RESEARCH PAPER

Wet Rice Technology of the Tai Shan State Formation in Brahmaputra Valley

Tanzim Masud[1], Sajal Nag[1]
[1] Research Scholar, Royal School of Humanities and Social Sciences (RSHSS), The Assam Royal Global University, Guwahati, India
[2]Professor, Royal School of Humanities and Social Sciences (RSHSS), The Assam Royal Global University, Guwahati, India
Email ID:- sajalnag09@gmail.com

Abstract
The Tai-Shans' migration into the Brahmaputra Valley in the thirteenth century brought about major changes in the agricultural, social and political scene of Assam. This paper examines the introduction and expansion of wet-rice cultivation by the Tai-Ahoms and its relation with the rise and consolidation of the Ahom state. Prior to their arrival, many communities of the Brahmaputra Valley were practicing shifting cultivation, although some groups had developed limited forms of irrigation. The Tai-Ahoms introduced a more intensive system of wet-rice cultivation, based on the use of the plow, transplantation, land leveling and systematic water control. The expansion of this agricultural system required the reclamation of forests and marshlands, the construction of embankments and canals and the mobilization of substantial labor. The paper is concerned specifically with the paik system, through which the Ahom state organized and mobilized manpower for military, agricultural and public works. The system enabled the state to reclaim cultivable land, extend wet-rice cultivation and build the infrastructure for water management. The incorporation of indigenous communities into this agrarian system also became an important part of the broader process of Ahom state-formation. But this process was also one of integration and dependency as the mobilization of labor was increasingly controlled by the ruling elite. The paper contends that wet-rice technology is not simply an agricultural innovation. The expansion of it brought changes in land use, labor organization, social relations and political authority. It ultimately contributed to the transformation of Assam to a predominantly rice-based economy.

Keywords: *Tai-Shans, Tai-Ahoms, Wet-Rice Cultivation, Ahom State, Paik System, Rice Economy, Land Reclamation, Brahmaputra Valley, Water Management, State Formation*
How to cite this article: Tanzim Masud, Sajal Nag. Wet Rice Technology of the Tai Shan State Formation in Brahmaputra Valley. Int J Drug Deliv Technol. 2026;16(88s):901-906. DOI: 10.25258/ijddt.16.88s.91.

[1] **Sajal Nag, Distinguished Professor in History, The Assam Royal Global University, Guwahati.**

Introduction

The Ahoms were a Tai speaking people who came to the Brahmaputra Valley in 1228 CE under the leadership of Sukapha. This was an important phase in the political and cultural transformation of medieval Assam. Sukapha and his followers, who came from the area of present-day Upper Myanmar and southwestern China, crossed the Patkai hills and slowly settled in the eastern Brahmaputra Valley. Their arrival brought them into contact with established communities like Morans, Borahis and Chutiyas. The Ahoms gradually consolidated their authority and developed a powerful state through settlement, warfare, alliances, intermarriage and cultural interaction. So their migration was not simply the movement of people but the start of a long process of state formation, cultural assimilation and social transformation in the Brahmaputra Valley. It is now established that the Tai-Shans who migrated to the Brahmaputra valley in the thirteenth century had brought along with them the technology of wet-rice cultivation from their place of origin. The tribes of Assam who inhabited the Brahmaputra valley before the advent of Tai-Shans had practiced slash and burn cultivation on the hill slopes. The Aryan migrants had knowledge of wet rice cultivation but its practice was limited and different. On the other hand, the Tai Shans had not only the knowledge of wet rice technology, they were expert rice growers of South East Asia. Their migration and establishment of a state in the region provided them the opportunity to implant the technology in the valley and its was through the introduction of wet rice technology that they absorbed most of the tribes within their state. In fact the Ahoms were not only known for establishing a state that lasted from 500 years but as transforming Assam into a rice economy. Prof Amalendu Guha has shown that it was the introduction of wet rice through which the Ahoms had subdued a majority of indigenous tribes to establish their state (1). This paper is an exploration of the introduction of wet rice technology by the Tai Shans into Assam and its impact on the region.

