

## The Third Perspective on Shifting Cultivation

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### Abstract

There are two perspectives in which the understanding of food sustainability in the world is entangled. The first perspective which believes that food sustainability can be achieved by technology presents shifting cultivation as a reflection of a lower state of cultural evolution in comparison with more sophisticated societies (O'Brien 2002). The second perspective which believes in culture, in the 'way of life' paradigm, valorise shifting cultivation as a form of indigenous genius, representing the indigenous people as perhaps the original environmentalist (Bandy et al.1993; Conklin 1957; Grandstaff 1981; Hong 1987).

The biasness of both the perspectives is well visible. Using unstructured and open-ended ethnographic interviews with the stakeholders of shifting cultivation in the remote villages of Garo Hills, the central aim was to document and evaluate indigenous strategies of shifting cultivation through a process of research and development. The process of course involves identification of promising indigenous practices, characterisation of the practices, validation of the utility of the practice for other communities, extrapolation to other locations, verification with key farmers, and wide-scale extension.

This can be treated as the third perspective available to the policy makers. By this, the detrimental effects of shifting cultivation can be mitigated and productivity increased (Mali 2003).

**Keywords:** Sustainability, Indigenous Knowledge, Technology, Shifting Cultivation, Cultural Conservation, North East India, India

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## Introduction

It remains well documented that shifting cultivation is fundamental to everyday life of many communities of North East India (Das and Das, 2014; Gupta, 2000; Majumdar, 1956; Mali, 2003). The central purpose of this research is to suggest ways to improve shifting cultivation by building on indigenous strategies in the remote areas of Garo Hills.

Notwithstanding, it is believed that one-third of all greenhouse gas emissions can be traced back to the agricultural sector. Practices such as mono-cropping are leading to reduced biodiversity, a loss of genetic diversity, and a vulnerability to new pests and invasive species (Sachs in the Hindu on 7th August 2010). M.S. Swaminathan appealed to the farmers in 1968 not to give up their long-term production potential for short-term gains. He called the food sector a repository of cultural knowledge. This repository has provided them the mechanisms to cope with the various economic, social, and political challenges. Indigenous knowledge is the prime content of this repository. Indigenous knowledge is supposed to be holding the key to solving the problems especially of communities living in remote regions of the world and possessing simple technologies (Berkes 1999: 6, Berkes et al. 2000: 1251). But the food sector with its base in agriculture is affected by attempts to achieve profit and progress. Economists critical of this current pursuit of profit and progress observe that the main danger to agriculture today is from the determination of agencies to supply to agriculture the principles of industry (Schumacher 1993). This tendency converted the green revolution in India to a 'greed revolution' (Sachs 2010). Food sustainability is thus entangled in a debate between two distinct groups. One group believes that food sustainability can be achieved by technology and the other group believes in culture, in the 'way of life' paradigm for achieving sustainability. In 2005 the World Resources Institute, Washington D.C in its report on the theme "The Wealth of the Poor: Managing Ecosystems to fight Poverty" documented five

case studies where poor rural communities were able to pursue community-based natural resource management and restore and manage crucial environmental resources. One of the studies was on the Sukuma people of the Shinyanga region of Tanzania. They practiced subsistence agriculture and foraging. They had an indigenous natural resource management system of maintaining protected vegetation enclosures. The government in 1970 removed this and the result was devastating to the region. The land turned barren due to overuse, trees were incessantly felled and wood was difficult to find and traditional wild fruit and plants became scarce. In 1986, the Tanzanian government reversed its approach and promoted the revival of the original indigenous scheme of enclosures. People exerted local ownership over the natural resources and gradually the landscape changed from an eroded dry land to one where vegetation and wildlife has been restored. The outcome has greatly improved livelihoods for the Sukuma (Wright 2008).

