Original Research Article

An Assessment of Livelihood Improvement of Indigenous Tharu Community through Riverbed Vegetable Farming in Kanchanpur District, Nepal

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Keywords

Riverbed vegetable farming, indigenous tharu community, livelihood improvement

A B S T R A C T

Vast tracks of riverbeds in terai region of Nepal, which are fertile but fallow, can be utilized for vegetable production in dry season. About 8000 ha of riverbed land can be used for farming in terai region of Far-Western Nepal. This study was conducted to find out overall farming scenario and assess the contribution of riverbed vegetable farming in annual household income of commercial riverbed vegetable farmers of Kanchanpur district. Two tharu communities, Banara and Rajghat located in the banks of Banara and Mohana river respectively, were purposively selected being the major riverbed vegetable farming localities of the district. A total of 60 farmers, 30 from each village, were randomly selected and surveyed with structured interview schedule. Key Informant Interviews with leading farmers were carried out along with the participation of local extension workers. The data was entered and analysed using MS-Excel and SPSS Software. The average area of riverbed under cultivation and gross income from riverbed vegetable farming was found to be 0.22 ha and NRs. 694291.03 per ha respectively. Its contribution in annual household income was 39%. Income from riverbed vegetable farming can be substantially increased by providing subsidies in inputs, Integrated Pest Management trainings, crop insurance and controlling postharvest losses. The livelihood of landless and land-poor indigenous tharu community can be sustainably improved by effective extension of riverbed vegetable farming technology.

Introduction

Riverbed vegetable farming is the technique of utilizing sandy riverbeds of seasonal rivers and streams to grow vegetables in dry season. Southern terai plains of Nepal have vast tracks of riverbeds which remain dry in post-monsoon season when rivers retreat their water flow. Cucurbits are the most common crops cultivated in the riverbeds (Key Informant Interview, 2017). About 8,000 hectares of riverbed is estimated to be suitable for vegetable cultivation in far-western terai region of Nepal (ICIMOD, 2017). Kailali and Kanchanpur districts of

Nepal are famous for riverbed vegetable farming. Indigenous tharu communities of these districts are known to be growing vegetables in riverbeds. These tharu farmers are mostly landless or land poor and disadvantaged farmers having poor socio-economic status.

Riverbed farming is one of the promising techniques for earning cash income, improving livelihood of these resource poor farmers and ensuring food security. Riverbed farming can also be a promising

tool to increase climate resilience and increase adaptability of climate change impacts caused by floods and other related to disasters.

Materials and Methods

The study was conducted in two tharu villages namely Banara and Rajghat of Krishnapur Municipality, Kanchanpur district. These villages are purposively selected as they are the major riverbed vegetable farming villages of the district (Key informant interview with officers of DADO Kanchanpur, March 2017). Banara village is located on the banks of Banara River and Rajghat is located on the banks of Mohana river. A total of 60 riverbed vegetable farmers, 30 from each village, were randomly selected and interviewed by face to face interview technique with semi-structured interview schedule in March, 2017.

Key informant interview was carried out with officers of DADO Kanchanpur. Focus group discussion was carried out with farmer leaders in the presence of local extension workers of Agriculture Service Centre, Krishnapur. Secondary data was collected from various publications and websites of government and non-government agencies. The collected information was coded, entered and analysed by using SPSS and MS-Excel software. The results were derived by using descriptive statistics.

Results and Discussion

Commonly cultivated vegetables in riverbeds

All the farmers of the study area were found to cultivate watermelon in the riverbeds. Cucumber (98.3%), bottle gourd (86.7%)

and pumpkin (76.7%) were the second, third and fourth most commonly cultivated vegetables. Onion, bitter gourd, tomato, ridge gourd and sponge gourd were cultivated by 30%, 28.3%, 8.3% and 1.7% of the farmers respectively. The table below presents the number and percentage of farmers growing different vegetables in riverbeds.

Area of riverbed under cultivation of different vegetables

The size of riverbed per household under cultivation of different vegetables is given in the table below. The average size of riverbed holding under vegetable cultivation was estimated to be 0.22 hectares. The area of riverbed that each household occupies for vegetable production was found to be larger in Rajghat (0.279 ha) than that of Banara (0.164) ha. The average riverbed area under watermelon cultivation (0.082 hectares) was found to be larger than all other vegetables. It was followed by cucumber (0.064 hectares) and bottle gourd (0.0275 hectares). Average size of riverbed holding of each household used in cultivation of pumpkin, bitter gourd, ridge gourd, onion, tomato and sponge gourd was estimated to be 0.0195 hectares, 0.0195 hectares, 0.004 hectares, 0.002 hectares, 0.0015 hectares and 0.0015 hectares respectively. It was found that farmers of Banara did not grow sponge gourd and ridge gourd while that of Rajghat did not grow onion in the riverbeds.

Contribution of riverbed vegetable farming on annual household income

Riverbed vegetable farming was found to be the main source of family income. The average annual household income from riverbed vegetable farming was estimated to be NRs. 129383.8 which contributes 39.52% of total annual household income.

