Baseline Survey Report

Name of the project

Pilot Level Community Based Participatory Herbal Garden

Implementing entity

Integrated Development Organisation (IDO), Jessore

Partner NGO of Arannayk Foundation

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Introduction:

This report describes the baseline survey result designed to establish the initial conditions of the project **"Pilot Level Community Based Participatory Herbal Garden"** implemented by **Integrated Development Organisation (IDO)**, Jessore, partner NGO of Arannayk Foundation. The survey was designed to observe the current status of the biodiversity resources especially medicinal or herbal plants and their uses in homesteads of the project participants. The project initially assumed that due to different natural disasters and ignorance of the people many beneficial and useful natural resources, which have sufficient medicinal values, are destroying and endangering, which are very much important for human lives, natural conservation, prevention of climate changes, bio-diversity, ecological balance and conserving eco-system etc. Bangladesh has a number of herb species which have high medicinal value as well as great impact on ecology and biodiversity. The market for herbal products has increased to a great extent. To encourage the use of environment friendly herbal products and for creating greater opportunity of bio-safety priority attentions are required to be given for conservation, production, processing, marketing and awareness building for the use of these products. In this connection the proposed base line survey tried to gather information on the current status of the homesteads to which rural people depend for their timber, fuel, medicinal or herbal products and income. The survey also tried to appraise the biodiversity of the homesteads.

Objectives of the baseline survey:

- To assess the current status of the homesteads.
- To identify the biodiversity currently available in the homesteads of the study area.
- To identify the lost/endangered biodiversity from homesteads especially the medicinal species.

Methodology of the baseline survey:

The baseline survey was conducted at the homestead level to assess the homestead forests, households' economic status, their dependence on homestead forest resources and gender role in homestead agro forestry practices.

Homestead survey: Homestead survey was conducted with a pre-structured questionnaire in the study area. A total of 100 households were surveyed taking 50 each from both Hasnapur and Kabilpur village of Keshobpur Upazila, Jessore randomly from the study area. First of all households were categorised into four categories based on land holdings, such as, marginal (<0.5 acre), small (0.5-2.49 acre), medium (2.50-5 acre) and large (>5 acre) farmer categories. Initial sampling intensity was 20-30% for each category. However at least 5 households were selected for any category where total number of households is very low. The head of each selected household was interviewed to gather required information. In the absence of the head of the family the female head or any adult member of the family were interviewed. The collected data were analyzed and presented in the result section.

Results:

Land resources, family size, sex and education

The result of the survey shows that land resources owned by each family in the study area is 2.2 acres. However average land resources owned by each family are higher in Hasanpur (2.41) compared to Kabilpur (1.99) village. Average family size in the study area is 4.52 of which 55 percent male and the rest 45 percent female members. Respondents' educational level shows that 88 percent of them are literate in both the villages (Table 1).

Table 1: Distribution of respondent households by land resources, family size, sex and respondent's education level (values in the parentheses denote percentages).

Village	Household category	Land resources (acre)	Family size	Sex		Education (%)	
				Male	Female	Literate	Illiterate
Hasanpur	Marginal (n= 15)	0.36	5.00	2.93 (59)	2.07 (41)	100	0
	Small (n= 20)	1.03	4.35	2.60 (60)	1.75 (40)	75	25
	Medium (n= 10)	4.07	4.20	2.60 (62)	1.60 (38)	90	10
	Large (n= 5)	10.80	5.00	2.20 (44)	2.80 (56)	100	0
	Sub total (n= 50)	2.41	4.58	2.66 (58)	1.92 (42)	88	12
Kabilpur	Marginal (n= 20)	0.21	3.95	2.1 (53)	1.85 (47)	90	10
	Small (n= 15)	1.17	4.33	1.93 (45)	2.40 (55)	80	20
	Medium (n= 10)	3.65	5.00	2.60 (52)	2.40 (48)	90	10
	Large (n= 5)	8.24	5.80	3.40 (59)	2.40 (41)	100	0
	Sub total (n= 50)	1.99	4.46	2.28 (51)	2.18 (49)	88	12
Total (n= 100)		**2.20**	**4.52**	**2.47 (55)**	**2.05 (45)**	**88**	**12**

Occupation

Respondent households' were analyzed according to their family occupation. It is seen that agriculture (77%) is the major primary occupation in the study area followed by business (13%), service (5%) and other (5%). However a greater percentage of families in the Hasanpur village

(86%) are involved in agriculture as primary occupation than Kabilpur village (68%). Few families (19%) were found to have secondary occupation (Table 2).

Table 2: Distribution of respondent households by occupation (in percentage) in the study area.

