

# **An Analysis of Textiles designs of the Tai-Phake and Tai-Khamiyang communities.**

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## Certificate

The Research work presented in this thesis entitled “An Analysis of Textile designs of the Tai-Phake and Tai-Khamiyang communities”, was undertaken under my supervision and guidance and is a bonafide work of Jabeen Rahman Ghoshdastidar. The volume of work presented here in for the degree of Doctor of Philosophy is original and has not been submitted for any other degree or diploma to this Institute or to any other Institute or University. She has also fulfilled all requirements as mentioned in the rules and regulations for submitting the thesis for PhD degree of Indian Institute of Technology, Guwahati.

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## **Abstract**

The tradition of Ethnic textile design plays a pivotal role in modern contemporary fashion and fabric industry. The inventions and innovations involved in this industry, especially in the context of design, pattern and color are continuously evolving with the advancement of technology each and every day.

Generally the traditional knowledge of any discipline is not organized, and therefore should be researched and converted into a science. The knowledge of traditional textiles specially needs to be leveraged and re-created with conversions, transformation and amalgamated for value added editions so as to remain imbibed within the realm of the upcoming generation. More so, to remain alive as a living tradition.

Silk in Assam is not just a culture but a tradition, not just history but a way of life, that fits into the socio economic structure of the people, and woven around the society just like the thread around the cocoon, to be established as a legend in world history.

The journey of the textile fabric in Assam and North East India is equally important and interesting, since Assam has been the innovator of many aspects related to this industry, especially the culture of 'Muga' (The Golden thread), white Mulberry silk, (commonly called the 'Pat') and 'Eri', the thermal yarn.

Textile designing is a technical and creative field that has the capability of bridging the gap between fashion design, home décor and furnishing. Without it, even the most contemporarily raved about Automobile industry, would not be complete because the upholstery is always of such fabricated material. Early transports, from the carriage, rickshaw, to zamindari Tonga's, all were directly related to the fulfillment of human contentment and a purposeful lifestyle. Fabrics (like 'Design'), plays an inevitable part in our daily life. Each morning we climb out of the bed sheets and blankets, and step into a robe and slippers. After a wash we dry ourselves with towels, and get properly dressed, with clothing of our choice. During the entire day we use and are dependent on varied woven materials, including the vehicle tyres that are reinforced with strong woven chords. Thus the importance of textile in our day to day life is multifaceted. Perhaps it is these examples that ignite the designer's creative impulse to consider the contribution

of their performance to the finished fabric, the design being a direct link to performance, durability and aesthetics of the final fabric product.

Such design involves not only the drawing of shapes, forms and patterns along with the skill of weaving and producing fine material suitable for the purpose, but are also directly connected to global textile industry and the consumer and their demands. This deep understanding of technical aspects of production becomes most noteworthy, and the ability of the yarn, fiber and dyes has become the core area of contemporary study.

While coming a long way through the history and transition of textile in Assam, it is obscure to state and also difficult to pin point as to what has been the properties of Assamese textile design, and what are its salient features. The sources of amalgamation are also varied and diverse in the Brahmaputra Valley, which makes it all the more formidable, confusing and versatile.

In order to access the sources and the evolutionary process of textile design in Assam, the present study was conducted focusing on the Tai-Phake and the Tai-Khamiyang textiles. Having a rich textile tradition and heritage, the Tai-Phakes and Tai-Khamiyangs of Assam, carried it through several migratory paths, while entering into the North eastern part of India at several point of time. Each group in their own way had developed and adopted means of technology of weaving, dyeing and producing colorful motifs for decoration and ornamentation of their textiles, at different places of transit, during their travel and journey to establish themselves as individual and independent groups in Assam. Yet each of them had so much in common, that at the end of the day one is compelled to think as to how it was possible for them to be so closely connected.

Once settled in Assam, the Tai's admixed their technology of weaving, and adopted patterns from the local existing ethnic groups, and finally evolved a new and unique design value which was a synthesis and conglomeration of composite elements, and which today can be popularly called **Assamese Textile Design values**.

The assumptions of the study were tested with field study and discussions with noted personalities who have substantial knowledge in this regard. Mostly Tai persons of

different communities were interviewed. Variables and costume samples were collected from the existing Tai settlements. While on such a progress, the main factor that came to light was that these Tai groups are presently a fast declining ethnic tribe, gradually diminishing in number, and is thus endangered in their survival within the Indian sub-continent. Recent surveys have also showed that the entire Thai community and their rich textile heritage in Asia, is today on the verge of being lost. The rich heritage of the Tai's of Assam, which is so highly assemblage, is also at risk of being extinct. Hence a study in this field is most necessary, not only to organize it as a disciplined study, but particularly to preserve and conserve the evidential heritage of textile designs.

Samples were further tested by comparing it with the locally settled groups of Assam, and the available textiles of Thailand.

The study has revealed that there is an amazing diversity of style, pattern and natural bio-diverse Dyeing techniques, which again have portrayed certain unique features. On survey it was observed that these results were being tried out at concerned contemporary weaving and fashion houses, but to frail results. (Source: The Weavers Service Centre, Guwahati). Surprisingly, the Tai-Phake and Tai-Khamiyangs achieved it quite as easily, not only because this is a tradition handed over to them by their forefathers, but also because of the fact that they were well versed with the flora and fauna around, since they were originally wanderers in the hills. They also had considerable knowledge of medicinal plants.

The findings of this study based on ancient motifs, its natural color dye and patterns can be a source of development, research and implementation of future creative resoluteness in the fields of human compatibility to costume design, fashion technology, commercial and domestic furnishings.

## **Hypothesis**

It can be assumed that the Textile Designs and products of Assam, which are distinctive in themselves, embodies such elements as designs, patterns, motif, and colors, that have today found place in domestic consumer costumes as well as accessories of home décor.

Through ages these textiles and fabrics had been exchanged and assimilated among the local Assamese communities and also as adopted from the Tais, whose sub-group, like the Tai-Phake and Tai –Khamiyang excel in traditional woven textile

## **Preface and Background**

The ancient civilization of Assam (Kamrup), with its allied artistic endeavors has been an amalgamation of composite cultures; altogether resulting in a rich aesthetical heritage. But a dearth of study related to artifacts and the existing ethnic design sector has left these treasures veiled to the rest of the globe. Such study necessitates the unveiling and future development of art and design of this region for further propagating it to the rest of the world.

The history and ethno-cultural identity of this ancient land and people of this region, called Assam is engulfed and wrapped in myths and legends. This land is also called Pragjyotisha, known as the land of tantra, magic and incarnation, finds its place in the Epics like Mahabharata, and the Kalika Puraná, works of the 10<sup>th</sup> century AD. The land was originally peopled by the Kirata's, described as those dwelling in caves and hills, occupying the lower slopes of the Himalayas. Hence being originally gatherers, they had knowledge of herbal medicine too. The Kirata's are also referred to as yellow skinned and described as strong, ferocious and addicted to meat and drinks. This territory was later referred to as Lauhitya and Kamrupa.

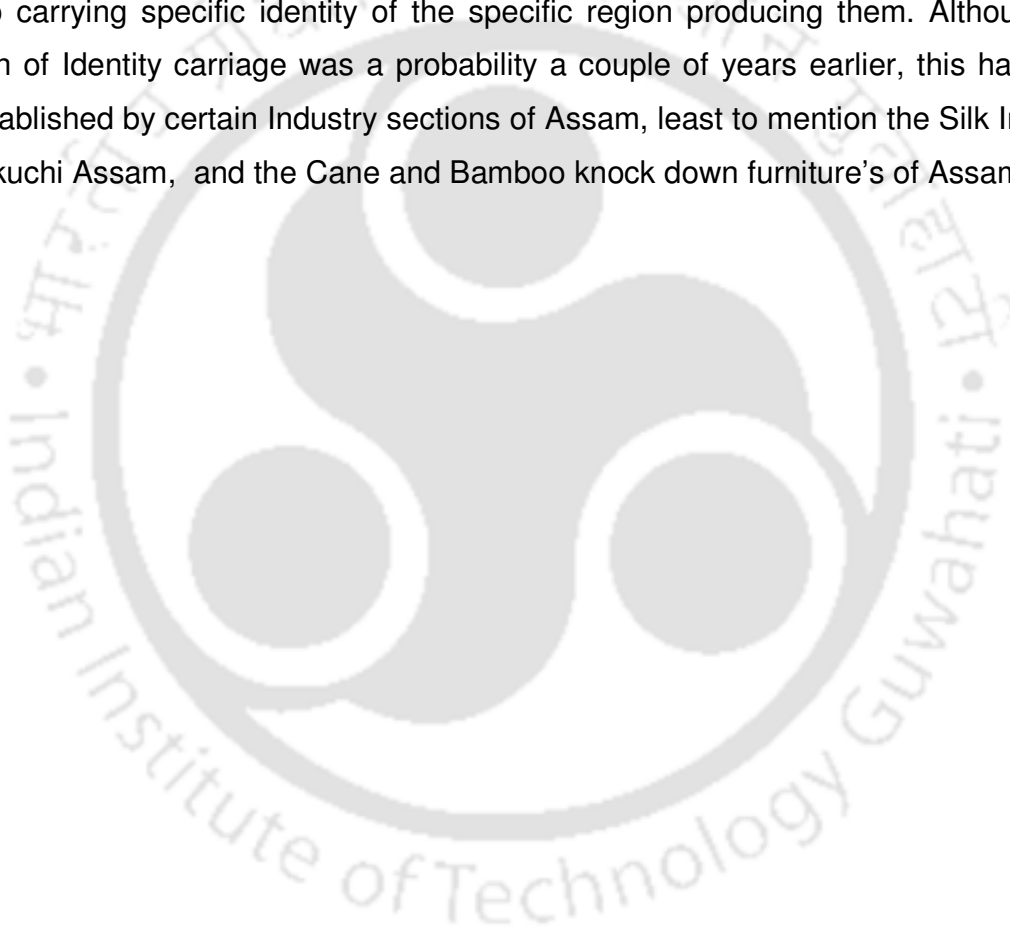
Often it is thought that the word, 'Assam' is a derivative from the Ahom rule. But many scholars opine that 'asam' is a pre-Ahom word, which in Sanskrit denotes 'uneven terrain' contrary to the plains of Bengal. 'Axam' also denote 'unparallel' or 'peerless'

which is why the Ahoms in the 13<sup>th</sup> century adopted it. Most importantly the Tai word 'acham' meant undefeated, which is why they perhaps choose to use it as 'Asom' and later pronounced it as 'Ahom' or (Axom).

- The Tais or the Ahoms at one point ruling the state of Assam, held the political reigns, and thus was in a position to ensure and further the amalgamation of various Textile Designs and relative elements in this region. These conglomerations of patterns have finally identified themselves as Assamese in the Brahmaputra valley.
- The design elements as we find in Assamese costume today perhaps have its roots in Tai designs, which were later admixed with the local textile structure, taking in a new appearance. Through a long period of time, it gradually evolved and modified. Individual arguments for each form, which lowers the threshold for a demonstration of relatedness, might hypothesize that this final synthesis which we today unanimously acclaim as Textile design patterns of the Brahmaputra valley, culminated in Assam, Arunachal, Manipur, Nagaland, Meghalaya, Tripura, and Mizoram. With such an assumption we might even learn to connect our self to our LAND.
- The map of early Assam as shown in Appendix-1(Source: Assam State Museum Library, Guwahati).
- The Study assumes that the Assam silk, 'Pat' (extracted from cocoons of worms feeding on Mulberry or *Bombyx Mori* cultivation) and 'Muga' (Worms feeding on *Antheraea Assamma*'cultivation), was perhaps in use from the era of the Ahoms and even earlier, and was definitely a technology that was imported into Assam. During the days of the 'Silk Route' this fabric was in

high demand in the near Eastern and Far Eastern countries, since it was a symbol of status and grandeur. Following the same need, it also necessitated its cultivation in Assam; subsequently India and Assam became the sole producer of these fabulous ravishing fabrics.