In the light of these arguments, this paper proposes a third perspective, which can tailor a technology appropriate for agriculture of the area and achieve food sustainability. The paper begins with a discussion of literature proposing a development of a third perspective on shifting cultivation in North East India. The next two sections follow the description of the study area and the methodology deployed. This follows the discussion of the shifting cultivation practiced by the Garos and what exactly they mean by 'cultural conservation'. The concluding remarks are outlined in the final section.

## The Nature of the Task

Over the last several decades, we have become familiarised with accounts supporting the two schools of thought, technology and 'way of life' [(Schumacher 1993), (Sachs 2010), (Swaminathan 1968), (Gadgil 1964)]. This paper does not judge the merit of either of the projects but goes on to state that circumstances compel the choice. For making it a feasible basis of livelihood for the cultivator's only one option might be viable in a particular

area under the given conditions. Marrying technology and culture (Swaminathan 1968) or developing an intermediate technology (Schumacher 1993) is the call of the day. But even that may not be required in all cases. Community-based approaches, emphasising site-specific strategies aligned with ecology and culture might produce better results. But often it is seen that policy directives relating to agriculture are based on socio-political hierarchies. It is the dominant groups who are more engaged in taking decisions for smaller, marginalised communities. These policies mainly aim to create “a new Eden through the alliance of nature with technology or the radical replacement of the first by the second” (Slater 1996, p.116). Communities rarely participate in the policy making process and local knowledge or indigenous knowledge is rarely taken into account. Majority of the Governments across the world are seen being influenced by the ‘technology for life’ slogan and pursuing agriculture policies which are made for a dominant group that is ‘farmers with farms’. But that besides this dominant group there are also cultivators who are practicing different forms of agriculture in difficult terrains with no other practical options should also be recognised. The most noticeable group among these cultivators is the shifting cultivators.

The two perspectives in which the understanding of food sustainability is entangled also govern the modern worlds understanding of shifting cultivation. The first perspective which believes that food sustainability can be achieved by technology presents shifting cultivation as a reflection of a lower state of cultural evolution in comparison with more sophisticated societies (O’Brien 2002). The second perspective which believes in culture, in the ‘way of life’ paradigm valorise shifting cultivation as a form of indigenous genius, representing the indigenous people as perhaps the original environmentalist (Bandy et al.1993; Conklin 1957; Grandstaff 1981; Hong 1987).

The advocates of the first perspective brand it as a wasteful form of cultivation, which should

