Income-Expenditure Differiantial in Community Forests: A Case of Arun River Valley

Mahesh Raj Dahal*

Abstract

This paper attempts to show the gap on net economic benefit of community forest resources in terms of monetary value from the sixteen community forest user groups in Arun River Valley. For the purpose of income gap analysis, eight major types of forest products were incorporated to calculate the monetary estimation considering as material values and intangible benefits or income of forests such as environmental service and greenery were overlooked totally. Total costs or expenditure of forest use and management were calculated classifying into labour cost, transaction cost and membership fees to derive monetary estimation. With the help of summary statistics of calculated income and expenditure gross income, gross expenditure and net benefits were estimated to find out the income-expenditure (I/E) ratios for the poor (0.85), medium (1) and rich households (1.08) respectively in the study area.

Introduction

Arun river valley lies in the Eastern Development Region of Nepal. On the basis of vegetation types and corresponding altitude, Arun River Valley has six-bioclimatic zones-tropical zone (below 1000-meter), sub-tropical Zone (1000 to 2000 meter), temperate zone (2000-3000 meter), sub-alpine zone (3000-4000 meter), alpine zone (4000-5000 meter) and nival zone (5000 meter and above (Shrestha, 1989). The Valley is rich with coniferous forest dominated by *pinus roxburghii*, broad-leaved forest dominated by *shorea robusta* and broad-leaved and coniferous mixed forest. According to the Land Resource Utilization Map Project (LRMP) report 1978/79, the land uses of the Arun River Valley are categorized as cultivated land (25.4 percent), forestland (34.5 percent), shrub land (15.9 percent), grass land (14.7 percent) and waste land (9.5 percent). This paper is based on a research study under taken in two selected districts of the eastern hilly Arun river valley of Nepal where participatory forest resource management under the user's group concept has been implemented for the last twenty years. Fourteen CFUGs from Jarayotar, Yaku and Chharamwi VDCs of Bhojpur district and two CFUGs from Leguwa VDC of Dhankuta district in the Arun valley were selected.

* Dr. Dahal is Principal of University Campus and Associate Professor of Economics at Central Department of Education, T.U., Kirtipur. This article is based on the author's Ph. D. Dissertation.

The net income from community forests at household level is arrived at by adjusting the different types of costs incurred by the forest user-groups to their gross income. The groups earn income from different forest products such as fuel wood, fodder, green grass, dry litter, green leaf litter, small tree pool and so on.

Following (Gunatilake, 1998) and (Adhikari, 2003), this study has estimated the value of fuel wood based on retail market price in the local market. The value of fodder, green grass and dry and green leaf litter were valued by the barter game methods, as have been used by Godoy et al., 1993; Richards et al., 1999; & Adhikari, 2003 in their studies.

The main objective of this article is to present the household level gross money income and expenditure including income derived from the use and management of community forests by different economic groups belonging to the local forest user households in the study area.

Methods

This article is based on information collected from Community Forest of Bhojpur and Dhankuta Districts of eastern hilly Arun river valley of Nepal where participatory forest resource management under the user's group concept has been implemented for the last twenty years. Altogether sixteen CFUGSs from four VDCs- Jarayotar, Yaku and Chharambi of Bhojpur district and Leguwa of Dhankuta district- in Arun Valley were selected. A PRA technique was applied to distinguish all the households into three wealth-ranked groups for realistic assignment of poor and non-poor households based on multidimensional local criteria. Stratified sample was chosen for household survey to get household level data on socio-economic and demographic information and institutional regime of community forest use and management. Altogether 400 households were selected out of total 1224 households from 16 CFUGs in four VDCs of two districts in Arun valley. The household sample represented the average of 32 percent of total households from each CFUGs vis-à-vis of each wealth-ranked group from each caste\ethnic group of households in a proportional basis of the study area as a whole.

Gross value of different forest products is calculated by multiplying the quantity of forest products harvested by the price of respective products minus expenditure like direct cash payment to community forest user group (CFUG) as entrance fees for initial membership and if any other monthly membership fees. Hired labour to collect the forest product was completely absent. So cost of such labour has not been considered here. Due to the climate changes, different rule of user groups and seasonal agricultural farming activities, information of the amount of different forest products collected by the local user however, varies with the seasons was collected for 12 successive months. Considering all sites, green fuel wood harvesting was a restricted activity that could only be harvested once or twice a year for a fixed period of time. Fuel wood and other forest products could not be harvested for commercial purpose.