Amongst the innumerable artifacts produced in the North East of India, perhaps textile is the only prominent utility item that has been locally designed for mass production and that too carrying specific identity of the specific region producing them. Although the question of Identity carriage was a probability a couple of years earlier, this has been well established by certain Industry sections of Assam, least to mention the Silk Industry of Sualkuchi Assam, and the Cane and Bamboo knock down furniture's of Assam.



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# **An Analysis of Textile designs of the Tai-Phake and Tai-Khamiyang Communities of Assam.**



The logo of the Indian Institute of Technology Guwahati is a circular emblem. It features a central stylized figure resembling a person or a deity, composed of several overlapping circles and curves. The figure is set against a background of a larger circle. The text "Indian Institute of Technology Guwahati" is written in English around the bottom half of the circle, and "भारतीय प्रौद्योगिकी संस्थान गुवाहाटी" is written in Hindi around the top half.

## **CHAPTER- 1**

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Textile design, its development and cultural legacies in Assam.

## 1.0. Introduction.

Design and Art has been a thinking process since the prehistoric era till modern contemporary times. Art as a creative activity is one of the most elusive concepts in the history of human civilization that has often been treated as a metaphysical concept and is fundamentally and organically a measurable phenomenon. Art is also deeply involved in the actual process of perception, thought and bodily action.

Design as an allied branch, is a process for practical, creative resolution of problems or issues that look for improved future results. Both have been travelling as parallels hand in hand, for which it is often a matter of dispute as to which was introduced in the first place, Design or Art? Art is spontaneous while 'Design', is a continual thinking process. It has seven stages: Define. Research, Ideate, Prototype, Choose, Implement and Learn, and is today the core basis of contemporary lifestyle of any design developmental process's.

As said earlier, perhaps textile is the only prominent utility item that has been locally designed for mass production and also carries specific identity of the region producing them, amongst which ethnic costumes and textile of varied ethnic groups are most popular. Study shows that these are the Revenue achievers of Assam. Yet there is dearth of entrepreneurs and which is why we still do not have enough material to support our study.

All through the ages, Kamrupa, Assam has been an anthropological museum with varied socio-religious systems and the continuous process of the different stages of her history could be linked on one hand, to the eastern side of India and on the other, to South East Asia, i.e. China, Tibet, Myanmar Burma, Thailand, and Malaysia. The same could be said of the entire North Eastern India. This civilization and its culture was thus the sum-total of the primitive and the advanced ... contributed by the 'Aryans' and the 'Non-Aryans' comprising the hill and plains communities of the land.

The cultural background of Assam with its multifaceted socio-cultural amalgamation accommodated the indigenous rubric design elements in varied functional items of daily use, out of which garment designs had the most methodical evolution.

One can therefore assume that although the state had an identifiable socio-economic, cultural, aesthetic aspiration and a predictable pattern of lifestyle, yet their heterogeneous dissimilarities (*if not in the common platforms, at isolated incidence and stances*) exhibited a certain identifiable common cultural substance, that is enough to establish a unity or unify them together.

### **1.1 The Topic of the Research.**

The topic of research focuses on the basic elements, principles and characteristics of the textiles of the Tai's of Assam, especially the Tai-Phake and Tai-Khamiyang, also evaluating possibilities of converting these fabrics into modern contemporary utility and other functional application like apparel designs and furnishings items of day to day use. These cultural practices and creations are gradually becoming extinct, not only for the ones preferring for modern lifestyles and jobs, but even in the weaving sectors and clusters as most of the westernized costumes or common Indian dresses are preferred over traditional dresses. As a result of which, production of the same, i.e. traditional textile and conventional ethnic attires have diminished through the ages and these are worn only for ceremonial occasions, festivals or for visiting the Buddhist Vihar or temple, as customary of the ethnic communities, in this particular study being the Tai-Phake and the Tai-Khamiyangs.

### **1.2 Textile design as a source of Identity.**

The Textile Industry is one of the largest and oldest sectors in the country and among the most important in the economy in terms of production, investment, and revenue and employment generation. This sector employs over 35 million people and after agriculture, is the second highest employer in the country. Its importance is underlined by the fact that it accounts for around 4% of gross domestic product, 14% of Industrial production, 9% of excise collection, 18% of employment in the Industrial sector, and 16% of the country's total export earnings.

Generally, design is universally coexistent, and it deals with the user's visual response in the 'product form'. Simultaneously design is also related to 'Culture' from varied perspectives, both entertaining complex phenomena's. Yet there is one criterion that holds their study together and that is of 'Identity' or 'Identities'. As the saying goes, "Design is an ancient activity though a modern profession"-the modern way of life has made man dependent on mass media and the need of communication and interaction amidst people of similar groups have deviated, which is why perhaps relations have ceased to exist to a large extent. There finally arises, the need to unify and define oneself as a part of specific groups and through which common values can be easily shared. This is where **ethnic designs** play the pivotal role to bridge the gap and helps to promote a feeling of unification and bondage and subjugation. Amidst all ethnic designs today, the most popularly acclaimed is perhaps, the **textile designs** which have innumerable scope not only for establishing ones identity but also to be a source of development, research and implementation of future creative resoluteness in the fields of human compatibility.

It has been learnt that the different civilizations and the history of the world can be read in their textiles- where their conquest, religion, heritage and trade links have all been established by their distinctive fabric and textiles. The best example that can be cited is of the 'Silk Route' which was a highway, not for the transportation of gold or armies but for the trading of the most desirable commodity-'SILK'. Assam too became an integral fragment of this unique connectivity.

As a general understanding in the western countries, despite the differences of opinions, in the contemporary mainstream, the concept of design is in some vague manner connected with new sources of energy, technology breakthroughs, minute specialization, mass production and a global quest for markets. It can be perceived as a visible tool for commerce and industry; while carrying other legacies of the twentieth and twenty first century. Equally *textile design* can be a leveler for the society with a sense of rational, clean, and impersonal order- an order promoting future ideological enlightenment for the society, and with the aid of which the society can be transformed from within. In such transformation, 'Design' is the only tool.

### **1.3 Need for the study of Tai-Phake and Tai –Khamiyang Fabric Design.**

All earlier experiments, in the field of textile saw to the development of varied techniques and textured fabrics, which is till date progressing in a continual order. The invention and innovations with textile designs and fabric is a never ending process and therefore today has innumerable tales to share of our tradition and civilization as a whole.

Textile designs as reflected in the costumes and attires of the Tai-Phake and the Tai-khamiyangs as sourced to the field of the study and its findings would be of much interest to the present day apparel designers and all concerned readers because, till date, although some work has been undertaken in the field of Tai-language, yet no research study has been conducted in the direction of their life styles, anthropological background, sources of lineage and their design elements. The specificity of designs is to be upheld mainly because it holds together all the rest of the cultural consequences. The moment one utters the word ‘Tai’ anybody would automatically relate the clan to the Tai’s of Thailand or Myanmar. But seldom would one ponder to think or even imagine that a similar culture exists in Assam, which is not only rich in its heritage design values, but is also six hundred years old, or even few more years to be added , as reflected by resourceful journals. It perhaps starts with the coming of these clans even prior to Sukapha, the legendary ruler of ancient Assam.

The various local ethnic groups of Assam who are experts in the field of the woven textile use multifaceted principles that are appealing and considerably popular with the common man. But contextually the Tai Phake and Tai Khamiyang textiles are equally laden with a style of rationalism, modernism, and endowed with aesthetic value systems that have the probability of being universally applicable which might embrace possibilities for modern day utility conversions. But unfortunately few people of Assam, leaving aside the people of rest of Indian sub-continent, have seen these kinds of fabric, giving all the credibility to these costumes and woven fabrics.

The Thai’s of Assam, along with their major sub-clans are a diminishing population in Assam, India. And along with them there is the threat of also losing all their patterns

of lifestyle inclusive of the textiles. The total population of the ethnic groups is almost negligible compared to the overall population of the state and the country as a whole.

With such a delicate status and probability of extinction, especially of an impending situation of losing this traditionally rich population, there obviously arises the need to focus on ways to conserve their rich heritage. Amidst several petitions from the States Directorate of Tribal Welfare, The Tais of Assam are yet to achieve the status of Schedule Tribe in India. (Source: Directorate of Tribal Research Centre, Jawaharnagar, Guwahati, Assam)

The preservation of these exquisite cultural specimens requires constant researching, documenting, examining, defining, enquiring and applying different paradigms of these nonpareil clans of Assam. Therefore there is the ardent need to study the available specimens, perceive their manner, implant combinations and achieve comparable results to arrive at a desirable solution.

#### **1.4 Textile design of Assam in relation to India.**

The word 'textile' is derived from the Latin (Verb) *texere*, a word used by the Romans to mean 'to weave', 'to braid' or 'to construct'. A fairly versatile word often also was used in context to houses built of reeds. This was primarily due to the fact that the technique involved (for a basket, a blanket, a wattle or a daub hut) was much in common. The choice of fabric is therefore arbitrary; in this case we have readily accepted the appropriateness of yarn, as fabric of a kind that is soft, abundance in length, and that which adheres to any kind of strain and pull for stretching, dyeing, depending on quality of the yarn. The fabric may be absorbent or thermal, thereby confirming to the greater needs of man for his clothing. As the art of basket making became more and more refined, it was possible for artisans to develop with twinning and interlacing, altogether employing a variety of fibers (animal and plant) for the construction of flexible fabrics.

With direct linkage to the rural economy and the agriculture sector, it has been estimated that one of every six household of India depends on the textile sector, either directly or indirectly for livelihood. The Industry structure is vertically integrated

across the value chain, extending from fiber to fabric to garments. Simultaneously a highly classified sector, this small-scale, non-integrated spinning, weaving, finishing and apparel-making enterprise actually remains under one roof.

.The Government of India and the State Government has initiated policies to provide employment, and with a clear focus on promoting the small scale industry of textile. The scenario changed after 1995 when investor was encouraged to install modern machinery and also gradually decentralizing sector policy.

