



Cost Effectiveness of the LEAF and SAAKTI Projects

Livelihoods, Empowerment and Agroforestry (LEAF) Project
Sustainable Access to Agroforestry Knowledge, Technology and
Information (SAAKTI) Project, Bangladesh

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inter
cooperation

Swiss Foundation for Development and
International Cooperation

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Acronyms

ADB	Asian Development Bank
CBO	Community Based Organisation
CeR	Cost effectiveness Ratio
LEAF	Livelihoods, Empowerment and Agroforestry
PNGO	Partner Non-Governmental Organisation
SAAKTI	Sustainable Access to Agro-forestry Knowledge, Technology and Information
UP	Union Parishad
VGd	Vulnerable Group Development

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1. Executive Summary

This report assesses the effectiveness of the interventions of Intercooperation (IC) in addressing poverty in three regions of Bangladesh. The cost effectiveness technique, which takes into account both the cost of interventions and benefits accrued, has been used to assess the viability of an intervention. Detailed exercises were carried out to collect data on both cost and benefit streams in order to conduct the cost effectiveness analysis.

The report has three more sections. Methodology and data issues are discussed in the third section. The main findings are reported in section four and the final section deals with recommendations.

Overall the Cost Effectiveness Ratio (CeR) has been shown to be very good indeed at an average of 7.47 and shows very effective delivery by the project and reflects efficient investment interventions. This is seen particularly when compared to an average CeR ratio of around 3.5 for similar projects operating in Bangladesh.

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2. Background & Objectives

Intercooperation (IC) is a Swiss international non-governmental organisation. IC-Bangladesh has been implementing the Livelihoods, Empowerment and Agro-forestry (LEAF) and the Sustainable Access to Agro-forestry Knowledge, Technology and Information (SAAKTI) projects with the financial support of the Swiss Agency for Development and Cooperation (SDC). The LEAF project plays a role of facilitator for building capacities of the communities and networks to have access to stakeholders that are able to support them in their endeavours. LEAF also promotes rights and gender equity throughout its entire livelihoods, market development and empowerment activities. The SAAKTI project supports a three-tier approach for developing a sustainable service provision system, including all relevant stakeholders at local, regional and national level. The prime aim of both of these projects are to contribute to the economic empowerment of rural households, with special attention to poor and extreme poor through improved skills and access to quality and sustainable service provision at the local level. The projects are operating in all 16 districts of the Rajshahi division and in the Sunamganj district of the Sylhet division.

3. Methodology and Data

a. Methodology

Cost effectiveness ratio (CeR) is a method to assess the efficiency of an intervention aimed at improving the well being of the targeted beneficiary. It is a ratio of two streams i.e. the benefit flows (B) and cost flows (C). More specifically, it is specified as $CeR = B/C$. An investment programme is deemed efficient if $CeR > 0$.

Usually, cost flows are relatively easy to ascertain than the benefit flows, as they are collected from project and other official documents. Ascertaining benefit flows are complicated as these statistics depends on the record keeping (or recall power) systems of the beneficiaries. The task becomes even more difficult in the absence of agreed definition of benefit. For instance, an assessment of the cost-effectiveness of the micro finance projects in Bangladesh suggests use of discounted person-years of membership and discounted dollar-years borrowed as benefit rather than output or revenue (for further details please see Mark Schreiner)¹, Asian Development Bank (ADB), however, adopted net output (i.e. net revenue) to measure benefits of an irrigated project in order to estimate the cost-effectiveness of the project. Net output is derived by deducting input cost from output [please see page 133, ADB (1997)²].

Given that the focus of the LEAF/SAAKTI projects are primarily sustainable livelihoods, it was decided to use net output or net revenue measure to determine the benefit streams of these projects. Input costs (such as purchase of raw materials, water, electricity etc.) are deducted from gross revenue or output to derive net revenue or output.