In order to carry out the barter game method, the participants in group discussion were

divided into two groups, i.e., buyers and sellers, with buyers purchasing fodder, green grass and dry and green leaf litter in exchange for a local goods which had a well-known local market value.

Income from Community Forest

All harvested forest products from the community forests are considered as source of income. Gross benefit of firewood is calculated by multiplying the quantity of firewood by the local market price.

Expenditure of the Forest Users

Information on expenditure was obtained during PRA group discussions. Since village wage rate varied with seasons, the average wage rate throughout the year was used. Differences in wage rates between villages were also considered since the wage rates were not identical for all CFUGs.

Three major types of expenses such as labour cost, transaction costs and membership fees and were considered in this context.

Labour Cost

Labour costs were calculated as costs of time associated with finding, extracting, processing and transporting different types of forest products from the forest areas to the house. It has been multiplied by per man day (7 hours) and the average wage rate (NRs.50) according to the local condition.

Transaction Costs

Three broad types of transaction costs (Cost of Decision Making, Implementation Cost and Monitoring Cost) were taken to calculate the total transaction costs.

Cost of Decision Making (DMC) refers to the costs incurred during the process of acquiring information about forest and community, and the cost of coordinating the activities such as identification of potential users, preparation of forest management plan, and negotiating with the forest department. These costs are mainly the time spent for general assembly meetings and executive committee meetings by all the user communities, conflict resolution and so on. Decision making cost were simply measured in terms of labour opportunity costs of decision-making activities such as time spent in identification of potential users, preparation of forest management plan, general assembly meetings, executive committee meetings and negotiating with the forest department etc.

Implementation Cost (IC) refers to the costs incurred in carrying out obligatory forestry activities such as thinning, pruning, fire protection and cost of local trail construction and

repair/maintenance from community to forest areas and so on in order to meet the terms with management decisions. Implementation costs were simply measured in terms of labour opportunity costs of time spent in different types of forestry implementing activities.

Monitoring Cost (MC) refers to those costs incurred for monitoring and enforcement of agreed-upon rules, record keeping, maintenance of minute book, visiting of forests, financial monitoring of CFUGs and other monitoring related activities. Monitoring costs were simply measured in terms of labour opportunity costs of time spent in different types of forestry monitoring activities. Thus, Total Transaction Costs (TTC) is the summation of all these three costs associated with the generation of income.

Membership Fees

A Membership Fee (MF) refers to the fee required to pay becoming an authorized user within the specified CFUG. It is a compulsory fee as decided by the general assembly of each CFUG to enter into the CFUG. Those users who do not have willingness to pay are outright excluded from the forest resource use.

The cost share of tools and equipments and its depreciation in forestry activities appears more insignificant due to the high percentage use of tools and equipments on non-forestry activities than forestry activities, so the cost of tools and equipments and its depreciation in forestry activities are dropped out from the cost analysis.

Results and Discussion

Benefits or Income from use of Community Forest

The users are divided into three ranks on the basis of income earned from the community forest as has been depicted in Table 1.

Table: 1 Gross Income of Different Income Groups from Forest Products

Forest Products	Wealth-Ranked Groups							
	Rich		Medium		Poor		Total	
	Rs.	Percent	Rs.	Percent	Rs.	Percent	Rs.	Percent
Firewood (includingdry twigs)	1914	34.33	1916	34.33	1748	31.33	5578	100
Green Grass (Tree/Shrubs Fodder and Cut Grass)	1846	43.7	1646	39.0	730	17.3	4223	100
Leaf Litter (Green and Dry)	2351	50.5	1992	42.8	315	6.8	4659	100
Timber	1047	67.4	305	19.6	202	13.0	1554	100
Plough	180	46.2	145	37.2	64	16.5	389	100
Small Pole	447	44.0	392	38.6	178	17.5	1017	100
Total	7746	44.7	6397	36.7	3236	18.6	17419	100

Source: Field Survey, 2003.

