

## How to Boost Environmental Literacy - A Case Study from Bangladesh

**Bangladesh, like many developing countries in South Asia, faces a range of environmental problems. Environmental education and increased awareness play an important role in addressing these challenges. But how effective are environmental awareness related activities? Does work on the environment in one area carry over to other areas? This Brief discusses these issues by examining the impact on environmental literacy of a leading non-government organization in Bangladesh.**

M. Jahangir Alam Chowdhury from the Department of Finance and Center for Microfinance and Development at the University of Dhaka assesses the impact of a group called Proshika on environmental literacy. *Proshika* is a non-governmental organisation (NGOs) that uses micro-credit, training and other mechanisms to motivate poor households to participate in social forestry programmes. Chowdhury's study shows that participation in Proshika's social forestry programmes significantly enhances the environmental literacy of those households that are involved. These findings emphasize the importance of participatory environmental programmes of the kind run by Proshika. The study recommends that the Bangladeshi government and NGOs should strengthen schemes of this type that enhance people's environmental knowledge as a secondary product of a main activity.

### THE PROBLEMS PROSHIKA TACKLES

Very low forest cover is one of the key environmental problems facing Bangladesh. Currently, natural forest coverage in the country is 835,000 hectares (excluding parks and sanctuaries). This accounts for just 5.8 percent of the total land area of Bangladesh. Per capita forestland has declined from 0.035 hectares per person in 1968-69, to less than 0.02 hectares at present. One of the factors driving this forest loss is poverty. Poverty contributes significantly to deforestation, as poor households are dependent

on local forests for their livelihood and fuel wood. In Bangladesh, approximately 40% of the population lives below the poverty line.

Given low forest cover, NGOs in Bangladesh are trying to improve the environment and alleviate poverty through social forestry programmes. Some of these NGOs, such as Proshika, use collateral-free micro-credit to motivate poor households to participate in environmental work. Social forestry activities include the establishment of tree nurseries, tree planting on farms or by the road side, and caring for trees. It also involves the management and utilization of timber and non-timber forest products for a variety of goods and services. Social forestry programmes also provide training to participants on environmental issues and forestry.

The primary aim of social forestry programmes, such as those run by Proshika, is to help small farmers and landless people meet their consumption and income needs whilst conserving forest resources. These programmes try to get as many poor people as possible involved in tree planting, while making them more environmentally literate. For more information on Proshika see the side bar.

**Table 1: Social Forestry Program of Proshika**

Types of Plantation	Period	No. of Seedlings Planted	Area	No. of Groups / Institutions Involved
Strip	1976 - 2002	7, 346, 269	14, 671 kilometres	6,729 Groups
Block	1976 - 2002	48,915,016	17,731 hectares	8,981 Groups
Institutional	1998 - 2002	472,378	-	552 Institutions

Source: Annual reports of Proshika

## PROSHIKA AND ITS SOCIAL FORESTRY PROGRAMME

Proshika, was founded in 1976, and is one of the four largest microfinance institutions in Bangladesh. Up to December 2004, Proshika had mobilized 2.6 million members throughout the country and disbursed Taka 20.6 billion. Forestry has been a key component of the activities of Proshika from the beginning.

One part of the group's forestry activities is its Forest Management Programme. This supports forest protection in degraded areas and promotes agro-forestry and woodlots in forest areas. Social forestry is the other main part of Proshika's forestry programme. Under the social forestry programme, Proshika promotes two types of activities: (i) Strip and Block Plantations, and (ii) Institutional Plantations. Currently, Proshika operates this programme in 150 upazilla in 57 districts of Bangladesh.

Under the strip and block plantation programme, Proshika members plant trees alongside roads, railways, canals or privately owned land. Before starting a strip and block plantation project, Proshika helps the members of one or two micro-credit groups to

negotiate with the owner of the land on which they will work. The owner may be a government agency or a private individual.

The members of the groups that are involved in the plantation then select caretakers who are paid to protect seedlings for the first two to three years of the project. After this time Proshika expects its members to protect the trees from theft and to carry out required maintenance, especially periodic pruning and thinning. In return, members are allowed to use the biomass produced from the trees they manage. When the trees reach maturity, the members involved cut them down to be sold as timber. They then divide up the proceeds that come from the sales: Proshika members receive 60%, the landowner 20%, and Proshika 20%.

Between 1976 to 2002, Proshika completed 14,671 kilometres of strip plantations and planted 7.3 million trees. This work involved 6,729 groups. Under the block plantation programme, Proshika planted some 48.9 million trees on 17,731 hectares between 1976 to 2002. Proshika was able to mobilize 8,981 groups in this programme.