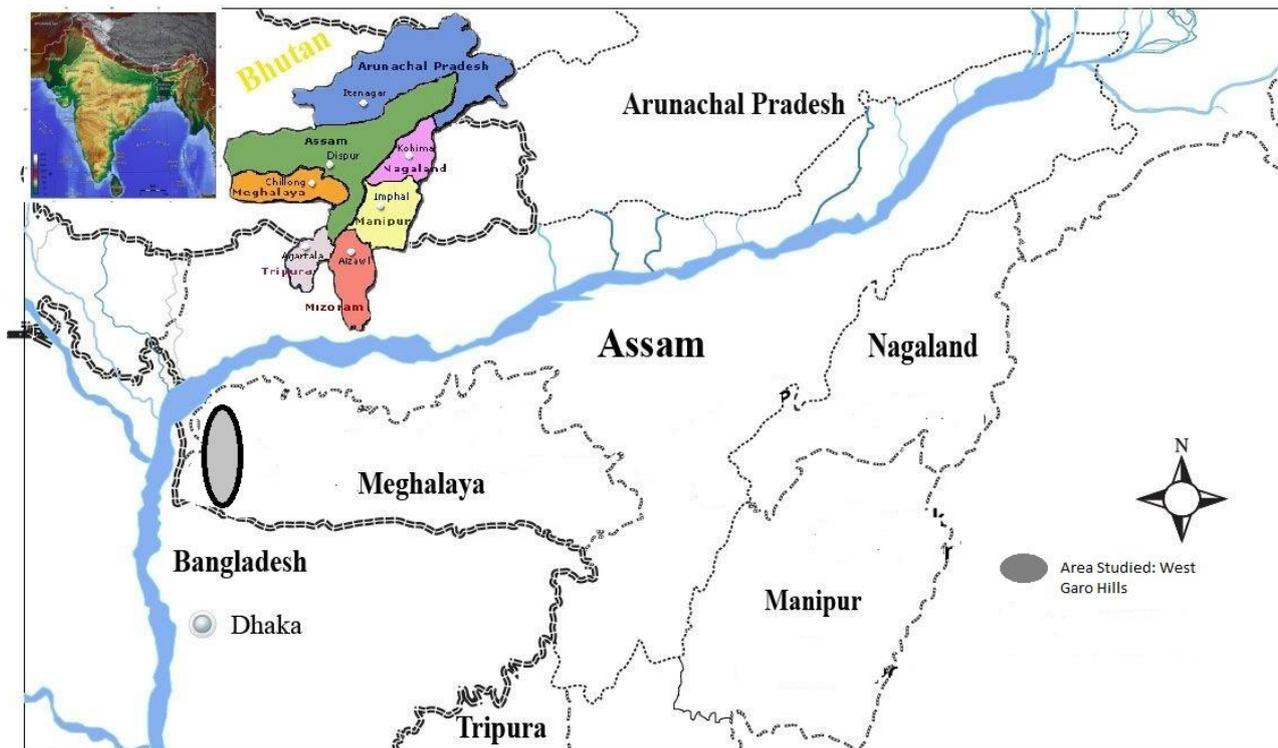
be replaced. Scientific management and expert-led technology development can modify or rather replace this destructive land use (Slater 1996). The advocates of second perspective presented persuasive evidence that it is a rational farming system in the context of the constraints and opportunities inherent in remote upland areas, and they pointed to its long history as evidence of sustainability. Far from wanton destruction of forests, they argued, shifting cultivation is a land-use practice that reflects (i) indigenous knowledge accumulated through centuries of trial and error, (ii) an intricate balance between product harvest and ecological resilience, and (iii) an impressive degree of agro diversity. A set of works also (for example, De Foresta and Michon 1997) highlighted the custodial role often played by shifting cultivation communities in preserving forest ecosystems and natural species and to the tight linkages between biological and cultural diversity (Cairns and Garrity 1999).

The task now is to document and evaluate indigenous strategies of shifting cultivation through a process of research and development. This process involves identification of promising indigenous practices, characterisation of the practices, validation of the utility of the practice for other communities, extrapolation to other locations, verification with key farmers, and wide-scale extension.

This can be treated as the third perspective available to the policy makers. By this, the detrimental effects of shifting cultivation can be mitigated and productivity increased (Mali 2003).

### **The Study Area**

Northeast India (Figure 1) is a triangular landmass (latitudes 22°0’N -29°30’N, 89°40’E - 97°20’E) at the trijunction of the Indo-Malayan, Indo-Chinese and Indian sub-regions. For this reason, the area is bestowed with a great diversity of flora, fauna, and ethnic groups.



**Figure 1: Map of North East India**

As stated earlier, this research took place in the Garo Hills. The Garo Hills, the area under study, lies between  $25^{\circ} 9'$  and  $26^{\circ} 1'N$  and between  $89^{\circ} 49'$  and  $91^{\circ} 2' E$  and cover an area of 8000 sq. km. As its name implies, the greater part of the area consists of hills. Nokrek, the highest peak of the Tura range, within Garo Hills is 1412 m amsl in height. About 5 miles north of the Tura range, there is a much shorter chain of hills, known as the Arbela range whose highest peak is about 983 m amsl. Structures, faults and monoclines in the sedimentary rocks mostly control the streams. It falls under the tropical climatic zone and experiences heavy monsoonal rainfall.

The area is one of the biodiversity hotspots of the world. Thirty-five mammalian species, 26 bird, 62 reptile, 14 amphibian and 62 fish species have been recorded (Ghosh 1984). The area is bestowed with rich vegetation due to its varied topography, climate and soil. The forests of Garo hills have been classified into three types: 1) tropical evergreen forest; 2) tropical moist deciduous forest; and 3) savannas and bamboo forests.