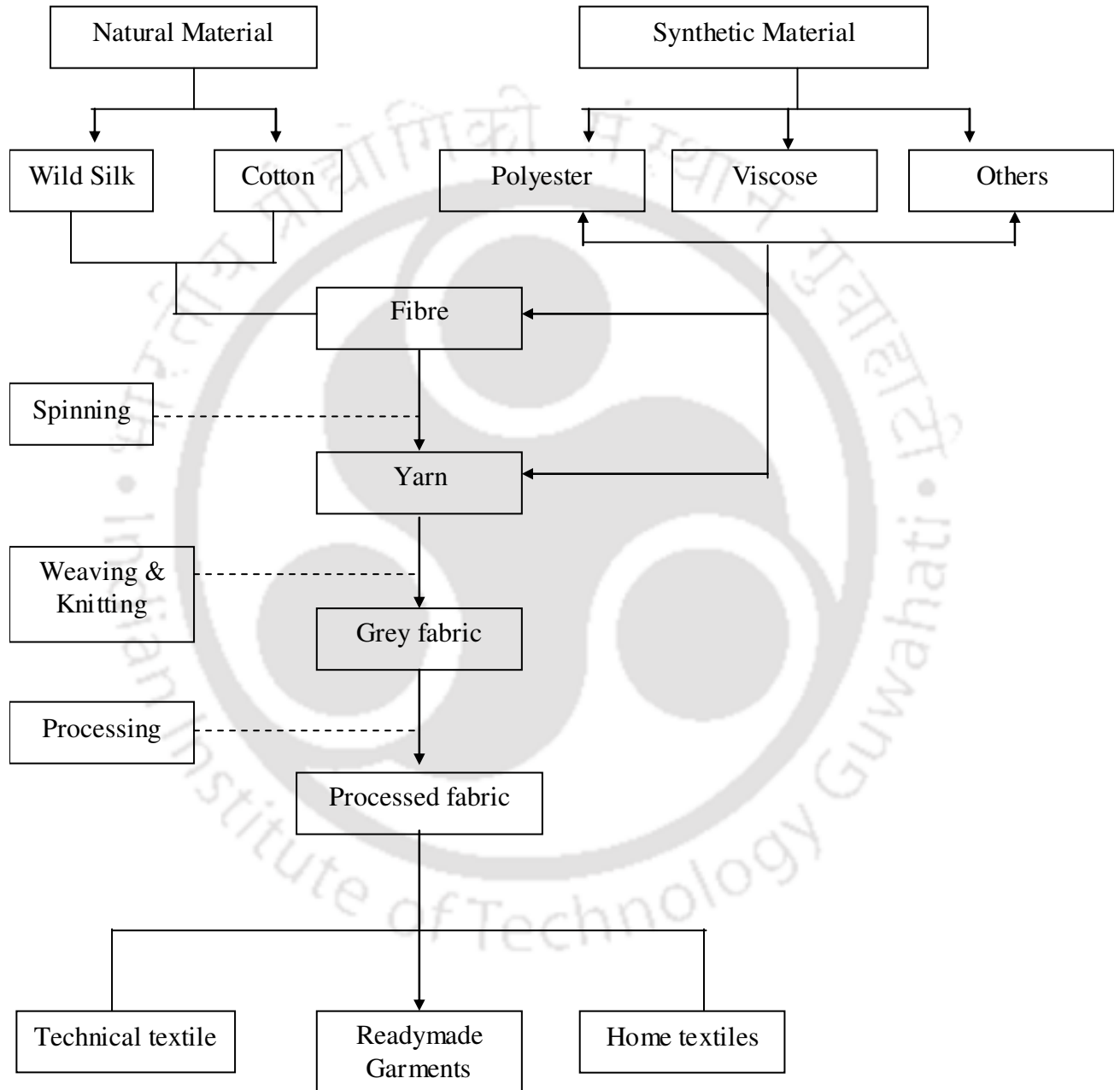
Besides policy schemes of initiating health insurance packages, reduction in custom duty was another incentive, the newly defined business environment for textiles has redefined life of fashion trends. Although ,Tripura, Ludhiana, Tamil Nadu, Kerala & Punjab are among significant contributors to total apparel export, yet the inclusion of Assam and North East is yet to find a place in the textile economy. Since the export market is predicted favorable in the forthcoming years, perhaps Assam silk and Ethnic Costume/textile designs can surely avail the opportunity of making its way to the top.





Table-2

**CUSTOMISED  
RESEARCH SERVICE  
IN TEXTILE**



This definitely leaves ample scope for future research in the field of textiles of North East India. The present work looks into the available Tai-Phake, Tai-Khamiyang Textile, its design, its patterns, predominant color used, sign relationships (the least available) and how they have been inter exchanged with the local existing textile elements. The data collected to an extent, supports this view and finally it can be accessed that modern day ethnic textile motif designs has found a way to the hearts of all Assamese and also established itself in the international platform. Perhaps with collected data's (old and new) ,the much asked for 'Textile Design Archives' can be structured with responsible product imaging, taking the help of computer aided technology like CAD. This will naturally enhance further application in varied fields as and where needed, and properly function for the modern ambience. As a scope for future research, the findings of this study will definitely throw light on how new designs can be intervened for its applicability in Ethnic Fashion Technology- keeping intact the flavor of the North East, while also sourcing it as an aid to Government and Non-Government organizations.

### TEXTILES CLUSTERS IN INDIA



**Fig:1**Map of India showing the Textile clusters .

## 1.5 Priority of Textile Design in North East India and Assam.

The North Eastern part of India has been blessed with diverse ethnic groups, most of them migrating to this part of the land at different times, with each amalgamating with the existing common cultures.

Assam has been a melting pot of different races, languages and cultures (*Tribes and Castes of Assam, Sen Sipra., and 1999.*). These races have very easily taken and adopted their neighboring community's cultures and even their ways of life. Matrimonial alliances were not common earlier, but today such issues are trifling and the different communities apparently do not seem to object of such inter caste, community marriages. Hence the bondage in today's social system is stronger. Nonetheless they have also predominantly retained their respective values in their ways of life, language and their designed costumes and textile fabrics.

Assam and North east India, since the British rule till date, has been reaping the benefits of Tea and petroleum Industry with their professional forecast of substantial revenue turn outs. While on one hand they appreciated the growth of this industry, they also showed concern and appreciation for the ethno textiles which according to most was an aesthetic aspiration with appeal and sophistication. All anthropological studies, showed no serious involvement of entrepreneurial encouragement. Perhaps this was also a reason why the local people never realized the priceless value and intrinsic worth of their multifaceted costumes.

The evolution of textiles in North East India equally needs to be highlighted due to its variety 'product form' of fabrics enduring traditional values of both the 'Aryans and the non-Aryans, and being the composite reflection in woven form of the existing multifarious anthropological museum. All that it requires is an understanding of the values of one's society and getting them converted or recreated into new values, addressing priority needs and preserving plural identities. This is also the reason why inculcation of new consciousness and knowledge should be assimilated country wide. The present study prioritizes Textile Designs, its ordered values and their scope for future Design Development keeping the respectability of the profession as a need of the hour, rather than being a part of the glamour world.

With the advent of modernization and changing times, the usage of ethnic traditional dresses is limited only for specific rituals and ceremonial occasions, as women preferred more of modern Indian dresses and designer attires, due to the convenience in use and easy availability. As a result of which the production of ethnic textiles was reduced and restricted to only limited households and the weavers too started to look for alternative professions.

### **1.6 Functional and Utilitarian value of the textile fabric in Assam**

One of the basic needs of mankind is to cover his body and shield himself from the various elements of nature. Since early man was a hunter, thus perhaps his first clothing also came from the skins of animals he hunted for food. There is also evidential proof to establish the fact that some form of tools were used to scrape out the hides clean and then sew up together with needles made of bone slivers. The first prestigious garment was probably the skins of rare and dangerous animals. Animal skin is still preferred today in certain regions of the world due to the satisfactory insulation provided against cold and damp weather.

The available reference of clothing in Assam and North East India has mostly been manmade and constructed out of flexible fabrics. Textile occupies a significant place in the socio-cultural and economic life of the people. Today, the variegated communities of the state have a large magnitude of traditional costumes. Apart from costumes they also have a variety of accessories like belts, bags, boots, hats, sashes, turbans; house hold items like sheets, curtains, draperies and blankets and alter covers, temple hangings and ceremonial flags etc.

It is noteworthy to mention that most of the traditional costumes of nearly thirty communities have been housed at the collection of Purbajyoti Sangrahalaya, at Srimanta Sankar Deva Kalashetra, at Guwahati. This collection not only gives a wide glimpse of the textiles of Assam across time and space, but also preserves varied textile materials like Muga, Paat, Endi and Cotton. A major part of their collection belongs to the Cottage Industries Museum, of the Department of Industry, Assam, which grew out of the collective zeal of several British dignitaries including Mr. T.T.S.

Haley and Mrs. Haley. This includes rare designs, intricate weaving pattern and techniques that would have otherwise sunk into oblivion.

### 1.6.1 The Vrindavani Vastra.

A discussion on the history of Textile tradition of Assam and the functionality and value of weaving techniques is incomplete without the mention of the Vrindāvani Vastra (Brindābani Bastra). This was a unique tapestry weaving technique developed under the supervision of Srimanta Sankaradeva, the neo-Vaishnavite saint of Assam, who had engaged weavers from Tāntikuchi at Barpetā, in Assam to complete this magnificent work. The 120 cubits long and 60 cubits broad cloth took nearly six months to finish and is an expression of early Assamese weaving art at its best.

The work was undertaken at the request of the Koch king's brother Cilārāi, a very powerful commander of the Koch army. The entire scroll depicted Krishna Lilā scenes, and was popularly called the *Vrindāvani Vastra* or the cloth from Vrindavan where Lord Krishna spent his childhood days.

The designs were woven with a large variety of colored threads like red, white, black, yellow, green, etc. Of the colors some were evidently of mixed colors or 'misravarna' like Kāch-nilā, Gaura-syāma, etc. The above colors are still popular in Assamese loom embroidery work. The scenes depicted included those from Krishna's birth in the prison of Kamsa, to the vanquishing of Kamsa by Krishna. Each scene had its caption below for ready reference of the illustrations. Srimanta Sankaradeva, on completion of the work was addressed with great reverence and humility, and the King and his brother bestowed a special title of Bar-Bhuyān or Chief Administrator upon him, and entrusted the governance of Tāntikuchi.

During the mid and late medieval period, (15-16<sup>th</sup> century) another kind of woven silk fabric, the Namavali shawls became popular. A number of silk shawls, gamosa, odhni's, and garments were made in Bengal, Orissa, Assam, Uttar Pradesh and Himalayan region –all depicting overall illustrations on the woven surface. Ikkat technique was also used to weave the 'Gita Govinda'. These weavings were a part

of the Bhakti Movement, which inspired the creation of such Namavali vastra for Vaishnavite, Shakti, and Saivite cult of Hindu Pantheon.

The Namavali shawl was also used by the priests while performing the rituals. Moreover they were used in Tantric rituals- where a set of appropriate mantras are spoken or chanted in the right order, and at the right time. It was believed that with these chants the deities and their cosmic energy could be evoked, and everything was related to the creation of vibration and resonance (nada) in space and time, as a science of sound. The patterns and color scheme has a lot of similarity with present day gamosa's

**Fig: 2.** The Vrindavani Vastra: A Neo-Vaishnavite Silk Lampas from Assam.

Victoria & Albert Museum, London.(Source: [en.wikipedia.org/wiki/Vrindavani\\_vastra](https://en.wikipedia.org/wiki/Vrindavani_vastra)).



**Fig:3** A part of Neo-Vaishnavite Silk Lampas from Assam.



**Fig: 4** The Namavali shawl depicting Shiva and Parvati



## 1.7 Participation of the women in the popularly accepted domestic Chore that serves the basic needs of a man.

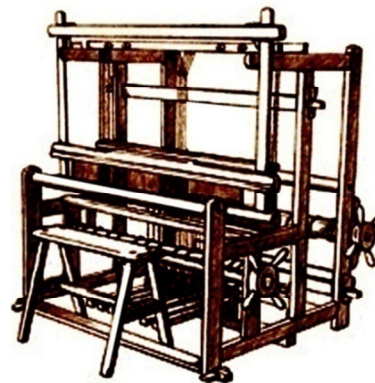
Weaving is an ancient craft practiced in the north eastern part of India specially the state of Assam. Textile production is carried out by every woman and at one point of time, almost every household hummed with the sound of the loom.

The Textile history of Assam has established that almost every household, till only a few decades ago, both in urban and rural Assam had a loom installed to meet the daily requirements of the family. Spending time at the loom was not only a domestic chore but also a leisure activity, where the women folk cherished the enactment of converting their feelings and dreams into woven patterns. This is why the act of weaving is often referred to as weaving of dreams onto the cloth. Mahatma Gandhi, the father of the Indian nation, on his visit to Assam rightly acclaimed that the women of Assam weave their dreams into the woven fabrics. Not to mention that the looms also assisted in the domestic economy, and was a source of sustenance to many families.

**Fig.5** Loom activity of the Tai-Khamiyang and Tai-Phake's in Assam.



Back strap loom



Heddle loom



Weaving in the loom



Spindles attached to loom

## **1.8 The communities of the North East India.**

Different communities altogether give a diverse reflection of their cultures. Similarly their woven fabrics too are varied, yet mostly the process and technique of weaving are very much similar. These existing communities of Assam and North East India are represented by Baites, Bhutias, Bodos, Chowtals, Chutias, Deoris, Dimasas, Garo, Goalparias, Hajongs, Hmars, Hrangkhals, Jayantias, Karbis, Khamtis, Khasis, Khelmas, Kukis, Manipuris, Mishings, Mizo, Nagas, Nepalis, Rabhas, Singphos, Tai-Aiton, Tai-Khamiyang, Tai-Phakes, Tai-Turungs, Tea communities, Tiwas, Vaipheis besides the general Assamese communities.