The Tai-Shans and Organisation of a Rice Economy

The Tai were a branch of the Shan tribe of South East Asia. They were described by early Chinese chronicles as "barbarians" in south of the Yang-tze-kiang river (2). This group came to be known as Shans in Myanmar, Thai in Thailand, Lao in Laos, Dai and Zhuang in China and Tay-Thai in Vietnam (3). The Tais who migrated to Assam were known as Shan-gyi or Shan proper who called themselves as Tai-Lung or the Great Shans (4). The Tai-Shans were a martial race who depended on an organised militia for both political and economic sustenance. Once settled in the valley, the Tai had two major tasks: to secure their settlement by occupation of the land as well as absorb the neighbouring polities. The absorption was necessary because they confronted a ethnically and culturally diverse and heterogenous people around them which was a new experience. Secondly, initiate a sustainable and surplus producing agriculture on the river banks. The army that accompanied *Siu Ka Pha* was used for subduing hostile opponents as well as absorb neighbouring settlement. The same army men were also used to reclaim lands and introduce and extend wet rice cultivation in the valley. The already organised soldiers were re-organised into a system of labour force known as *paik*. The entire pool of men comprised as the man-power-resource of the state who would act both as army as well as agricultural labour. The total male population was listed as *paiks* who were enumerated and organized in such a way that the whole population were divided into various divisions. Each of these divisions was called *khel* and each of the members of the *khel, paiks* (5). Such a system helped the state to have the total labour-power at its disposal and use it for various state projects. Every member of *khel* were totally depended on their respective *khel*s or on the part of the social community to which he belonged. The *Paik* had to oblige to the decision of the *khel* and his social behaviour needed the consent of the *khel*.

Historiographical Gap

Ahom migration and its association with the development of agriculture have been much discussed in the historiography of Assam. Amalendu Guha in his discussion on Ahom migration and rice economy has particularly stressed the significance of wet-rice cultivation in the expansion of Ahom state and its impact on agrarian economy. His work continues to be important for the understanding of the relation between agricultural production and state formation. Other scholars have looked at the political organization of the Ahom state, the paik system, land reclamation and the incorporation of indigenous communities. The studies have proved that agriculture, labor and political organization were closely associated in Ahom period.However, much of the existing discourse tends to look at these issues in separate frameworks: Ahom state as a political formation; paik system as a mechanism of labor and military organization; or rice cultivation as an economic development. Less

attention has been given to the technology of wet-rice cultivation as a historical process and the ways in which its practical requirements -- land leveling, transplantation, water control, embankment construction and the mobilization of labor -- shaped the expansion of Ahom power. The question is not only how the Ahoms produced more rice, but how the technology of wet rice cultivation helped to transform land, labor relations and interaction between the Ahoms and the indigenous people of the Brahmaputra Valley.

This paper seeks to fill this gap by focusing on wet-rice technology. It contends that the dissemination of wet-rice farming was simultaneously an agricultural, ecological, social and political process. The creation of a productive agrarian base for the Ahom state was achieved through reclamation of forests and marshes, management of water, organization of labor through the paik system and incorporation of shifting cultivators. At the same time the paper recognizes that this process involved not only integration but also extraction and control of labor. Thus, the paper treats wet-rice cultivation not merely as an agricultural innovation introduced by the Tai-Ahoms but as one of the material bases through which the Ahom state transformed the Brahmaputra Valley and consolidated its political authority.

