

ASSIGNMENT

ON

E. V. S

Topic : Agriculture practices and its
impact on the environment in Kohima
village.

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INTRODUCTION

Agriculture is the practice of cultivating plants and livestock. Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that enabled people to live in cities. The History of agriculture began thousands of years ago.

Food is a basic requirement for every living being. We depend on plants and animals for food. Ancient men began the cultivation of food in a small area and used certain procedures for their management and improvement. This art of cultivation is called agriculture.

In Agriculture, there are certain parameters to be considered such as the type of crops, properties of soil, climate etc. Thus, the measures which are followed to raise crops are called Agricultural practices.

TERRACE CULTIVATION

Terrace cultivation: This is a form of cultivation practised in the part of Nagaland mainly by the Angami and Chakhesang Nagas. Other tribes have also started practising terrace cultivation. Under this system, a piece of land, generally in the valley where water can be channelled into it, is made into flat plots depending on the contour and slope of the land. If it is a gentle slope the plots are bigger, and if the slope of the land is sharp, the plots are smaller. Likewise, the height of the plots depend on the slopes of land. If the slope is gentle, the height is less and if the slope is sharp, the height is more. The field is prepared in many plots of flat land and the sides of each flat pieces of land are raised above the land in order to retain water.

Water is brought from nearby rivers, streams or falls. Sometimes water from the roadside is also canalised to the field. Sometimes the water is taken for several kilometres together round the neck on side of a hillock to reach the field.

The field is spaded and kept ready for the process of cultivation. As soon as water is available the hard soil is softened. Thus, when the water reached the field, it is turned into a thick mud or enough with the help of spade and human labour. Gradually from top to bottom, one after another, all the plots turned into mud. It may be noted that when the first plot is filled with water, a passage is cut into one of its sides to allow the water to go down to the next plot.

From the second to the third plot the water is let in the same way, and so on until the last is flooded. Thus, when the field is ready, paddy plants are taken out from the seed bed and are planted in this field. This is called transplanting.

The water is allowed to remain for the whole period of the growing season of plants but just before harvesting the field is drained and it remains dry up to the time when it is ready for harvesting. Weeding, cleaning and cutting unwanted plants are necessary occasionally during the growing period. The field is ready for harvesting in October- November. Unlike Shum, no other crop is grown along with paddy in terrace field. This is called terrance cultivation.



TERRACE CULTIVATION .

THE ADVANTAGES AND DISADVANTAGES OF TERRACE CULTIVATION:

ADVANTAGES OF TERRACE CULTIVATION:

- * There is a bunch of logic and thought behind terrace farming. Terrace farming is quite beneficial to the environment.
- * Mainly, terrace cultivation prevents the rain from washing away the nutrients of soil. This results in the healthy growth of crops of the indicating village.
- * Besides, it blocks the carrying away of plants by the heavy flowing rivers of water.
- * Terrace cultivation is an important agricultural technique of Kohima village that has made farming in hilly areas on mountainous parts of the village possible.

* The absence of terrace cultivation would have led to most parts of village being unproductive.

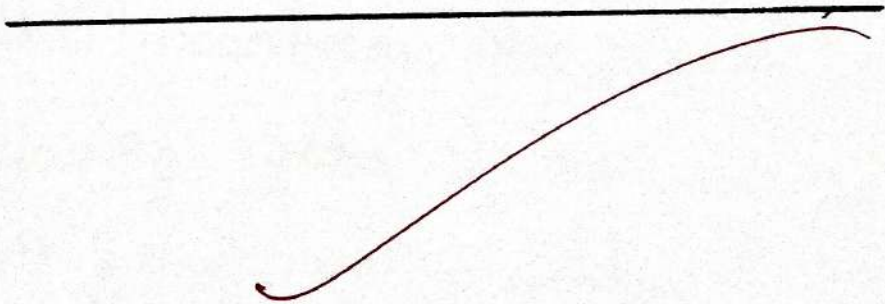
* Terrace \neq Cultivation is capable of turning the most idle land into productive farms/fields leading to high food security in ~~the~~ a particular village.

* Terrace cultivation also helps in retaining the soil nutrients of the field.

* Increases farmability and land productivity of sloped fields, also contributes to water conservation: slows down and reduces water runoff, improves rainwater harvesting.