The textile tradition in this part of the Indian sub-continent is as old as its civilization. Initially developing out of one's need for physical protection, the textiles have come a long way from a purely personal need to a decorative connotation, satisfying the aesthetic need while also technically developing the process of yarn production and achieving an innate aspiration of processing the prized, prestigious and sophisticated attires. In this journey of time and space, textile, color, pattern and texture, though initially had developed as a specialized craft, today is an established and highly mechanized industry.

## **1.9 Incentive for the study and that which focuses on textile of the Tai-Phake and Tai-Khamiyang.**

The textile tradition of North Eastern India is too vast a subject for study and therefore it seemed viable to concentrate on Tai woven fabrics with special advertence to the Tai-Phake and Tai-Khamiyang (the six major Tai communities being-The Tai-Phake, Tai-Turung, Tai-Khamti, Tai-Khamiyang, Tai-Aiton and Tai-Ahom.)

While initiating the study, literature review was a constrain, because there was no proper data available as well as no authentic information about the Tais of Assam, leaving aside the specific focal ethnic groups- Tai Khamiyang and Tai-Phake. The sparingly available literature and field study, allowed concentrating on the Tais as a clan or in context to other sub-clans. The historical background of the Tai-Ahoms was available and wherein surfaced a connections in textile between Tais and China. The art of silk rearing was basically transmitted to the north eastern part of India from

the Far East, major transmitting source being the Silk Route as discussed earlier. More over the lack of connectivity to the specified villages proved an added hindrance. Fabrics of Assam and the ethno groups (Available Variables) on examination revealed that they follow and prefer the same geometrical textile designs, along with basic colors. Similar mode of weaving pattern and techniques, as noticed in the existing local communities were also followed by the Tai's; in simple words, they universally preferred the cultural exchange.

Collection of considerable information and samples of textiles of various Tai groups, and study of their textile variations, was a subject of interest for various designers. A few designers of close association too appreciated these design patterns and the unique/ unprecedented way of being naturally dyed process of the Tai-Phake and the Tai-Khamiyang textiles.

These two communities also emerged as the most popular, yet sparsely populated groups of the Tais in Assam, having considerable similarities with the Tais of Thailand and South East Asia. The prominent design prerogative of textiles pattern and weaving technology in its uniqueness of yarn, weaving procedures, color vibrancy and dyeing technique make them one of the outstanding sourced ethnic group of Assam. Least of all, they are rarely influenced by the available market synthetic yarns, since the general intentions of most groups other than them, is usually to procure cheap yarn /fabric, which is in turn again, persistently pushed and sold by the textile merchants. The study on progression saw the need for further narrowing the focus. Henceforth the study concentrated with these two communities and their textile design; its conversion into modern contemporary utility products, which assumes to have a lasting influence on the other local textiles of Assam.

Another problem, yet a boon in disguise were of their way of remaining isolated from the existing cultural milieu. Their cultural background in spite of amalgamation has remained intact, only occasionally adapting stylistic elements in textile from other local cultural communities. The varied groups belonging largely to the Tibeto-Mongoloid branch of the Brahmaputra valley, as compared to the rest of India, produced textile designs that were most appealing. Adding on to these qualities, the Tai textiles were not only distinctive in themselves, but can be assumed to be a common platform of exchange and adaptation in respect of patterns, motif, scheme

and colors etc. amidst the other ethnic communities of Assam, and today perhaps identifying themselves as Assamese.

Majority of the design elements as we find in Assamese costume today perhaps have its roots in these Tai designs, or the transmitted textile designs, which were later admixture with the local format taking in a new appearance, a process evolving through a long period of time and gradually metamorphosing in patterns and motifs. Individual arguments for each form, which lowers the threshold for a demonstration of relatedness, might hypothesize this final synthesis which we today unanimously acclaim as Assamese. A very good example itself is the Sualkuchi culture, which was a textile centre established by the Ahoms (Royal Tais).

During field study it was observed that the Tais along with the other Tibeto-Mongoloid groups of North east and the Brahmaputra valley always preferred the basic colors, probably more so because that was what they usually saw in nature. The temple hanging of the Vihars of the Shyam and Phake's , resembling the ones found in Thailand; have been projected in vibrant color flags of checks in green, yellow, red, orange etc. Occasionally these hangings also had individual flowers of eight petals. Incidentally one may mention that the eight petal flower which is widely in use as a textile pattern motif is also a geometrical break-up (form) of the lotus flower and simultaneously related symbolically to Lord Krishna and Lord Buddha, as semiotics study ;( as also reflected in the cultural examples of Central Asia).

The field study also brought to light another persistent problem faced by the ethnic weaver's class- that of the Yarn problem. Although originally the weavers section domestically processed the yarn in each household, yet today with the change in scenario of the Yarn industry and market, the weavers have to procure the yarn from the local business men, who generally supply them the yarn in return of half the measure of woven textile in kilograms, the process popularly called 'Adhiya Suta' in Assam. These businessmen, ignoring the priceless value of these rich heritages of self-processed yarns, gradually have succeeded in taking the ethnic weavers into their grip. This system not only brought about a psychological setback to the ethnic weavers, but also degraded the quality of produced textile due to cheap quality yarn provided.

Such studies can promote the awareness among the ethnic weavers and understanding the market value of their heritage fabrics with the local needs as well as the demand of other ethno Tai communities. This motivation also encourages them to enhance and conserve all aspects related to the traditional production of yarns (process includes from dyeing to weaving to pattern design). Involvement of local NGO's along with the support of private and government organization, will build self-helped groups to work together for its preservation and sustenance.

### **1.10 Adaptation and acceptance of patterns, motifs and colour schemes by the diverse clans of Assam.**

All though there have been varied socio-religious systems and cultural civilizations with multifaceted cultural links, yet the acceptance and adaptability of textile principles amidst these groups is most unique in Assam. The civilization and cultures contributed by the primitive and the advanced, the 'Non-Aryans' or the native hill communities on one hand, and the 'Aryans' or the plain tribe communities on the other, together project a composite pattern.

The cultural background of Assam with its multifaceted socio-cultural amalgamation allowed accommodation of indigenous rubric design elements in varied functional items of daily use, out of which garment design has had the most methodical evolution.




#### **1.10.1 Exchange and synthesis of the varied design elements and Techniques of weave between different ethnic groups of Assam**

Naturally the socio-cultural assimilation saw a steady mode of exchange and also at times a synthesis of these design elements among the different communities residing in the Brahmaputra valley.

As already stated, the matrimonial alliances too facilitated the acceptance of each other's cultures. Primarily the Tibeto-Burman vice mongoloid culture had so much of similarities, or common elements amongst themselves especially in food habits and animistic rituals, that the local communities found it easy to accept each other's

cultures. Naturally their techniques of weaving and the motif and patterns used also had a lot in common.

**Table: 3 Shows the common elements between different ethnic communities.**

Name of Sample	Sample	Ethnic community	Common elements.
Mekhla Chaddar		Rabha	<ul style="list-style-type: none"> <li>✓ Geometrical Design.</li> <li>✓ Space divided into segments.</li> <li>✓ Preference for Contrast &amp; basic colors.</li> <li>✓ Preferred motif are trees, flowers, animals and birds.</li> </ul>
Mekhla Chaddar		Miri	<ul style="list-style-type: none"> <li>✓ Geometrical Design.</li> <li>✓ Space divided into segments.</li> <li>✓ Preference for Contrast &amp; basic colors.</li> <li>✓ Preferred motif are trees, flowers, animals and birds.</li> </ul>
Arnai/ Muffler .		Bodo	<ul style="list-style-type: none"> <li>✓ Geometrical Design.</li> <li>✓ Space divided into segments.</li> <li>✓ Preference for Contrast &amp; basic colors.</li> <li>✓ Preferred motif are trees, flowers, animals and birds.</li> </ul>

As shown in the Table. 3, we can see that common elements of form, pattern, shape, color and weaving can be traced as common elements for the following local ethnic communities. Details in this regard will be discussed in chapter -3.

### 1.11 Sourcing the root of the design elements to Tai-culture in Assam.

The Tai's are spread in the entire South East Asia, and the inception of this clan was perhaps nearly 2500 years ago, even before the birth of Christ. At one time, the entire area covering part of China, Northern Burma, Assam, Thailand, Laos, and Taiwan etc. was inhabited by this large community. All belonging to south western

China and other regions are known as Tai, Thai, Shan, and Shyam etc. Tai Priests claim their roots to be of the Tai-Mongoloid Branch. They entered the Plains of Assam through the Pangehou pass over the Patkai Hills in early 13<sup>th</sup> century and ruled Assam for nearly 600 years.

The sub-clans of the Tai's, like the Ahoms, Shyams, the Khamti, Phake's and the Aiton's, were the people migrating southward, in search of settlement, entering through the Patkai hills. Although ancient Tai literature substantiates their migration with mythological references, yet despite its importance, little is known about their prehistory, homeland and causes of expansion. While proposed Archeological correlation deals only with the most recent phases, the earlier literatures dealt with crypto-racial speculations.

The main body of Tai migrants entering Assam with Sukapha could have been the diverse minority ethnic group, speaking the same language and having similar traits of cultural background- which today is a lost phylum. After the passage of considerable time, and their assimilation with local dialect and culture, - pervasive bilingualism was responsible for linguistic and cultural restructuring.

The Phake or the Phakials are the biggest section of Tai population. They belong to the Tai-speaking tribal group living in parts of Upper Assam and Arunachal Pradesh. The total population of the ethnic groups is almost negligible compared to the overall population of the state and the country as a whole. Equally prominent are the Khamiyangs, also belonging to the Tai-speaking group and covering parts of upper Assam.

Since there is a direct connection of the Tai's of Assam and North East, with the Thai's of South East Asia, the elements of textile, its pattern, and basic design principles too are closely related to one another.

### **1.12 Organizing of the color schemes.**

The organizations of color schemes in the fabrics of the communities under study are very varied and interesting. As suggested earlier there definitely seems to have been an exchange of such ideas, especially in the fabrics of Tai-Khamiyangs, if not

with the Tai-Phakes, who perhaps constrained from intermingling and adhered to their traditional color schemes as they have been following so for generations.

The most popular yarn for everyday use for both is the cotton fabric. It was most suitable wear for the existing humid climate, particularly during summers and for carrying out the domestic chores. This often also necessitated and furthered the need for Dyeing of the cloth, particularly the lower garment called 'Mekhela' or 'Chin' into an indigo color. Subsequently, this natural dyeing of fabric and clothes became a traditional technology of the Tai and Ahoms of Assam. Both the Tai-Khamiyang and the Tai-Phake excelled in this art.

For the upper garment, the womenfolk wore a light woven wrapper called the, Methoni, Nangwat, Nangwat-Pujung or the common Chaddar, or Pha-Phoi, as specifically and popularly named by each community. Some of these fabrics were lavishly and elaborately ornamented either with stripes or with floral and geometrical motifs. The organization of the color schemes may apparently seem bright and loud, but this choice was basically due to the people's attraction towards the bright and basic colors found in their natural environment. In other words they discovered the similitude of textile design elements and color mostly from nature.

### **1.13 Semiotics in design: Study of the patterns.**

The traditional textile designs available have ample scope of being studied in relation to its innate symbol. It may often carry a meaning, language or logic, and from these signs and symbols of patterns, one can assume as to what it signifies and what it might correspond to visually.

Since their culture seem to have travelled through a variety of transit regions, all the cultural patterns of these transit places contribute to the semiotic meaning of a sign and each pattern enjoys a set of role that it occupies within a given sign relation.

The most popular design/pattern in use from ancient times till date with specific symbolical meaning of the Tai's, was the **Kingkhap Design**, and was popularized by the Ahoms. This design basically brought in by the Tai's, has evolved over hundreds of years, and the motif has undergone several stages of changes

incorporating fanciful and romanticized version in accordance to the preference of each ruling class for its demand from time to time, as well as the demand of consumers in Assam. It may be noted that this was originally a pattern and motif used only by the people in power or a certain superior class in the society.

#### **1.14 The Silk Industry in Assam.**

Weaving is an ancient craft practiced in the north eastern part of India specially the state of Assam. A fair amount of textile production is carried out by every women and almost every household hums with the sound of the loom.

