

# Swidden cultivation in the central hills of Nepal: local perceptions and factors affecting change

Sharif Ahmed Mukul<sup>1,2</sup> and Anja Byg<sup>3</sup>

<sup>1</sup>School of Agriculture and Food Sciences, The University of Queensland, Brisbane Qld 4072, Australia

<sup>2</sup>Center for Research on Land-use Sustainability, Maijdee 3800, Noakhali, Bangladesh

<sup>3</sup>Centre for Forest, Landscape and Planning, Faculty of Life Sciences, University of Copenhagen, Denmark



Centre for Research on Land-use Sustainability



## Abstract

For more than thousand years swidden or shifting cultivation is one of the prominent land-use practices across most of the tropics, and often criticized by conservationist and policy makers for their perceived negative impact on environment and biodiversity. On the contrary, it has nowadays widely been recognized amid scientists that, the practice is not as detrimental as believed. Nepal, being situated in the Himalayas has been experiencing rapid land-use changes in the last years due to changing policy, local developments and growing concern on environmental issues. The country is also highly vulnerable to climate change. For decades, swidden locally known as *bhasme* - has been a common practice in the mountains of Nepal. Despite decades of policy disputes, ignorance and misunderstanding of that age-old system, swidden is still the mainstay of livelihoods of many people. We performed an exploratory study in two central hill districts of Nepal amongst the rural *Chepang* farmers ( $N=51$ ) who lives on swiddening traditionally for years, to investigate the changes so far been taken place in the area, local understanding and perceptions of swidden agriculture. Study revealed that, although this land-use practice is changing rapidly, and cash crop based sedentary agriculture is becoming the prominent land-use, the role of swidden agriculture in food security is still crucial. The main reasons why farmers practice swidden agricultural are, in an order of importance: lack of secure tenure; poverty and unemployment; cultural identity; absence of alternative land-use options and as their traditional right. And interestingly, farmers themselves regarded swiddening as having negative impacts on the local environment and biodiversity. Study emphasized the role of more equitable land-use options, tenure security, and access to government support and in allowing rural farmers to perform long-lasting, environment friendly land-use(s).

**Key-words:** *Chepang*; swidden cultivation; land-use transformation; environmental perception; Nepal

## Background

Swidden cultivation, also familiar as shifting cultivation (Mertz et al. 2009), is an ancient form of land use across the tropics and humid sub-tropics (Ziegler et al. 2010). Generally, it is the cultivation in forest patches after clearing and burning of indigenous vegetation for a few years before shifting to another place to favor the regrowth of secondary vegetation. An estimated 400 million forest dependent people in Asia are supposed to be involved in some form of shifting cultivation for their subsistence and income (Kerkhoff and Sharma 2006). However, in many parts of South and Southeast Asia shifting cultivation has traditionally been attacked by governments and therefore confronted in local and regional policies for its perceived role in deforestation and forest degradation (Fox et al. 2009). And as a consequence of local and regional policies and prevailing misunderstandings shifting cultivation throughout the region has rapidly been replaced by other land-use in last years.

Swidden cultivation and swidden farmers in south Asia have often been overlooked or ignored in international policy discussion and in research, though the number of rural people depending on forests in that region is comparable to any other forested region of the globe. In Nepal, ninety-five percent of the total population is engaged in subsistence agriculture with the majority of them living in the central hill districts. Shifting cultivation, locally termed as *bhasme*, is a common land-use practice of at least ten indigenous communities in more than 20 hill districts in mountains of Nepal, and is one of the main sources of income and food security of the majority of the people depending on agriculture and forests. However, in contrast to many other tropical countries swidden farmers have been deserting this age-old practice and increasingly adopting sedentary agriculture and other forms of land-use influenced by changing local policy, and other social, institutional and ecological factors (Paudel and Thapa 2004). There has also been a policy dispute about the right to practice shifting cultivation between the government who mainly considers shifting cultivation as an unsustainable land-use strategy and international development organizations.

## Methods

Study was based on both quantitative and qualitative data, and field surveys were undertaken in Nepal in two central hill districts namely - Jogimara and Shaktikhar (Table 1) on early 2010. Both, focus group discussion with *Chepang* shifting cultivators, household survey ( $N=51$ ), professionals interview and farmers field visit were arranged for the study. Descriptive statistics were used to gain an overview of the data in relation study objectives and corresponding graphs and charts were produced to illustrate the different attributes of the findings.

## Results and Discussion

### Local livelihoods and factors negatively affecting swidden

Table 2 shows the importance of swidden cultivation and other land-use(s) in local livelihood of the area. Different factors that has been affecting farmers decision to shift away from swidden cultivation includes, lack of communal land available to practice swidden followed by low economic return from swidden practice compared to available other local land-use(s) like sedentary agriculture, governments conventional attitude leading unfavoring swidden, and young generations unwillingness to pursue that age-old practice.

Table 2. Major income sources of the farmers in the area

Activity / Occupation		Importance as per contribution to total income		
		Primary	Secondary	Tertiary
Swidden cultivation	Jogimara ( $n=24$ )	14	6	3
	Shaktikhar ( $n=27$ )	8	10	6
Sedentary agriculture	Jogimara ( $n=24$ )	5	9	10
	Shaktikhar ( $n=27$ )	11	8	3
Small-business	Jogimara ( $n=24$ )	1	-	-
	Shaktikhar ( $n=27$ )	5	1	-
Others	Jogimara ( $n=24$ )	4	2	-
	Shaktikhar ( $n=27$ )	3	1	1

### Reasons why practicing swidden cultivation

There has been a marked decrease in land holdings used for swidden cultivation in both areas over past years, and 92.2% of the farmers perceived that the extent of swidden farming is rapidly shrinking in the area. Interestingly most of the farmers (66.7%) viewed swidden as an unsustainable land-use. When asked why practicing swidden agriculture 41.2% of the farmers reported lack of a secure tenure between government and the farmer with other key reasons include - poverty and unemployment (39.2%), and cultural identity (33.3%) (Table 3).