Village	Household category	Primary					Secondary				
		Agri.	Busi.	Ser.	Others	Total	Agri	Busi.	Ser.	Others	Total
Hasanpur	Marginal (n= 15)	86.67	6.67	0.00	6.67	100	6.67	20.00	0.00	6.67	33.33
	Small (n= 20)	85.00	10.00	0.00	5.00	100	0.00	0.00	0.00	0.00	0.00
	Medium (n= 10)	100.00	0.00	0.00	0.00	100	0.00	0.00	0.00	0.00	0.00
	Large (n= 5)	60.00	40.00	0.00	0.00	100	0.00	0.00	0.00	0.00	0.00
	Sub total (n= 50)	86.00	10.00	0.00	4.00	100	2.00	6.00	0.00	2.00	10.00
Kabilpur	Marginal (n= 20)	80.00	15.00	0.00	5.00	100	5.00	20.00	0.00	0.00	25.00
	Small (n= 15)	73.33	13.33	6.67	6.67	100	6.67	13.33	0.00	0.00	20.00
	Medium (n= 10)	50.00	20.00	30.00	0.00	100	40.00	0.00	0.00	0.00	40.00
	Large (n= 5)	40.00	20.00	20.00	20.00	100	20.00	20.00	0.00	0.00	40.00
	Sub total (n= 50)	68.00	16.00	10.00	6.00	100	14.00	14.00	0.00	0.00	28.00
Total (n=100)		**77.00**	**13.00**	**5.00**	**5.00**	**100**	**8.00**	**10.00**	**0.00**	**1.00**	**19.00**

Note: Agri.= Agriculture, Busi.= Business, Ser.= Service.

Family income

Analysis of the family income by the respondent households' show that average family income in the study area is 71806 Taka/year of which higher amount of the income (30%) comes from agricultural products followed by dairy (21%), others (15%) and tree products (15%). However average family income was found higher in Kabilpur village (81126 Taka/year) compared to Hasanpur village (62486 Taka/year). It is interesting to see that people of the Kabilpur village is earning some income (only 0.99%) from medicinal products (Tables 3).

Table 3: **Distribution of households' family income (Taka/year) in the study area (values in the parentheses denote percentage of total income)**

Village	Farmer type	Sources of income									Total
		Agri Product	Tree product	Medicinal	Fish	Poultry	Dairy	Business	Service	Others	
Hasanpur	Marginal (n=15)	4100 (10.59)	1400 (3.62)	0 (0.00)	667 (1.72)	560 (1.45)	6833 (17.65)	8667 (22.39)	4000 (10.33)	12480 (32.24)	38707 (100)
	Small (n=20)	23050 (41.37)	5465 (9.81)	0 (0.00)	1400 (2.51)	1210 (2.17)	11590 (20.80)	0 (0.00)	8400 (15.08)	4600 (8.26)	55715 (100)
	Medium (n=10)	30900 (40.97)	19300 (25.59)	0 (0.00)	800 (1.06)	1520 (2.02)	22900 (30.36)	0 (0.00)	0 (0.00)	0 (0.00)	75420 (100)
	Large (n=5)	64400 (47.69)	28000 (20.73)	0 (0.00)	8600 (6.37)	1240 (0.92)	32800 (24.29)	0 (0.00)	0 (0.00)	0 (0.00)	135040 (100)
	Sub total (n=50)	23070 (36.92)	9266 (14.83)	0 (0.00)	1780 (2.85)	1080 (1.73)	14546 (23.28)	2600 (4.16)	4560 (7.30)	5584 (8.94)	62486 (100)
Kabilpur	Marginal (n=20)	10650 (16.72)	9925 (15.58)	0 (0.00)	900 (1.41)	1475 (2.32)	13785 (21.64)	1000 (1.57)	0 (0.00)	25975 (40.77)	63710 (100)
	Small (n=15)	16467 (26.03)	4067 (6.43)	0 (0.00)	0 (0.00)	1320 (2.09)	16000 (25.30)	6000 (9.49)	6667 (10.54)	12733 (20.13)	63253 (100)
	Medium (n=10)	25500 (29.78)	9650 (11.27)	0 (0.00)	1500 (1.75)	880 (1.03)	19800 (23.12)	0 (0.00)	18300 (21.37)	10000 (11.68)	85630 (100)
	Large (n=5)	61000 (31.22)	44600 (22.82)	8000 (4.09)	0 (0.00)	1600 (0.82)	20200 (10.34)	40000 (20.47)	20000 (10.24)	0 (0.00)	195400 (100)
	Sub total	20400 (25.15)	11580 (14.27)	800 (0.99)	660 (0.81)	1322 (1.63)	16294 (20.08)	6200 (7.64)	7660 (9.44)	16210 (19.98)	81126 (100)
Total (100)		**21735 (30.27)**	**10423 (14.52)**	**400 (0.56)**	**1220 (1.70)**	**1201 (1.67)**	**15420 (21.47)**	**4400 (6.13)**	**6110 (8.51)**	**10897 (15.18)**	**71806 (100)**

