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Rural Poverty and Ecological Balance: A Socio-Economic Note on Phewatal Watershed Catchment in the Western Hill of Nepal

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Together with several other development projects in Nepal, Watershed Management Projects are another category of multi-sectoral projects designed for rural development with the focus on improvement in physical environment. Since a few decades, there has been a big change in the ecology of the country. High population growth rate, dependency of over 90 percent of population on agriculture, non-availability of other employment opportunities, and fast and unbalanced execution of development and construction activities are the main causes for this destructive change. Excessive deforestation in the mountain is increasing resulting in the loss of lives and property due to floods and landslides. Fertile soil is being washed out by small and big rivers. Production is dropping in spite of greater efforts of the farmers. It is estimated that 47 percent of the denudation and landslides are of natural causes whereas the rest is man-made. People from hills are migrating to Terai (plain region of the country) because of denudation, floods, and landslides, and forest in the Terai has been depleted very fast during the last two decades.

The Department of Soil Conservation and Watershed Management which was set up in 1974 undertook the Phewa Watershed Project as its first activity. The project covers the valley encompassing Phewatal in Pokhara Valley South of the Annapurna range. The project consisted of two phases: 1974-81 was devoted essentially to planning and demonstration and the implementation phase started in 1981. It is now 10 years since the assistance began, in actual field operation, between UNDP/FAO and the Department of Soil Conservation and Watershed Management, with the work in the Phewatal Watershed catchment.

Phase second of the project, insofar as the Phewatal watershed is concerned, emphasized the implementation and testing of techniques together with field training, in a range of watershed management activities ranging from landslide stabilization, gully control, reforestation and terrace improvement to the provision of ponds for livestock, small domestic water supply and advice to farmers through extension services. Now, the project is in its third phase.

Any rural development project, like Watershed Management, should concentrate on physical conditions and the livelihood of local people and depends, in the first instance, on the quality of pre-development surveys of physical, economic and social conditions. The main objective of the watershed activities is to maintain the ecobalance, and hence to

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control the environmental degradation and finally to raise the agricultural productivity. Hence, it is worth to understand the main features of farming system of the country. Most of the farming systems in Nepal is the interaction between human resources, livestock, cultivated land and uncultivated land. People will provide labour to operate the land and livestock and consume the resulting production. The long-term objective of the integrated watershed programme is to protect the environmental degradation and maintain the balance between the demand for fuelwood, fodder and timber with the ability of the ecosystem to supply these products on a sustained basis within the catchment area.

The Phewa watershed catchment area embraces the following 7 Panchayats of Kaski District in the Western Region of Nepal. They are Sarangkot, Kaskikot, Chapakot, Dhikur Pokhari, Bhadaure Tamagi, Pumdi Bhumdi (only three Wards 1, 3 and 5 fall in the catchment area), and Pokhara Town Panchayat (only few pockets of Ward No. 2, 7 and 8 are in the catchment area).

In the presentation, only these Panchayats, wards and pockets are taken into consideration, where, there are altogether 5,000 farm families. Majority of them are either marginal or sub-marginal farmers, who are under vicious circle of absolute poverty. These seven Panchayats are inhabited by a large number of human and livestock population which have pressing needs to be fulfilled from forest resources.

The sample size of this study was large enough to capture trends and patterns and was statistically representative of the target populace. Despite a fairly large sample size every efforts was made to capture in-depth qualitative information on the living conditions of the rural hill dwellers and the socio-economic environment in which they operate. Keeping these views in mind a sample of 5 percent from each of the seven Panchayats, taking into consideration of the wards within the catchment area, were drawn with the help of proportionate systematic simple random sampling technique. The recent voter list was used to draw the samples. A combined structured and unstructured both open and closed in nature type of questionnaires were used to gather the informations. Between August and September, 1987 the rural survey was carried out.

DISCUSSIONS

Table 1 presents the ethnic composition of the sampled population of the study area. The table shows that majority inhabitants of the area are Brahmins/Kshyatriyas, followed by Magars/Gurungs. Field visit supports that individuals from each and every household of Magars/Gurungs were in the Indian Military services.

