



International Research Journal of Interdisciplinary & Multidisciplinary Studies (IRJIMS)

A Peer-Reviewed Monthly Research Journal

ISSN: 2394-7969 (Online), ISSN: 2394-7950 (Print)

Volume-II, Issue-I, February 2016, Page No. 63-69

Published by: Scholar Publications, Karimganj, Assam, India, 788711

Website: <http://www.irjims.com>

Agricultural Technology and Labour Process in Pre-Colonial Assam **Lakhinandan Bora**

Ph.D. Research Scholar, Dept. of History, Dibrugarh University, Dibrugarh, Assam, India

Abstract

The development of tools and technology and the labour process were two major inherent forces which persistently working in the course of evolution of human civilization. The labour process played a determining role in invention, discovery and development of various tools and technologies which finally became the crucial factors in the developmental paradigm.

Regarding the beginning of cultivation process in the hill-tops and flooded plains in pre-colonial Assam, it is difficult to give the exact time. In the beginning, cultivation was carried on by cutting down jungle and trees, setting them on fire, making holes in the land with the help of digging sticks and then sowing seeds i.e. the jhum cultivation. However, with the introduction of hoes and ploughs in agricultural practices, people took the more complicated process of wet paddy cultivation.

Agricultural activities were not confined to a particular occupational group in pre-colonial Assam. On the contrary, it was common for all section of the population including the aristocracy to engage themselves in agricultural pursuits. The agricultural situation in pre-colonial Assam, though carried out with primitive tools and technology, succeeded in producing the basic requirements of the populace. With the extension of wet paddy cultivation, surplus of substantial volume was produced leading to consequent formations in the society and polity.

The scope of the research work will confine to the study of the labour process and the technological phenomena in agricultural sphere during the pre-colonial Assam, i.e. till the first quarter of the 19th century AD. The approach of the proposed research will be historical and analytical. Taking into account all the available sources, micro-study and inter-disciplinary method of study will be done to make it more comprehensive.

Key Words: Agriculture, Agricultural technology, Labour process, Pre-colonial Assam, Paddy cultivation, Land Settlement.

Introduction: The development of tools and technology and the labour process are two major inherent forces which incessantly working in the course of evolution of human civilization. The labour process played a determining role in invention, discovery and development of various tools and technologies which finally became the crucial factors in the social formation processes. The journey of man through the ages, from the primitive stage to modernity, it has been a tremendous journey indeed. In an effort to identify and explain the motive force behind historical change, the relation between man and nature is focused upon. The interaction between man and nature is primarily through the medium of labour process and the ability to produce his material needs.

As Gordon Childe says, ‘man makes himself’¹. Man makes himself through the labour process by making and using tools and implements in order to live increasingly well at the expense of his environment. It follows then that there must have been a change in the quantity and quality of his tools or the means of material production. Means of material production determine social organization which cannot be more advanced than the former.

Technology is the process that collects, adapts and transforms raw materials in order to improve the conditions of human existence; in other words, it comprises the operational sequences in the production of something. Thus, technique is a ‘sociological phenomenon’², because technology is shared and transmitted within a group of society, as is any other element of culture, knowledge, experience and skills are transmitted through the process of socialization, working together, and teaching-learning, all sociological phenomena.

Discussion: Agricultural practices came to the scene when man gave up nomadic habits and settled in favourable climate and topography. In this gradual process of evolution from the nomadic to the farming stage, ancient men undoubtedly had to learn many things by trial and error. From the coarse elementary stone implement developed the ploughshare to till the soil. Farmers all over the world have developed their own agrarian systems through the ages led by their needs; and this has come about within the framework of local potentials and precincts of ecology within the social, economic and political structure of the specific region.

There has hardly been any modern technological advancements that practice dry-land agriculture – what has today come to be known as ‘survival agriculture’. Even in those areas, where modern agriculture has replaced traditional agriculture, it is largely in the nature of inputs which show no ingenuity, apart from the already existing traditional agricultural system in that area.³ Regarding the situation that existed in pre-colonial Assam, U.N. Gohain remarks that the soil of Assam is extremely fertile. Neither manure nor irrigation is required, as the rivers rarely overflow their banks and deposit a fresh top-dressing of silt every year.⁴ The term ‘Pre-Colonial’, here, denotes the period from the earliest times to the first quarter of the 19th century AD.