Plant diversity

Table 4 shows the plant diversity present in the homesteads of Hasanpur and Kabilpur villages. It is evident that Am (94%) was found dominating in the homesteads of Hasanpur followed by Kantal (90%), Narikel (70%), Mahagony (60%), Sofeda (58%), Sissoo (48%) and Supari (44%) (Table 4). Species density was found highest for Supari (10.58) followed by Mahagony (9.74) and Am (6.94). In case relative density highest percentage observed for Supari (19.36) followed by Mahagony (17.82) and Am (12.70). On the other hand, Am (86%) was found most frequently available species followed by Kantal (74%), Narikel (62%), Mahagony (48%) and Supari (44%) in Kabilpur village. Species density was found highest for Mahagony (13.88) followed by Am (11.4) and Supari (9.3). In case relative density highest percentage observed for Mahagony (20.67) followed by Am (16.98) and Supari (13.85) in Kabilpur village (Table 4).

Table 4: Comparative analysis of plant diversity present in the study area

Sl. No.	Species Name	Hasanpur (n=50)				Kabilpur (n=50)			
		Frequency		Species density	Relative Density (%)	Frequency		Species density	Relative Density (%)
		Tree nos.	Households (%)			Tree nos.	Households (%)		
1	**Am**	**347**	**94**	**6.94**	**12.70**	**570**	**86**	**11.4**	**16.98**
2	**Amra**	20	24	0.4	0.73	13	22	0.26	0.39
3	**Arjun**	3	4	0.06	0.11	2	2	0.04	0.06
4	**Aashfol**	0	0	0	0.00	2	4	0.04	0.06
5	**Ata**	24	14	0.48	0.88	5	10	0.1	0.15
6	**Babla**	0	0	0	0.00	1	2	0.02	0.03
7	**Bamboo**	36	18	0.72	1.32	2	4	0.04	0.06
8	**Banana**	98	42	1.96	3.59	**233**	**38**	**4.66**	**6.94**
9	**Basak**	2	2	0.04	0.07	0	0	0	0.00
10	**Batabileb u**	2	4	0.04	0.07	9	6	0.18	0.27
11	**Bel**	7	10	0.14	0.26	17	18	0.34	0.51
12	**Bili asra**	2	2	0.04	0.07	0	0	0	0.00
13	**Cane**	2	2	0.04	0.07	85	46	1.7	2.53
14	**Chandan**	2	4	0.04	0.07	2	4	0.04	0.06
15	**Chosmok hi**	2	2	0.04	0.07	0	0	0	0.00
16	**Dalim**	3	6	0.06	0.11	0	0	0	0.00
17	**Dapa sapi**	5	2	0.1	0.18	0	0	0	0.00
18	**Debdaru**	0	0	0	0.00	1	2	0.02	0.03
19	**Dumur**	3	6	0.06	0.11	2	4	0.04	0.06

20	**Fanimana sa**	0	0	0	0.00	1	2	0.02	0.03
21	**Gab**	1	2	0.02	0.04	3	6	0.06	0.09
22	**Golap**	1	2	0.02	0.04	3	4	0.06	0.09
23	**Guava**	65	38	1.3	2.38	58	64	1.16	1.73
24	**Haldu**	0	0	0	0.00	1	2	0.02	0.03
25	**Ipil ipil**	0	0	0	0.00	2	2	0.04	0.06
26	**Jaba ful**	0	0	0	0.00	3	6	0.06	0.09
27	**Jalpai**	3	6	0.06	0.11	1	2	0.02	0.03
28	**Jam**	25	34	0.5	0.91	33	50	0.66	0.98
29	**Jamrul**	38	32	0.76	1.39	14	10	0.28	0.42
30	**Jial**	0	0	0	0.00	1	2	0.02	0.03
31	**Kamini**	2	2	0.04	0.07	7	12	0.14	0.21
32	**Kamranga**	3	6	0.06	0.11	2	4	0.04	0.06
33	**Kantal**	**279**	**90**	**5.58**	**10.21**	**167**	**74**	3.34	4.97
34	**Keya**	0	0	0	0.00	1	2	0.02	0.03
35	**Khejur**	43	8	0.86	1.57	9	4	0.18	0.27
36	**Koroi**	0	0	0	0.00	1	2	0.02	0.03
37	**Kul**	16	24	0.32	0.59	40	46	0.8	1.19
38	**Lebu**	20	22	0.4	0.73	31	26	0.62	0.92
39	**Litchu**	18	26	0.36	0.66	20	28	0.4	0.60
40	**Lombu**	6	2	0.12	0.22	0	0	0	0.00
41	**Mahagoni**	**487**	**60**	**9.74**	**17.82**	**694**	**48**	**13.88**	**20.67**
42	**Mahedi**	13	8	0.26	0.48	13	24	0.26	0.39
43	**Narikel**	**239**	**70**	**4.78**	**8.74**	**272**	**62**	**5.44**	**8.10**
44	**Nim**	54	28	1.08	1.98	86	84	1.72	2.56
45	**Papaya**	62	28	1.24	2.27	128	30	2.56	3.81
46	**Patabahar**	0	0	0	0.00	9	6	0.18	0.27
47	**Safeda**	**46**	**58**	0.92	1.68	63	62	1.26	1.88
48	**Sajne**	0	0	0	0.00	1	2	0.02	0.03
49	**Segun**	0	0	0	0.00	1	2	0.02	0.03
50	**Shimul**	1	2	0.02	0.04	3	6	0.06	0.09
51	**Shiuli**	0	0	0	0.00	1	2	0.02	0.03
52	**Sissoo**	**165**	**48**	3.3	6.04	42	20	0.84	1.25
53	**Supari**	**529**	**44**	**10.58**	**19.36**	**465**	**44**	**9.3**	**13.85**
54	**Tal**	1	2	0.02	0.04	0	0	0	0.00
55	**Tatul**	2	4	0.04	0.07	23	34	0.46	0.69
56	**Tejpata**	0	0	0	0.00	2	4	0.04	0.06
57	**Tulsi**	56	4	1.12	2.05	9	12	0.18	0.27
58	**Zilli**	0	0	0	0.00	203	6	4.06	6.05
Total		**2733**		**54.66**	**100.00**	**3357**		**67.14**	**100.00**