Table 2 shows the farm size and land usually operated by the households in the study area. It is clearly evident from the table that majority had an average holding only up to 0.25 hectare. In the area, terrace farming, small and fragmented pieces of up land terraces are causing more problems. However, small subsistence farmers predominate, the large size of the farming land is in the hands of few big farmers. The average size of the land in the area is 0.99 hectare (see Table 3), which is slightly greater than the average national holding in the mid-hills of Nepal, stands at the time of 0.50 hectare.

Table 1
Ethnic Composition of the Sampled Population of the Catchment Area

Panchayat \ Caste	Brahmins/ Kshyatriya No.	Magar/ Gurungs No.	Gharti/ Bhujel No.	Occupational Caste (Untouchables) No.	Others No.	Total Number
Sarangkot	27	5	-	7	1	40
Kaskikot	37	2	1	10	3	53
Chapakot	12	7	-	6	-	25
Dhikur Pokhari	43	7	-	9	1	60
Bhadaure Tamagi	9	23	-	6	-	38
Pumdi Bhumdi	3	10	7	2	-	22
Pokhara Town Panchayat	14	-	1	-	-	15
Total	145(57.31)	54(21.34)	9(3.56)	40(15.81)	5(1.98)	253(100.00)

Source: Field Survey.

Figure in Parentheses indicates the percentage.

Table 2
Farm Size and Land Usually Operated by the Households

Land Under Cultivation (In Hectare)	Number of Pieces	Total Area (In Ha.)	Number of Households: Summer Low-Land (Khet)	Summer Up-Land (Bari)	Winter Low-Land (Khet)	Winter Up-Land (Bari)
Up to 0.25	99	4.99	33	142	66	155
0.26 to 0.50	259	19.50	63	83	39	68
0.51 to 0.75	210	18.30	40	19	3	13
0.76 to 1.00	433	39.78	33	2	5	1
1.01 to 1.25	245	30.90	16	1	2	-
1.26 and above	1117	139.45	32	1	2	1
Total	2363	252.92	217	248	117	238

Source: Field Survey.

Likewise, Table 3 reveals the size of land holding according to the Ethnic composition. It is clear from the Table that cultivated land is unevenly distributed. Major portion of the land is in the hands of the upper class of the society, Brahmin/Kshyatriya. It is also clear that they have more good quality of lands (Khet).

Table 3
Size of Land Holding According to the Ethnic Composition

In Hectare

Ethnic Composition	Low-Land (Hectare) (Khet) N=230	Up-Land (Hectare) (Bari) N=251	Total (Hectare)	Average Size of Holding (Hectare)
Brahmin/Kshyatriya	130.55	46.27	176.82	1.22
Gurung/Magars	36.77	16.25	53.02	0.98
Gharti/Bhujel	4.20	2.20	6.40	0.71
Occupational Caste (Untouchables)	8.01	6.02	14.03	0.35
Others	1.65	1.00	2.65	0.53
Total	181.18	71.74	252.99	-
Average Size of Holding	0.79	0.29	-	0.99

Source: Field Survey.

Table 4 gives the household food supply scenario of the study area. Almost 60 percent of the household have food deficit. Field visit supports that they had a foodgrain deficit in the 8 months, March-October inclusive, reaching a peak of almost 70 percent in June, July and August. More than half (53 percent) reported that they did not normally have enough cash to meet this deficit.

Table 5 presents the source of income and average income by source per year in the study area. From the Table it can be inferred that a large number of the catchment dwellers are receiving a substantial amount from pension, military pay and salaries.

Keeping this trend in mind, it is safe to predict that people of the study area give more value on military and other services. It is good on the one hand because a good proportion of populace have been diverted from the agriculture, and on the other, it is sad to note that, return from agriculture is meagre.

Table 4
Household Food Supply Situation

	Food Supply	Number of Households	Percentage
1.	Foodgrain Sufficient for the Whole Year	102 (40.32)	---
2.	Foodgrain Surplus	60	---
3.	Foodgrain Deficit	151 (59.68)	---
A.	One Month	3	1.99
B.	Two Months	24	15.89
C.	Three Months	20	13.25
D.	Four Months	15	9.93
E.	Five Months	17	11.26
F.	Six Months	30	19.87
G.	Seven Months and Above	42	27.81
4.	Enough Cash to Meet Deficit	72	---
	Total (1+3)	253 (100%)	A+B+C+D+E+F+G = 151 (100%)

Figure in Parentheses indicates the Percentage.