Introduction of Wet rice agriculture

At the beginning of the Christian era, the *Shan*s were described in Chinese annals as living in hot richly-watered plains, growing wet rice through irrigation and terracing. It was noted that they used water buffaloes and oxen for ploughing and lived in pile-houses with *verandah*s (6). In fact, the entire South East Asia with centres like Thailand, Combodia, Vietnam, had developed the plough using wet rice technology long before many other regions. The Tai-Shans were proud of the wet rice technology and their chroniclers believed that their ancestors were sent down from Heaven so that "large fields lying fallow" could be brought under the plough and stateless people, locked in constant war fares in the hills and plains, could be brought under a stable rule (7). They were divinely ordained, firstly, to extend their permanent wet rice culture to areas dominated by large-scale fallowing and shifting cultivation and, secondly, to absorb stateless shifting cultivators into a common polity with themselves. Similarly, the Tais also had a low opinion about the civilizational growth of communities who still practiced slash and burn cultivation. These legends and myths hint at the superiority of the plough- using Tai agriculturists over their non-Tai neighbours who practiced *jhum* (slash-and-burn). The Tai-Ahoms were an advanced plough using wet rice cultivating tribe with the knowledge of higher agricultural technology. The use if the iron tipped plough and transplantation techniques along with a system of controlling the water in the rice fields were among the dominant characteristics of the wet rice technology. Hence the migration of the Tai-Shans into the region meant the invasion of the plough into pockets of hoe and stick culture and an extension of the wet rice *(Sali)* cultivation at the cost of that of dry rice (*ahu*) and also of the transplantation technique in preference to the broadcasting of seeds (8).

The Tai-Shans knew Brahmaputra Valley as a ‘land of golden gardens’ but on their arrival in Upper Assam they found surrounded by practiced *jhum* (slash-and-burn) cultivators. S.L. Baruah showed that the Morans and the Barahis with whom *Siu ka pha* dealt first had still been in a ‘stage of tribalism’ and accustomed to communal tilling of the land with less advanced equipment (9). The Morans and Barahis - the people the Ahoms first came across and absorbed--as well as large sections of other Bodo people, including the Dimasas, were all shifting cultivators. What happened to the Morans and Borahis also happened to other prisoners of war and conquered tribes. "The Valley Shans", says E R Leach, "have everywhere, for centuries past, been assimilating their hill neighbours (10).” The non-Ahom tribes practising shifting cultivation were contemptuously described by the Ahoms as *Kha people* (meaning 'slave’ or 'culturally inferior foreigner'). In pre-Ahom Upper Assam, most of the rice cultivation was done by the plough-less tribal cultivators. Short-maturing dry (*ahu*) variety of rice) undulating/sloping land surface, broadcasting of seeds, slash and burn, land rotation for fallowing and the use of hoe or digging stick these were its dominating features. A section of the Bodo-Kachari tribes, though still plough-less, had by then developed also their typical irrigation methods (11). They used to throw up a temporary bund across a hill stream in its upper reaches and draw river water along dug-out channels (*dong*) into their fields. But they had not yet adopted the technique of transplantation. Besides, their irrigated cultivation was still limited to an inferior *ahu* variety of rice and subject to frequent shifting, and, was in vogue only in the vicinity of the hill streams (12). Permanent non-tribaI peasant settlement, practising wet rice culture were all situated at a distance from the new habitat of the migrant Ahoms. The Morans and Borahis were initially looked upon as collective serfs of the Ahoms, a source of unpaid labour supply at the beck and call. Until they had picked up new skills like ploughing and the art of scraping land surface to a dead level or elephant-catching by way of *Kheda* operation--they were not of much use to the Ahoms. Hence initially, they were, by and large, left undisturbed in their forest dwellings. In due course, however, an ever-increasing section of them learnt these skills and were assimilated. Some of them were then turned into slaves and others into serfs attached to the estates of the Ahom nobility. A few of the tribal

chiefs and headmen were admitted as full members even into respectable Ahom clans. The rest were transformed into peasants doing militia duty like the Ahoms.

