International Journal of Science and Research (IJSR)
ISSN (Online): 2319-7064
Impact Factor (2012): 3.358

Conservation Soil and Agriculture in Tribal Community in Nalamala Forest

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Abstract: ***Indigenous traditional knowledge in conservation of soil and water in agriculture in Nalamala forest region is preserved and followed. Tribal of this forest maintain sustainable crop yielding. The present study is aimed at traditional knowledge in soil, its color, fertility and characteristics and management of soil. Formers of the studied villages in Nalamala have divided soil by its texture, color and water ret----capacity. The study documented 3type of soil as it is classified by the village former and elders. The soil is not only for crop production but also to build houses, color floor making pots etc. for conservation of soil the formers use different methods like crop changing, one crop production they make use of leaves and branches of some trees to improve fertility of soil. This study reflects that traditional knowledge management in conserving soil and water and beliefs of formers and sources and resources.***

Keywords: Classification, conservation and fertility of Soil in Nalamala forest.

1. Introduction

The regular touch with biophysical environment made the tribal community to get the knowledge of understanding the intricacies of natural resource in the nature. This constant touch with nature provided a lot of opportunity to get more knowledge about the ecosystem properties' that is called as traditional knowledge, Ecological traditional knowledge typical quality of continuity of resources use. Knowledge is based on integrated knowledge.

However, the importance of traditional agricultural practice has been receiving attention for food security (Rajasekaran and Whiteford, 1992), quality control and for biodiversity conservation (Gadgil et al., 1993). Some agro-forestry based studies show that traditional agriculture enhances the soil quality and helps agriculture in a sustainable ways (Berkes, 1999; Ramakrishnan, 2002; Kala, 2012). There are studies available on the traditional agricultural practices elsewhere (Rajasekaran and Whiteford, 1992; Bonny and Vijayaragavan, 2001; Ramakrishnan, 2002; Kala et al., 2008) some useful information is available, especially on the characteristics, conservation and management of soil in the present study area of the Nalamala tiger reserve forest in India. Here in this context, the present study deals with the traditional ecological knowledge on soil characteristics and fertility along with the conservation and management of soil by the tribal communities Chenchu and Lambadi(sugali) in the Nalamala Tiger Reserve Forest.

2. Methodology

The Nalamala Tiger Reserve forest lies an area of 430 sq. km is situated in the North coast of Andhra Pradesh it spreads among 3 districts of Andhra Pradesh Guntur, Prakasham, and Maha boob Nagar. This Nalamala Tiger Reserve forest is enriched with plant and animal diversity. Vegetation of forest is divided as subtropical hill forest and tropical moist forest. The major tribal groups are chenchu and Lambadi communities. These communities dominate the central part of Nalamala forest. These tribal heave some sub groups of about 16 types. The lively hood of these tribes is based on agriculture, collection of forests nuts, roots, gum, honey, leaves, and herbal related plants and flowers. The major crops grown by these tribes are, cotton, Mir chi, Tabaco, almond, Mizeand black grams in about 500 acers of land.

3. Survey Method

I personally visited some(gudam)houses of the tribe and spent a week with them to study the methods of their cultivation in Nalamala Tiger Reserve forest a total 12 clusters in Chinthala, Palutla, Nekkanti, Nathadika, Ponnalabilu, and Sattu thanada, villages are selected for study of agriculture, conservation of soil linked with traditional ecological knowledge. All of the above villages' chenchu is dominated tribe community. Personal interview was done to gather the information. By nature these tribes are very shy and don't like to interact with strangers and other communities.Repeated efforts were made to make them free to interact. In these tribal communities female is not willing at first but later helped a lot at the time of interview. Through interview collected the information about soil classification, fertility crop according to the soil, traditional knowledge for managing soil fertility and soil conservation. The tribe gave views and perceptions on soil in respect to the culture and ecological and conservation practice. At the time of interview different crops and soil were seen with the chenchu and Lambadi people and their knowledge in understanding and managing the soil. Cross inspection was also done to finalize the information on crops, soil types and its characteristics, tradition knowledge in maintaining the soil and agriculture.

Traditional agriculture and soil characteristics provided away to understand the suitable land for agriculture, the former of tribal' community divided the soil type on its texture, color, water usage capacity of soil. There are three types of soil has been seen in the forest area. They believe the texture of the soil is important to hold the river water and rain water absorption.

Black soil is known to be the best soil for fertility and yielding of crops. It is thick and muddy soil which can absorb river and rainy water. This very characteristic of the soil made the former to cultivate different crops. In this first monsoon they cultivated cotton, Mir chi, Tobacco, almond, Mize and black grams in their fields. They constructed check dams and ponds to preserve water and rain water. So they cultivate short period yielding crops such as cotton, Mir chi, Tabaco, almond, Mize and black grams is harvested with in 6 months.

Read soil is another best yielding soil in this forest. It has high water absorbing capacity as it is very smooth in this monsoon season formers cultivated mirchi in this soil they also believe this soil has power to kill some insects and bacteria. White with stone mixed soil is another type in the Nalamala forest. The texture of this soil is neither soft nor hard, but has many stones small and big . This soil cannot hold much water because this land has boulder beneath the surface. So former cultivate some type of vegetable seasonally for their use but not for commercial purpose.