Northeast India is one of the prime areas of the world where certain groups practice shifting cultivation as the main economic activity. For instances, the Reangs of Tripura, different Naga groups of Nagaland and the Garos of Meghalaya still practice it as their primary occupation. Records say that from the 19<sup>th</sup> century these groups have been subjected to verification by the dominant perspective then perpetuated by the colonial administrators. The dominant perspective precluded policy makers from viewing shifting cultivation as legitimate form of resource use. The colonial rulers found it strange, repulsive and fascinating, all at once, to witness the destruction of commercially valuable timber by what seemed a primitive practice of setting fire to the jungle (Mali 2002). In the postcolonial period, this perspective was legitimized and the traditional practical knowledge was de-valued. There followed huge budgetary allocations by the state to apply the understanding of the dominant perspective in the agricultural policies of the region. The approach was to convert shifting cultivation from a system based on the principle of simple reproduction to a capitalist system based on yielding marketable surplus and guided by the

profit motive. In the 1950's the Food and Agriculture Organisation (FAO) launched its "Jhum Control Scheme" and agriculture experts started visiting the area. These were hard-core optimists believing that application of sophisticated technology and technological innovation holds the magic key for increasing production. The direct and hegemonic attitude of the state also affected the communication lines between the farmers and the government. The centrally sponsored Soil Conservation scheme of the 1970's introduced dry terraces with contour bunding and wet rice terraces with irrigation facilities in Khasi, Jaintia and Garo Hills. The schemes also included conservation measures in methods of cultivation, which included mechanical terracing, bunding, trenching, dams, contours strip cropping, and vegetation conservation, which included horticulture and cash crops on mid-slopes, afforestation and degradation of soil and utilization of land, water and vegetation in a sustainable basis. The Indian Council of Agricultural Research designed a model to check soil erosion and degradation of soil and utilization of land, water and vegetation. Known as the ICAR model it divided the hill into three parts: forest was to be preserved in the highest part, the middle part would be kept for horticulture pastures and in the lowest part permanent terrace cultivation was to be undertaken. In this pattern various interventions were seen in the region with the prime objective to wean the cultivators from their shifting plots.

A modified form of shifting agriculture was introduced during the past decade with implementation of two development projects in Northeast India. These are Nagaland Environmental Protection and Economic Development (NEPED) in Nagaland, and North Eastern Region Community Resource Management Project (NERCORMP) in Meghalaya, Manipur, and hill districts of Assam. While NEPED has improved livelihoods through promotion of tree husbandry and cash crops, NERCORMP has done exceptional work in institution building and microfinance. These projects have demonstrated that through

multi-pronged external intervention, the productivity of shifting agriculture can be enhanced.

In April 2006, the Government of Meghalaya agreed that it would no longer try to suppress shifting cultivation and would instead examine ways of integrating soil and water conservation measures within it. The Tripura government inducted anthropologists, economists, administrators, specialists, and elders of the *jhumia* communities in the new schemes. They work as a team to identify and prioritize problem areas for the development of *jhumias*. The state has recorded satisfactory successes in these schemes (Gupta 2000).

While on the surface this form of narrative appears as a progressive step toward "people-friendly" and participatory sustainable development - that is there is an expressed concern for both forest/biodiversity conservation as well as protecting human cultural values - the narrative nonetheless perpetuates historically produced hierarchies and assumptions that are a persistent legacy of colonialist ideologies within sustainable development discourse (O'Brien 2002). This can be proved by the present state of the Garo shifting cultivators. In Nagaland and Tripura positive outcomes might have been generated but in Garo Hills the persistent legacies of colonialist ideologies remain. As these narratives are embedded in development discourse, it is important to evaluate the practice considering the local factors.

In the Meghalaya Agriculture Profile 2006 (Third Edition) published by the Department of Agriculture, Meghalaya, it was noted that to reach self-sufficiency in food grain production conversion of jhum land into permanently cultivatable tracts is required. As part of the farmers year in 2008, the government held a number of interactive workshops, seminars with the farmers in the district of Garo Hills and one of the major conclusions drawn was "Need to do away the traditional method of *jhumming*".