The table shows that the rich and medium groups earn equal amount of income from firewood (34.33%) whereas the poor income group earns slightly less (31.33%) than the former ones. This indicates that all the three groups compete for the same sets of products from the community forests. However, the share of rest of other forest products is slightly different from the rich and medium households while there is a great gap in the poor households. This means that gross income obtained is positively related with the degree of household wealth endowment (agricultural land and livestock ownership). On the other hand, the poor income group fetches far less than what the rich and medium income groups have fetched.

Expenditure of Community Forest Management

Table 2 shows the expenditure incurred in terms of labour costs, transaction costs and membership fees of the users per household per year. The details are given in Annex B.

Table: 2 Gross Expenditure per Household by Income Groups

Income Groups	Average Costs				Membership Fees		Total Average Costs	
	Labour Cost		Transaction Cost					
	Rs.	%	Rs.	%	Rs.	%	Rs.	%
Rich	3458	69.0	1308	26.0	250	5.0	5017	100
Middle	3061	68.5	1155	25.8	253	5.7	4469	100
Poor	1359	50.9	1068	40.0	249	9.1	2669	100
Average Costs	2626	64.8	1177	29.0	249	6.2	4052	100

Source: Field Survey, 2003.

The average labour cost is more than double the average transaction cost for all income groups while an average membership fee is only 6.2 percent of the total cost.

Net Earnings from Community Forest

Based on the preceding discussions and calculations made in the annex table A and B, average net earnings for each wealth-ranked group of the sixteen CFUGs are presented in the following table.

Table: 3 Distribution of Net Earnings among Wealth-Ranked Groups (In Rupees)

Wealth-Ranked Groups (a)	Income (I)	Expenditure (E)	Net Earnings (I – E)	I/E Ratio (e)
Rich	45	41	4	1.08
Medium	37	37	0	1.00
Poor	19	22	-3	0.85

Source: Computed from Annex Tables A and B

Table 3 depicts that the net earnings declines as the rank of the group shifts from high income to low income rank. It is noteworthy that the poor group has negative net earnings whereas the rich groups' has positive earnings.

The reasons behind to be negative net earnings and low I/E ratio for poor income groups are high share of transaction costs, lower opportunity cost of labour, failure to internalize the income from CF, use of low value products from CF and dominance of non-exclusive characteristics of income-expenditure sharing of a common property forest resource.

On the other hand the reasons for the positive net earnings and high I/E ratio for rich income groups are harvesting and use of more and almost all types of forest products, harvesting and use of high value forest products, domination in forest management and utilization activities and high bidding power on auction sale of the forest products.

Conclusion

All harvested forest products by users from the community forest are measured in monetary value and considered as income. Gross income of all forest products is calculated by multiplying the quantity by the market price. Among the three income groups, as the level of income increases the net earnings from the community forest increases. From this it is clear that poor are less advantageous in comparison to the rich.

Equitable use of community forest resources might empower the poor users whereby there is the possibility of transfer of property rights, expansion of leasehold community forests, and involvement of NGOs to encourage CFUGs for enhancing community partnership programmes.

Annexes

Table A: Gross Income per Household of CF by Income Groups and CFUGs

Name of CFUGs	Rich			Medium			Poor			Total	
	N	Gr.income/ *household		N	Gr.income/ *household		N	Gr.income/ *household		N	
	N	Rs.	%	N	Rs.	%	N	Rs.	%	N	Total Average
Panchakanya	6	7596	43	6	6641	37	7	3599	20	19	5822
Dakshinkali	5	6862	44	4	6089	39	8	2585	27	17	4667
Arunganga	10	8053	46	9	6121	35	12	3500	20	31	5730
Oiputang	5	6605	36	7	7119	39	12	4424	24	24	5665
Jalasinghadevi	7	7067	40	5	6380	37	3	4030	23	15	6230
Khorsane	4	7515	44	4	5937	35	5	3672	21	13	5551
Shivaratrighat	13	6111	45	4	4915	36	11	2630	19	28	4573
Barnebelayate	3	6187	45	17	5125	37	6	2378	17	26	4614
Tarebhir	8	7174	46	19	5913	38	12	2478	16	30	4857
Salleri	9	10026	49	17	7389	36	23	2903	14	49	5768
Salghari	5	13688	52	8	6935	26	6	5841	22	19	8367
Arunodaya	8	7050	45	6	5638	36	5	2922	19	19	5518
Rupadahari	3	6203	39	10	6733	42	6	3173	20	19	5525
Chhyangripasini	8	7725	54	7	6622	46	0	0	0	15	7210
Chabbar	4	7265	41	13	6738	38	12	3539	20	29	5487
Bancharedanda	13	8565	47	16	6739	37	17	2764	15	47	5786
Grand Total	111	7786	45	143	6397	37	145	3236	19	399	5635

Source: Field Survey, 2003. * Gross income per household (In Nepalese Rupees).

