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# PEASANT PARTICIPATION IN RAISING SEEDLINGS FOR REFORESTATION: EVIDENCE FROM THE PARTICIPATORY FORESTRY PROJECT OF SRI LANKA

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## ABSTRACT

The involvement of peasants, including women and rural organizations, in raising seedlings for reforestation is an important feature of the Participatory Forestry Project (PFP) being implemented by the Forest Department. It is anticipated that much of the total requirement of seedlings will be produced through small-scale nurseries managed by peasants and their organizations. The programme of private nurseries has been in operation under the PFP since 1993. By the end of 1994, there were 236 private nurseries and another 10 managed by rural organizations located in 17 districts where the project is being implemented. The total number of seedlings produced in these nurseries was 1,196,377 representing over 50 percent of the requirement for that year.

This paper discusses some of the preliminary findings pertaining to people's participation in seedling production. Among the main issues discussed in the paper are the main achievements of this component, its socio-economic benefits and the changing scenario of people's attitudes towards reforestation through their involvement in seedling production. Based on the analysis, the paper finally emphasizes the importance of getting the peasants involved in the production of seedings required for reforestation.

## INTRODUCTION

Recognizing the importance of enlisting the support and participation of people in reforestation, the assistance of the Asian Development Bank (ADB) was sought in 1991 to formulate the Participatory Forestry Project (PFP). Earlier, between 1981 and 1989, the Forest Department (FD) had implemented the Community Forestry Project (CFP). The PFP can be considered an improvement of that undertaking. The objectives of the PFP are twofold: Firstly, the popularization of participatory tree planting with a view to creating greater employment opportunities, increasing incomes, reducing poverty and rehabilitating environmentally degraded areas, and secondly, to improve the institutional capability of the FD so as to enable it to undertake successfully additional tasks such as non-forest tree planting programmes, adaptive research, forestry extension and encouragement of privately operated village nurseries. This project, which will be completed in three phases, is being implemented in 18 of the country's 25 districts.

One of the principal components of the project is the enlistment of public participation in the production of seedlings. Private individuals and people's organizations are encouraged and assisted to establish their own nurseries for the production of seedlings. School children are especially encouraged to join. The seedlings produced in these nurseries will be used for planting both private lands and lands belonging to the State.

## PARTICIPATORY SEEDLING PRODUCTION

The participatory seedling production under the PFP which is the main focus of this paper, works as follows. After the selection of suitable sites for reforestation, a series of meetings are held with the local people in order to make them aware of the aims and objectives of the proposed programmes of village reforestation as well as the benefits that will accrue from these programmes. In these meetings, special attention is drawn to the fact that the local people could join in by establishing their own nurseries for the raising of seedlings. Individuals who are willing to raise seedlings are then identified. Poverty groups are especially encouraged in this connection. The selected people are next given training on the production of seedlings and in the management of nurseries. They are also given polythene bags free of charge. Additional assistance such as the free issue of soil mixtures is also available, if necessary. Seeds or wildings for planting have to be obtained by the people on their own. Once the seeds or the wildings are planted in the polythene bags, the people have to look after them until they are ready for sale to the FD. In the meantime, the people are issued with coupons to the value of Rs.624 - 832. Six coupons are given for raising 1000 plants in 3 by 6 inch bags or 8 coupons using 4 by 8 inch bags - each coupon is valued at Rs. 104. Coupons can be utilized to purchase their requirements such as food, tools, cement, book for children, household items, etc. from the nearest co-operative store. Once the seedlings reach the required height and size, the FD purchases them from the people at Rs.2 per seedling.

The production of seedlings in private nurseries under the PFP began in 1993. The nurseries are basically of three types, namely, those operated by private individuals including women, those managed by local organizations and those run by schools. Nurseries are generally located in the backyard of houses, within the homesteads or within the school compound. Nurseries managed by organizations are located in state lands such as banks of rivers. The growth of nurseries since 1993 is shown in the following Table:

**Table 1: Progress of Village Nurseries by Type**

| Year | Total No. | Individual | Groups | School |
|---|---|---|---|---|
| 1993 | 31 | 21 | 5 | 5 |
| 1994 | 452 | 236 | 10 | 206(*) |
| 1995(**) | 586 | 298 | 162 | 126 |

Source: Records of the Participatory Forestry Project

(**) Figures for 1995 are provisional

(*) A total of 272 nurseries were organized. Plants were produced in only 206 nurseries.

As shown in Table 1, the number of nurseries under the three types has increased over with time. In addition, the number of plants produced have also increased.