The Study conducted reveals that the Assam silk, Paat or mulberry silk and Muga was in use not only from the era of the Ahoms but even earlier. “Som” or ‘*Antheraea Assamma*’ cultivation was popular and Muga Textile made from the golden yarn with its smooth, sophisticated sheen was largely preferred for women Mekhla Chaddar and Riha, (Wrapper). The Tai and royal Ahom men also prided in wearing the Muga turban on ceremonial occasions. The Ahom chronicle-Tripura Buranji provides information about the variety of textiles produced during this era, because this industry incepted during and under the patronage of the Ahom Kings. The other popular fabrics was the Endi whose worm *Philosomia Ricini* fed on the leaves of the ‘*Ricinicus Communis L*’, while the ‘noni’ or ‘Pat’ worms fed on the Mulberry or ‘*Bombyx Mori*’.

##### **1.14.1 Problem statement and present occupational Hazards.**

Addressing the myriad hazards faced by the womenfolk of the North East India, in their primarily paid or unpaid work place is a matter of concern, not because it hampers only the production and general economy, but because it is mostly and seriously linked with the lifestyle of the women, their health and psychological set-up.

Often potential health effects arise directly or indirectly. Although the women involved in Textile do not have to be directly exposed to environmental and chemical sustenance’s, yet the psychological and ergonomic stress in these workers – with

repetitive motions and fast work speed can often be the cause for physical and psychological ailments. Moreover the work environment in some communities are not very ideal , since the women have to work either in unhygienic conditions or in the lower compartment of their stilt houses which also accommodates poultry and pigs hence unsuitable sanitation is mostly the cause for ill health. Once the weaver's learn and are familiarized with the process of chemical dyeing, of their yarn, perhaps the exposure to chemical hazards will be on the rise and which definitely should also be an issue of concern to the entire social set-up..

In agriculture and Tea Industry too, women constitute the majority workers and lately the exposure to pesticides for fast and lush reproductive outcome exposes them to the toxic substances, thereby resulting in health consequential hazards, which is again steadily on the rise.

The social system too, makes way for increasing psychological pressure on women in the home front, since on a general overview; the lower middle class Indian women is burdened with family demands, which in turn has all probability of developing into a mental and psychological stress and hassles. In this context a multiple array of factors can be outlined as the cause-and –effects of such stress;and that which was highlighted during field study, but this is not to be elaborated at the moment, since it does not keep direct relation to the focal study at present.

### **1.15 Justification for the study of the selected area.**

The selected area focuses' on the Textiles of the Tai's of Assam, particularly the Tai-Phake and Tai-Khamiyang. It evaluates possibilities of converting them into modern contemporary utility and other functional Designer/ Apparel and Furnishings items for everyday use.

Eminent scholars while working with the tradition and transition of Art and Design, had discussed in details with an academic and resourceful viewpoint, and their works are an inspiring source for the future scholars and students. For example, while Dr. Ravi Mokashi Punekar studied the user preference for the visual domain of product form, he has equally emphasized on the cultural values and taste in purchase

decisions and marketing research by way of a particular product. (*User response to Visual in product form*, Punekar, Ravi Mokashi, PhD Thesis, 2008) On the other hand, Dr. Utpal Baruah studied the essential elements in Art, Craft, Textiles and Artifacts of North east India, leaving ample scope for future researchers to further their areas of interest. The formation of his thesis also leaves ample scope for further study as to how technology can be imbibed to meet the changing demands of modern society How gadgets can change to meet folk demands and folk artifacts become technology friendly. To quote him, “it becomes the responsibility of the designer to create conditions possible where they continue to be functional to the modern ambience”. He had stated that the idea of his thesis is that the regional design elements would help to facilitate their conversion into contemporary design in the regional and national context. (*A Study on Design Elements in craft practices with special reference to Textile and Basketry of North East India*, Barua, Utpal PhD Thesis, 2007), to follow suit this study of the textiles of the Tai’s of Assam and emulate future possibilities in context to the modern contemporary world of design was undertaken.

Justification of the study lies in the fact that most of the ethno cultural practices and creations of the unique ethnic communities of the Tai’s are gradually becoming extinct. Their population in the Indian sub-continent is fast declining and has all the possibility of being extinct in the forth coming decades. Survey has also showed that their population is becoming fewer in the entire Asia, and therefore are a highly endangered culture altogether.

### **1.16 Eco-friendly natural Dye technology of the Tai’s in Assam.**

The Tai’s of Assam excelled in the art of vegetable and natural dyeing technology. We can take into consideration that, only those colors that could be naturally procured, was favored for dyeing of their costumes. The most popular colors were- violet or purple, black, green, dark yellow or chrome, red and blue. These colors were processed from the wild trees, leaves, roots, barks, seeds and stems; and extracted in the most ethnic and domesticated way- a tradition kept alive for generations and also shielded and guarded with utmost secrecy.

In simple words, Eco-friendly would mean not to create any harm to our eco-system and environment. Awareness for it at present has inspired most global communities to recycle our waste, grow more trees, conserve natural resources, and make better eating habits to have an environment friendly world. But this community under study unintentionally uses sound methods of natural dye in lieu of the chemical dyes that automatically served and paved the path to conserve and recycle bio-diverse wastes and materials in our day to day life for positive outcomes. This will be elaborately discussed in later chapter-3.

Dyeing of natural fabric has been common to most of the South East Asian countries. The people of Inn-lay region, which lies in the south-eastern part of the Shan State, were very talented and innovative with this kind of vegetable dye. Most people, depending on the terrain and climate of their environment or on the kind of raw materials available, wove clothes out of silk or cotton.

The Tais of Assam also excelled in this art and produced unusual and vibrant dye colors developed from the locally available fauna and minerals. The Tai's of Assam excelled in the art of vegetable natural dyeing technology. It may be noted that only those colors that could be naturally procured, was favored for dyeing of their costumes. These colors were processed from the wild trees, leaves, roots, barks, seeds and stems; and extracted in the most ethnic and domesticated way- a tradition kept alive for generations and also shielded and guarded with utmost secrecy.

This study further reveals that the most popular yarn for everyday use is cotton. It is most suitable for the existing humid climate, particularly during summers and for conducting of the domestic chores. This necessitated and furthered the need for dyeing of the cloth, particularly the lower garment called 'mekhela' into indigo color. Subsequently the natural dyeing of fabric and clothes became a traditional technology of the Tai and Ahoms of Assam. Both the Tai-Khamiyang and the Tai-Phake excelled in this art.

Their innovations of the mordant techniques were also unique. A mordant is an agent, such as alum or urine, which is used to make adye or a stain permanently adhere to a material. Generally various techniques have been exploited for developing the permanence of dyed cloth, and the Tai's have invented such ethnic processes that are equally easy and readily available within domestic necessities.

The most basic method was to soak the cloth or fabric in a mixture of dye and the inventive mordant, or to soak it first in mordant and then in dye, for achieving an evenly distributed colour.

The main ingredients for natural dye were the *Strobilanthes Cusia*, out of which they could extract a rich bluish black color. Knowledge of natural dye, also generally establishes that the Tais have been maintaining a close relation with nature while also inhibiting animistic values in their belief.

**Fig.6.** Details of Indigo dye process and the finished dyed fabric.



The 'Rum' plant as the primary ingredient



Secondary ingredients- Alkali, alcohol making cakes and cooked



The finished product



### **1.17 Motivation to the Thesis.**

Establishing visual art with a prolific betterment is predominantly the vision of an artist and this vision is upgraded within in an appropriate surrounding. Once the study was started it brought to light the fact that although it was an actuality that words communicate better than pictures, yet children learn better from visuals. Our curriculum was such that visual literacy wasn't considered a necessary component of an individual's education. But in the 21<sup>st</sup> century, the Annodomini Era or the Common Era has seen inventions par-excellence, and the world of web has dramatically changed the role of Visual message both in communication and new knowledge of nature, use of light, the physiology of the brain and the technological gadgets that people invent. With all these our demands within a visually appealing sensibility increases because one upgrades himself as a visual literate. A designer is associated with artifacts and textiles costumes for mass production and this is significantly the role he plays in the consumer demand scenario. He not only ideates, prepares proto types and finally help produce the product but also is responsible to fulfill the need of specific groups of consumers. Once he is able to satisfy the specific group he is successful. This makes a vast difference to the social set up. In the focal study, the textile ethnic design, patterns, colour combination and weave has the capacity of catering to a specific group in our social system without being closely related to the ethno clan in question, because these fabrics are mostly visually appealing and can be used for varying necessities of our life style, provided they satisfy the particular need of the customer

### **1.18 Methodology and the flow of the work.**

The chosen approach was primarily field study, and inspiration from different quarters allowed focusing on the particular topic of study.

- Reviews were conducted at prominent Libraries. Based on the field study, it could be assumed that there was no cause for change in the textile technology of the Phake designs, since they were more rigid in the maintenance of their tradition. But the Tai-Khamiyangs design variables showed definite cause and reasons, for them to be adopted

by other cultures. Evidential examination showed that the Khamiyang textiles design and dyeing principles had a strong affinity with the ruling Ahoms class, and the existing inhabitant and local ethnic communities of Assam and vice versa. Outcome of the analysis with collected variables show that there has been sufficient time for change as well as for adaptation by different local communities.

- The study designs based on non-experimental data, with a broader level retrospectively linked to the cause and outcome. The study unfolds within a natural environment, where the study population was explored to access their textile designs, patterns and mode of costume fashion. The variables are comparable designs establishing innate characteristics, and comparison based on color choice, weaving technique, pattern, motif, dyeing of yarns and sign relationships of these patterns etc. was intermittently examined.
- Since not much information was available concerning the area of the study, one had to rely more on primary sources rather than the secondary ones.
- Secondary information was collected from offices like 'Tribal Research centre" Govt. of Assam, Guwahati, Its census from time to time, and personal record of Tai scholars like, Chou Pushpa Gogoi and Piam thee Gohain.
- Literature collected from Vihars, Libraries etc. which all mostly focused on the community population at large.
- No information by way of textile design archive was available of such ethnic communities, so these were to be collected from remote ethnic villages. Understandings from interviews and questioning of the local people was in itself a hindrance since they constrained themselves from having frank discussions and seemed reluctant to speak to strangers, especially someone who seemed to be collecting information about them. Here again it may be mentioned that the awareness of preserving their heritage is still yet to settle within their mind set, and creating an awareness for it is most necessary.

- The questions were unstructured at first, in accordance to the situation and environment. Towards the latter part in some villages, after several visits and making oneself acceptable to the persons, a detail survey was possible. Gaining confidence was not easy, but once communication and a relationship got equated, the job seemed much easier and data's could be collected by way of divulging some facts and figures of their lifestyle. Proceeding with structured questions was now possible.

Since communication over the internet was out of question, as scholar, became the 1<sup>st</sup> party to the interviews, and Video recording was also used as a mode of documentation.