Finally, in cost benefit analysis the usual method was to use discounted benefit and cost streams to examine the effectiveness of an intervention. The impact of discounted method depends on two factors: (a) discount rate and (b) time length of the intervention. The larger the time duration and the higher the discount rate the greater is the impacts of discounted series on the cost-effectiveness outcome of the project intervention.

1 Mark Schreiner (2003), "A Cost-Effectiveness Analysis of the Grameen Bank of Bangladesh", Center for Social Development, Washington University in St. Louis, Campus Box 1196, One Brookings Drive, St. Louis, MO 63130-4899, U.S.A. e-mail: schreiner@gwbmail.wustl.edu

2 ADB (1997), "Guidelines for the Economic Analysis of Projects", Economics and Development Resource Centre, February 1997.

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This method was to use discounted benefit and cost streams to examine the effectiveness of an intervention.

In this study the net benefit streams and costs were discounted using a fixed discount rate of 10 percent year³. The discounted estimates of benefit and cost were reported under the discounted heading. The discounted benefit stream was deflated by the discounted cost to derive the cost effectiveness ratio for three regions as well for all the regions together.

Specifications of discounted series and cost effectiveness ratios are shown below:

Discounted Factor $dF = (1+r)^t$, Where r = discount rate	(a)
Discounted Cost $dC_t = C_t / (1+r)^t$	(b)
Discounted Net Revenue (Benefit) $dNR_t = NR_t / (1+r)^t$	(c)
Discounted CeR (Net Revenue Based) $DCeR = dNR_t / dC_t$	(d)

In this study, cost effectiveness based on discounted net benefit flows and discounted cost flows were used to examine the efficiency of the investment intervention.



b. Data

In accordance to the above methodology, two sets of data namely *costs and benefits* were required to estimate the cost effectiveness ratio of the interventions. The period covered for the analysis was 2004 to 2007. In order to collect information for the exercise, Annual Plan of Operation (APO)⁴ was used as the entry point for Community Based Organisations (CBOs) to initiate the discussion; enabling quick identification of the completed activities; and their direct impacts.

3 ADB generally uses a 10 percent discount rate for project efficiency evaluation. The inflation rates during 2004 to 2007 were close to 8 and 9 percent. Since the differences were not significant, the ADB prescribed 10 percent discount factor was adopted for discounting the net revenue and cost flows of these projects.

4 Annual Plan of Operation (APO) developed as the result of a participatory process involving PNGO's and CBO's to set out annual targets and plan of activities.

Cost: the project cost data was obtained from the official project documents. The cost calculation included supports to the CBOs and Local Service Providers (LSP)⁵.

Benefit: the benefit streams were calculated from the field survey data. As mentioned above, in order to calculate the benefit flows, the exercise measured only the additional real output generated by CBOs in two specific domains: production growths and development of business activities. Activities were selected on the basis of direct support received from the LEAF and SAAKTI projects. In order to organise this exercise, the CBOs - the smallest unit beyond households were selected to collect information. Due to time and other administrative constraints, entire population of beneficiaries (i.e. CBOs) could not be considered rather the focus was on sample population.

Sample Selection: the study was conducted on a sample basis covering 5% of CBOs from three regions of LEAF and SAAKTI projects namely Bogra, Rajshahi and Rangpur. In order to generate data for the longest period (i.e. 4 years of interventions over 2004 and 2007), the CBOs, which planned and implemented APOs from 2004 to 2007 with the support from the LEAF and SAAKTI projects, were selected as the sampling population. The partner NGOs of the project then adopted random sampling technique for selecting the CBOs. Each PNGO randomly selected one Union from each Upazilla and an equal number of CBOs from the selected unions. The selection procedure provided a list of 192 CBOs for the field survey. The distribution of sample CBOs were also found to be almost equal with Rangpur region representing 69; Rajshahi region containing 62; and Bogra region representing 61. The selected CBOs belong to 12 participating NGOs envisaging on average survey of 16 CBOs per partner NGO.

⁵ Local Service Providers (LSPs) are people chosen from the community who are given training by the project to enable them to provide business development and technical services to the beneficiaries.