It is difficult to give the exact time of the beginning of cultivation process in the hill-tops and flooded plains in pre-colonial Assam. In the beginning, cultivation was carried on by cutting down jungle and trees, setting them on fire, making holes in the land with the help of digging sticks and then sowing seeds i.e. the *jhum* cultivation. This is the most extensively used method among most tribes till this day. The two primitive types of cultivation, viz. the *jhum* or shifting cultivation and the terrace cultivation were practiced mainly by the tribal groups inhabiting the hills and forest areas of the state. Basically the hill tribes have been carrying on a sort of cultivation called *jhum* from the very early times.

The latter method of cultivation was adopted on the hills by cutting terraces so that the rain-water could be retained for some time for the growth of the crops. The *jhum* cultivation was a shifting one and the cultivators, due to the reduced fertility of the cultivated area used to shift their cultivation to different areas every two or three years. The shifting process of cultivation not only help erosion of soil, the area being denuded of tree and jungles, but also reduced fertility. The hill-men usually took recourse to these methods of cultivation and they are still being adopted, though the *jhuming* is discouraged at present.

However, with the introduction of hoes and ploughs in agricultural practices, people took a more complicated process of cultivation. This method of cultivation of land, particularly in the settlements

is proved by the grants. There are also references of irrigation. It is known from the grants that most of the towns, villages, and arable lands were situated on the banks of rivers. The occurrence of expressions like *sajal-sthala*, used in connection with most of the donated lands, and other terms like *jala*, *garta* (pit), *doba* (reservoir of water or small tank) etc., indicate that the arable areas were supplied with water. This is proved by the account of Yuan Chwang, of the 7th century AD.⁵

Usually the agriculturists used to plough their land three times after which the tilled soil was made ready for transplanting *kharif* paddy seedlings by leveling the land with a harrow. It is not definitely known when the plough drawn by bullocks, hoe, rake and harrow were introduced in Assam. The method of tilling soil was more suitable for the plain areas and had the advantage of bringing under cultivation a larger area than that which could be covered by hoes. It was also more suitable for cultivating wet paddy which required constant water for its growth. The wet paddy cultivation could be undertaken only during the monsoon season from mid-April to the beginning of September. The seedling requires transplantation for its proper growth.

The wet paddy cultivation known as *Sali-kheti* was the principal rice crop and is still the main crop in Assam. Two other paddy crops, viz., *ahu* and *bao* were cultivated in the winter and the former was harvested in the rainy season and the latter in September-October. The first took a shorter period than the wet-paddy crop for its maturity and cropping and that is why it is called *ahu*. The *bao* seeds are proad-paste in water-logged areas in the months of February-March. The cultivation of the three varieties of the paddy crop noted above are being cultivated from early times. The *baro* paddy cultivation was mainly done in winter season in low-lying areas and unlike *ahu* cultivation; its seedlings are transplanted and takes a longer period for harvesting.

For the cultivation of paddy the people were mainly depend upon nature in pre-colonial Assam. They received ample water during Monsoons. The fertility of the soil and the periodical rain (Monsoon) help luxuriant growth of vegetation in the extensive plains of the Brahmaputra valley. Therefore, the artificial irrigation system was not much known in Assam as in other parts of India. The cultivators of Assam were not required to endure hard labour in the cultivation work because of the excessive fertility of the soil and the water received from the heavy rainfalls.⁶

Water may have considerable fertilizing value because of its mineral nutrients, or may cause damage to the crop by poisonous or indirectly harmful substances. Quality of water is dependent on its origin. River water is generally preferable to that from other sources. Assam, with the mighty Brahmaputra flowing through the middle of the state and with its large number of tributaries and the multiplicity of other rivers and streams, not only ensure a steady supply of good quality of water conducive for rice cultivation but its phenomena of annual flooding also ensures the deposit of silt in the land, that further optimises the conditions required for wet paddy cultivation.