From biodiversity point of view a total of 51 different plant species were found growing in Kabilpur village and 42 different plant species were found growing in Hasanpur village. In total species density was found much higher in Kabilpur village (67.14) compared to Hasanpur village (54.66) (Table 4).

Medicinal/Herbal plants

The survey result shows that people in the study area traditionally use different plants or herbs to get remedy from different diseases and as source of vitamins and energy. Table 5 lists the species that are most frequently used for different purposes. Most commonly used plant species is Neem which is used as remedy for itching, allergy, tooth problem, worm and skin diseases of different types.

Table 5: List of medicinal plants and their uses in the study area.

Sl. No.	Species	Medicinal Uses
1	Neem	Itching, Allergy, Tooth problem, Worm, skin disease
2	Shiuliful	Common cold/Flu, stomach problem
3	Bel	Stomach ache/abdominal pain
4	Sofeda	Cure Constipation, Dysentry, stomach problem, Keep body cool
5	Cane (Shoot tip)	Stomach ache
6	Tulshi	Common cold/Flu
7	Chui-jhal	Rheumatic pain/ Arthritis
8	Shimul (Roots)	Increase energy
9	Mahogoni (Fruit)	Diabetics
10	Papaya	Stomach problem, cure constipation (cvqLvbv big K‡i)/ many diseases
11	Tentul	Stomach ache/abdominal pain, Vitamin C
12	Patharkuchi	Stomach ache/abdominal pain
13	Mahedi	Keep head cool (gv_v VvÛv K‡i)
14	Sajne	Basanta (emš—) disease
15	Ata	Cure constipation (cvqLvbv big K‡i), Source of Vitamins
16	Dumur	Enrich Iron (Fe)
17	Babla	Stomach ache/abdominal pain
18	Dalim	Abdominal problem
19	Bokul	Tooth problem
20	Kodam	Fever
21	Karabi (white)	Snake bite
22	Nishinda	Skin disease
23	Arjun	Abdominal problem, Gastric
24	Bili asra	Snake bite
25	Dapa shapi	Snake bite

26	Chosmokhi	Dysentry
27	Lebu	Vitamin C
28	Fruit species	Source of vitamins

Distribution of labour in homestead agro-forestry activities

The household survey also tried to identify the labour involvement in homestead agro-forestry activities especially on women involvement. Table 6 shows the different agro-forestry activities in the homesteads with the labour involvement based on sex and hired labour. It is found that male member (s) of the household perform more than 73-94 percent of the total activity followed by children (3-14%) and female member(s) (4-13%) in Hasanpur village and 76-87 percent of activities are performed by the male followed by children (6-12%) and female member(s) (4-9%) in Kabilpur village. It is interesting to see that percentage of hired labor working in different agroforestry activities of the homesteads are very low in both the. It is also seen that women are particularly taking part at higher percentage in fruit/product processing and storing in the study area (Table 6).

Lost Species

The homestead survey tried to find out the species that are lost from the homesteads of the study area. The respondent households were asked to tell the names (s) of the lost species from their homesteads. It is found that respondents from Hasanpur mentioned 44 and from Sitakunda 28 timber, fruit, medicinal and herbal species that have already lost from their homesteads. Households in Hasanpur responded that Nishinda (22%), Chatian (18%), Arjun (18%), Neem (12%) and Ulotkombal (12%) are the main species that are lost and in Kabilpur Nata (12%), Aashful (10%) and Kad bel (8%) are the main species lost from their homesteads (Table 7).