Source: Field Survey.

Table 5
Household Source of Income and Average Income by Source Per Year

Source	Number of Responses No.	%	Average Income In Rs.	% Distribution
Sale of Crops	67	14.50	1,290.00	5.53
Sale of Livestock (Including Poultry)	91	19.70	2,635.00	11.30
Sale of Livestock Products	59	12.78	1,771.00	7.59
Off-Farm Works	95	20.56	3,362.00	14.41
Pension, Military Pay, Salaries and Others	108	23.38	10,580.00	45.37
Others	42	9.09	3,686.00	15.80
Total	462	100.00	23,324.00	100.00

Source: Field Survey.

Percentage is based on the Frequency Mentioned.

The off-farm work and its type in the study area is given in Table 6. As it is already noted, majority of the dwellers of the area are sub-marginal farmers, it is quite natural for them to take to off-farm works. Mainly they perform labour work followed by operation of small village shops. People belonging to the occupational casts, run their occupational business in the area, which is revealed from Table 6. This way the rural social system operates in the rural setting of Nepal.

Table 6
Off-Farm Works And Its Type

Work Type	Number of Households		Main Months*
	No.	%	
Vender	5	4.90	1 to 12
Portering	3	2.94	1,2,9,10,11 and 12
Labour	68	66.67	1 to 12
Salary/Service	3	2.94	1 to 12
Shop Keeping	16	15.69	1 to 12
Pujari (Ritual Work of Priest)	3	2.94	1 to 12 (Partial Work)
Occupational Work	4	3.92	1,2,3,8 and 11
Total	102	100.00	---

*1 = January
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12 = December

Source: Field Survey.

Livestock raising is an integral part of the household economy of the farming system of the study area, as in other hilly parts of the country, which supports and supplements crop production and is an additional source of household income. It is also an important source of nutrition, especially for the hill dwellers and is closely associated with social prestige and religion of the area. Almost every farm family maintains some animals: cattle, buffalo, goat, sheep, pigs and poultry.

Table 7 presents the number of livestock possessed by the households in the study area. As is clear from the Table, the average number of livestock per unit of household in the study area stands at 5.60, which is significantly high. However, the types of livestock raised vary on ethnic line and according to the type of ecology. Nepal has one of the highest per capita livestock per unit of household in the world. The

Table 7
Number of Livestock

Livestock	Number	Percentage	Average Number of Livestock/HH
Cattle	343	24.21	1.36
Buffaloes	604	42.63	2.39
Goats	356	25.12	1.41
Sheep	76	5.36	0.30
Pigs	38	2,68	0.15
Total	1417	100.00	5.60

Source: Field Survey.

field observation supports that due to the most acute fodder deficit and overstocking, ruminant livestock which are in majority in the area, generally have poor nutrition and are susceptible to diseases, causing cattle to be unproductive, and resulting in considerable wastage through sickness. In the study area, forest is the major source of fodder for livestock. In Nepal, it is estimated that 23 percent of the total fodder in the hills comes from forest. Thus the declining tendency of forests is also directly related to the pressures of growing livestock population.

Inputs into the animal component are straw and fodder, cereal grains, human labour, tools and facilities and grazing. This way, the rural family ecosystem operates, but is a neglected aspect of recent socio-economic analysis.

Table 8 presents the comparative scarcity of fodder and fuelwood in the catchment area. From the Table, it is clearly evident that both the fodder and fuelwood are getting scarce in the area of present study as compared to five years ages. This is another example of the degradation of the environment.

Table 8
Comparative Scarcity of Fodder and Fuelwood in the Catchment Area Compared to Five Years Before

	Number	Percentage
Difficult to Get Fodder	32	12.64
Difficult to Get Fuelwood	89	35.18
Difficult to Get Both	106	41.90
Not Difficult to Get Either	26	10.28
Total	253	100.00

Source: Field Survey.