Table.1 Commonly grown vegetables in riverbed

Name of vegetable	No. of farmers growing the vegetable	Percentage of farmers growing the vegetable
Watermelon	60	100
Cucumber	59	98.3
Bottle gourd	52	86.7
Pumpkin	46	76.7
Onion	18	30
Bitter gourd	17	28.3
Tomato	6	10
Ridge gourd	5	8.3
Sponge gourd	1	1.7

Table.2 Area of riverbed under cultivation of different vegetables

Vegetable	Average land holding of riverbed under vegetable production (in hectare)		
	Banara	Rajghat	Overall
Watermelon	0.084	0.08	0.082
Bottle gourd	0.018	0.037	0.0275
Pumpkin	0.014	0.025	0.0195
Cucumber	0.041	0.087	0.064
Onion	0.004	0	0.002
Tomato	0.002	0.001	0.0015
Bitter gourd	0.001	0.038	0.0195
Sponge gourd	0	0.003	0.0015
Ridge gourd	0	0.008	0.004
Total	0.164	0.279	0.22

Table.3 Annual Household Income from different sources

Source of income	Banara Village	Rajghat Village	Overall
Riverbed vegetable farming (NRs.)	133388.3 (43.37%)	125379.2 (36.11%)	129383.8 (39.52%)
Agriculture in mainland (NRs.)	31066.67 (10.1%)	163833.3 (47.18%)	97449.99 (29.77%)
Wages (NRs.)	113766.7 (36.99%)	22666.67 (6.53%)	68216.69 (20.84%)
Remittance (NRs.)	27666.67 (9%)	14333.33 (4.13%)	21000 (6.41%)
Service Sector (NRs.)	1666.67 (0.54%)	17000 (4.9%)	9333.335 (2.85%)
Others (NRs.)	0 (0%)	4000 (1.15%)	2000 (0.61%)
Total (NRs.)	307555 (100%)	347212.5 (100%)	327383.75 (100%)
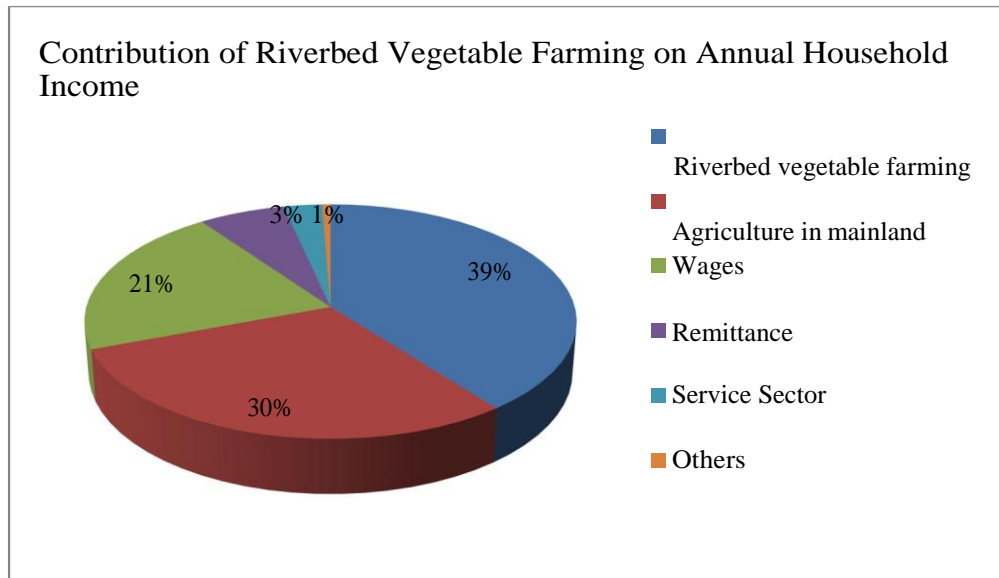
Similar findings have been found by HELVETAS in 2017 who reported that riverbed vegetable farming contributed about 40% of the total annual family income. This cash income obtained from riverbed vegetable farming is mostly utilized by farmers in education of their children and for purchasing food grains throughout the year. The contribution of riverbed was found to be more in Banara village (43.37%) than that of Rajghat village (36.11%).

Agriculture in main land (29.77%) is second to riverbed vegetable farming in terms of annual household income. Most of the farmers of Banara village are land poor and have very small landholding while farmers of Rajghat have bigger landholding.

Thus, agriculture in mainland contributes only 10.1% in Banara village while it contributes about 47.18% of total annual household income.

Wages, remittance and service sector contribute about 20.84%, 6.41% and 2.85% respectively while 0.61% of family income comes from other undefined sources. The table below presents the average annual income from different sources.

Problems in riverbed vegetable farming

The major problems in riverbed vegetable farming in the study area are crop damage by stray animals like cattle and foxes, insect pest damage, poor technical knowledge and unavailability of marketing infrastructures.

Suggestions

Extension of this technology should be prioritized among all other resource poor and disadvantaged farmers of the region. Pilot projects of riverbed farming for the households affected by flood and other related disasters, if introduced, can improve their livelihood and strengthen their capacity of climate change adaptation and climate resilience.

Sustainable nutrient management and insect pest management trainings should be focused for riverbed farmers. Subsidies on farm inputs would reduce their costs of production and increase profitability.

Establishing marketing infrastructures like collection centres and storage facilities would reduce postharvest losses and increases producer's share.

References

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