Agricultural Technology: Regarding the agrarian tools and technology in pre-colonial Assam, the ecology of the place played an important role in determining the design of the agricultural implements. As has been observed by J.N. Phukan 'the indigenous plough was of the lightest and simplest kind. As it were, by the time the cultivator started ploughing his fields by April or early May, the soil would be quite soft, having received several showers of rain. Ploughing is done by a pair of bullocks. At first, furrows are made along the field almost touching and parallel to each other. The plough is drawn crosswise cutting the first furrows at right angle. The furrows are made 4 inches to 6 inches deep at this stage. The harrow is also drawn by a pair of bullocks guided by a man who takes his stand on the harrow and press the soil with his weight. Usually ploughing is done three or four times.

The ploughing was mainly designed to loosen the soil and also uproot the weeds. As the objective was neither deep ploughing nor overturning of soil, the plough was fitted with neither the mould nor the heavy iron coulter. Bullocks were normally used to pull the ploughs. However, in the low lying marshy areas the buffalo was the preferred animal. Here, the plough used was lighter and the plough share smaller than those in the higher areas.⁷

The fact of the agricultural implements in pre-colonial Assam being of a primitive nature is stressed by other writers of the time, as well. Hunter writes that “the implements of agriculture are of the most primitive description. The plough consists simply of a crooked piece of wood, sharpened at one end, and covered with a pointed iron plate of about one inch and a half wide for the share; and a pole about six feet long to which the oxen are yoked. With this rude instrument the ground is turned over to the depth of three or four inches. The harrow is either a branch of a tree, or a couple of parallel pieces of bamboo about eight or ten feet in length, with pieces of wood across, dragged across the field by bullocks, and on which the driver stands to give it weight.”⁸ He added the bullocks are little cared for and that the ploughing and reaping are done by the men and other operations such as transplanting are frequently performed by the women and children.

In addition, was the intricate method of water retention and control in the cultivated plots whereby the paddy fields are crisscrossed by small bunds called *alis* which are constructed of compacted clay, stiff mud and weeds and laid out in straight lines. Openings are made at convenient places to allow ingress and egress of water. Proper control of water being a prime condition for the system of wet rice cultivation it is obvious that bounding of fields for the control of water is of fundamental importance. But at the same time, the existence of these bunds would make it difficult to transport the ploughing equipment from one field segment to another. Probably to overcome this problem it is noticed that the equipment designs are normally light and easily manoeuvrable.

Although there were no major irrigation projects, yet it cannot be urged that the people were ignorant of the art of irrigating their fields of draining out water from them. Ralph Fitch says that the people could, by constructing dams across the streams inundate the country when necessary, making it impossible for men and horses to traverse it.⁹ Robinson also admits the existence of the practice of field irrigation to a small extent. It is known from various sources that the people were accustomed to the construction of embankments, called *mathauri*, along the banks of rivers to check the rushing water of the rivers in spate into the fields.

To prevent destruction of crops by flood and erosion adequate preventive measures were taken by constructing bunds and ramparts. During the period of study numerous embankments and ramparts were raised for the defensive purpose which also serves as bulwarks against floods. As Assam is a land of heavy monsoon intermingled by innumerable rivers and streams the necessity of irrigating agricultural fields by man-made canals was a matter of least urgency. The tropical climate, heavy rainfall and fertility of the land enabled the agriculturists to reap rich harvests with the minimum of labour if heavy flood and serious inundation did not take place.

Division of Land and Land Settlements: The evidences indicate that in pre-colonial Assam had an ancient system of division of lands into *vastu-bhumi*, *ksetra*, *khila* and *goachara-bhumi*. About the land occupied by people in the period, Martin says, “Assam proper is higher and of a better soil than Kamrup and contains a few or no hills, nor woods. It is reckoned that formerly $\frac{3}{4}$ of the whole were in full cultivation and that even now not above $\frac{5}{16}$ are waste or unoccupied. This, I presume, is only meant to apply to the islands and the parts that are on the south side of the Brahmaputra. It is

said that of all the lands in Assam proper which are occupied, 2½ annas belongs to the temples or men esteemed holy (Devottara and Brahmottara), 4½ annas are let out for a rent and 9 annas are distributed among *paykes* (*paiks*) or reserved for the king and his officers.”¹⁰ However, under the Ahom rule, all the lands were divided into divisions, such as *rupit* (fit for cultivation of *sali* and *lahi* paddy), *patit* (fallow land), *baotali* (fit for cultivation of *baot* paddy), *basti* (land fit for housing purposes), *pharingati* or *tangani* (dry land), *jalah* (low land filled with water) and *pitani* (marshy land).¹¹ Under the Ahom rulers all the lands were divided into divisions, such as *Rupit* (fit for cultivation of *Sali* and *Lahi* paddy), *Patit* (fallow land), *Baotali* (fit for the cultivation of *baot* paddy), *Basti* (land fit for housing purpose), *Pharingati* or *Tangani* (dry land), *Jalah* (low land filled with water) and *Pitani* (marshy Land).¹²