Apart from the advances in participatory seedling production under PFP, the FD in 1992 took a policy decision to obtain seedlings for its own planting programmes raised in private and organizational nurseries. This is considered another positive step by the FD in recognizing the efforts of the people in seedling production in village nurseries. At present, approximately 6 % of seedlings required for planting under the FD's programmes are obtained from private nurseries (Administrative Report, 1994).

Evidence indicates an active participation by the people in seedling production which has produced several beneficial effects other than their contribution in numbers of seedling production as illustrated above. The other types of benefits accruing to the participatory seedling production programme should deserve special attention.

## OBJECTIVES OF THE PAPER

The main objectives of the present paper are to present socio-economic aspects including the benefits to people resulting from participatory seedling production under the PFP. For this purpose, the paper focuses attention on the main achievements during the last 3 years.

## SOCIO-ECONOMIC BENEFITS VIS-A-VIS NUMBERS OF SEEDLINGS PRODUCED

Although the peasants' participation in seedling production has contributed positively to the Project's objectives, an aspect which has not yet been emphasized is the socio-economic benefits to the participants which are attributable to this component. The preliminary results indicate several areas relating to the livelihood and welfare of the people who were involved in seedling production.

There are at least 4 such areas as listed below:

- Income and employment generation;
- Utilization of proceeds from seedling sale;
- Attitudes for tree planting; and
- Creation of demand for seedlings

The primary objective of involving peasants in seedling production - that of increasing the number of plants produced - must not be undervalued. This aspect is discussed first in order to highlight the main achievements of the peasants and their organizations.

## NUMBERS OF SEEDLINGS PRODUCED

Figure 1 illustrates the growth of seedling production in private, organizational and school nurseries. The production curve shows an upward trend which indicates the willingness

and the capacity of local people to become involved in this activity. As shown, over 50 percent of the requirement is now met through private production.

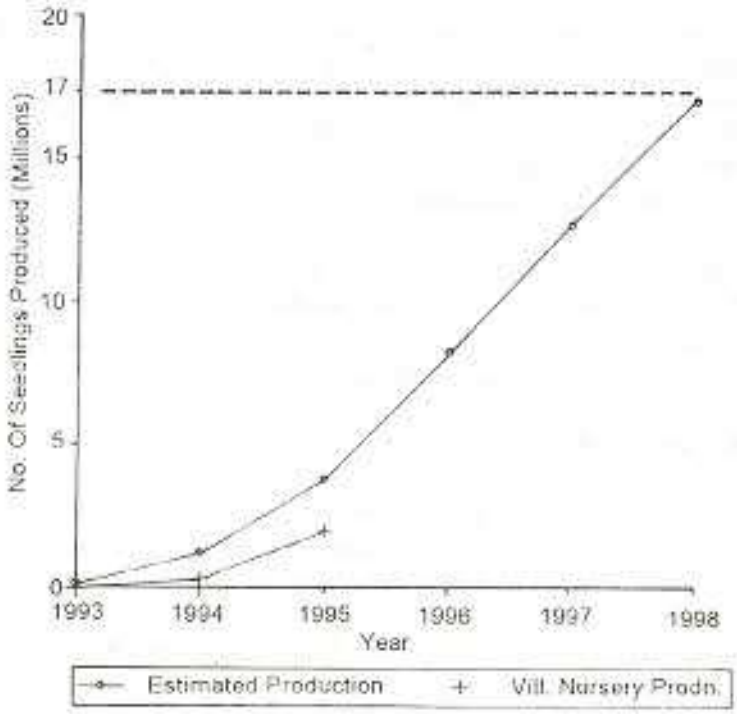


**Figure 1 - Progress of seedling production in Village Nurseries**

The average number of seedlings produced per private individually operated nursery worked out to 3,902 in 1994. The average number of plants produced per school and organizational nursery during 1994 worked out to be 555 and 7,700 respectively.

Production statistics indicate that the smallest nursery has produced a few hundred plants while others have produced as many as 8,000 plants. The classification of nurseries by the production capacity is given in Table 2.

**Table 2: Distribution of Village Nurseries by Capacity**

| Production Range | No. | Percentage |
|---|---|---|
| < 500 | 126 | 28 |
| 500 - 1000 | 122 | 27 |
| 1000 - 2000 | 45 | 10 |
| 2000 - 4000 | 68 | 15 |
| 4000 - 8000 | 68 | 15 |
| > 8000 | 23 | 5 |

Source: Records of the Participatory Forestry Project
Note: Above figures are for the year 1994

As can be seen above, the majority of village nurseries have the capacity to raise less than 1000 plants and only a very few can produce over 8000 plants.

