JHUM ING In North East India and Environment Degradation

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Shifting cultivation in the Northeast, called jhum. Shifting ultivation or Jhum/jhoom or slash and burn method of crop cultivation is the system where farmers shift their fields after taking one crop in a single season. The field after harvest is abandoned for at least 5-10 years during which, the field regains its fertility due to various factors.

Agriculture, the main occupation with more than 70% of workforce in India, has been in a low ebb even after Independent India. With the advent of Green revolution in the later 60's, there has been a sea change in agricultural production particularly in cereals and oilseed crops. The quantum of grain production has led to self sufficiency though there was no surplus in the country. Scientific cultivation system of crops began during this era, though not to the status of other developed western and European countries.

NORTHEAST AND ITS CROP SCENARIO:

Almost 80% of the states in the Northeast viz, Manipur, Tripura, Sikkim, Arunachal Pradesh, Nagaland, Meghalaya except Assam have a large chunk of areas under hilly tracts or terrain. These regions are mainly cultivated with only few cereal crops like rice, maize, etc and oilseed crops like rapeseed and mustard, Soybean etc, cash crops like potato, sugarcane, etc and a number of vegetables. In plain or valley areas, irrigated rice, pulses & oilseeds, rabi vegetables etc are the main crops. There is imbalance proportion of area under crops in rabi and kharif seasons. Lack of irrigation facilities, cattle menace and sparsely distributed rainfall during winter (rabi) season are the main reasons why all the available land used during kharif /Summer seasons are not fully utilized during rabi. Upland rice in the jhums through shifting cultivation systems inter-cropped/mix-cropped with maize, pulses etc are the main crops in the hills. There are restrictions of modern or scientific cultivation of every crop due to the natural topography or geographical situations in the hill slopes.

COMPOSITION OF THE VIRGIN HILL SOILS:

Shifting cultivation or Jhum/jhoom or slash and burn method of crop cultivation is the system where farmers shift their fields after taking one crop in a single season. The field after harvest is abandoned for at least 5-10 years during which, the field regains its fertility due to various factors. The main factors for fertility restoration during this period are diverse. The leaves, twigs and other plant parts falling to the soil get decomposed which later acts as good feed to numbers of beneficial micro-organism thriving in the soil under a congenial soil environment. The earthworms, regarded as "friends of the farmers" are the major role players in regaining natural soil fertility by enriching the soil with their castings. Bird litters, animal droppings, biotic activities of flora and fauna, decomposed plant debris acting as natural mulch contribute to soil health building. Hence, the soil composition with fair amounts of major nutrients like nitrogen, phosphorus and potash besides, creating a good soil structure makes the soil virgin in a cycle of -10 years period.

HARMFUL EFFECTS OF SHIFTING CULTIVATION:

Shifting cultivation has been single factor responsible for forest and land degradation. About .45 million families in the region annually cultivated 10000K.M2 forest whereas total area affected by jhumming is belived to be 44000K.M2.. Slashing or felling down of trees, herbs and shrubs in Jhum cultivation reduce oxygen generation, burning down of the sun-dried vegetation pollute the air with carbon-monoxide,

nitrous oxides and many other harmful gases. Various emissions from burning the fossil fuels including the dry vegetation contribute to the depletion of Ozone layer (a layer in the troposphere which protects the ultraviolet rays from the sun). Not only these, destruction of forest trees, flora and fauna, animals, birds and all other living beings in the forest are against the law of the Forest, Environment & Wildlife Department/Ministry of the Govt.

Destruction of the natural habitats of these living organisms that brings ecological imbalance in the ecosystem is also forbidden by the forest laws and acts. Soil erosion and top soil degradation is the direct outcome of the clearing the natural vegetation. However, the system of field operations after sowing of crops involves no use of synthetic chemicals. Cultivation under Jhum is done with “no tillage” or “zero tillage” where heavy machineries are not employed causing air pollution. Synthetic fertilizer, weedicides, insecticides, fungicides and other plant protection chemicals are not at all used. The Jhum cultivation is hence eco-friendly with less cost of cultivation, but comparatively low in yield or productivity.

JHUMING AND CONFLICT:

Unlike many other parts of India, where even villages are in some way or the other connected to the capital markets, albeit through informal means, people in the rural hills of Northeast India for the most part engage in pre-capitalist sustenance activities, with surplus produce sold in nearby bazaars. The most important and widespread activity is shifting cultivation, of primarily the slash-and-burn variety along the hill slopes. This practice, called jhum, usually ensures enough grains and vegetables for the entire year.