Table 3. Reasons why farmers practicing swidden agriculture in the area

Response	Jogimara ( $n=24$ )		Shaktikhar ( $n=27$ )	
	No.	Percentage	No.	Percentage
Cultural identity	6	25.00	11	40.74
Poverty and unemployment	13	54.17	7	25.93
Tenure insecurity	15	62.50	6	22.22
Absence of other land-use/option	7	29.17	4	14.81
Traditional right	1	4.17	3	11.11

Table 1. Profile of the study sites

Name of the VDC and District	Jogimara, Dhading	Shaktikhar, Chitwan
Altitudinal range	375 m- 1000 m	125 m – 300 m
Slope	35°-60°	25°-40°
Soil	Brown, sandy loamy to silty clays	Brown, loamy sands to silty clays
Climate and vegetation	Dry and humid tropics to sub-tropics	Dry and humid tropics
Total households (N)	27	297
Sampled households (n)	24	27
Sampling intensity	88.89%	9.09%
Major ethnic groups	Chepang, Gurung	Chepang, Gurung
Major livelihood activity	Agriculture	Agriculture, Business
Major land-use(s)	Swidden cultivation, Agricultural terrace	Lease-hold forestry, Agroforestry, Swidden
Distance from the forest	-	20 minutes

### Farmers perceptions on swidden and conservation issues

Table 4 summarize farmers perception on swidden cultivation, it's impact on biodiversity and ecosystems, and perceived potential disadvantages (Table 5). Interestingly all of the information provided in the following tables is in accordance with earlier scientific findings and conclusions.

Table 4. Farmers view on swiddencultivation, biodiversity, and environment

Issue/Question	Response	Jogimara ( $n=24$ )		Shaktikhar ( $n=27$ )	
		No.	Percentage	No.	Percentage
Do you think SC is a sustainable land use option?	Yes	5	20.83	6	22.22
	No	18	75.00	16	59.26
	No idea	1	4.17	5	18.52
Do you wish to continue SC?	Yes	7	29.17	14	51.85
	No	17	70.83	13	48.15
Which taxon is much susceptible to SC?	Mammals	18	75.00	19	70.37
	Birds	3	12.50	7	25.93
	No idea	3	12.50	1	3.70
Does SC influence local ecosystem processes (e.g. rainfall, landslides)?	Yes	21	87.50	17	62.96
	No	3	12.50	8	29.63
	No idea	-	-	2	7.41

Table 5. Perceived disadvantages of swidden cultivation

Disadvantage(s)	Jogimara ( $n=24$ )		Shaktikhar ( $n=27$ )	
	No.	Percentage	No.	Percentage
SC promotes landslides and soil erosion	15	62.50	5	18.52
Cause of deforestation	3	12.50	3	11.11
Damage to wildlife habitats	7	29.17	8	29.63
Biodiversity (mostly medicinal plants) loss	8	33.33	4	14.81
Responsible for forest fire	1	4.17	-	-
Changes in local climate (precipitation and temperature)	2	8.33	3	11.11

## Conclusion

The results of the study revealed fairly appreciable concern of the community people on environmental issues, and it's linkages with their traditional land-use(s). A greater focus from the government and associated agencies with more and equitable land-use options, tenure security, access to certain facilities like credits and training to help traditional practices more socially, ecologically and economically benign however seems decisive.

## References

- Mertz, O., Padoch, C., Fox, J., Cramb, R.A., Leisz, S.J., Lam, N.T., Vien, T.D. 2009. **Swidden change in Southeast Asia: understanding causes and consequences.** *Human Ecology*, 37: 259–264.
- Ziegler, A.D., Fox, J.M., Webb, E.L., Padoch, C., Leisz, S.J., Cramb, R.A., Mertz, O., Brunn, T.B., Vien, T.D. 2010. **Recognizing contemporary roles of swidden agriculture in transforming landscapes of Southeast Asia.** *Conservation Biology*, 25: 846–848.
- Kerkhoff, E.E., Sharma E. (eds). 2006. **Debating shifting cultivation in the eastern Himalayas: farmers' innovations as lessons for policy.** Kathmandu: ICIMOD.
- Fox, J., Fujita, Y., Ngidang, D., Peluso, N., Potter, N., Sakuntaladewi, N., Sturgeon, J., Thomas, D. 2009. **Policies, political-economy, and swidden in Southeast Asia.** *human ecology*, 37: 305–322.
- Paudel, G.S., Thapa, G.B. 2004. **Impact of social, institutional and ecological factors on land management practices in mountain watersheds of Nepal.** *Applied Geography*, 24: 35–55.

## Acknowledgements

We are grateful to Mr. Dharendra Pradhan and Mr. Prashant Paudel for their invaluable support during fieldwork. Intellectual contribution from Dr. Jefferson Fox, Dr. Kamal Aryal, Dr. Ole Mertz and Dr. Helle Larsen was very useful. Thanks due to our respondents for sharing information with us, and to Environmental Change Institute, University of Oxford for providing the travel support to attend the conference.

Photo credits: S.A. Mukul

For correspondence: sharif\_a\_mukul@yahoo.com / s.mukul@uq.edu.au