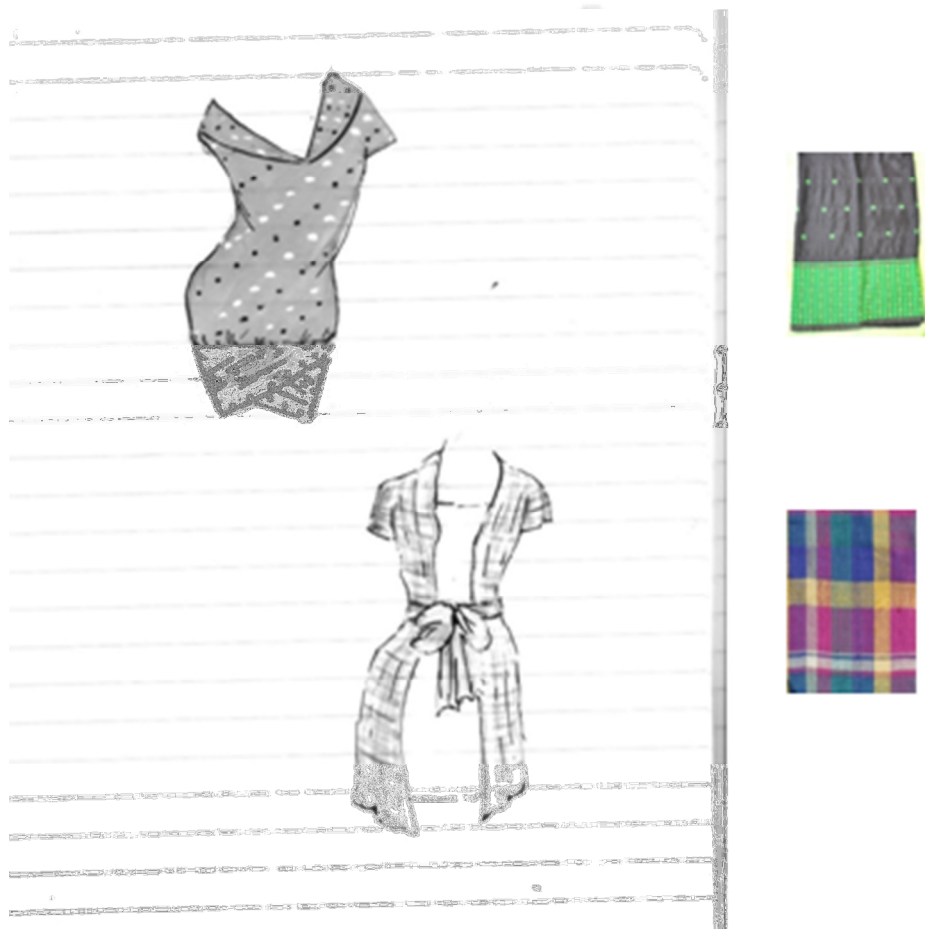
- Voice recording was also done.
- Notes had been taken about the possible descriptive information of the respondents, like education, age structure, socio-economic status, occupation and the ethno background. Preferences of color, pattern, vegetable dye, weaving technology and the knowledge of processing of the yarn from wild silk worm etc. were collected. Attitude towards their heritage costumes, and future possibilities of conversion and circulation in markets was also asked. Although the observations were participatory, yet most of the events and discussions were video documented for future verification.
- From the collected variables a scale was forwarded for ratings of color to the artisans and to specialized section of population dealing with visual art and design development. These observations and testing done has immensely helped arrive at a set state of establishing facts, in support of the hypothesis.
- The visual artist, Designer's study and apparel fashion convertibility ideas were also explored during the field visits. A few of them have been put forward for necessary perusal.

## Field Sketches:

**Fig. 7** Design ideas explored in the field visits with observation of ethnic fabric and pattern and how they may be converted into day to day apparel use.



**Fig 8.** Design ideas explored in the field visits with observation of ethnic fabric and pattern and how they may be converted into day to day apparel use.



**Fig: 9** Design ideas explored in the field visits with observation of ethnic fabric and pattern and how they may be converted into day to day apparel use.



**Fig: 10** Design ideas explored in the field visits with observation of ethnic fabric and pattern and how they may be converted into day to day apparel use.



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**Fig: 11** Design ideas explored in the field visits with observation of ethnic fabric and pattern and how they may be converted into day to day apparel use.



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**Fig: 12** Design ideas explored in the field visits with observation of ethnic fabric and pattern and how they may be converted into day to day apparel use.



**Fig: 13** Design ideas explored in the field visits with observation of ethnic fabric and pattern and how they may be converted into day to day apparel use.



**Table 4:Flow Chart showing the Method of Data collection.**

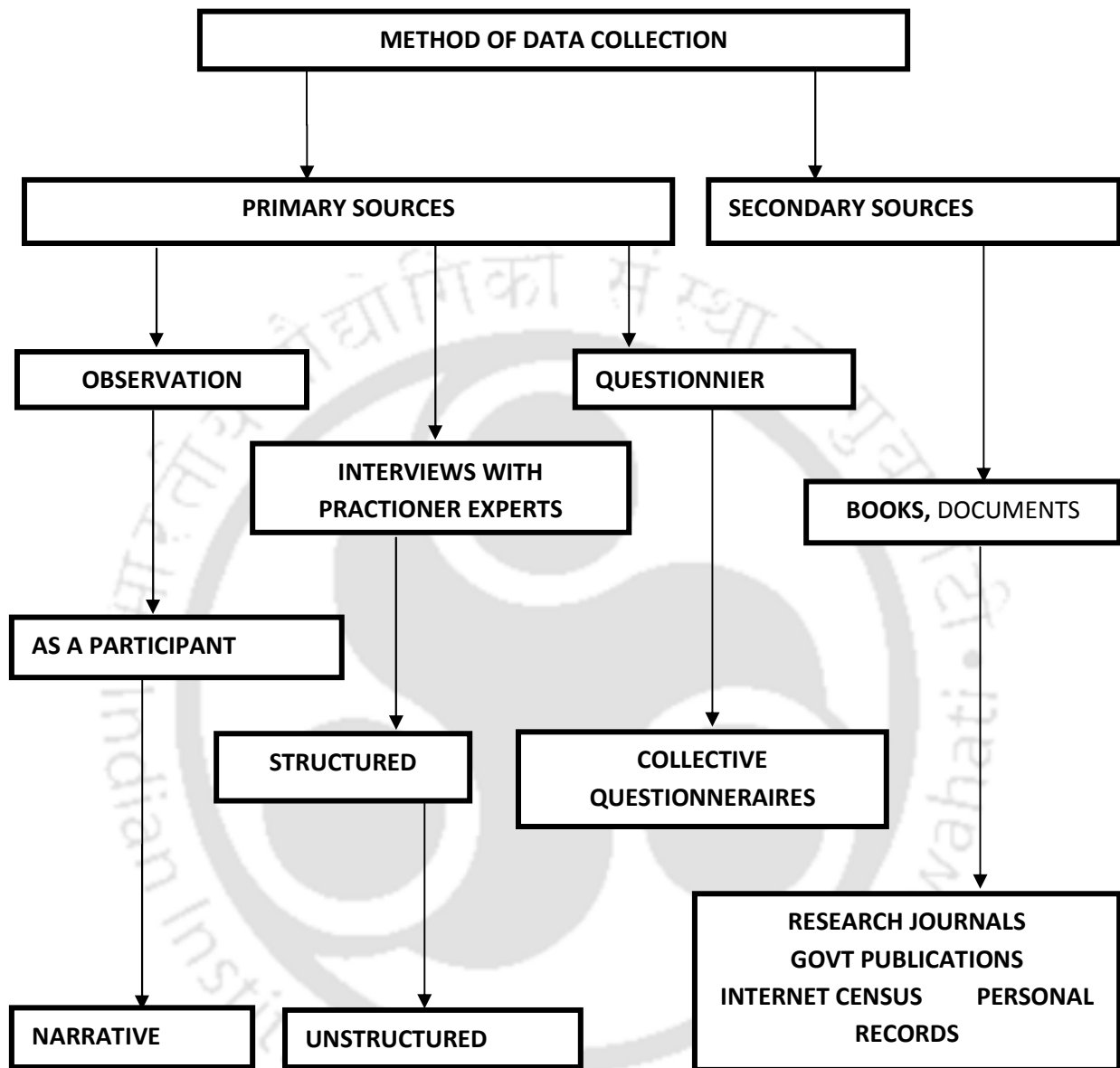
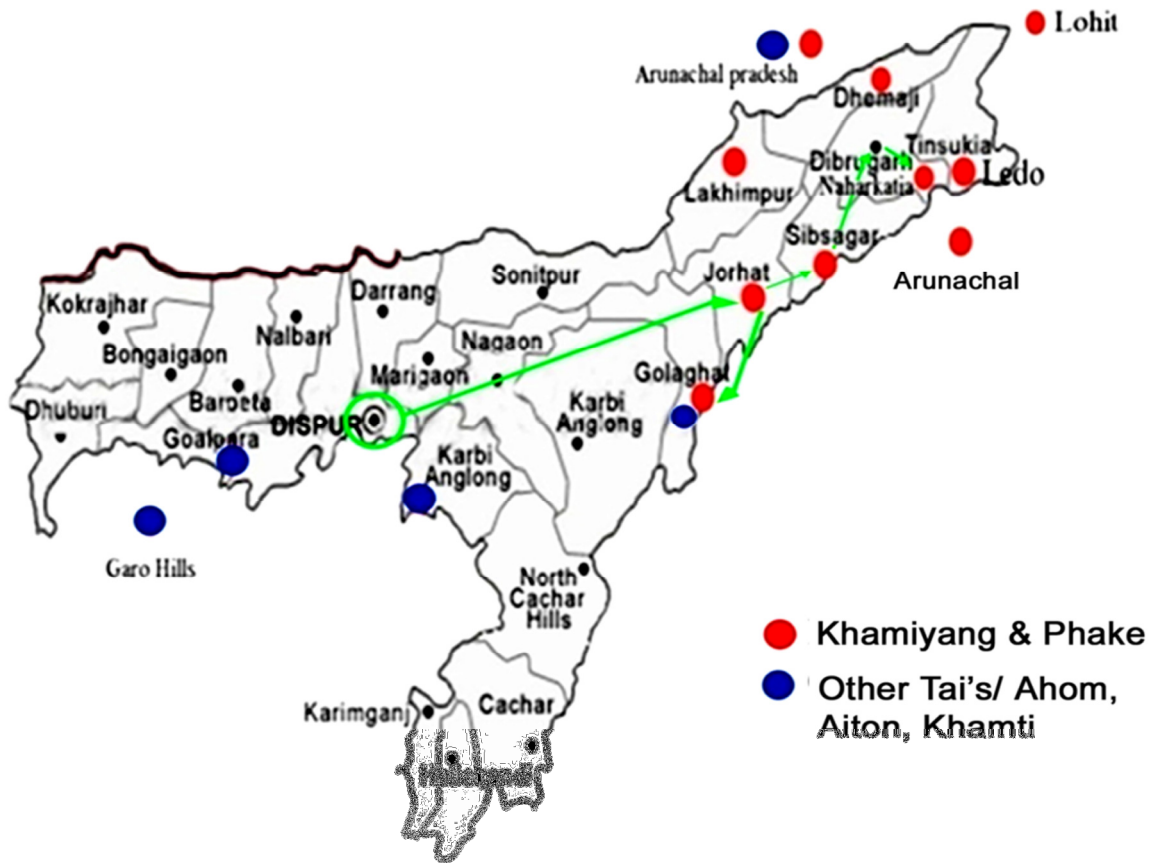


Fig-14

Map of Assam showing the places of visit from Guwahati



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### 1.19 Hypothesis.

- Tai Textile Designs and products which are distinctive in themselves, and embodying such designs, patterns, motif, and color.... through the ages had been exchanged and assimilated among the local Assamese communities.
- These conglomerations of patterns and textile principles have finally identified themselves as Assamese in the Brahmaputra valley.

### 1.20 Aim and objectives.

**The present study aim to** locate and establish the ethereal textile elements and principles of the Tai –Pkake and Tai-Khamiyang,( Sub-clans of Tai) who had settled in Assam. These two clans have costumes that are rich in design, pattern, motif and form, and which incorporates predominant colors that are vibrant and unique. The Tai population is on the verge of extinction and drastically on the decline. Therefore all aspects related to their cultural heritage in India and Assam, inclusive of the rich textile design, personal response towards a visual representation in their attires, history of the medium of presentation, and representation of textile motifs as visual messages to be remembered ( which also have the power to inform, educate and persuade a culture) and the variety of fundamentals associated with ancient design factors of a highly rich legacy carried through the miles of migratory tract, needs urgently to be preserved and conserved.

#### **Objectives of the study**

- The rich textile heritage of the North East India, still not exposed to the rest of the world needs to be placed on an International platform for global enlightenment.
- As an extinct culture, the visual data's produced by these cultures needs to be preserved and conserved.