In fact, the Ahoms can be called a group of cultivators looking for fresh lands which brought them into the fertile Brahmaputra valley. The fertile and virgin land of the valley delighted the Ahoms who described it as '*Mung dunchung khamn'* meaning the land of golden crops. After their entry into Upper Assam, the migrant Tai-Ahoms introduced wet rice cultivation in the Brahmaputra valley of the variety they practiced in their home region and extended its cultivation by reclaiming marshy and forest lands. Pre-Ahom Upper Assam was an undulating alluvial plain, full of jungles and marshes under the given conditions of a heavy rainfall. Land reclamation was therefore the first task. The arrival of the Tai-Ahoms there with a knowledge of an 'improved mode of production (wet rice cultivation or *Sali kheti*) was a civilizational contradiction which could be resolved only through absorption of these tribes and adoption of the higher technique by the latter (13). This Ahomisation of plough-less autochthons followed by Hinduisation--the latter process involving a whole package of changes in the matter of language) mode of dwelling, food habits and agricultural techniques etc was an important dimension of the state-formation process under review. By clearing dense forests, levelling extensive land surfaces, construction of massive embankments and water irrigation with the help of a militia – organized out of the subject population – the Ahoms gradually extended their wet rice culture throughout the Brahmaputra valley. The package changes in the rice economy ensured an increased production thereby giving sustenance to the rising population. Wet rice cultivation however, required not only a large base of man power to clear the dense monsoon tracts and level the soil but also a system of efficient water control to irrigate the field. The Ahom state was largely successful in providing the basic infrastructural facilities, for extension of wet rice cultivation. Through its control over the supply of labour the state played a dominant role in land reclamation and water control. It must be noted that in wet rice cultivation water is the most important factor for it usually supplies all the nutrients required for healthy growth (14). One way of increasing rice yields and land productivity is by control over the water supply. In Assam, rainfall being so abundant small scale irrigation facilities could be organized by the peasant community at the village level.

To a considerable extent the nature of wet rice cultivation depended on the varying ecological condition. The suitability of land for rice depended chiefly upon its elevation and in its capacity to retain moisture. For this purpose, the field was first levelled (15) and low ridges or *alis* were raised in a crises-cross pattern to retain water in the fields (16) - the excess being drained out when necessary. These ridges were generally not higher than a foot. This technique suited the extensive central alluvial plains of Assam and permanent wet rice cultivation was mostly carried out in this diluvial plain. Here, the level of the region being above the reach of the ordinary floods, *sali* was grown extensively. By the end of the eighteenth century, winter rice constituted nearly three fourth of the whole crops grown in Assam (17).

Central to the agricultural operation was the construction of extensive river embankments. The rainfall in normal years was so abundant that the danger to cultivation arose from floods rather than lack of water. To prevent the annual flooding of the rivers huge embankments were constructed on state initiative. These embankments served alike as bunds and the high roads of the region. One such bund is said to have extended throughout the whole length from Cooch Behar to Sadiya (18).

"These river embankments were crossed by high raised pathways which were again joined by smaller bunds graduating down; and connecting the villages and fields at once formed most continuous areas of communication, and afforded opportunities for retaining or keeping out the inundation" (19).

Nearly every stream in Upper Assam was bunded. This was in contrast to Lower Assam where no general system of embankments existed though partial embankments on particular rivers existed, especially on either bank of the Kallang.

The *paik* militia was employed to reclaim cultivable lands from forests and swamps. These were then systematically settled with the surplus population from older habitations. Hundreds of miles of river embankments, crossed by high raised path-ways, and joined by smaller bunds, graduating down to and connecting the villages and the fields, formed a network that helped retain or drain the inundated water. The Ahom economy was essentially a rice economy and the region was rain-rich. Two major varieties of rice, ahu and *sali* were cultivated. *Sali*, a more productive variety of rice, needed wet conditions and transplantation. Slopes being an important factor for consideration in rice culture, wet rice needed fields that could be flooded artificially from adjacent streams when needed, or fields that could be reduced to one level so as to retain the rain water. The second technique is more important in this context. It suited the extensive central alluvial flats, made up of clay soil which permitted the raising of low ridges in a crisscross pattern so that the fields were divided into a number of small, rectangular blocs in which the rain water could be held in the right quantity and drained out when necessary. In course of their rule, the Ahoms played a significant role in extending