## Methodology

To collect data, 300 unstructured and open-ended ethnographic interviews were conducted with the villagers and government officials working in the area. They were health officers, agriculture officers and also administrative officials. The non-participant observation technique along with the audio-visual techniques (photographs and recordings) was extensively used in the data collection procedure. The paper attempts to build a narrative. An attempt was made using the narrative approach to focus on the regular events and actions in the lives of the Garos, and all the other inhabitants sharing the same landscape, which includes the Hajongs, the Rabhas, the Nepalis and the other caste Hindu groups in the neighbourhood.

## Shifting Cultivation and the Garos

The 'soil babu' is a well-known individual in Selbalgiri a village of shifting cultivators under the Rongram Development Block of West Garo Hills. He visits the village once a week. The villagers meet him in the soil department camp and he advises them on matters relating to agriculture and introduces them to new schemes floated by the government for the farmers. This camp has been established along a road built by the Soil Conservation department of the Government of Meghalaya. It is a 'kutcha' motorable road. The officials of the soil conservation department can now drive to the villages. Earlier these villages were linked only by non-motorable forest paths. The 'soil babu' is an official of the Soil Conservation department. He represents the dominant perspective attempting to remake tropical agriculture. He explains to them the fact that shifting cultivation, which is their method, too is now viewed as the biggest factor in the rapid depletion of tropical forest contributing to ecological problems ranging from localized soil erosion to global warming. The visitors of the camp hear him politely and even agree to participate in some of the pilot projects. Accordingly on a fixed day, in March-April the villagers clear a slope by slashing the jungle only. They are paid in cash by the 'soil babu' for

doing the work. Saplings of Oranges are provided and they plant it in small steps dug in the body of the slope. They are happy with the payment and the soil babu gives them hope of a good crop, which they can sell. The saplings grow but within two weeks the weeds start growing. Around that time they are also busy in their 'aba', the Garo name of the shifting plot. Soon the plot is covered with weeds and the saplings either wither away or face stunted growth. The villagers make no attempt to revive it. The issues of soil erosion and population pressure, which were told to them by the 'soil babu', do not scare them to attend to the orange orchard. Promises of earning hard cash also do not seem to be convincing. They do not have faith in the system. Can the system deliver what their own method has given them for so long?

The two official concerns of soil erosion and population pressure were taken to the cultivators as a part of this study and their answers highlighted that their indigenous knowledge addresses these problems. For them nature and culture are intricately woven. As the shifting cultivator has close and intricate relationship with nature, changes in the system of farming would inevitably affect the other variables in culture. This is what the Garos can ill afford.

In the Selbalgiri village the day the forest is fired it is considered an auspicious day. The young boys of the village that day surround the whole plot that is to be fired with raw bamboo poles or branches of trees and ample water. The dedication and the commitment of the village youths that day make the whole atmosphere very serene and secure. They are supplied with savoury snacks round the clock that day by the village households. Once the firing is over they make sure that nothing is smouldering in the fields. They keep an eye on the hot ash at least for the next 10-12 hours. In fact, the *galmak* festival organised right after the firing keeps them awake the whole night. As part of the festival there is feasting and dancing in the night. Their tradition has created

an occasion so that nightly vigil can be maintained.

According to the cultivators whatever degradation is reported now is because of the use of the system wrongly by immigrant shifting cultivators. Such a phenomenon has also been reported from Tripura (Gupta 2000). In Garo Hills the immigrant cultivators clear lands in the steep slopes of the mountains. These higher ridges are never used by the Garos for cultivation. This is primarily because the soil runs down the slope with the least amount of disturbance. In addition, these are the areas, which they use for foraging. As it is an equally important subsistence activity they are careful about preserving the jungle. As a result of the clearance of this virgin forest by the immigrant cultivators landslides and uncontrolled forest fires cause havoc. On the other hand, when the steep slopes are fired by the immigrants they can hardly surround a part of the firing plot because it is difficult to climb and wait in the slopes. When the fire runs down the slope it is extremely hazardous for human beings to come in its way. If the fire does not stop by itself it can create havoc further down the slope.