- To examine the semiotics and sign relation or pictographic representation of the design patterns.
- To establish the methods of natural yarn dyeing of Fabric-that which is not only unique in itself, but a technology excelled by the Tai's and which is fast on the way to extinction in India.
- To explore possibilities for futuristic application in the Design development sector as and where applicable, especially in the field of Apparel Industry.
- To provide Government and Non-Government organizations with appropriate textile designs based on ethnicity for the benefit of the Ethnic fashion Industry of India.
- Although not relevant to design factor, the study can be used as an argument for establishing a link of the Tais of Assam with the Daic Phyla and Austronesia's found in rest of south East Asia and beyond.

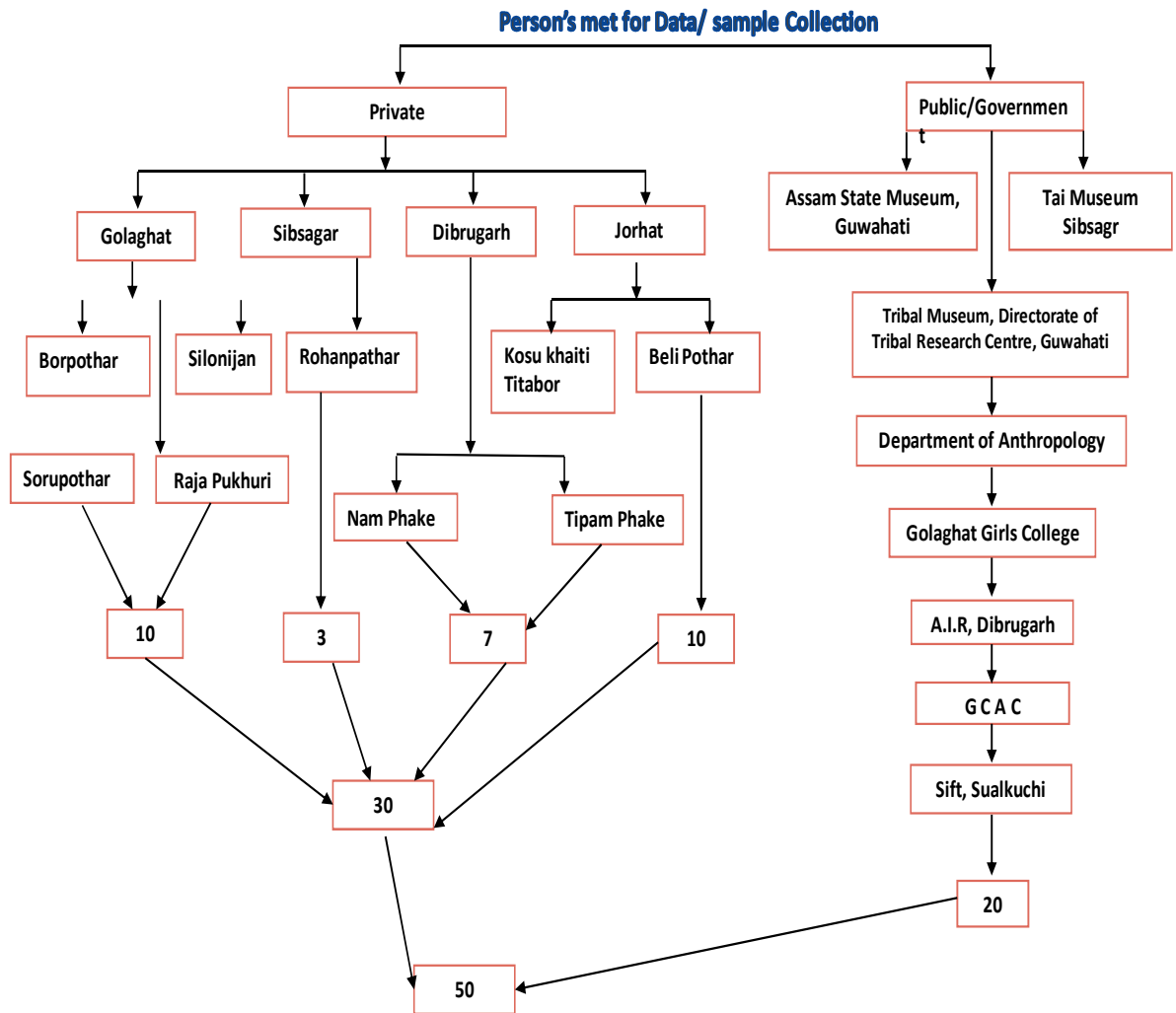
### **1.21 Select plan for variable and information collection.**

The Variables and information in context to the study was collected from different villages of the following districts of Jorhat, Golaghat, Sibsagar and Dibrugarh, where field work was conducted. The places of visit were Jorhat town, Titabor, Golaghat town, Dibrughartown, Moran, Jaipur and Dhemaji, while the villages covered were, Silonijan, Kosukhaiti, Bellpothar, Sorupathar, Rajapukhri, Borpothar, Rohan Pothar, Lakuwa, Namphake and Tipamphake. The journey had been started from Guwahati, halting at places like Jorhat, Sibsagar, Dibrughar and Dhemaji. This made it easier to talk and interview the experts in the field while also having the opportunity to visit concerned Governmental offices and Museums.

The Table: 5 show the plan for data and sample collection while fig. 14 on page 40 shows the places of visit from Guwahati.

**Table 5:** Plan of sample collection and persons met from different villages and districts of Assam.

Plan for sample and data collection.



**Fig 15: Mode of Documentation and collection of variables.**



Solapothar Buddha Vihar/ Discussion with an elderly Shyam lady.



Nam Phake Buddha Vihar/ Discussion with the local residents.



Namphake Buddha Vihar/ Discussion with the resident Buddhist preacher.



Sola Pothar Buddha Vihar/ Discussion with the elderly resident Buddhist preacher.( Bhante)



Tipam Phake Buddha Vihar/ While making vedio documentation.



Tipam Phake Buddha Vihar/ Discussion with the elderly resident .



Nam Phake Buddhist village/ Documenting the variables.



Navajyoti Buddha Vihar, Solapothar/ Discussion with the elderly residents .

A total of 80 (eighty) and above variables and samples were collected from both Public/Government and private sectors and different ethnic villages. These have been reflected in the Table-8 as given on page 60. The designs are conventional belonging to different period of time, which is why it has been easy to access the evolution and changes through time and also establish the designs which are found to be in use presently.

In the plan for field survey and data collection, persons and respondents from both the Public and private sectors were met and interviewed, as and where it was most applicable. A total of four districts of Assam, like- Jorhat, Golaghat, Sibsagar and Dibrugarh were covered for this particular study. The villages and places of visit were Borpathar, Silonijan, Rohanpothar, Kosukhaiti, Bellpothar, Sorupathar, Rajapukhri, Namphake and Tipamphake.

Besides these ethnic hubs, Government offices and undertakings and officials working with such cultural identities and allied textile development areas were also interviewed. These offices were – The Assam State Museum, Guwahati; The Tai Museum, Sibsagarh; Directorate of Tribal Research Centre, Jawaharnagar, Guwahati; Department of Anthropology, Guwahati university; Golaghat Girls College; All India Radio , Dibrugarh,; Government College of Art , Guwahati; S.I.F.T Sualkuchi; Directorate of Textile and Handloom, Guwahati; The Weavers Service Centre , Government of India, Guwahati; and The Office of the Development Commissioner, Handicraft, Ministry of Textile, N.E.R. Guwahati.

The Study conducted reveals that the Assam mulberry silk, or Paat and Muga was in use from the era of the Ahoms and even earlier “Som” or ‘*Antheraea Assamma*’cultivation was popular and Muga Textile with its smooth golden sophisticated sheen was largely preferred for women Mekhla Chaddar and Riha, (Wrapper). The Tai men also prided in wearing the Muga turban on ceremonial occasions. The Ahom chronicle-Tripura Buranji provides information about the variety of textiles produced during the era, because this industry excelled under the patronage of the Ahom Kings. The other popular fabrics was the Eri yarn whose worm ( *Philosomia Ricini*) fed on the leaves of the ‘*Ricinicus Communis L*’, while the ‘noni’ or ‘Pat’ worms fed on the Mulberry or ‘*Bombyx Mori*’.

The study further revealed that the most popular yarn for everyday use was cotton. It was most suitable for the existing humid climate, particularly during summers and for carrying out daily domestic chores. This necessitated and furthered the need for Dyeing of the cloth, particularly the lower garment called 'mekhela' into indigo color. Subsequently the natural dyeing of fabric and clothes became a traditional technology of the Tai and Ahoms of Assam. Both the Tai-Khamiyang and the Tai-Phake excelled in this art.



## **CHAPTER- 2**

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### **: Literature Review:**

Background of the Tai's, evolution of textile and achievement in Tai-Phake and Tai-Khamiyang fabric.

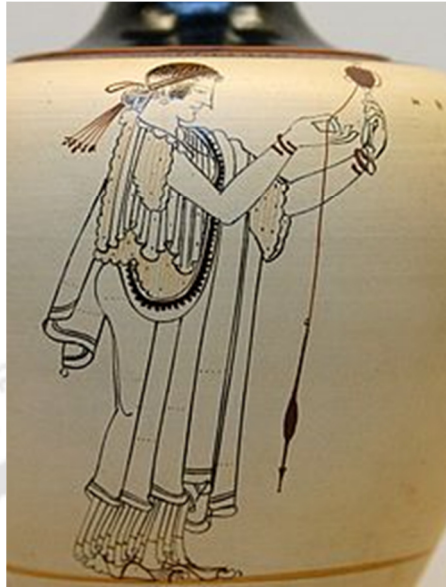
## 2.0 Introduction.

Amongst the innumerable artifacts produced in the north east of India, perhaps textile is the only prominent utility item that has been locally designed for mass production and that too carrying specific identity of the specific regions producing them. Although the question of Identity carriage was a probability a couple of years earlier, yet in the 21<sup>st</sup> century it has been well established all over the globe. Certain Industry sections of Assam, least to mention the Silk Industry at Sualkuchi, in Kamrup District and the Cane and Bamboo knock down furniture have gained immense popularity. Studies have further shown that these are the two Revenue achievers for Assam. Muga silk, Mulberry silk and Eri silk are native only to the state of Assam. Yet there is a dearth in self-entrepreneurs and this is why we still do not have enough material to support our study. Assam's biggest contributor to the world after tea and Petroleum is the Silk yarn.

According to Central Silk Board's figures for the year 2011-2012, Assam's silk production stands at 2,109 metric tons, next only to Andhra Pradesh at 6,019MT and Karnataka producing 7,800MT. Of the state's total production, muga accounts for 115 metric ton, mulberry 18metric ton and Eri tops the list with 1,976 metric tons. (Source [http://www.telegraphindia.com/1130102/jsp/northeast/story\\_16390846.jsp#.UwXjemKSz84](http://www.telegraphindia.com/1130102/jsp/northeast/story_16390846.jsp#.UwXjemKSz84) Ahimsa Eri ,toast of West.) .

Archeological discovery in Harappa and Chanhu-daro suggests that sericulture and silk yarn from wild silk and native silk worm species existed in South East Asia contemporary with the Indus Valley Civilization dating between 2450 B.C and 2000 B.C. Evidence of silk production in China goes back to 2570 B.C. and could also be much earlier. An Indus silk was obtained from multi species silk worm. Today it is widely accepted that the Silk processing technique is a purely Chinese Technology.

**Fig: 16**An ancient Greek 'Black Pottery' dated to 490 B.C. shows a woman spinning.



**Fig: 17**An early 12<sup>th</sup> Century painting by emperor Huizong of Sung Dynasty illustrating the silk manufacture in China.