Causes of loss of species

The respondents were also asked to identify the causes of loss of plant species from their homestead. It is found that lack of conservation (56%) and lack of replanting (18%) are the major causes identified by the households of Hasanpur village and natural death (42%) and own use (24%) are the main causes identified by the households of Kabilpur village in the study area (Table 8).

Table 6: **Distribution of labour (%) in different medicinal plants/herbal garden activities in the study area** (M= Male member of the family, F= Female member of the family, Ch= Children, L= hired labour).

Activities	Type	Hasanpur				Kabilpur			
		Marginal	Small	Medium	Large	Marginal	Small	Medium	Large
Tree planting	**M**	**80**	**93.33**	**77.5**	**100**	**78.95**	**93.08**	**93.75**	**88**
	F	10	3.33	17.5	0	9.47	2.31	2.5	4
	Ch	10	3.33	5	0	11.58	4.62	3.75	8
	L	0	0	0	0	0	0	0	0
	Total	100	100	100	100	100	100	100	100
Place selection	**M**	**80**	**95.71**	**87.5**	**100**	**86.32**	**92.31**	**91.25**	**84**
	F	10	1.43	12.5	0	6.32	3.85	3.75	10
	Ch	10	2.86	0	0	7.37	3.85	5	6
	L	0	0	0	0	0	0	0	0
	Total	100	100	100	100	100	100	100	100
Species selection	**M**	**100**	**90.00**	**100**	**100**	**87.37**	**89.23**	**93.75**	**84**
	F	0	7.14	0	0	6.32	2.31	1.25	10
	Ch	0	2.86	0	0	6.32	8.46	5	6
	L	0	0	0	0	0	0	0	0
	Total	100	100	100	100	100	100	100	100
Seed Sowing	**M**	**90**	**94.29**	**95**	**100**	**81.05**	**49.23**	**83.75**	**76**
	F	5	2.86	0	0	4.74	16.15	1.25	4
	Ch	5	2.86	5	0	14.21	23.08	3.75	12
	L	0	0.00	0	0	0.00	11.54	11.25	8
	Total	100	100	100	100	100	100	100	100
Nursing	**M**	**60**	**78.57**	**70**	**100**	**78.42**	**61.54**	**90**	**82**
	F	0	7.14	12.5	0	5.26	16.15	1.25	2
	Ch	40	12.86	5	0	10.00	13.85	6.25	16
	L	0	1.43	12.5	0	6.32	8.46	2.5	0
	Total	100	100	100	100	100	100	100	100
Fruit/ Product collection	**M**	**60**	**85.71**	**82.5**	**100**	**67.26**	**54.62**	**65**	**76**
	F	10	1.43	2.5	0	20.32	25.38	7.5	8
	Ch	30	12.8	5	0	12.42	7.69	8.75	10

			6						
	L	0	0.00	10	0	0.00	12.31	18.75	6
	Total	100	100	100	100	100	100	100	100
Fruit/ Product Processing	**M**	**50**	**68.57**	**66.67**	**50**	**82.63**	**80.00**	**88.5714**	**80**
	F	20	24.29	30.00	50	7.89	2.50	8.57143	7.5
	Ch	30	7.14	3.33	0	9.47	17.50	2.85714	12.5
	L	0	0	0	0	0	0	0	0
	Total	100	100	100	100	100	100	100	100
Fruit/ Product Storing	**M**	40	**74.29**	**62.5**	**100**	**70.84**	**74.62**	**77.5**	**76**
	F	**60**	20.00	32.5	0	14.11	9.23	8.75	10
	Ch	0	5.71	5	0	15.05	16.15	13.75	14
	L	0	0	0	0	0	0	0	0
	Total	100	100	100	100	100	100	100	100
Fruit/ Product Selling	**M**	**100**	**100**	**100**	**100**	**85.79**	**91.54**	**95**	**84**
	F	0	0.00	0	0	1.05	0.00	0	2
	Ch	0	0.00	0	0	13.16	8.46	5	14
	L	0	0	0	0	0	0	0	0
	Total	100	100	100	100	100	100	100	100
All activities	**M**	**73.33**	**86.72**	**82.41**	**94.44**	**79.85**	**76.24**	**86.51**	**81.11**
	F	12.78	7.51	11.94	5.56	8.39	8.65	3.87	6.39
	Ch	13.89	5.61	3.15	0.00	11.06	11.52	6.01	10.94
	L	0.00	0.16	2.50	0.00	0.70	3.59	3.61	1.56
	Total	100	100	100	100	100	100	100	100

Table 7: List of lost species with their frequencies in the study area.