the base of the wet rice culture into the undulating plains of eastern Assam (20). The Ahoms, with their superior iron implements and animal (buffalo) power, were equal to this task. Slope and water-control are the two most crucial factors for wet rice culture. The Ahoms understood this very well. They uprooted the forests and reduced the undulating surface to a dead level so that the rain water, or water led from the bunded hill streams, could remain standing on it, when required. Over the centuries, they built and maintained a network of embankments for overall water control (21). In fact a well-maintained irrigation system to feed the wet rice fields was the most significant contribution of the Ahoms who achieved it through the organisation of the labour pool of *paik* system. Canals were dug connecting the rivers and streams with the rice fields as well as construct embankments to control the inundation and flood of the river. Both these required collective efforts. This function was almost as important as defence and therefore, was not left to peasant initiative alone. Militiamen (*Paiks*) were obliged to serve the community, state for all such public purposes. For their service, they were allowed to cultivate communal wet-rice lands, free of taxes. This was the basis of the Ahom society, polity and economy. Under the system, the mobilised militia units came to be abused at a certain stage of development, by the king and his officers for their private gains. These officers were recruited from the nobility. As a result, exploitation was there not only at the level of the conquered tribesmen-turned-slaves and serfs, lout also at the militia level. The traditional militia was turned into its opposite - an organ of aggrandizement and exploitation--to which every peasant was forced to contribute his service in rotation. One form of the exploitation, as already noted, was the utilization of a certain proportion of the called-up militiamen in the private farms of the King and his nobles as *likchous* (servitors). The state, as it came into existence, took up the role of increasingly extracting the surplus labour for purposes of reallocation within the ruling class. The militia could be easily transformed into an oppressive organ, because of the heavy representation of the high-status lineage groups in its leadership. Later, it increasingly admitted non-Ahoms not only into the position of spiritual guides and preceptors, but also into the middle strata of the bureaucratic hierarchy. This happened under such compulsions as demographic influx, increased division of labour, demonstration effects of neighbouring states, Hinduisation, the Mughal impact and, above all, the need for new allies to contain internal conflicts and establish social equation for that purpose between the rulers and the ruled.

Conclusion

The expansion of wet-rice cultivation under the Tai-Ahoms was one of the most significant transformations in the economic and social history of the Brahmaputra Valley. The importance of this development lies not simply in the introduction of a new method of growing rice, but in the wider changes that accompanied it. The Tai-Ahoms brought with them an established knowledge of wet-rice cultivation and adapted it to the ecological conditions of the valley. Through the use of the plough, transplantation, land levelling and water management, areas of forest, marsh and previously shifting cultivation were gradually brought into a more permanent agrarian system.This transformation was closely connected with the development of the Ahom state. Wet-rice cultivation required land to be reclaimed, fields to be prepared and water to be regulated. These activities demanded a considerable and organised supply of labour. The *paik* system provided the Ahom state with precisely such a labour force. The mobilisation of *paiks* for clearing forests, constructing embankments, digging channels and maintaining agricultural infrastructure demonstrates that the economic and military organisation of the Ahom state cannot be understood separately. The same system that strengthened the military capacity of the state also created the material conditions necessary for agricultural expansion.

The development of the rice economy also changed the relationship between the Ahoms and the indigenous communities of the valley. The incorporation of communities practising shifting cultivation involved the gradual acquisition of new agricultural practices and their integration into the expanding Ahom economy. In this sense, agriculture became an important medium through which political and social incorporation took place. The expansion of wet-rice cultivation therefore contributed to a broader process of cultural interaction, settlement and transformation of existing social relations.At the same time, the development of this agrarian system had a contradictory character. Collective labour initially served the wider requirements of the community and state, but the growing power of the ruling elite enabled the labour of the *paiks* to be increasingly appropriated for private purposes. The expansion of agricultural production consequently involved both cooperation and exploitation. The *paik* system, while helping to build the infrastructure of the rice economy, also became a mechanism through which surplus labour could be extracted.The history of wet-rice cultivation in Ahom Assam thus demonstrates that agricultural technology cannot be separated from the political and social structures within which it operates. The transformation of land, control of water and organisation of labour together created the material foundations of the

Ahom political economy. The Ahoms did not merely establish a state in the Brahmaputra Valley; they participated in the gradual transformation of its landscape into a productive rice-growing region. Wet-rice technology was therefore not simply an agricultural innovation but an important component of the processes of state formation, ecological transformation, labour organisation and social incorporation that shaped medieval Assam.