The problem of landslide is triggered by the fact that after the first year of cultivation the immigrants use these plots as grazing grounds for their cattle. The Garos also keep a limited amount of cattle but they never allow the cattle to graze in the shifting plots immediately after cultivation stops in the first or the second year. What happens is that the cattle feed on the tender saplings that grow on the shifting plot for which the jungle takes a longer time to rejuvenate. The traditional shifting cultivators are often seen planting elephant grass after the first year of cultivation in the boundary of the plots. This is precisely done to stop the soil from running down. This grass is used for constructing the roofs of the houses and they are cut only when it is required. These methods followed by the indigenous cultivators clearly indicate that they are careful about preventing soil erosion.

It is important for them that the top soil do not run down the slope as well as that their numbers should not increase beyond the carrying capacity of the land. With years of experimentation, they have built a sustainable system. It has continued indefinitely without depleting any of the material or energy resources required to keep it running. The shifting cultivators of the area at present clear at least 1.5 sq. km area for cultivation. A family of four to eight members can subsist for a year on the produce of this plot in present times. A village has to clear every year a certain amount of cultivable land depending on the necessity. If a village has twenty households they will at least need 30 sq. km cultivable area. It might be slightly more or less. With homestead land and cultivable land, a village has at least 40 to 50 square kilometre area under its disposal.

Population has increased but at the same time it is also true there are other avenues of earning. The whole family is not dependent only on the plot of land. In fact shifting cultivation was never the dominant economic activity. Foraging was equally important. Foraging is still important and in contemporary times they also get salaried jobs. Many a times these jobs are seasonal and also at times, they are permanently employed as government servants or in the private sector (Sharma 2007). Thus, though there are more mouths to feed there are also more ways of earning. For instance if the rice from the family shifting plot is not sufficient then the family can procure it from their neighbour who has more or from the weekly market. Earlier it was only through barter that they could procure an item but now with the availability of hard cash it is convenient. They do not need have another commodity in excess for exchange. In addition, there is a market for the excess produce. Earlier even if something was produced in excess, market was not so developed that they could sell all their products. Today with all these options available population pressure on the shifting plots is not an issue for the cultivators. It was never the sole means of earning and it is still not the sole means of earning. It is a cultural activity as much as it is an economic

activity. This is why the cultivators are not ready to give it up. Their argument is if the indigenous method is followed it will bring no harm to the ecosystem.

By their extensive intercropping, tropical shifting plots mimic the extraordinary species diversity of the tropical jungle. According to their traditional method they do not slash and burn the jungle after the first year of cultivation. In some areas the same plot is used for cultivation in the second year also. After harvesting all the crops in the first year the dried up stalks of the plants are cleared and the debris is piled up in heaps all over the plot. These small heaps are burnt, the ashes of which add to the fertility of the soil in the second year. In most of the areas plots in the second year are used only for rice cultivation. But vegetables like brinjal, chilli are also occasionally cultivated while some allow all crops to grow for the second year also. The field after one or two years of cultivation is left fallow for eight to ten years in present times. Earlier the cycle was much longer for which degradation of the landscape has still not happened. As mentioned earlier it is still one of the richest botanical regions of the world.

The problems of population pressure and degradation of the landscape in Garo hills have their solutions in the indigenous knowledge of the Garo shifting cultivators. It is important to reframe the discourse on shifting cultivation and include indigenous knowledge to workout solutions for the modern day problems of shifting cultivation in the area. This can slow down the process of degradation of the agro systems of the region and also improve the standards of living of the community.

### **Cultural Conservation**

Present efforts towards biodiversity conservation in Garo hills will remain ineffectual until policy makers broaden their scope to also address cultural conservation. At present these two extremes of opinion are poles apart.