* prevents soil erosion by decreasing hill formations and boosts soils conservation.

* Reduces sedimentation and water pollution. water stays long enough for heavy particles to settle down and prevent downstream sedimentation and pollution of water bodies, but short enough not to harm crops.

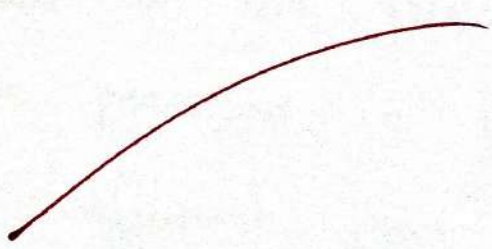


DISADVANTAGES OF TERRACE CULTIVATION:

- * Terrace cultivation can be dangerous at some point because it can lead to ~~had~~ rainwater saturation in some field areas. When there is high rains in Kohima it can cause an overflow of water and seldom the flow becomes too dangerous that it can wash anything with it.
- * On the contrary, the consequence of overflowing water is that it causes more dangerous water runoffs.
- * Terraces, in addition, may result in mudslides if not well managed.
- * Another limitation of terrace cultivation is that there is a need for huge inputs of labour to construct and maintain the terraces.

* Hence, it is expensive as it is labor-intensive. Nevertheless, there is a possibility for it to be cheap if there is access to cheap labor.

* Due to the leaching process, terrace cultivation can lead to a reduction in soil quality. Leaching is the loss of water-soluble plant nutrients from the soils, because of rain and irrigation.



SHUM CULTIVATION

Shum cultivation : Another form of cultivation in Kohima Village is Shum which mean shifting cultivation. Under this form of cultivation, the field is cultivated for one or even two to three years also, if it is sufficiently fertile. Then it is kept fallow for the next seven to ten years depending on the fertility of the land. After that period the same land is cultivated again. This type of cultivation in notation is called Shum. Shum is the predominant pattern of cultivation practised in the hilly regions and it is different from the type of cultivation practised in the plains. Under the system of Shum cultivation, an area is first selected and the shrubs, undergrowth, trees etc are cleared. This work is done in the month of November and December.

The felled trees, branches and cleared shrubs lie there for $2/3$ months in order to dry up. When it is dry, fire is set to it, generally in the months of February and March. Then the field is cleared of the logs that are unburnt or half burnt, and these are placed in an orderly form from top to bottom of the field in such a way that the loose earth cannot be washed away. The logs are fixed with pegs to keep them in position. It resembles the making of flat plots but the plots are never very flat, however, it helps a lot to prevent erosion.

The burning of the felled trees, shrubs etc. enriches the fertility of the land because of the presence of lime and phosphate in the ashes. The soil is boggy and loose, because it has been formed by felling of leaves and branches and decayed

annual undergrowth and shrubs. Thus, the soil is so soft that even without tilling the earth, crops can be grown in some places. However, the soil is tilled with spade and hoe.

After having prepared the land properly, paddy is sown in the months of March and April depending on the arrival of pre-monsoon showers. After the sowing, weeds are weeded out two or three times till the plants are fully grown. The paddy ripens and is ready for harvesting in August and September. In spite of the practice of cultivation in the monsoon, crops are never affected by drought unlike of other state and districts. There is adequate water through rain. But sometimes insufficient rainfall may affect the growth of the crops adversely.

Shum cultivation lasts for two to three years depending on the fertility of the land. Paddy is sown in the first year along with maize and some other crops in the same field. Besides maize, the other items such as taro (a plant of arum family), beans, pumpkin, cucumber and also several varieties of groundnuts are grown mixed with paddy plants in Shum fields especially on the outskirts of the field. In the second and third year Millet, maize, Job's tear etc. may be grown along with some other items of crops.



JHUM CULTIVATION .

THE ADVANTAGES AND DISADVANTAGES OF JHUM CULTIVATION.

ADVANTAGES OF JHUM CULTIVATION:

* Jhum cultivation has various advantages. First and foremost is the replenishment of soil gain back all the nutrients it has lost during the cultivation. The recycling process helps the natural vegetation grow back and this is why what is exactly required for the soil. This method is very sustainable and in today's world of depreciating resources, sustainable development is what we want. The burnt natural vegetation which turns into ash provides nutrients to the crops and act like natural fertilisers. This offers organic farming advantages through ~~shift cultivation~~ or Jhum cultivation.