References

Guha A. Ahom migration: Its impact on the rice economy of medieval Assam. Arthavijnana. 1967;9.
Phukan JN. The Tal-Ahom Power in Assam. In: Barpujari HK, editor. The Comprehensive History of Assam. Vol II. Guwahati: Assam Publication Board; p. 50.
Phukan JN. The Tai Ahom Power in Assam. In: Barpujari HK, editor. The Comprehensive History of Assam. Vol II. Guwahati: Assam Publication Board; p. 49.
Elias N. Introductory Sketch of the History of the Shans in Upper Burma and Western Yunnan. Calcutta: Foreign Department Press; 1876. p. 2-3.
Spencer C. Territorial expansion and primary state formation. Proc Natl Acad Sci USA. 2010 Apr 20;107(16):7119-7126.
doi:10.1073/pnas.1002470107.
Sinha SK. Early state formation in tribal areas of East-Central India. Econ Polit Wkly. 1996 Mar 30;31(13):824-834.
Claessen HJN, Skalnik P, editors. The Early State. The Hague: Mouton; 1978.
Phukan JN. The Tal-Ahom Power in Assam. In: Barpujari HK, editor. The Comprehensive History of Assam. Vol II. Guwahati: Assam Publication Board; p. 51.
Barua GC, translator and editor. Ahom Buranji: From the Earliest Times to the End of Ahom Rule, with Parallel English Translations. Calcutta: Published under the Authority of Assam Administration; 1930. p. 10-11. Cited in: Guha A. The Ahom political system: An enquiry into the state formation process in medieval Assam (1228-1714). Soc Sci. 1983 Dec;11(12):3-34.
Girst DH. Rice. London: Longman; 1975. p. 149.
Barua SL. Last Days of Ahom Monarchy: A History of Assam from 1769-1826. Delhi: Munshiram Manoharlal; 1993. p. 4-5.
Leach ER. Political Systems of Highland Burma: A Study of Kachin Social Structure. London: Athlone Press; 1964. p. 41.
Guha A. Ahom migration: Its impact on the rice economy of medieval Assam. Arthavijnana. 1967;9.
Girst DH. Rice. London: Longman; 1975. p. 149.
Girst DH. Rice. London: Longman; 1975. p. 38.
Talish S. Quoted in: Gait E. A History of Assam. Calcutta and Simla: Thacker, Spink; 1905. Reprint. Guwahati: Lawyers Book Stall; 1926. p. 145.
Robinson W. A Descriptive Account of Assam. London: Orsel and Lepage; 1841. Reprint. Delhi: Sanskaran Prakashak; 1975. p. 317.
Buchanan Hamilton F. An Account of Assam, with Some Notes Concerning Neighbouring Countries. Edited by Bhuyan SK. Shillong: Government of Assam; 1940. p. 60.
Hamilton W. The East India Gazetteer. Vol I. London: Perbury Allen and Co; 1828. Reprint. Delhi: Lawyers Book Stall; 1984. p. 70.
Robinson W. A Descriptive Account of Assam. London: Orsel and Lepage; 1841. Reprint. Delhi: Sanskaran Prakashak; 1975. p. 317-318.
Guha A. Medieval economy of Assam. In: Raychaudhuri T, Habib I, editors. The Cambridge Economic History of India. Vol 1. Hyderabad and New Delhi: Orient Longman; 1991. Appendix.