The situation of household water supply and its distance is presented in Table 9. From the Table the difficult situation can be read and this difficulty may be predicted on the background of environmental degradation.

Table 9
Household Water Supply Situation

Source of Drinking Water (Distance in Dry Season)	Number of Reporting Households	Percentage
Less than ½ Hour Walk	126	49.80
½ Hour to 1 Hour Walk	56	22.14
More than 1 Hour Walk	71	28.06
Total	253	100.00

Source: Field Survey.

In the catchment area, women conduct an equal proportion of all the works as compared to their male counterparts. But, because of the prevailing male dominated attitude, whatever women do, is only supplementary to what men do. However, one finds that women's jobs are generally more time-consuming and physically demanding. Their most regular tasks are domestic and also fetching fuelwood, fodder and water. Table 10 presents the percentage contribution to fetch fodder, fuelwood and water in the study area.

Table 10
Percentage Contribution to Fetch Fodder, Fuelwood and Water in the Study Area

Contributor	Fodder	Fuelwood	Water
Men	30.39	24.62	5.57
Women	66.20	72.01	86.42
Children (Less than 15 years)	3.41	3.37	8.01
Total	100.00	100.00	100.00

Source: Field Survey.

From the Table, it is self explanatory that women contribute more in fetching all the fodder, fuelwood and water for the domestic purpose as compared to their male counterparts in the study area.

In recent years there has been a tidal wave of interest in improving the welfare of women in rural Nepal as elsewhere in the LDCs. The Women's Development Section of the Ministry of Panchayat and Local Development is now working in 33 of the 75 districts, with wide-ranging international support and many rural development projects have tried to involve women, but with limited success. Because women are recognized to be the main collectors of leaves and grass from the forest, and also fuelwood, it has now became crucial to devise more practical efforts to involve women in local decision-making about forest management.

Table 11, 12 and 13 present the scenario on popular participation in the study area. Tables advocate the perception of households on as to who should take the responsibility for land, water and forest management, perception of households whether they should be involved or not in the conservation and reforestation works; and their actual participation/ involvement in various schemes in the last five years. When information from these three tables are analysed deeply, the following inferences can be drawn and which are supported by the researcher's own observations in the field.

Table 11
Popular Participation

Perception of Households on Who should take the Responsibility for Land, Water and Forest Management	Number of Responses	Percentage*
Government	137	24.20
Village Panchayat/Ward Committee	153	27.03
Panchayat Conservation Committee	31	5.48
Users Group Representating Households which Share a Common Forest Land or Grazing Land	22	3.89
Individual Households	153	27.03
Forest Watchman	70	12.37
Total	566	100.00

*Based on the Frequency Mentioned.

Source: Field Survey.

Table 12
Popular Participation

Perception of Households Whether They should be Involved or not in the Conservation and Reforestation Works	Number* N= 253	Percentage
1. YES:	240 (94.86)	---
IF YES:		
Decision-Making	60	11.95
Rule-Making	159	31.67
Inforcing the Rules	156	31.08
Sharing the Costs	52	10.36
Sharing the Benefits	75	14.94
	502	100.00
2. NO:	5 (1.98)	---
IF NOT:		
Because of Hand to Mouth Problem could not Spare Time	3	60.00
Government should take Initiatives	2	40.00
	5	100.00
3. DO NOT KNOW:	8 (3.16)	---
Total (1+2+3)	253 (100.00)	---

Source: Field Survey.

*Figure in the Parentheses indicates the percentage based on the Frequency Mentioned.

Table 13
Participation/Involvement of Households in Various Schemes in the Last Five Years

Response	Number of Households	Percentage
Participated	117	46.24
Not Participated	117	46.24
No Response	19	7.52
Total	253	100.00

Source: Field Survey.