Table B: Gross Cost (expenditure) per Household of Use and Management of CF by Income Groups
(In Nepalese Rupees)

Name of CFUGs	Rich		Medium		Poor		Total
	Rs.	Percent	Rs.	Percent	Rs.	Percent	
Panchakanya	4736	39	4439	37	2867	24	12042
Dakshinkali	4586	41	4084	36	2553	23	11223
Arunganga	5589	44	4362	34	2888	22	12839
Oiputang	4035	33	4743	39	3314	27	12092
Jalasinghadevi	5573	40	5166	37	3210	23	13950
Khorsane	4271	37	4221	36	3173	27	11665
Shivaratrighat	4615	46	3412	34	1925	19	9951
Barnebelayate	5102	41	4514	37	2695	22	12311
Tarebhir	5169	44	4301	37	2215	19	11684
Salleri	5183	43	4424	37	2489	21	12096
Salghari	5856	44	4590	35	2809	21	13254
Arunodaya	5274	43	4008	33	3008	24	12290
Rupadahari	3832	36	4248	40	2460	23	10540
Chhyangripasini	4810	50	4752	50	0	0	9562
Chabbar	5175	41	4504	36	2963	23	12641
Bancharedanda	5230	42	4827	38	2543	20	12600
Grand Total	5017	41	4469	37	2669	22	12155

Source: Field Survey, 2003.

References

Adhikari, B. (2003). *Property Rights and Natural Resources: Socio-economic Heterogeneity and Distributional Implications of Common Property Resource Management.* Kathmandu: South Asian Network for Development and Environmental Economics (SANDEE), Working Paper No.1-03.

Godoy, R., R. Lubowski and A. Markandya (1993). "A Method for Economic Valuation of Non-timber Tropical Forest Products". *Economic Botany*, 47: 220-233.

Gunatilake, H.M. (1998). "The Role of Rural Development in Protecting Tropical Rainforests: Evidence from Srilanka. *Journal of Environmental Management,* 53: 273-292.

Richards, M., K. Kanel, M. Maharjan and J. Davies (1999). *Towards the Participatory Economic Analysis by Forest User Groups in Nepal.* London: Oversees Development International, Portland House.

Shrestha, T. B. (1989). *Development Ecology of the Arun River Basin in Nepal.* Kathmandu: International Centre for Integrated Mountain Development (ICIMOD).

Book Review

Bishwamber Pyakurel, Dadhi Adhikari and Dipendra Purush Dhakal (2008), *Is Foreign Aid Working?; An analysis of aid effectiveness and growth*. Mandala Book Point, Kathmandu, Nepal, pp. 118 + xv including annexes and references; Price not quoted.

In capital-starved nations, the role of foreign assistance to fund development programs and projects is considered critical to the success of these countries' development. Yet the presence *per se* of external aid does not in any way guarantee the translation of such aids into effective programs that may lead to economic and social growth for there may yet be other factors that act as constraints to the efficient utilization of foreign aid.

The present book under review attempts to disclose such constraints in effective utilization of foreign aid in Nepal. In addition, the book also presents the true situation of foreign aid in Nepal and provides very practical recommendations that might be helpful to the policy makers for policy decisions.

The book coupled with the executive summary is divided into six chapters with eleven annexes, a list of references, five figures and seven boxes.

The book unveils the fact that foreign aid has not been successful in contributing to the growth of Nepal. The major problems hindering growth as regards to foreign aid is the poor competitive edge of Nepal's development projects especially the productivity of key inputs. It perceives that the efficacy of foreign aid should be judged on the basis of its contribution towards increasing productivity and economic opportunities to poor, developing human resources, providing safety nets, enhancing institutional capability and promoting good governance.

There is a brief macroeconomic situation of the country against the background of various economic reform policies periodically introduced after 1980s and especially after 1990s when the multiparty system was restored. Considering the widening resource gap in the country, the authors suggest the state to accelerate the pace of public debate, bring out the road map for the proposed structure of new federalism and conduct its feasibility study and design the policy of inclusion and efforts for macroeconomic stability.