Martin states about the land occupied by the people in the Ahom reign as- “Assam proper is higher and of a better soil than Kamrup and contains few or no hills, nor woods. It is reckoned that formerly ¾ of the whole were in full cultivation and that even now not above 5/16 are waste or unoccupied. This, I presume, is only meant to apply to the islands and the parts that are on the south side of the Brahmaputra. It is said that of all the lands in Assam proper which are occupied, 2½ annas to belong to the temples or men esteemed holly (Devottara and Brahmottara), 4½ annas are let out for a rent and 9 annas are distributed among *paykes* (*paiks*) or reserved for the king and his officers.”¹³

Labour Process: The geographical, ecological and ethnological background of Assam had a great contribution in molding the nature of labour process and technological development. Agricultural laborers are divided into farm servants or permanent employees and field laborers or temporary hands. Male predominant among the former and females among the later, the reason behind that women, although seldom employed permanently, are hired in large numbers at the time of transplanting the paddy seedlings and again when the crop is being reaped.

Minor agricultural labourers are divided into several artisanal groups. *Kaivartas* (boatmen), *Kumahar* (potter), *Hadi* (potter), weavers, engravers and coppersmiths, suggesting on the whole a picture of occupational mobility, mainly because of the general availability of cultivable waste land, of which a number of references found in the inscriptions. The system of slavery is also prevalent from ancient times in Assam, basically among the hill tribes. There were also female slavers among them, who besides performing domestic duties, worked on the field as well. The Ahom rulers organized the labour process in such a way that the state could obtain the maximum use of its labour force. The state was highly depended for its growth and existence on the peasants, artisans and workers including slaves and servants who formed the body of the labour force. It was therefore, not the soil alone but also the working force thereon that was regarded as property of the state. The systematic organization was the *Paik system*, i.e. the system of organization of the labour force of the state.

The people are mainly agriculturists during the period of pre-colonial Assam. Both in the plains and in the hills, rice is the primary food in Assam. All people, irrespective of caste and creed, are engaged in agriculture. The cultivators cultivated nearly every article of domestic consumption from their own. The cultivators drove the plough themselves, and carried home the rice that had been cut by their wives and daughters.¹⁴ The professional classes, those who were engaged in other industries and crafts, also cultivated the paddy. During the period of study status was expressed in terms of the quantity of paddy they produced.¹⁵

Agricultural activities was not confined to a particular occupational group in pre-colonial Assam. On the contrary, it was common for all section of the population including the aristocracy to engage themselves in agricultural pursuits. J.N. Phukan¹⁶ has this fact about the universality of agriculture in Assam and how all strata of society were engaged in it, be it the humble peasant or members of the royal family. Transplantations of seedlings and reaping of matured crops usually done by womenfolk. The ploughmen tilled the soil and carried home the harvested crops.

Guha estimates that one third of the mobilized *paiks* served their time as servitors or *likasus* of the nobles and officers who were endowed with extra land, while in office, in the absence of a salary system.¹⁷ The *Katha-gurucarita* furnishes us with several instances of landless peasants who worked as bonded labourers or worked in rich tenant's firms to share a minimal part of the crops.¹⁸ There were also people who neither possessed land for cultivation nor implements for cultivation purposes. Such people were sometimes employed by the land owners for which the former were either given wages in coins or a share of the crop. In the latter case, the system was called '*marakia*', in which the labourers were generally reimbursed by $\frac{1}{4}$ share of the crop. The employer furnished the seed and the necessary agricultural implements. Landlords sometimes sublet their farms to persons who did not hold any land of their own. Such tenure was called '*adhi*'.¹⁹

In contrast to this position of the landless peasants, all the adult males above sixteen years of age, having their names enlisted in the records of *paiks* and *chamuwas* were provided with *ga-mati* (land granted for rendering physical service to the state) *man-mati* (land granted to aristocrats) *Khat* (granted to nobles and higher officers) or *mel* (land granted to princesses and princes). Even *likchouws*, i.e. the estates attendants of the lands granted to higher officers and nobles were also provided with *ga-mati*. *Paiks* could reclaim additional fallow land by a nominal tax. Though *ga-mati* and *khats* (estates) were not hereditary, yet *paiks* were not put to a disadvantageous position by allotting lands at distant places. Thus, cultivable lands were hardly allowed to lie fallow.