The call for greater popular participation in rural development in Nepal can be traced to the establishment of the Panchayat system in 1962. In 1970s and 1980s, under the Fifth, Sixth and Seventh Plans, increased people's participation has become the outstanding policy of His Majesty's Government of Nepal, notably since the Decentralization Act (1982) gave local Panchayats responsibility for designing and implementing local development plans. Despite this considerable period of time, a wide-ranging review of past efforts to achieve popular participation in rural development has concluded, inter, that with few exceptions:

- there is no conceptual clarity about people's participation among the rural poor, and to that extent, it confuses the policy makers and planners;

-"participation" usually means unpaid labour contributions (Shramdan) by local people, for example at 50-70 percent of the total cost of village programme, which is not the rreal participation;

-the existence of elites and vested interests at the local level have tended to frustrate participation;

-the provision in the Decentralization Act "making it compulsory to involve local people in all aspects of project planning ... has yet to prove its effectiveness"; and

-in most instances rural people are brought into development schemes only when local contributions are needed, at the implementation stage, but have no voice in planning, decision-making, or evaluating the work undertaken.

SCOPE FOR CHANGE

Given the experience and the learning from experience in the catchment area over the past 10 years, it is now timely for careful planning of the range and characteristics of project activities to raise the living conditions of the rural dwellers. The total re-design of the forest plantation activities is warranted on economic grounds and also to achieve more effectively the project's conservation objectives, notably on the steep slopes near the northern rim of Phewatal Watershed. It is timely for a drastic revision of the Department of Soil Conservation and Watershed Management extension programme in the catchment area. Where it was observed poor by the researcher and also the villagers were in the same opinion. Field observation supports that the main problem is the superficiality of the present programme.

The beneficiaries of the rural development project should be the weaker section of the society. As it is crucial to involve women in forest resource management, lesson can be learned and employed from the Darchula District, far Western Nepal. Their approach deserves the practical implication in such issues in the rural setting of Nepal. It is reported that Two Forest Committees exist there, composed entirely of women. It would be worth here to talk their approach in getting success to have all women in such committee. Why did a woman Forest Committee

start up in Darchula? What is special about Darchula? The women in Huti and Hikila Panchayats are no different from women elsewhere in Nepal - they are largely illiterate; untravelled, have never before sat on a committee and in these two cases are Kshyatriyas. They took the approach of "to make the user group the implementer group." In the initial stage, when the women were approached by the District Forest Officer or Volunteer they said: "Do not talk to us about this, talk to our husbands", as similarly in a close society of Nepalese villages. Even when the men had enthusiastically endorsed the idea of their Forest Committee made up of women; the women were reluctant to attend their first meeting. The Pradhan Pancha, their husbands and brothers pressed them and gave them the confidence to go. The formation of these committees is thus a 3 stage process. In second few meetings women came together with their male counterparts, and finally in the third stage they gained the confidence and started attending the meetings. This approach seems to be practical, and hence recommended by the researcher to adopt by the concerned of this field. However, following are some of the examples whereby lessons can be learned in the process of increasing the participation of local people in community resource management in particular.

(a) The Nepal-Australian Forestry Project, operating in Sindhupalchok and Kabhre Palanchok districts, has since 1977 acted only in response to felt needs and formal requests from Village Panchayats, and only then if the local people agreed to abandon unsupervised grazing.

(b) The Tinau Watershed Project, the first Watershed Project of Nepal, which began in 1980 with Swiss-German support, in its second phase (1984-87) changed radically, giving priority to people's perceived needs and popular participation, extending its operations to include all Tansen (Palpa) district, and shifting its emphasis from check dams and gabion walls to vegetative approaches to conservation, using reforestation and contour grass strips. These measures the project believes are more appropriate for wider implementation with involving more local people.

(c) One example from Bahadure-Tamagi Village Panchayat, Ward No. 8 at Sirane, under the Phewa catchment area is worth to cite here. In December, 1986 a first development plan was approved for Bahadure-Tamagi after three days discussion by the Assembly (51 members) and distribution of information to 651 persons in all the 9 Wards of the village. The subsequent plan specified the activities which would be carried out by local people, with contributions ranging from 25 to 60 percent of the estimated total cost for a set of project activities including diversion walls, stock ponds and trail improvement.

These are some of the encouraging examples of right type of steps seeking the community broader participation which may be utilized as a guideline by the concerned of this field.

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