Along the lines of the egalitarian functioning of most tribes in the region, this form of cultivation has men and women playing equally large roles, with women often even playing a dominant role especially in deciding the distribution of the produce and the selling of the surplus. Jhum is a livelihood generation activity for food sustenance, and constitutes a large chunk of the labour performed by rural folk in the hilly regions of the Northeast.

In recent years though, the system has been affected by the numerous ongoing conflicts in the region, causing immense hardship to those people dependent on it. In addition, questions have been raised about jhum's impacts of the practice on the local ecology, which need a brief examination. Behind the negative viewpoints expressed about jhum, lie vested interests more often that not, as this article will show.

Effects of the conflicts:

Large sections of rural Northeast India and their modes of commerce now function under the sway of Indian military cantonments, which have usurped expansive tracts of land and harshly affected rural livelihood activities. Furthermore the villagers often find themselves caught in between the military and the insurgencies. Thus the practice of jhum has started getting badly affected in many parts of the region due to the presence of the Indian army and the resulting conflict, which causes disruption in the cultivation cycle resulting in harsh insecurities for people depending on the produce to feed themselves.

Mokokchung in Nagaland is a classic example of military cantonments taking over prime land across Northeast India. Traveling with a senior academic and Naga human rights activist in the town, I witnessed the overwhelming presence of the Indian military. Central Reserve Police Force barracks built over beautiful forestland, and vast army campuses sprawled over the landscape were everywhere, cordoned off from the rest of the population. Many old structures in Mokokchung were torn down and now serve as official military offices. Vast tracts of hilly forestland that villagers would practice jhum on are now completely off limits, taken over, rather 'occupied', by the armed Indian state.

The hampering of rural modes of sustenance can also be witnessed in numerous rural areas in Manipur, Upper Assam as well as regions like the Garo and Khasi Hills of Meghalaya. Rural areas in these states also often face the brunt of the extraction industry, which, again, usurps or completely destroys land previously used for sustainable cultivation systems like jhum. Furthermore, with the Indian government's new 'Look East' policy with respect to trade and commerce, states like Nagaland, Assam and Meghalaya become critical as gateways to expanding trade-relations with Southeast and East Asian countries. As a result local modes of sustenance such as jhum get impacted.

Interestingly, the present disruption of rural modes of production in Northeast India has just been a

continuation of pre-independence British policies. This form of agricultural production and organic rural commerce has faced a history of upheaval from colonial times onwards, when British colonisers effectively severed the region from its traditional trading partners, including present-day Burma and other parts of Indo-China. With the creation of the Northeast Frontier by the British in order to protect their Indian dominion, it effectively cleaved what was once an organic commercial pre-capitalist trading region, resulting in the loss of a bazaar-type commerce, and hampering cultivation practices; something which has continued till date under an Independent India.

Impact on ecology and differing viewpoints

Ecologically, the practice of jhum has had certain experts convinced that it has a deleterious effect on the local environment, while others have often thwarted those arguments and proved that jhum in fact is a sustainable form of agricultural production best suited for the specific ecology of the hill regions.

The arguments against jhum have included projecting it as an unsustainable practice that depletes the soil of nutrients, reducing the forest cover, causing landslides, etc. Arguments against jhum have come from state forestry departments, development ministries like DONER (Development Of North East Region) or trade promoting entities like the World Bank who lean towards utilisation of the region's forest resources for the benefit of national and private capital.

In addition, private entities wishing to utilise the land for specific profit-making ventures, like extraction industries, utilise these arguments to push the state to wean away local villagers from practicing jhum in order to lease the land. This has happened in the hill regions of Meghalaya and Assam where corrupt or otherwise, village councils leased out land to private and national corporations for extraction industries including coal, limestone, and uranium in the future. In addition, the paper industry has pushed for the growth of bamboo by villagers as a cash crop replacing an egalitarian cultivation system with one that has created a small mercantilist class controlling all bamboo production.

However, these arguments have been rebutted by many scientists, including studies by organisations like the Indian Institute of Science, Tata Energy Research Institute and UNESCO who have proved in different ways that jhum is indeed a sustainable form of agriculture best suited to the rainy hill regions of Northeast India, over other forms of agriculture such as valley or terrace cultivation. Studies have further proved that, contrary to arguments of soil infertility, the practice of jhum ensures that fallowness in the soil is not compromised on, and often rapid regeneration of the vegetation takes place once a tract of land is abandoned after cultivation.

The connection between forest loss and jhum is tenuous at best as there are numerous other factors at play including areas where jhum is practised, the type of vegetation regrowth and fallowness of the land. The soil erosion argument too has been disproved as soil erosion would happen with any cultivation along hill tracts, and if anything is minimised with jhum due to the retention of strong roots when the land is cleared.

