Lycopersicum esculentum*), and egg plant (*Solanum melongena*).

Some problems can be effectively addressed by establishing linkages. For example, in the Anurdhapura district a group of 13 farmers were able to earn a net profit of USD 61,000 from an investment of USD 10,200 from onion cultivation in less than three years. Earlier, this group had been seeking financial assistance to initiate onion cultivation but was not able to do so due to the lack of seed capital and quality onion seeds which had to be imported from India. They had approached a number of donors to secure funds to buy equipment which included three two-wheel power tillers. Upon learning of this problem the project linked the group to the Vegetable Research Institute, which trained them in growing onion seed. After the training, the group was provided with the seed money of USD 2,000 to kick-start the project. In less than three years the group has developed the skills required to produce onion seeds. Through organized marketing they are able to sell their produce. Todate the group owns 13 power tillers, all bought with their own support. The role of the project in this case was just to provide seed money and link them up with the proper institutions. Elsewhere, enhanced communication simply through the provision of mobile phones has helped the farmer groups in securing a market for their produce (Chhetri, et al., 2004).

Native extension agents

Despite recognition of the role agriculture plays in mitigating hunger and poverty, it is unfortunate the Ministry of Agriculture has not been able to allocate adequate funds towards this cause. One direct impact of this is the inadequate deployment of trained human resources in the field. In order to address this problem, DZADP has trained 265 farmer animators or village based voluntary extension agents.

Initially, this initiative experienced some resistance because farmer animators were seen as a duplication of extension agents. Today, the same institutions that initially opposed the idea of developing farmer animators are requesting the project to train more of them and have been taken as a model to strengthen extension services. This is because of the realization that the farmer animators do not in fact compete with government extension agents but rather complement their activities. The farmer animators are e trained in special skills. For example, in areas where okra (*Hibiscus esculentus*) is grown extensively as a cash crop, the farmer animator would be trained in best management practices associated with okra growing. Similar success can also be seen in Kamwenge and Kabarole districts in Uganda. Some of the native extension agents trained by the Kibale and Semuliki Conservation and Development Project have established what is referred to as farmer field schools where villagers go and learn and share their knowledge (Chhetri, et al, 2004).

Efficient use of water

Water is the major limiting factor in the dry zone. To mitigate the shortage of water the project has been promoting techniques to store and make efficient use of water. The foremost initiative undertaken is the rehabilitation of minor tanks. The second practice promoted by the project is pot irrigation. This method is used mainly for perennials such as cashew and mango. Clay pots are buried next to the plant from which water is released slowly to the plant. This technique has been adopted mainly because it is cheap and easy to use. Other techniques include the construction of runoff tanks and runoff water harvesting tanks which have, unfortunately been rejected by local communities due to their high cost of construction and complexities in transportation and installation..

Crop diversification

Rice is a major crop, cultivated during the *Maha* season. In the *Maha* season waterlogged fields makes it possible only to grow rice which is the staple food and has a good storage life. The year round market availibility makes it possible for farmers to sell the crop when they need cash. Further, having a storage of paddy at home symbolizes wealth and prosperity. Cultivating paddy in the *Yala* season is possible only when there is enough rain. The project has been working closely with research institutions and local farmers to promote drought tolerant alternative crops such as cowpea (*Vigna spp.*), mungbean (*Vigna radiate*), chickpea (*Cicer arietinum*), maize (*Zea mays*), and finger millet (*Eleusine coracana*). Farmers who have access to the tanks are encouraged to grow vegetables such as okra, bitter gourd (*Momordica charantia*), and egg plant for which the little rainwater stored in the tanks during the*Yala* season is adequate. The project also promotes the cultivation of perennials such as mango (*Mangifera indica*), cashew nut (*Anacardium occidentale*), jackfruit (*Artocarpus heterophyllus*), where cowpea, mungbean, and chickpeas are intercropped. By creating diversity the farmers have been able both to minimize risk of crop failure and to address the pest problems to some extent. The use of moisture conservation techniques such as mulching and contour bunds are also promoted. With assured water through the rehabilitation of tanks and the use of appropriate farming techniques the farmers have been able to record an increase in yield of about 30% (Table 2). Taking rice as the base crop, the 30% increase in yield translates into an increase in income of USD 80 per acre

Use of raised goatsheds

Raising goat is a popular activity in the dry zone, free grazing is a common practice. In fact, in some areas stray cattle and goats are one of the reasons for not cultivating crops in the *Yala* season. In order to help address this problem the project has been promoting confined (grazing in comparatively smaller area) feeding and the use of raised sheds for keeping the goats. The advantages are, the control of stray goats allows farmers to cultivate crops during the Yala season and the droppings which are collected from under the shed are used as manure for crops and vegetables. Some farmers have been able to earn an extra cash income from the sale of manure. Owing to its success in of hygiene and efficient manure recovery,a number of farmers have constructed goatshed in the project area.

Addressing post harvest losses

In Sri Lanka post harvest crop loss are estimated at 30%. The loss is high for vegetable crops which are highly perishable. The project, in collaboration with the Institute of Post-Harvest Technology have been organizing practical training courses to minimize the loss. The irony is that while many research and development institutions are trying to develop new varieties that are high yielding, to very little attention has been paid to post harvest losses. Even if only one-third of the loss can be saved the cumulative achievement will be highly significant.

Summary and conclusion

The best farming practices promoted by the project are neither new nor complicated. Yet, very little seems to have been achieved in replicating such simple technologies. This may be due to the fact that the technologies are so simple that they may be less appealing to many. The experience shared by DZADP in this paper serves to remind us of both technical and institutional aspects that contribute to mitigating poverty. Although DZADP is not a research organization the action learning approach adopted by the project over the last five years has made it possible to further test the successful models tried elsewhere. The best management practices for dry zone farming are;

1. The protection of natural resources is critical if sustainable development is to take place.
2. In areas where there is a shortage of water, pitcher irrigation techniques could be used particularly for tree crops such as cashew nut and mango.
3. If poverty alleviation is to be achieved through increased agricultural production then programs must be accompanied with capacity building initiatives to enable farmers to explore markets and negotiate prices.
4. The strategy of implementing development activities through existing partners on the ground is a good approach especially for short term projects such as the DZADP.
5. When projects have too vast a geographical area to cover it is perhaps best to test and develop models that are already successfully tested.
6. In areas where water is extremely limited, promotion and use of drought tolerant varieties should be advocated for. However, the promotion of such crops should be done only after careful analysis of the market and local needs.
7. Building the capacity of local farmers for marketing, seeking information and accessing resources is as important as finding technology to increase production. Without the market crop production programs can have a negative effect on the farmers. In such cases the role of the projects should be confined to facilitation only. The farmers or the local communities should take the lead in actually exploring the market.

8. It is a good practice to provide farmers with basket of options rather than imposing innovations on them.
9. Addressing post harvest losses deserve attention as a lot can be saved.

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