To get unbiased information, data collection activities were outsourced to external data collectors. The enumerators were chosen both from non-partner NGOs and from non-project staff members of the partner NGOs. The data collectors received practical training and orientation from the project support and management unit (PSMU) staff. Regional Associate Advisors (AAs) were also trained, as they were responsible for supporting the data collectors, enabling them to collect more authentic and accurate information from the selected CBOs.



Pre-tested questionnaires were used to collect quantity, price and revenue data from selected beneficiaries. Since no benchmark survey was conducted before the initiation of these projects, re-call method was adopted to get data for 'before' and 'after' situations. Reliance on re-call method may produce erroneous benefit flows leading to biased estimates of cost effectiveness ratio. In order to minimize such possibilities, focus group discussion were organized involving respondents and other key members of local communities. In the focus group discussions, the survey findings were reviewed, crosschecked and reconciled. The study team believes that the above data collection technique generated credible data sets.

Benefit Coverage: the benefit estimation focused only on additional real output⁶ generated by CBOs per annum. The additional real outputs were converted into value using the corresponding product (or activity) prices (e.g. current product prices were made available by CBO members). In order to calculate 'additional value', year 2003 was considered as the reference year or the base year. Types of product considered in the benefit calculation are discussed below.

⁶ Productive asset usually refer to creation of capital goods, which last more than a year assisting generation of additional revenue in subsequent years through their usages. Accordingly the additional benefit generated under the LEAF project may be appropriate to define them as additional output rather than as the productive asset.

- Output generated during the phase 1 related to 'direct supports' of LEAF (i.e. partner NGOs, Local Service Providers, CBOs, cluster platforms, network of producers and LEAF staff).
- Additional output from business activities, non-farm activities and on-farm income generative activities such as field crops, small business, etc.
- Additional output generated, valorised in taka based on the product prices provided estimated additional revenue. It should be noted that reference value was additional cash generation rather than profit generation. This approach although simplified the estimation method but perhaps over-estimated the gains of the intervention.
- Reduced cost of expenditures due to support from LEAF in the form of production of vegetable in homesteads, which reduced household's expenses on vegetables; setting up of individual medicinal plant plots reduced the expenses in medicine.
- Additional income from financial services initiated by CBOs through loan proceeds to their members out of their additional income.

Following assets/receipts were not taken into account:

- Common saving generated during the phase from additional revenue generated.
- Grants/subsidies received from UP (VGD card, latrine).
- Common investment realised during the project phase (i.e. fixed assets) such as equipments and machines. Generation of such investment will enlarge the productive assets base leading to generation of additional income.

4. Major Findings

The outcomes of the cost effectiveness exercise for the three regions are reported in table below.

Table : Cost Effectiveness Ratios
(In BDT unless otherwise specified)

	Regions			
	Bogra	Rangpur	Rajshahi	All
A. Gross/Undiscounted Benefits and Costs				
Cost per CBO	230,336	230,336	230,336	230,336
Additional gross revenue per CBO	3,945,405	2,943,005	4,673,449	3,853,953
Cost Effectiveness Ratio (%)	17.13	12.77	20.54	16.81
B. Net /Undiscounted Benefits and Costs				
Cost per CBO	230,336	230,336	230,336	230,336
Additional net revenue per CBO	1,986,543	1,478,271	2,348,047	1,937,620
Cost Effectiveness Ratio (%)	8.61	6.42	10.32	8.45
C. Discounted Benefits and Costs				
Cost per CBO	186,237	186,237	186,237	186,237
Additional net revenue per CBO	1,430,300	1,059,689	1,685,445	1,391,811
Cost Effectiveness Ratio (%)	7.68	5.69	9.05	7.47

In line with the steps outlined in the methodology section, the estimated benefits (or additional revenue) and costs of intervention in terms of per CBO were reported under four headings. The amounts referred to the average amount of the three years of the project duration. The estimated *gross benefits and intervention costs* reported by per CBO and by regions were reported under the first head.