3.1 Traditional use of Soil

Besides agriculture purpose, tribal people have learnt art of using this soil for different purpose. They use this soil for construction of their huts and houses. The make paste from this mud and apply it to their flood and wall two to there times and let it to dray. When it dried it becomes strong and floor is ready. They also make mud marbles, which they use to run away the birds and animals in their fields. With this mud they also carve their ditties idols and keep them in the proposed place .They also use this black soil to construct a 'Sit spot' around a Banyan tree in their village. Generally all the people of the village gather at the tree and chit- chat in their leisure time. But main purpose of this 'Sit Spot' is to conduct some village meetings. The leader of the tribe sits on this stage and solves the problem among the cluster people. He gives judgment on issues and tribe follows his judgment.

Red soil is also used traditionally. This soil is taken as powder and mixed with water to paint their walls and floor. With this soil also they carve the idols of gods and goddess. In the forest there is a goddess called VaraLakshmi(who gives money) when they go to the temple they carry some small quantity of red soil with them and they keep it in cloth and tie the cloth along with bangles and Red and turmeric powder to branches of a tree asking Her to give good crop. They believe by giving some red soil to Her, She blesses more than ten times to the real offering

3.2 Conservation of Soil

Former prepare the land to cultivate different crops and they are very cautious about land fertility preservation. Even today they cultivate in traditional method. They use dung of animals some forest leaves branches of tree ash as fertilizer.

3.3 Tilling of Land

At the beginning of June and July formers of this Nalamala Tiger Reserve forest first they apply the compost of the dung on the surface of the land. After one are two rainy days they till the land with bulls using local made 'Nagalee'. They do so because the soil may retain moisture. The tillage of land is very light because if they till land deep the germination of seed takes long time.So the former till the land very light. These formers practicing cultivation traditionally,

Researcher with the farmer

3.4 Burning Bushes

Before cultivate the land formers cut the bushes and burn them in the field, by doing so fertility of the soil increase. Formers collect the dried twigs of cotton crop in different parts at the land and burn them to ashes just before the starting of the crop. This ash is scattered in the field to increase the fertility of soil. It also works as a fertilizer to control pests. Not only this they also collect a different Varity of small plants from the forest and burn them in the field. Formers of this Nalamala Tiger Reserve Forest has great traditional knowledge in maintaining the soil fertility, if they find any unwanted weed or groves or plant they dug it out of its roots and burn them in the field.

3.5 Conserving Trees

Nalamala Tiger Reserve Forest tribal communities have been traditionally conserving and protecting some plants and trees in the forest. They use some plants leaves make them to powder and use in cultivations as fertilizer and practicing agro-forest method. They are surrounded by number of trees and plants the leaves and twinges of these trees are used as organic manure in fields as continuous decomposition. Mainly Neem tree (Azartica Indica) its leaves and fruits are use as fertilizers. They graind the leaves and make liquid and spray in the crop to run away the mesquotes from the field. They also grind the dried fruit of neem tree, make powder and spray in the land to control pests.

3.6 Rotation of Crop

Nalamala Tiger Reserve Forest former has been following this rotation crop traditionally. They change the crop for every now and then. Because they believe cultivation of same crop for many times leads to decrease the fertility of soil and less crop production. According to the climate

changes they change the crop in a year they cultivate one crop cotton and next mirchi. It has been doing and followed as tradition from their ancestors.

3.7 Protection of Crop

Former of the fields construct the boundaries of their fields with construction of small (pardas) walls. They also use long clothes as boundary as well as protecting the crop from forest animals, like forest pig and bare and peacock.. These animals eat this fruit of cotton; parrot eats the inner white seed of mirchi. So they are very particular of their boundaries. At night times they stay on open built hut and protect their crop from forest animals by throwing stones and shouting.

Protection of crop with boundaries

In the Nalamala Tiger Reserve Forest land is very flat and there is very less chance of soil erosion but as precaution they plant some trees and build trendies and protect the soil fertility of the land.

To maintain soil moisture Nalamala Tiger Reserve Forest formers till the land and level the land because less moisture and excess of moisture may lead to less production of crop. So they are very intelligent in maintaining the moisture. These formers use cow and goat dung as fertilizer to increase the manure of the land. Black soil needs a lot of manure, so they do it one year after another. Red soil needs no manure. The form yard manure is the best tradition that is followed by these Nalamala Tiger Reserve Forest formers.

4. Conclusion

Indigenous people classify the land basing on the texture and color of the land. The Nalamala Tiger Reserve Forest tribes have been traditionally conserving soil and agricultural methods. Their cultural belief and traditional methods are well built and maintained ancestrally. They follow old methods to increase soil fertility and moisture. They believe this tradition practice is reliable, relevant and environment friendly. So tribes of Nalamala Tiger Reserve Forest should be encouraged to cultivate their fields with different crops for commercial and family purpose. It is also important to document these traditional methods of cultivation. This wisdom of tribes may become main source of cultivation in Andhra Pradesh as it is friendly environment. It is the correct time to implement this traditional conservation of soil and agriculture in augmentation programme in Andhra Pradesh.

5. Acknowledgement

I am immensely thank full to the tribal people who have given me a lot of information about the soil, water conservation and agriculture practice in Nalamala forest, my guide Professor .Z. Vishnu Vardhan .I vow to Mr. K. P. Kennedy Babu Associate professor. I am also thankful to Pilli Daniel Asst. Professor.

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