The quality of seedlings raised in the nurseries operated by people is excellent and some are even superior to those raised in Departmental nurseries. However, school nurseries have performed comparatively poorly. As revealed in Table 1, the number of school nurseries from which plants were purchased in 1994 was less than the number of school nurseries created. This suggests that the quality of plants produced at school nurseries was not very high. The overall position in village nurseries is that the quality of plants produced is high. This reveals that if the people are given the right assistance they are capable of producing forest tree seedlings.

Another important aspect of seedling production in non-conventional nurseries is the production cost. A programme is already under way to evaluate the production cost in village nurseries.

Analysis of the experience of seedling production in village nurseries indicates several other issues. First, when the people are given the option to raise species of their choice, they have always raised plants of fruit or of species with timber value (which can be obtained locally). Second, the delays in procurement of seeds, non-release of working capital, etc. which are usually encountered with Department-managed nurseries are not relevant in the case of village nurseries. Evidence indicates that the people have even purchased seeds from local sources at their own expense. It is to be noted that their expenses (other than free issue of polythene) are not reimbursed by the Project. Third, the nursery owners have extracted wildings from their private gardens and other state forest lands. There are instances where the people had travelled long distances to natural forests to obtain the wildings required for their nurseries. The latter had been done with the approval of the FD officials. These developments indicate that there is an active interest on the part of the peasants and a large potential to raise seedlings of local species by local people.

## INCOME AND EMPLOYMENT GENERATION

The private seedling production programme has led to increased income and has created additional employment opportunities. This has a significant value since opportunities for income generation and employment are lacking in rural areas where this programme is being implemented.

There are two main sources of income registered by the people attributable to seedling production. First, the seedlings produced (if they attain certain quality standards) are purchased by the Project at Rs.2 per plant. Since the polythene and advice for raising plants are provided free of charge by the Project, it is mainly labour and other locally procurable materials that the people may have to incur. The second source of income which is much higher than the first is the sale of seedlings in

the local market at Rs.10 per unit. Species such as lime and mango can be sold even at Rs.15 per plant. The nursery owners use their own materials to raise a few additional seedlings for sale which is in fact encouraged by the Project. Some nursery owners report that as many as 3,000 to 4,000 plants can be sold in local markets. On the basis of the number of seedlings sold to the FD, the average income earned per nursery is given below:

| Year | Amount (Rs.) |
|---|---|
| 1993 | 3,868 |
| 1994 | 4,929 |
| 1995 | 9,977 |

This can be considered an additional income since the work in small-scale nurseries is usually undertaken either in the morning or evening when such work does not overlap with other tasks utilizing hired labour.

Another important aspect of the involvement of peasants in seedling production is that it has led to the creation of new employment opportunities. On the basis of records pertaining to 160 nurseries, it shows that each nursery unit has created employment opportunities for 2.21 persons over a period of six months.

The people have been trained in raising seedlings and they possess the skills required to produce plants by themselves, thus they are able to raise plants for a living even when the Project is over. Already, there are a few nurserymen and women who have begun to continue seedling production as a source of employment. This can be considered as an important investment in human capital which is yet another significant achievement of the Project.

## UTILIZATION OF INCOME

The income obtained by peasants through their involvement in seedling production is utilized for a variety of useful purposes. Among them are for house construction, purchase of jewellery, children's education, settlement of personal loans and investments of other types. The women groups in particular have benefitted directly from the sale of seedlings. They claim that the benefits from the private nursery programme were directly accrued to the women whenever they are given this opportunity.

A study of the utilization of income generated through the sale of seedlings by a womens group provides the actual status of utilization of the proceeds shown in Table 3.

As shown above, 67 % of women are planning to utilize the proceeds in house construction while 20 are hoping that the proceeds are utilized in children's education. All the 15 members in the group stated that the money could be better

utilized since it comes directly into their hands. The income support to rural people has been of immense benefit to them.

Table 3: Financial Income from Sale of Plants and Mode of its Utilization

| Member's Serial No. | Income from Plants Sale | Mode of Income Utilization |
|---|---|---|
| 1 | 2,650 | To purchase roofing materials for her new house |
| 2 | 4,010 | To settle her personal loan obtained when she was sick |
| 3 | 3,600 | To purchase corrugated sheets for the kitchen roof |
| 4 | 2,930 | To purchase books and clothing for her children |
| 5 | 1,710 | To purchase stationery for her children |
| 6 | 6,868 | To use in pursuing her higher studies |
| 7 | 3,726 | To purchase cement for her house construction |
| 8 | 1,470 | To use on her own education |
| 9 | 2,148 | To purchase corrugated sheets for her house |
| 10 | 2,886 | To purchase corrugated sheets for her kitchen |
| 11 | 2,250 | To make window-frames for her new house |
| 12 | 2,970 | To purchase construction materials |
| 13 | 3,000 | To purchase cement for her house construction |
| 14 | 3,370 | To purchase materials for her house and in children's ed. |
| 15 | 920 | To use in her house construction |