This is not to completely discount the actual arguments being made against jhum. There has indeed been a small reduction in the forest cover, and certainly the food pressures have increased in the region due to greater population. However it is the source of these arguments, their vested interests and the lack of viable alternatives provided that cause eyebrows to be raised. There is no guarantee that if jhum were to be stopped, there would be an increase in forest cover and soil fertility or a decrease in soil erosion. If anything, all these problems are likely to continue with even more intensity along with the added food insecurity of the local population due to the wrenching away of their primary mode of sustenance.

The arguments are all the more problematic because the region still continues to have one of the highest per-capita forest covers in the world, and its people are for the most part not found wanting for food, primarily due to practices like jhum.

Furthermore, it would be prudent to ensure the continuance of the basic level of food sustenance that the people in these regions have created for themselves through cooperative cultivation without any feudal fetters, rather than force the capital market upon them via land leases and cash crops, placing them in the precarious position many farmers in other parts of India often find themselves in.

ABOLISHING SHIFTING CULTIVATION:

The destruction of natural vegetation in Jhum cultivation is alarmingly on the rise. The natural

topography compels the people in the hills of the Northeast India to adopt the age-old traditional cultivation which is the only means to sustain a living. The risks before the Jhumias are to be considered before taking a step to ban it. The Govt. of India's policy to abolish the jhum cultivation and replacing it with growing of horticultural crops is in one sense, a good gesture towards the economic development of the people and saving the environment. However, the change of one's occupation over night is something which is not feasible on the part of the hill farmers. Provisions of funds and food to feed the farmers and their families till reaping the fruits of the newly adopted horticultural crops cultivation in lieu of the jhum cultivation would only motivate the farmers to switch over to the new methods. This is the reason why many farmers are not willing to change their profession of cultivation in the hills of the Northeast. Hence, a swift changeover from shifting cultivation to any other forms of cultivation under the present conditions would be something impracticable for the poor farmers of the region including Manipur.

ROLE OF THE GOVERNMENT:

The Govt. should be trust-worthy to the farmers. The scientific systems of cultivation should be imparted to the farmers and fulfill the promises which were laid before the farmers. Special incentives should be provided to the farmers of Jhums to change their cultivation to a scientific method. Crop insurance should be implemented in toto. Food stock and essential items should be available to the farmers who adopt the Government's policy of new Agricultural technologies. The farmers should be compensated properly against any natural calamity. Replacing shifting cultivation and adopting an alternative cultivation system would then be a success.

TIPS TO FARMERS:

Farmers in the hill region should be aware of the new technologies emerging from time to time. Uneconomical practices of hill agriculture should be avoided while selecting the crops. Adequate cropping systems should be adopted to boost their income and maintain a sustainable self sufficiency in the household. Use of certain synthetic plant foods to replenish the vanishing food reserve in the soil should be adopted but with an adequate quantity or dose. The modern systems of plant protection and care should be given priority to harvest a bumper yield. Continuous cultivation of the once selected spot can be cultivated/tilled year after year with such amelioration of the soil. Soil amendments should be done where nutrient reserve is limited due to continuous cultivation through organic matters, mulching etc. The expertise of concerned authorities/personnel should be gained to tap the potential of the region. By doing these, however, the environmental sanctity should not be at stake.

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Looking ahead

As mentioned before, the practice of jhum is intimately integrated with the socio-economic fabric of rural society in Northeast India. It's sustainable and generally accepted as a rather egalitarian mode of production, with women playing an important economic role, and almost completely lacking in feudal fetters. The practice plays a central role in uniting villages and clans, as well as integrating the people with local modes of commerce. Furthermore it provides food sustenance for the people, and prevents them from being subject to the whims of the larger capital market.

Ideally, state governments would need to work with local populations on jhum to mitigate the potential deleterious effects to the ecology rather than prevent shifting cultivation per se. Indeed, this seems to be the increasingly accepted viewpoint by state governments in Northeast India and other countries where the practice is widespread, and is certainly a positive trend. The governments of Nagaland, Meghalaya, Tripura, Arunachal Pradesh and Assam have indicated at different levels that they would not like to suppress shifting cultivation, but rather work on ways in which it can be integrated with ecological and conservation concerns.

Among the more prominent of these initiatives has been the government of Nagaland pursuing a policy from 2006 onwards of procuring horticulture produce from people practicing jhum and training government extension staff in participatory mapping, the Meghalaya government stating in 2004 that it would examine ways in which jhum can be integrated with soil and water conservation measures, and the Tripura government initiating shifting cultivation development projects from 2007 onwards.

These are positive trends, and need to continue considering the importance of jhum to rural populations in Northeast India, as well as the central role it plays in ensuring food sustenance through an egalitarian cooperative mode of agricultural production.

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