## SURVEYING ENVIRONMENTAL LITERACY

Using the main objectives of Proshika as its starting point, Chowdhury assesses how participation in micro-credit-based social forestry programmes actually affects the environmental literacy of participating households. He looks at the impact of Proshika's strip and block plantation programmes.

The assessment is based on a household-level survey of members of a Proshika branch carried out between February and April 2007. A list of member households was obtained from the local office of a randomly selected Proshika branch. For the purposes of data collection, all the member households of the branch were divided into three categories: (i) households that participated in the micro-credit as well as the social forestry programme (SF group); (ii) households that participated in the micro-credit programme but did not participate in the social forestry programme (comparison group 1); and (iii) households of new members who had just received their first loan or were awaiting their first loan and who did not participate in the social forestry programme (comparison group 2).

Households were randomly selected from the three categories outlined above. The Proshika branch consisted of a number of population centres. At the final count, the survey involved 152 households from the social forestry group, 174 households from comparison group 1 (CG1), and 94 households from comparison group 2 (CG2). These households were surveyed and data was collected through face-to-face interviews.



## ASSESSING ENVIRONMENTAL LITERACY

The study defines environmental literacy as an individual's knowledge of the factors and issues that relate to the health of the environment and their understanding of how environmental factors affect people's quality of life. To gauge environmental literacy households were asked to respond to a series of ten statements. These statements included: 'I do not believe that human beings are polluting the environment'; 'Dust, smoke from brick fields, and chemical waste from factories are polluting the environment'; and 'A portion of the pesticide and fertilizer that we use for agricultural purposes remains in food and it is bad for health'. The statements covered key areas of environmental concern including the environmental degradation of drinking water by arsenic, the impact of pesticide and fertilizer use and the role of governmental and non-governmental organizations in protecting the environment.

Households were asked to score their responses to the ten statements using a 5-point scale ranging from "strongly agree" to "strongly disagree". The highest achievable environmental literacy score was therefore 50 and the lowest achievable environmental literacy score was 10 for each participating household. To assess the results of this survey the study uses a multivariate analysis technique. The main advantage of this technique, compared to a simple comparison method, is that it allowed the study to take into account those household and village-level variables that might influence the outcome. This is important as, given the extensive geographic coverage of micro-credit in Bangladesh, it would not be possible to find a perfect 'control' group that could be used to benchmark the impact of micro-credit-based social forestry program on environmental literacy.

## PROSHIKA'S PROGRAMMES DO AFFECT ENVIRONMENTAL LITERACY

The study finds that the average environmental literacy scores of households in the non-social forestry groups are 28 and 32 for CG1 and CG2 respectively. On the other hand, the average literacy score of the social forestry household group (SF households) is 36. On average, the SF

households have a 29% higher environmental literacy score than the CG1 households and a 12% higher score than the CG2 households.

This shows that households that participate in Proshika's social forestry programmes are more environmentally literate than those who do not. The probable reason for this is that participating households receive training from Proshika on social forestry and environmental issues which, in turn, makes them more environmentally literate.

The study also shows that households that are new beneficiaries of a micro-credit programme are more environmentally literate than households that have been part of a micro-credit programme for a longer time. The likely reason for this is that households that are new to micro-credit schemes are normally more dependent on agriculture than those that have been in such schemes for a while. Households that are dependent on agriculture have to contend with the negative fall-outs of environmental changes on a very immediate basis – hence their relatively high levels of environmental literacy.

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*This policy brief is an output of a research project funded by SANDEE. The view's expressed here are not necessarily those of SANDEE's sponsors.*



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## OTHER INFLUENCES ALSO AT WORK

Participation in Proshika's programmes is not the only factor that influences environmental literacy amongst the households that took part in this survey. Other significant factors include the level of education of household heads and household members. Not surprisingly, education has a positive influence on the environmental literacy score of households. The average level of household environmental literacy also goes up when there is a school in the household's locality; the likely reason for this link is that the availability of a school increases the likelihood that local people receive a formal education.

The availability of electricity in a household is also a significant positive influence on a household's environmental literacy score. Electricity increases the probability of a household owning a radio and television. The ownership of these items, in turn, gives a household access to better information about the environment.

## MORE SOCIAL FORESTRY PROGRAMMES SHOULD BE SET UP

Overall, the results indicate that participation in Proshika's social forestry programme significantly enhances the environmental literacy of participating households. These findings demonstrate the importance of such programmes and the study recommends that policy makers and NGOs should initiate more of this type of environment-related projects.

It is clear that such projects will not only have a direct positive influence on the environment, but that they will also make people more literate about the environment and so encourage them to live their lives in a more environmentally friendly way. The study recommends that, as well as initiating more such projects, the government should take steps to increase people's access to education and to radio and TV. This is vital, as these factors appear to be very effective ways of improving the environmental literacy of households.

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