Sl. No.	Hasanpur (n=50)			Kabilpur (n=50)		
	Species Name	Household responded		Species Name	Household responded	
		Frequency	Percentage		Frequency	Percentage
1	**Akonda**	5	10	**Aashpul**	**5**	**10**
2	**Akmloki**	1	2	**Amra**	2	4
3	**Angur (Grapes)**	1	2	**Bahera**	2	4
4	**Arjun**	**9**	**18**	**Bakul**	1	2
5	**Ata**	2	4	**Basok**	2	4
6	**Babla**	1	2	**Batabi Lebu**	1	2

7	**Basak**	4	8	**Cane**	1	2
8	**Batabi Lebu**	1	2	**Chui**	1	2
9	**Bedena**	1	2	**Degu**	2	4
10	**Bel**	3	6	**Dewa**	1	2
11	**Bohera**	1	2	**Dumur**	3	6
12	**Bot**	5	10	**Haritaki**	3	6
13	**Cane**	1	2	**Jalpai**	2	4
14	**Chatian**	**9**	**18**	**Jam**	1	2
15	**Chui Jhal**	1	2	**Jamrul**	1	2
16	**Kocha**	1	2	**Kad Bel**	**4**	**8**
17	**Dalim**	3	6	**Kamranga**	2	4
18	**Daruchini**	1	2	**Lazzabati**	1	2
19	**Dewa**	2	4	**Mandar**	1	2
20	**Dumur**	3	6	**Nata**	**6**	**12**
21	**Dutura**	1	2	**Neem**	3	6
22	**Gandha Baduli**	1	2	**Patar kuchi**	3	6
23	**Guava**	1	2	**Shimul**	1	2
24	**Haritaki**	3	6	**Sissoo**	1	2
25	**Jalpai**	1	2	**Tabu**	1	2
26	**Jam**	1	2	**Tal**	2	4
27	**Jamrul**	2	4	**Tela kuchi**	3	6
28	**Kadam**	2	4	**Ulotkombal**	1	2
29	**Kat Badam**	1	2	-	-	-
30	**Koroi**	1	2	-	-	-
31	**Kul**	1	2	-	-	-
32	**Lal-kocha**	1	2	-	-	-
33	**Lal-pata**	1	2	-	-	-
34	**Litchi**	3	6	-	-	-
35	**Nata**	4	8	-	-	-
36	**Neem**	**6**	**12**	-	-	-
37	**Nishinda**	**11**	**22**	-	-	-
38	**Padma Dulal**	1	2	-	-	-
39	**Sissoo**	1	2	-	-	-
40	**Shiuli**	4	8	-	-	-
41	**Tal**	4	8	-	-	-
42	**Tejpata**	1	2	-	-	-
43	**Tentul**	2	4	-	-	-
44	**Ulotkombal**	**6**	**12**	-	-	-

Table 8: Respondents' perception about the causes of loss of species.

Causes	Hasanpur (n=50)		Kabilpur (n=50)	
	Household responded		Household responded	
	Frequency	Percentage	Frequency	Percentage
Economic benefit	3	6	7	14
Agricultural expansion	-	-	1	2
Lack of conservation	**28**	**56**	1	2
Lack of replanting	**9**	**18**	-	-
Natural calamities	4	8	-	-
Natural death	-	-	**21**	**42**
Own use	-	-	**12**	**24**
Road construction	-	-	1	2
Water shortage	-	-	1	2
Total	**44**	**88**	**44**	**88**

Problems faced by households due to loss of medicinal plants from their homesteads

The respondents were also asked to express their views regarding problem(s) faced by households due to loss of medicinal plants from their homesteads. It is found that 98 percent of the households opined about facing problems in Hasanpur village while 46 percent households opined about facing problems in Kabilpur village due to loss of medicinal plants. Shortage of medicine (74% in Hasanpur and 28% in Kabilpur), shortage of fruit (40% in Hasanpur and 30% in Kabilpur) and shortage of timber (30% in Hasanpur) are the major problems identified by the households in the study area (Table 9).

Table 9: Distribution of respondents by problems faced due to loss of medicinal plants.

Problems faced due to loss of medicinal plants		Hasanpur (n=50)		Kabilpur (n=50)	
		Household responded		Household responded	
		Frequency	Percentage	Frequency	Percentage
Problems faced or not	**Yes**	49	98	23	46
	No	1	2	20	40
	No comment	0	0	7	14
Types of problems	**Shortage of Fruit**	20	40	15	30
	Shortage of Medicine	37	74	14	28
	Shortage of Timber	15	30	-	-
	Shortage of Vitamins	3	6	-	-
	More money needed	1	2	-	-

Choice of species

Most of the respondents in the study area opined that they want to choose those species that are important for family use (54% in Hasanpur and 66% in Kabilpur) and economically important species (46% in Hasanpur and 66% in Kabilpur). However 92% households in Hasanpur and 98% households in Kabilpur village showed interest to plant medicinal species in their homesteads in the study area (Table 10).