The authors have presented the trend of inflow of foreign aid in Nepal in the last few years on the basis of its quantum and sources and have also hinted that the sudden fall in the loan may also be due to the lack of sufficient "counterpart fund" because of low level of internal revenue mobilization.

There is a brief review of various Nepal Development Forum (NDF) meeting held annually since 1990 especially focusing the main features of these meetings held in and after 2000. Several questions have been raised that needs to be answered to identify the problem of widening gap between aid commitment and its actual disbursement.

The third chapter makes a review of development priorities starting from the Fifth Plan and ending with the Tenth Plan highlighting the fact that foreign aid did not show proper matching with the need and priority of the country prior to 2002. The other parts of the chapter focus the fact that the sectors bolstering poverty alleviation has been insufficiently funded thus necessitating rearrangements in the budget allocation to adequately fund the social sector programs.

The fourth chapter is the main body of the book as it acquaints the readers with the practical problems facing the foreign aid operation in Nepal. The chapter starts with the brief note of the indicators used by OECD's Development Assistance Committee to assess donor performance. It proceeds with the description of the policy initiatives undertaken in Nepal and also identifies some crucial areas where foreign aid is inevitable to achieve growth with equity and justice. Moreover, it cautions the government to make prudent decision for selecting the project considering the weaknesses of line agencies in the identification and preparation of projects and programmes that suffer from low absorptive capacity, frequent change in the scope of project, time lag, cost overrun and occasional problems associated with counterpart funds exemplified by Upper Sagarmatha Agricultural Development Project, Flood Rehabilitation and Ground Water Project, Multimodal Transit and Trade Facilitation Project and Tribhuvan International Airport. Similarly, emphasis has been placed for the need of inducing the sense of ownership of the foreign aided projects among the stakeholders as a means of the optimum utilization of resources based on decentralized governance approach that brings sustainability in development activities empowering the local beneficiaries.

The ninth part of the fourth chapter focuses on the requirement of built-in system of monitoring the result or impact of the project. According to authors, proper assessments of the strength and weaknesses of the proposed organization, consideration of redesigning technology, clear cut indicators of making value judgment, third party survey of project performance etc may further strengthen the monitoring mechanisms. The tenth part recommends some important measures to ensure sustainability of aid projects. User fees in community managed projects, adequate allocation by the government in projects which consume more in Operation and Maintenance costs and continued support by donors in projects which are technologically and operationally challenging are some of the measures recommended. The eleventh part identifies the role of NGOs/INGOs in the resource mobilization at grassroots level. The authors stress the need to enhance the capability of Social Welfare Council (SWC) to coordinate the workings of NGOs/INGOs at the implementation level.

The fifth chapter raises some critical issues in foreign aid administration and tries to analyze them categorically. The authors suggest ways to avoid discrepancies in different facets of debt administration. The role of Office of the Comptroller General (OCG) is emphasized to this end. The authors pose conditionality as also being the big issue in administrating foreign aid which constrains the use of appropriate and cost effective technology, materials and services. This part also suggests that multilateral aid rather than bilateral aid are less problematic as far as the conditionalities are concerned.

The sixth chapter summarizes and concludes the book with lots of practical recommendations to reduce the gap between commitments and disbursements, enhance the absorptive capacity of the foreign aid and bolstering the competitive edge of the economy.

On the whole the authors have done a commendable work adding to the limited stock of literature on foreign aid in Nepal. The study will be highly useful to the policy makers, international community, donor agencies, researchers and the students in formulating and designing policies, conducting researches and also for other academic purposes. However, the title of the book creates confusion among the readers to decide whether the contents of the book relate itself to Nepal or it talks about the aid effectiveness in general.

In addition it would have been better if the authors would have added some features of the Interim Plan (2007-10) while reviewing various plans in the third chapter. Finally, the quantitative analysis of the absorptive capacity depicting the maximum amount of investment that the economy can sustain to attain the Expected Economic Internal Rate of Return (EIRR) would have taken the book to the newer heights.

Central Department of Economics   Nirmal Kumar Raut
Tribhuvan University, Kirtipur, Nepal   Teaching Assistant