Deduction of input cost from gross revenue provided net revenue, which was a better representation of the benefits of any intervention. However, in the field survey no attempt was made to collect data on input cost incurred by members. As an alternative, overall input cost ratio recorded in the Bangladesh Input-output table for 2000 for selected agricultural activities

were used to generate net revenue series from the gross revenue series. According to the 2000 Input-output table, overall input cost ratio for agriculture activities was around 50 percent of their total output. Input costs were deducted from gross additional revenue to arrive at the net additional revenue. The information were provided under the second head. More specifically, net revenues were exactly half of the estimated gross revenues.

Overall benefits of the interventions were higher than the costs suggesting economic viability of these interventions. This was a major finding and it suggested that such interventions must be continued, strengthened and expanded.

Regional variations in benefit flows were observed. In each of the three regions, estimated benefits were higher than the costs. Given the same costs, variations in estimated benefits resulted in differential CeRs for the three regions. Observed variations in benefit streams might be due to (i) concentration of more efficient activities by a specific region leading to more outputs with a same intervention; and (ii) improved marketing facilities reflected in higher regional returns leading to larger revenue. Highest CeR is found for Rajshahi region, followed by Bogra and Rangpur.

Overall benefits of the interventions were higher than the costs suggesting economic viability of these interventions. This was a major finding and it suggested that such interventions must be continued, strengthened and expanded.