Conclusion: The situation that prevailed in pre-colonial Assam has been beautifully summed by U.N. Gohain,²⁰ when he remarks that the soil of Assam is extremely fertile. Neither manure nor irrigation is required, as the rivers rarely fail to overflow their banks and deposit a fresh top-dressing of silt every year. The cultivators raised nearly every article of domestic consumption from their own fields and lived in ease and comfort. Rice, their common article of food, was cheap and abundant. The immense mass of cultivators drove the plough themselves, and carried home the rice that has been cut by their wives and daughters.

Having examined the agrarian condition in pre-colonial Assam, it can be asserted that the technology of the period succeeded in optimizing production under the ecological conditions that existed. This was done on the basis of the fact that during the period had not only requisite technology and superior tools needed, but also the manpower required for the purpose. As the basic thrust of the production process was towards wet rice cultivation, the state machinery was greatly used towards creating the conditions needed for rice cultivation, such as land reclamation, flood prevention and water control. In addition to rice, other necessary items were also produced. In addition to rice, other necessary items were also produced. Many of the age old technologies and practices of pre-colonial Assam continue to prevail in large parts of the land of Assam even today.

In sum, the agricultural situation in pre-colonial Assam, though carried out with primitive tools and technology, succeeded in producing the basic requirements of the populace. All classes of the population were engaged in cultivation and manual labour was not looked down upon. Neither did there exist any class of people who totally exempt from the process of cultivation. The agrarian

technology not only ensures a steady supply of food, but laid the foundation for building a strong state. With the extension of wet paddy cultivation, surplus of substantial volume was produced leading to consequent formations in the society and polity.

Notes and References

1. V. Gordon Childe (1944), "Archaeological ages as technological stages", *Journal of the Royal Anthropological Institute*, Vol.: 74, pp. 7-24.
2. Langdon Winner (1977). *Autonomous Technology: Technics-out-of-Control as a theme in Political Thought*, Cambridge, pp. 27-30.
3. Dinesh Baishya (2009). *Traditional Science and Material Culture of Early Assam*, 1st edition, p. 55.
4. U.N. Gohain (1999). *Assam Under the Ahoms*, Guwahati, 1st published 1942, Reprint, p. 149.
5. P.C. Choudhury (1959). *The History of Civilization of the People of Assam*, Guwahati, p. 360.
6. Gunabhiram Barua (1875). *Asam Buranji*, pp. 246-247.
7. J.N. Phukan, *op. cit.*, p. 106.
8. W.W. Hunter (1998). *A Statical Account of Assam, Vol.-I*, 1st published 1879, reprint, Guwahati, p. 476.
9. K.L. Barua (1933). *Early History of Kamrupa*, Guwahati, p. 303.
10. M. Martin (1938). *Eastern India*, London, p. 669.
11. *Ibid.*, p. 670.
12. W. Robinson (1841). *A Descriptive Account of Assam*, pp. 202-207.
13. M. Martin, *op. cit.*, pp. 669-670.
14. U.N. Gohain, *op. cit.*, pp. 147-148.
15. P.C. Choudhury, *op. cit.*, p. 359.
16. J.N. Phukan (1994), "Products: Agricultural and Non-Agricultural" in H.K. Barpujari, (ed.), *Comprehensive History of Assam*, Vol. III, Guwahati, p. 105.
17. A. Guha (1987), "The Ahom Political System" in Surajit Sinha (ed.), *Tribal Polities and State Systems in Pre Colonial Eastern and North Eastern India*, Calcutta, p. 168.
18. *Katha-gurucarita*, pp. 51, 101, 407.
19. W.W. Hunter (1879). *A Statical Account of Assam*, New Delhi, p. 371.
20. U.N. Gohain, *op. cit.*, p. 149.