* It is very useful for the people living in hilly areas (Kohima village). It is the easiest way to cultivate their -

Crops, small bushes and weeds can be easily removed with small manual instrument.

* Within short period of time crops can be easily produced and harvested.

* No danger of flood or drought as stream water in hills can easily irrigate this land regularly.

* It helps the used land to get back all lost nutrients naturally without any help from the modern methods of replenishing the soil.

* It saves a wide range of resources as only ~~as~~ a small plot is used for such cultivation.

* This method is environmental friendly as it is organic.

* It reduces the environmental degradations.

* Soil borne diseases also decreases by using this method

* It reduces the uses of pest control medicine.

* The productivity in Shum cultivation is high even a small area, hence the efficiency is high. This is a rather environment friendly way of farming. Through farming is supposed to organic in every form, recent practises have exploited the resources and that has taken a bad shape. Shum cultivation controls the growth of weed on the agricultural land which is otherwise a useless green that grows almost anywhere and uses up the nutrients. It is also known to play an important role in # pest control of the soil.

DISADVANTAGES OF JHUM CULTIVATION:

* Everything that has been useful to the Human population has also been exploited. Irjudiciously. Same is the case with Jhum cultivation. Shift farming can cause deforestation of a surrounding if farmers keep moving around in a particular area clearing the vegetation for cultivation. This has to be kept in check.

Repeated cultivation on the same land can lead to infertility of the soil and make the land barren and can then take more than a century to refferish cultivation standards.

* people on the other hand, can resort to cultivating mushrooms, aloe vera, spirulina, sugarcane, pomegranate, banana or ~~even~~ yolla etc. while giving time for vegetation to grow back.

This kind of farming leads to loss of biodiversity in the area and also pollutes the nearby water bodies. The residues produced the cultivation including the ash produced that might be an advantage to the crops can provide prove to be a pollutant for the water bodies nearby.

* Destruction of forest is the biggest disadvantage to this type of cultivation. Forest takes years to build but this method destroys them in a day for their own motives of livelihood. This type of cultivation has turned and evergreen forest belt into a dry and brown land.

* Destruction of forest causes heavy soil erosion which then causes floods in rivers and low-lying areas.

* Due to heavy population, the land provided for shifting agriculture is declining. The burden on existing land available for such kind of cultivation increases which results in loss of more nutrients from the soil without replenishing it.

* Large scale of deforestation increases global warming also.

* It is uneconomical.

* It leads to loss of bio-diversity.

* This method is responsible for reducing the soil-fertility of crops as the land is abandoned when the soil is exhausted.

* Shifting cultivation causes a high national waste as it converts the green land into a barren land. The land takes many years to replenish just at the cost of providing yield for 2 to 3 years. It upsets the ecological balance as it disturbs many eco-systems of that area or region due to destruction of natural vegetation.

* One more disadvantage is that the cultivators do not have any private ownership of the land. Therefore they do not take any initiative for soil-conservation and improvement.

CONCLUSION

Terrace cultivation and shifting or shum cultivation has contributed to both positive and adverse environmental impacts. On positive side, this practice restricts the intensity of land use, reducing the rate of environmental degradation in situation where capital and land management capability are low. Some adverse environmental impacts have been noted as a consequence of prolonged terrace and shum cultivation in the study area, # However. According to elderly farmers, the variety and growth of the natural vegetation is gradually declining after each cycle of cultivation. The existing practice of terrace and shifting cultivation in tropical and subtropical areas has been identified as one of the anthropogenic and unscientific form of land use which is influencing the biodiversity to impede the ecological balance of the region or area.

Although shifting and Terrace Cultivation is a non-viable resources utilization practice, tribals are still clinging to his primitive practice to sustain themselves and themselves and their families. To find a solution farmers should be given education so that they can understand the harmful effects of shifting / Shum and Terrace Cultivation. Afforestation should be started again to replenish the large abandoned area of land. ~~Close~~ close monitoring of the land should be done to keep a check on the land under such cultivation. The practice of Agro forestry should be encouraged in which both the crops and the trees are cared by farmers simultaneously. It is almost impossible to completely check shifting and Terrace cultivation in some parts of Kohima, but we can find a solution to it, ~~instead of restricting~~ this method it can be improved.

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