Table 10: Distribution of respondents by type of species to plant in their homesteads.

Category	Choice of species	Hasanpur (n=50)		Kabilpur (n=50)	
		Household responded		Household responded	
		Frequency	Percentage	Frequency	Percentage
Trees	All species	0	0	26	52
	Indigenous species	0	0	0	0
	Important for family use	27	54	33	66
	Economically important species	23	46	33	66
Medicinal plants		46	92	49	98

Technical problems to plant medicinal species

The respondents of the study area were also asked whether they face any technical problems to plant medicinal species in their homesteads. The survey result shows that most of the respondents (68% in Hasanpur and 82% in Kabilpur) opined that they do not face any technical problem. Among the respondents who opined about facing problems mentioned that lack of training (10%) and does not know how to plant (18%) medicinal plants are the problems they usually face in Hasanpur village. On the other hand, does not know how to plant (10%) and planting rule not known (16%) are the problems faced by the respondents in Kabilpur village (Table 11).

Table 11: Technical problem(s) faced by households to plant medicinal species

Problem		Hasanpur (n=50)		Kabilpur (n=50)	
		Household Responded	(%)	Household Responded	(%)
Face any problem	Yes	16	32	9	18
	No	34	68	41	82
	Total	50	100	50	100
Type of problem	Lack of training	5	10	0	0
	Does not know how to plant	9	18	5	10
	Land shortage	0	0	0	0
	Planting rule not known	0	0	8	16

Uses of medicinal plants for family purposes

People in the study area are found to use medicinal or herbal plants for different purposes. It is seen that a total of 23 species were used in Hasanpur whereas 21 species were found to be used in Kabilpur. Table 12 lists those species with their uses usually presently used by the households in the study area for different diseases or health problems. Table 13 lists those species with their uses the households usually used previously but do not use now. Most common diseases for which they use or previously have used those plants are body or belly pain, common cold or flu, fever, wound, bleeding, constipation, worms, itching, skin disease, dysentery, headache, Jandish, gastric, etc.

Table 12: Common uses of medicinal plants for family purposes (from homestead or outside).

	Hasanpur		Kabilpur	
Sl. No.	**Medicinal plants**	**Uses**	**Medicinal plants**	**Uses**
1	Akonda	Body or belly Pain	Akonda	Body or belly Pain
2	Amloki	Common cold/Flu	Basak	Common cold/Flu
3	Arjun	Keep body cool	Bel	Itching
4	Asok	Cough	Budum Bamboo	Wound
5	Basak	Common cold/Flu	Dalim	Dysentry
6	Durba grass	Keep body cool	Dundul	Wound
7	Gadha flower leaves	Stop bleeding	Durba grass	Wound
8	Germani lata	Cure wound	Gab	Belly pain
9	Guava	Destroy worms	Gadha Flower leaves	Stoop bleeding
10	Haritaki	Cough	Germani lata	Wound
11	Japani pata	Common cold/Flu	Guava	Belly pain
12	Jukara	Jandish	Kalomeg	Diabeties
13	Kalomeg	Cough	Karpus tula	Common cold/Flu
14	Lal kocha	Common cold/Flu	Lazzabati	Piles/Constipation
15	Nata	Worm	Neem	Itching
16	Neem	Itching, skin disease	Patarkuchi	Common cold/Flu
17	Nishinda	Flu/Feaver	Shiuli	Common cold/Flu
18	Pathar kuchi	Belly pain	Tela kucha	Dysentry
19	Pineapple	Worm	Thankuni	Dysentry
20	Shiuli	Common cold/Flu	Tit Begun	Belly pain
21	Thankuni	Dysentry	Tulshi	Common cold/Flu
22	Tulshi	Common cold/Flu	-	-
23	Ulotkombal	Keep body cool	-	-

Table 13: List of medicinal plants previously used for family purposes in the study area

Sl. No.	Hasanpur		Kabilpur	
	Species	Uses	Species	Uses
1	**Arjun**	Keep body cool	**Akonda**	Body Pain
2	**Basak**	Common cold/ Flu	**Amloki**	Source of vitamins
3	**Batabi lebu**	Virul feaver	**Arjun**	Strength, Keep head cool
4	**Chatian**	Common cold	**Babla**	Belly pain
5	**Chirata**	Keep body cool	**Bahera**	Constipation
6	**Gadha flower leaves**	Headache	**Basak**	Common cold/Flu
7	**Germani lata**	Wound	**Gadha flower**	Wound
8	**Hortaki**	Keep body cool	**Haritaki**	Clean blood, source of vitamins
9	**Joba flower**	Skin disease	**Nata**	Worm problem
10	**Kalomeg**	Feaver	**Neem**	Itching
11	**Lal kocha**	Wound/cut	**Patar kuchi**	Belly pain
12	**Nata**	Worm	**Shiuli**	Worm problem, Flu
13	**Neem**	Itching, skin disease	**Tela kucha**	Keep head cool
14	**Nishinda**	Feaver, Itching	**Thankuni**	Belly pain, Dysentry
15	**Shiuli**	Common cold/Flu	**Tulshi**	Common cold/Flu
16	**Simul**	Jandish	**Ulotkombol**	Keep body cool
17	**Thankuni**	Gastric	-	-
18	**Ulotkombal**	Keep body cool	-	-