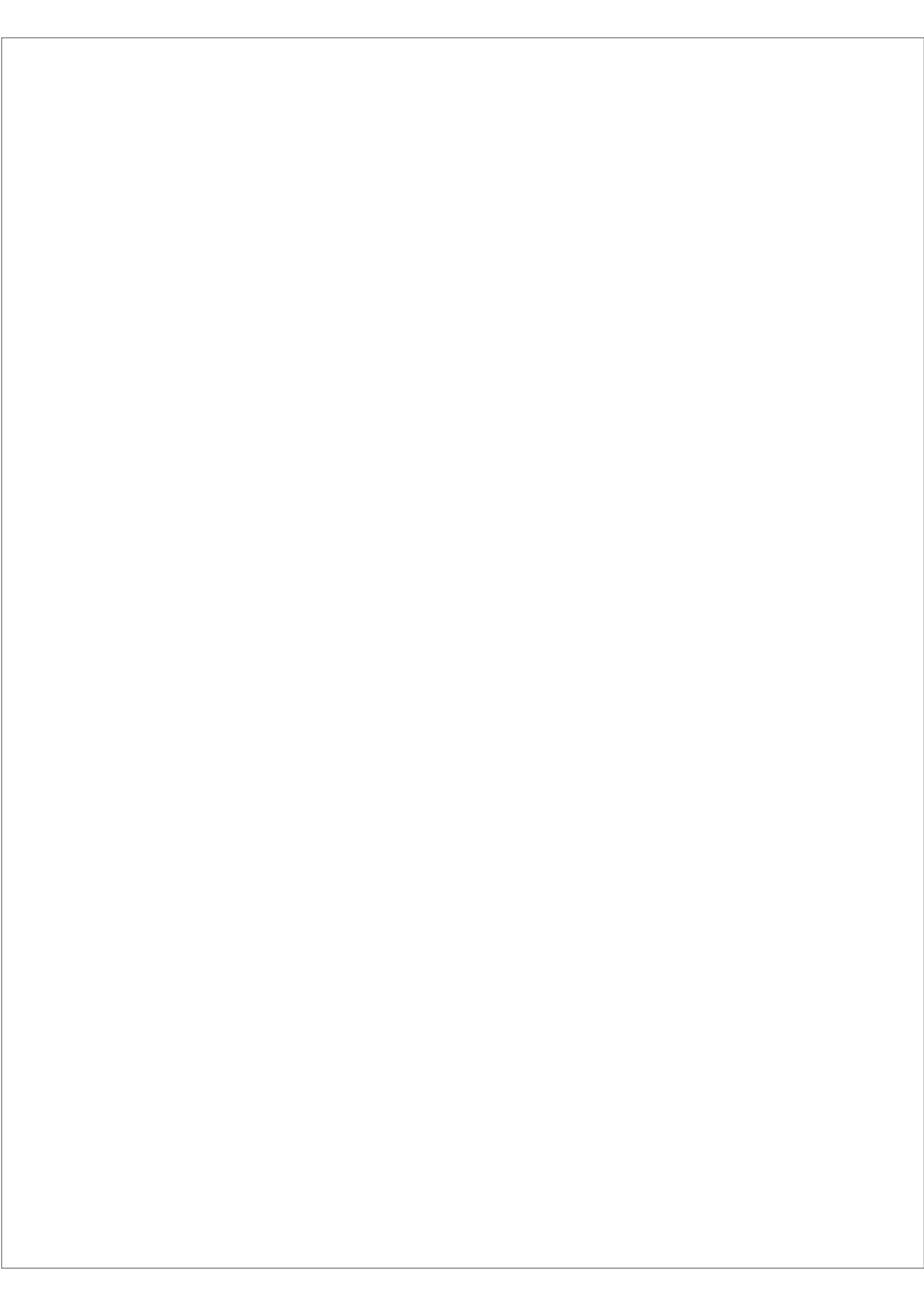
5. Recommendation

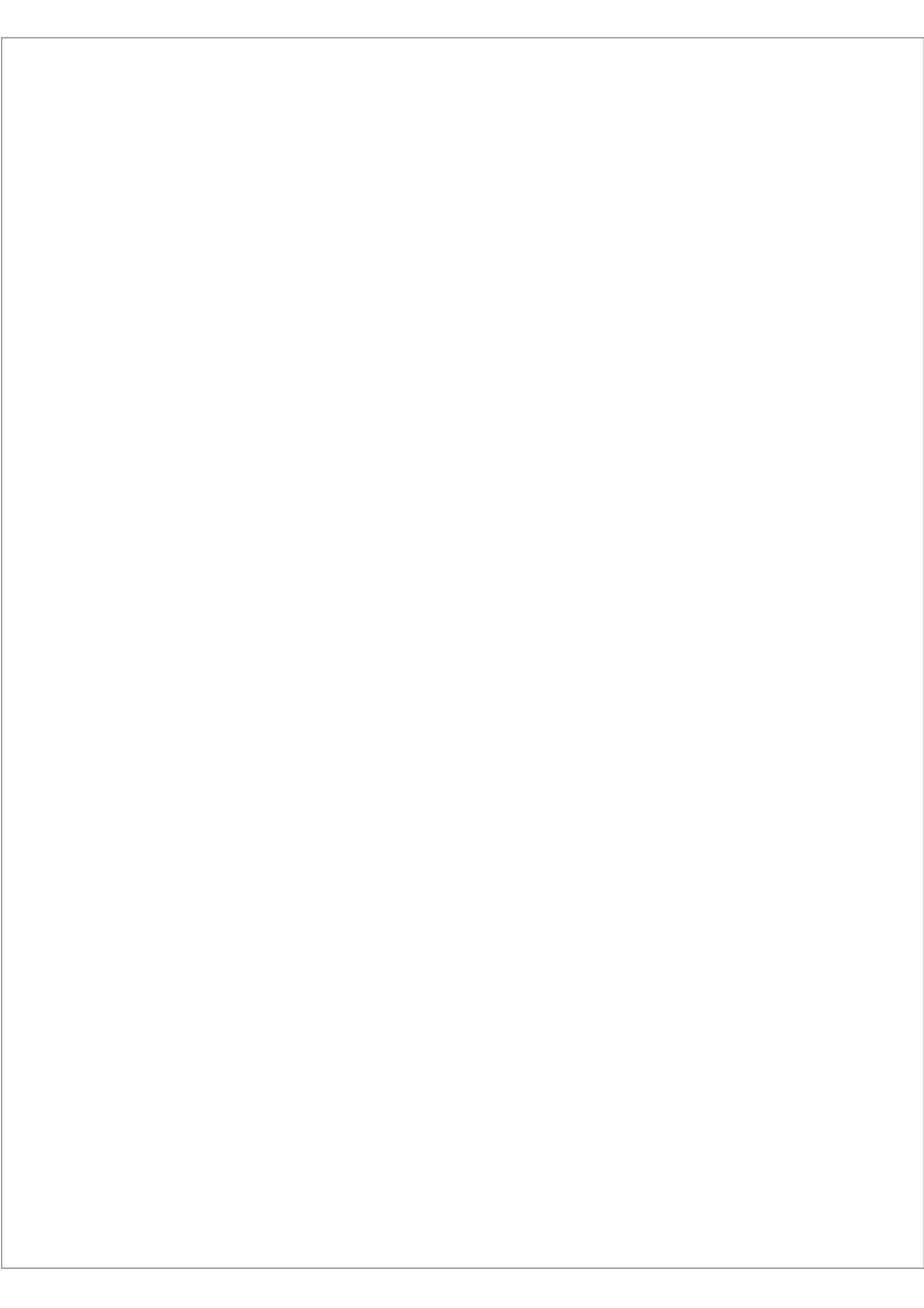
Outcome of the cost effectiveness exercise depended crucially on the output and price information collected from the field. Thus additional measures may be adopted to collect output and price information. These are discussed below.