Source: Survey of Women's Organization, Ratnapura

## ATTITUDES TOWARDS TREE PLANTING

There is evidence that the production of tree seedlings by the peasants and schools have resulted in the development of favourable attitudes of the villagers towards tree planting. Seeing seedlings produced in their own nurseries, together with the ready availability of plants has encouraged them to plant trees. It has been observed that seeing the high quality plants produced in a school nursery attracted the teachers to purchase a few plants for planting on their own private land.

## DEMAND FOR SEEDLINGS

On seeing the high quality of seedlings raised in village nurseries, there is evidence of an increased demand for seedlings for private planting in several villages. There are a few cases where a rural development project has placed an order with a private nurserymen to raise 500 orange and 200 lime plants for purchase. In several other villages, the people are ready to purchase seedlings from private nurserymen and organizations - a similar demand was not there before the PFP. This emerging demand for seedlings by the local people and organizations is mainly due to the change in attitudes towards reforestation as a result of seeing the high quality of

easily available seedlings raised in village nurseries. These are some of the unforseen benefits of the private seedling production programme initiated by the PFP.

## OTHER ISSUES

The village nursery programme offers suitable opportunities for village people since it can be carried out in their backyard or within the homestead. It is to be noted that before the PFP, neither of these areas had been utilized for any productive purpose. The utilization of wildings grown in natural forests, which otherwise have no value, is another advantage of this programme. The seed production periods of different species is distributed over the year, this offering the village nursery programme considerable flexibility - seedlings can be raised throughout the year, especially in the wet zone. Since plants of good quality can be produced by the local people, the need for state agencies to get involved in this activity does not become important. The social development of the people, through becoming involved in raising plants, should also be highlighted.

There are also a few problems in raising plants in village nurseries. First, it is rather cumbersome to supervise a large number of nurseries scattered over several villages. This can be minimized by organizing group nurseries. Second, an appropriate soil medium is not available in all villages. In such cases, the necessary materials have to be transported and delivered to the people. Utilization of sawdust, coir dust and other locally available raw materials is a strategy that can be used here. However, the basic research that is necessary to raise plants utilizing the above mentioned materials is not yet available to the people. Third, several problems have been observed in raising plants in school nurseries. This exercise depends on the interest and enthusiasm of the teacher in-charge of the subject of agriculture. This is often inadequate. Protection of plants against cattle damage and other problems has also been a problem. Management of plants, especially during the school vacation, has been a major problem.

## POLICY IMPLICATIONS

The analysis leads to three main policy implications. First, departments and agencies should make it a policy to encourage people to raise the seedlings when required for a particular programme or project. In this way, the necessity to maintain nurseries and to procure seeds at the cost of the state could be avoided. In addition, the transportation and handling charges which may be involved in transporting seedlings produced at a central nursery could be avoided. The staff of technical departments may be requested to exercise supervision of plant raised and in the provision of advice and training. The income and employment support to the people as a result of resorting to village nurseries should also be emphasized.

Second, it is necessary to sustain the network of village nurseries already available in the country. The talents and people trained in seedling production should be utilized on a continuous basis.

Finally, not only have the nurseries operated by women produced quality plants, but the women have also effectively utilized the income from plant sales. The role of women in raising seedlings for future reforestation programmes should, therefore, be emphasized.

## CONCLUSIONS

Several conclusions can be drawn from the analysis presented in this paper. First, the participation of peasants in raising seedlings has yielded several valuable results. Their socio-economic development, attributable to the income resulting from the sale of plants, should be highlighted. It is through such benefits that their long-term involvement in seedling production as a profitable business could be achieved. Second, because of the access to seedling production technology, the people have gained technical knowledge and acquired the skills required for this activity. This has led to the development of self-confidence and the capability to produce seedlings on a continuous basis. The availability of quality plants in the villages has also led to the development of favourable attitudes of the people towards tree planting. Finally, the villagers have shown their ability to produce good quality seedlings of the required species and numbers. It is concluded that the PFP programme of raising seedlings in village nurseries has been a sound strategy in the promotion of participatory reforestation. Using the seedlings raised by the people in reforestation work will also develop a sense of ownership to the plantations established by them. The final result should be the continued interest and involvement of people in participatory reforestation.