In Garo Hills in a particular plot of land, at least 20 different varieties of rice are planted in

patches of different sizes according to necessity. Most common ones cultivated are *Mimitim*, *Kotchi*, *Mima*, *Sarengma*, *Ajanci*, *Mimgurum*, *Migepema*, *Miyamang*, *Mimetemchibol*, *Doktang*, *Mipatoti*, *Mimagisim*, *Mimabrim*, *Mimatamdokha*, *Mimatamgapok*, *Padrap*, *Sarngkochi*, *Gongot* and *Migar*. Of these *Sarengma*, *Ajanci* and *Padrap* are early variety. *Gongot* and *Migar* are used for making *Su* or rice beer. In this way each variety with individual flavours fulfills different necessities. The rice from the market will not be able to fulfil these requirements creating a cultural void. The gourd containers used for storage of seeds and cereals with a high value and the gourd cups used for drinking rice beer are much more healthy than plastic containers and cheap steel or cheap melamine cups. These are all cultivated in their shifting plots. Another major component is medicinal plants. This people are yet to receive the benefits of modern health care (Mukherjee 2003). Chemist shops or clinics are still a rarity in the landscape while doctors are never seen. If the people lose their repository of herbal medicines with mono-cropping, their health might be severely affected.

In Garo Hills documentation of the indigenous knowledge of the farmer is of top priority. This can be done by adopting the documentation methods of social sciences. After this is recorded, attempts should be made to build up a platform wherein there is a constant dialogue between the farmers, agricultural scientist and the policy makers of the region for interactive technology development. Since farmers and scientists each know and understand many things, but have little overlap between their domains of knowledge, farmer-scientist interaction should help both groups learn.

Polycropping is a marked feature of the shifting cultivation of Garo Hills and particular attention must be paid to the technicalities of the cropping pattern. A Garo farmer sow different variety of seed in one hole made with the digging stick in the field. The combination includes plants, which will ripe at different times and are of different sizes, for instance

some are short bushy while others are leguminous and some other might be growing straight boled. The proper combination of the seeds is important for a good harvest. Shifting cultivation is not profitable for the farmers who do not follow this technique of sowing.

Farmers are always known to be innovative for solving specific problems they face in the field.

The Garo farmer's experiments also must be documented. They are not passive actors in this whole discourse. They avoid clearing a slope where the vegetation is not yet mature to produce the required amount of ash. There is regular interaction with the people living in the plains, especially the Rabhas and the Hajongs In the weekly markets both in the hills and the plains they exchange their produces and often it is seen that some new varieties especially lentils and cereals are picked up and cultivated. Also, farmers create their own hybrid varieties of gourds etc. by their own techniques. These techniques are simple grafting or budding. Agricultural extension programs should be targeted towards strengthening farmer's experiments.

With the Rabhas and the Hajongs, their neighbours from the plains they exchange hill products and procure items from the plains. They are interdependent groups sharing the same landscape. If their cultivation pattern is changed, these linkages will also disappear and the common meeting grounds like the weekly markets will lose their vibrancy. This might affect the inter-tribal relationship which have resulted in political turmoil's all over Northeast India like the Naga-Kuki clashes, Karbi-Dimasa clashes to name a few.

### Conclusion

It is important to understand how ecosystems work and how human societies interact with them to understand the pressures on ecosystems and find solutions. Often it is seen that the conclusions drawn are broad scale and even global. For instance, that shifting cultivation is a destructive form of agriculture is a broad scale global conclusion. The decisions that will most directly determine ecosystem

sustainability, as we have seen in case of Garo Hills are local or regional. People living within and adjacent to an ecosystem are usually the primary stakeholders that is, the people who have a stake in the ecosystem resource and what happens to it. Their dependence on the ecosystem that is their household is absolute. It is high time for policy makers in Northeast India to adopt the third perspective as proposed here where the poor rural communities are able to pursue community-based natural resource management, restore, and manage crucial environmental resources (Wright 2008).

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