Willingness to plant medicinal species

The respondents of the study area were asked to know their willingness to plant medicinal species in their homesteads if they are provided with technical and other support. It is found that households in Hasanpur (94%) are more interested than Kabilpur (56%) to plant medicinal species. Households in Hasanpur are also willing to assign 8.04 decimal land areas on average to plant medicinal species which is only 1.93 decimal for kabilpur (Table 14). However medium and large families are found very interested to assign more lands in both the villages in the study area (Table 14).

Table 14: Households' responded and available land area for medicinal plants (values in the parentheses indicate percentages)

Category	Hasanpur		Kabilpur	
	Responded	Decimal	Responded	Decimal
Marginal	14 (93)	5.50	6 (30)	1.83
Small	19 (95)	7.11	10 (67)	1.50
Medium	9 (90)	12.33	8 (80)	2.63
Large	5 (100)	11.00	4 (80)	1.75
Total	47 (94)	8.04	28 (56)	1.93

Commercial planting of medicinal species

The households in the study area were found to plant about 19 medicinal species in their homesteads commercially if they are provided with full support (Table 15). Amloki (68%), Bahera (48%) and Horitaki (46%) are the most preferred species in Hasanpur village while Shatamuli (48%), Arshogandha (42%), Basak (24%) and Lazzabati (24%) are the most preferred species in Kabilpur village to plant commercially (Table 15).

Table 15: Households' interest to plant medicinal species commercially

Sl. No.	Medicinal species	Hasanpur		Kabilpur	
		Household responded		Household responded	
		Frequency	Percentage	Frequency	Percentage
1	**Amloki**	**34**	**68**	2	4
2	**Amra**	2	4	-	-
3	**Arjun**	4	8	-	-
4	**Arshogandha**	11	22	**21**	**42**
5	**Bahera**	**24**	**48**	1	2
6	**Basak**	14	28	**12**	**24**
7	**Chui jhal**	17	34	1	2
8	**Ghritokumari (Aloe vera)**	4	8	1	2
9	**Horitaki**	**23**	**46**	1	2
10	**Kalomegh**	1	2	1	2
11	**Lazzaboti**	1	2	**12**	**24**
12	**Lebu**	1	2	-	-
13	**Neem**	7	14	1	2
14	**Raktachandan**	9	18	-	-
15	**Sadachandan**	2	4	-	-
16	**Shatamuli**	6	12	**24**	**48**
17	**Shiuli**	5	10	-	-
18	**Tulshi**	1	2	-	-
19	**Ulotkombol**	1	2	-	-

Social/Development organizations working in the study area

The study also tried to find out the organisations working in both Hasanpur and Kabilpur for social and/or other development. It is found that there are at least 12 government approved nongovernmental organizations (NGOs), samity and local club working in the study area for different kinds of activities (Table 16). Major organizations working in the study area are Grameen Bank, BRAC, ASA, Local Samity etc. The activities by these NGOs include mainly loan, social development, etc.

Table 16: NGOs' involvement

NGOs	Hasanpur		Kabilpur	
	Household responded		Household responded	
	Frequency	Percentage	Responded	Percentage
Aagun	0	0	1	2
ADDIN	0	0	1	2
ASA	1	2	3	6
BRAC	4	8	1	2
BRDB	0	0	1	2
Ekata	0	0	1	2
Grameen Bank	5	10	7	14
Kirishi bank	0	0	1	2
Local Samity	0	0	3	6
Samadan	1	2	1	2
Shamakal	1	2	0	0
Shetu	1	2	1	2
Total	13	26	21	42

Conclusion:

Finally, it can be said that the people of the study area are mainly dependent on agro-forestry products they get from their homesteads. They are also using some plant species as remedy for different diseases or health problems. But they are not that much aware to replant or restore the species they are destroying to meet their daily necessities. In doing so they are destroying the biodiversity of the homesteads and rural areas. It is a matter of great hope that the people of the study area have realised the adverse effect of the biodiversity loss from their homesteads especially for medicinal species as they are facing problems like shortage of fruit and medicines and they need more money to buy medicines, and other plant products etc. So they are now interested to plant and restore their homestead biodiversity with those species which will be useful for their family purposes and earn extra income for the family. If this project can successfully implement their activities in the study area it will bring a positive impact on the biodiversity of the region and help people earn extra money from commercially producing and marketing medicinal or herbal plant resources.