1. Data on real output growth were collected from the members of the CBOs following a recall method. Such recall method might produce over or under estimation output values or revenues. In order to reduce the extent of estimation bias, three (or even more) sets of data may be collected from each member by different facilitators during regular visits. The outcomes of these repeated surveys may then be averaged to reduce estimation biases.
2. In line with the approach adopted by the ADB, it might seem appropriate to use net revenue specification to measure benefit of the project. Although as an immediate solution, overall input-output coefficient found for Bangladesh for the year 2000 was, it is recommended that the information be collected from each member of the CBOs using carefully designed questionnaire.
3. In order to monitor the progress of the intervention, information should be collected on an annual basis and outcome assessments should also be performed annually. Since the success of the intervention should ideally be judged on the basis of overall benefit generated and cost incurred, it may be relevant to report overall cost effectiveness ratio of the project rather than annual ones.
4. A database for product prices should be created by obtaining price information from various sources such Bangladesh Bureau of Statistics (BBS), local agriculture extension office and market survey. Such a database should suffice to assess the reliability of price information reported by the members.
5. Adequate description of revenue generation by products and services may be provided in cost effectiveness template (work sheet) for easy reference and verification of the generated values.



6. Attempts may be made in the next rounds of survey to collect data on items such as: (i) common saving generated during the phase out of additional revenue and (ii) common investment realised during the phase (fixed assets) such as equipments and machines. However, items such as grants /subsidies received from UP (VGD card, latrine) may be omitted unless the receipts of 'UP grants/subsidies' are contingent on their performance in the LEAF project.
7. Although indirect effects are important sources of welfare gain in addition to direct impacts, calculation of indirect effects are usually complex. Thus it may be advisable to disregard the indirect impacts in the cost effectiveness exercise.





About Intercooperation

Intercooperation (IC) is a leading Swiss not-for-profit organisation engaged in international development and cooperation. Intercooperation is both an implementing and an advisory organisation, providing professional resources and knowledge combined with social commitment. Intercooperation's expertise is grouped around three broad working domains:

- Environment and climate change
- Local Governance and Natural Resources
- Income and food security

In all its work, IC seeks to empower the poor and marginalised by supporting gender-balanced, equitable, rights-based development.

Intercooperation supports partner organisations in more than twenty developing and transition countries on mandates from the Swiss government and other donors. In South Asia, Intercooperation is present in Bangladesh, India, Pakistan, Nepal and Afghanistan.



LEAF

Livelihoods, Empowerment and Agroforestry Project
c/o Delegation of Intercooperation
Bangladesh



SAAKTI

Sustainable Access to Agroforestry Knowledge,
Technology and Information Project
c/o Delegation of Intercooperation
Bangladesh



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