“Ladies making Silk”



Eri is a wild silk variety in Assam that is produced without killing the silkworm. It is gaining much popularity in the west as the 'Ahimsa' or non-violent silk, a Gandhian principle which is being endorsed by global giants like Armani's and Hugo Bosses for choosing this fabric for their product line up. Dilip Borooah, the Managing Director of Fabric Plus, a textile firm, not only deals with Eri and Muga, but has been exporting it to manufactures of textile garment and accessories in Switzerland, Germany, United Nations, U.K and Sri Lanka. Altogether Fabric Plus exports to eleven countries and caters to the need of twenty top Brands. Eri is used not only for the manufacture of garments, but also for shirts, Shawls, Stoles, Cushion covers, draperies and curtains, ties and bags. According to Dilip Borooah, the domestic market is also fast growing. With its head office in Guwahati, and sub- offices in Kolkata and Mumbai, Fabric Plus has a spinning and weaving unit in Chaygoan, in the outskirts of Guwahati since 2009. Presently it produces 100 metric ton of silk per year. Therefore the achievements of successful entrepreneurs like Borooah can be an inspiration to a lot of textile entrepreneurs of the north East of India. (Source: As published in The Telegraph, Wednesday, 2<sup>nd</sup> January, 2013.)

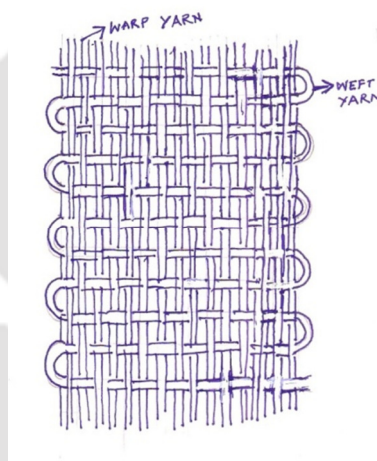
## **2.1 Textile - a desirable, luxurious human commodity:**

Textile is most important as it intricately relates to man, his life and basic need for covering his body. While clothing himself, he also expresses his aesthetic sentiments towards a design and involuntarily imbibes his knowledge of symbolical ideas. One seldom ponders to think what would happen without clothing and weaving. Evolution of textile is often taken for granted, but without which our very existence would be as primitive as the primordial. ***Textile has therefore been developed as a part of 'Design'.***

The history of the world can be read in textiles: the rise of civilizations and the fall of empires are woven into them, along with the great stories of conquest, religion, and trade. The greatest highway ever made, the Silk Route, was not for the transportation of gold or armies, but for the trading of the most luxurious and desirable commodity of all, Silk textiles. (*World Textiles.*, Gillows, John & Sentence, Bryan,. 1999).

Study of the traditional textiles of the world reveals at times an amazing diversity of techniques and style, while at others we can only wonder at the way in which cultures separated by vast distances, have developed similar solutions to problems of design and construction. Sometimes only a limited number of solutions may have been possible, but the frequency of similarities in techniques and the choice of motif, symbols makes one wonder if this is evidence of ancient unrecorded trade routes, or the substantiation of the thought behind Jung's theory that humans have a collective unconscious.

**Fig: 18** Sketch prepared during field study, to see how the warp and weft thread is interlaced in a woven cloth.



Weaving is a method of fabric production in which two distinct sets of yarn or threads are interlaced at right angles to form a fabric or cloth.

## 2.2 Evolution of Textiles.

As cited earlier, man's basic need was to protect him from different elements and in the process of discovering ways to cover himself; he evolved the technique of producing fabric. For the early hunters, it was the skin of animals he killed for food that also served the purpose of covering his body. Neolithic evidence of scrapes to clean the hides and bone slivers to be used as needles are proof enough of the fact that for these men skins of fierce, large and dangerous animals was the symbol of his first prestigious garment. The inner side of tree barks were also scraped out and beaten flat, to make it soft and flexible for human use. The pastoral advancement

saw the discovery of other fibers like- hemp, felt and goat and sheep wool. Once the craft of basket weaving become gradually refined with twining and interlacing, the same art got to be transferred to animal and plant fiber, thus constructing the flexible fabrics. Spinning discovered subsequently, made the textile a new experience with yarn developed from wool, linen, cotton and silk.

Originally Textile design was created out of local needs and thus carried an Identity. India has a long tradition of textile especially hand woven and hand spun textiles. Textiles stand next to agriculture as an income generation activity for most of the rural population. The structure of the fabric is as much a determining factor in its functions, as is the choice of raw material. Some structures of the fabric lend themselves to a specific end use where as many other structures are versatile, thus lending them to a variety of functions. A good understanding of simple woven structures makes it possible to apply them in the woven cloth in a variety of ways. The industries and employment expectations have now taken new dimensions and in this context there is a need for good innovating designers to cater the needs of the consumer demands. The diversification of design in the handloom sector is the need of the hour. The basic knowledge about designing textiles through weaving, along with other methods needs much emphasis so as to manage contemporary design activity in the highly competitive environment. This version has been sources as per the discussions and interviews conducted for reviewing the matter with Mr. Dwkhar, the Regional Director, N.E.R. O/o The Development Commissioner, Handicraft, Ministry of Textile, Government of India.





### **2.3 Textile Industry of Assam.**

Weaving is an ancient craft practiced in the north eastern part of India specially the state of Assam. Textile production is carried out by almost every woman and at one point of history, every household hummed with the sound of the loom. As already cited earlier, textile occupies a significant place in the socio-cultural and economic life of the people. Today, the variegated communities of the state have a large magnitude of traditional costumes. Apart from costumes they also have a variety of accessories like belts, bags, boots, hats, sashes, turbans; house hold items like

sheets, curtains, draperies, blankets , alter covers, temple hangings and ceremonial flags etc.

Silk in Assam is not a culture, but a tradition, not a history but a way of life in the socio-economic structure of the society. Its rich heritage leads the state to make it a legend in the world of silk history, and it has been a wonderful gift of nature for this part of the globe, and the ecology of the state has always been suitable for all four types of silk worms like Muga, Mulberry, Eri and Tasar. Muga is the King of all silk fabric with a fabulous amber (brown) color exploited from semi-domesticated, multivoltine, polyphagus Muga silkworm (*Antheraea assama*) cocoon. This was understood after discussions with the personnel's involved with sericulture and the State Institute of Rural Development, (SIRD) Khanapara, Guwahati.

**Fig: 19 The visuals show the different stages in silk rearing and silk yarn spinning.**

<p style="text-align: center;">Stage-1</p> 	<p style="text-align: center;">Stage-2</p> 
<p style="text-align: center;">Stage-3</p> 	<p style="text-align: center;">Stage-4</p> 
<p>The Above illustrations show the four major stages in Sericulture.</p>	



The different stages in the processing of the silk yarn, is mostly manually produced Stage -1 is locally called the 'Kathi Diya' where the matured female butterfly is tied to a straw stalk (that is, it is captivated) and allows it to waits for its partner for mating. It lays the eggs on the very same stalk and once hatched, the caterpillars are allowed to feed and grow on Mulberry or '*Bombyx Mori*'leaves while the 'Muga' worms feed on *Antheraea Assamma*' cultivation (Stage-2), In the 3<sup>rd</sup> stage, we have the matured caterpillar having woven around itself the cocoon with its sticky saliva that are the filaments of yarn. The 4<sup>th</sup> Stage is when these cocoons are boiled, and the thread is then easy detachable and unwound from the cocoon and entwined on a separate reel. Often these inner insects are edible and a delicacy for the Tai's (Stage-5). In stage -6 we have the ready yarn.

#### 2.4 The Textile Design of the Thai's.

The Thai textiles have been sought after all over the world, with a special demand for it in the museums, collections, tourists, importers and exporters and the fashion houses. This is mainly because in recent times, ethnic beauty in fabrics is appreciated for its unique specialty- of being appropriate for fashion as well as for home furnishings. Some also like to poses it out of an attraction to ethnic cultural material and that which is rich in heritage and history.

The outfits and costumes worn by the people of Thailand, especially the Hill groups of Northern Thailand are very unique in themselves. The Pha Zin Dteen Jok

(Sarong) is worn on special occasions and only the royal class is allowed to use silk. The rest of the commons use cotton woven in fascinating colors and designs. The woven fabrics are multifaceted and are used in different socio-religious occasions, just as in the North eastern part of India.

Another unique example is the Pha Haw Khampee, which is the covering for the palm leaf religious texts. Generally only elderly women are allowed to weave and offer it to the village temples. This was more common before paper and book binding found its way to their culture. Done with a combination of wrapping and twining technique, bamboo slats are also incorporated into the weaving.

Often young women wove fabrics to be presented to their sweethearts, which the young men wore around their shoulder. Generally a popular young man, received more than one such garment called the Pha Ched Noi, which was decorated in patterns of elephants, horses and geometric motif. Each village had a distinctive style. The Pha Lop were made to be used as bed sheets (sometimes woven in silk) with the borders in black, red and yellow. Each ethnic group and village was characterized by variations in design.

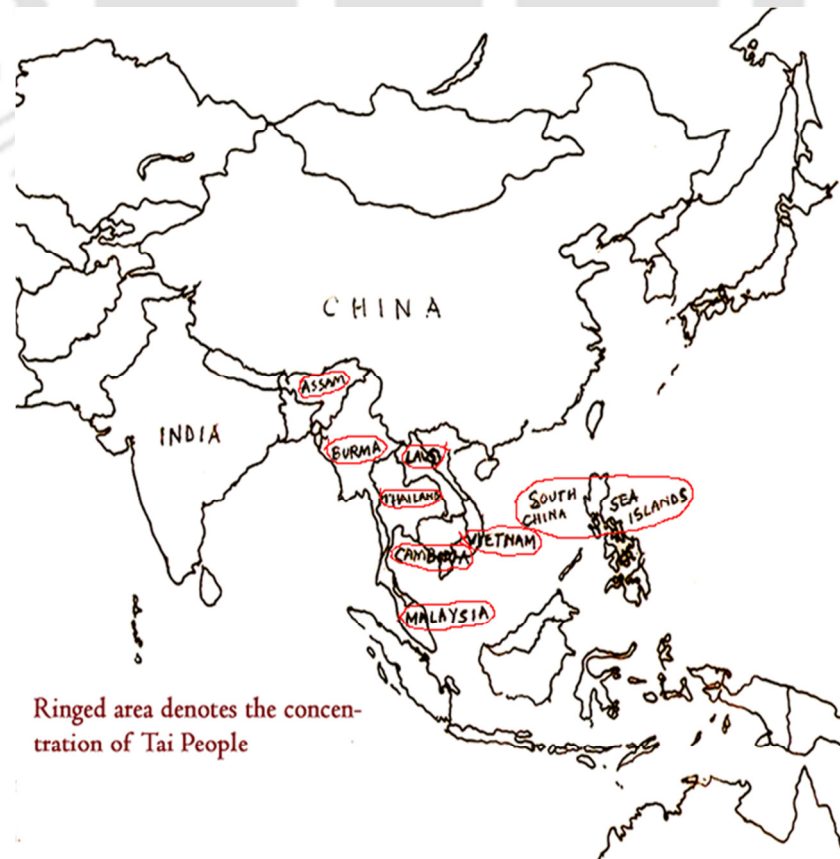
A discussion on Thai textile would perhaps be incomplete without the mention of the Thoong Yaam or the shoulder bags (called the Thung in Assam) which varied in different sizes, right from a small purse to big bags. These are mainly used by the hill tribes and they are made elaborately and in color with geometric patterns.

It is most unfortunate that in Thailand too, like in the rest of Asia, traditional textiles and the people who possess this knowledge to produce them are slowly disappearing, Reasons are far to see but the increasing availability of cheap, mass produced alternatives has become the major threat and cause for its decline. However the growing awareness amongst nations for preserving ones traditional heritage has reversed this trend. We can therefore be optimistic for a continuation of these traditional textiles with the unified trend of appreciation of their unique beauty.

### 2.4.1 Background of the Tai's.

The Tais are a clan that is spread in the entire South East Asia. The inception of this clan was perhaps nearly 2500 years ago, even before the birth of Christ. At one time, the entire area covering part of China, Northern Burma, Assam, Thailand, Laos, and Taiwan etc. was inhabited by this large community. All belonging to south western China and other regions are known as Tai, alternative to it being- Thai, Shan, and Shyam etc. Tai Priests claim their roots to be of the Tai-Mongoloid Branch. They entered the Plains of Assam through the Pangehou pass over the Patkai Hills in early 13<sup>th</sup> century and ruled Assam for nearly 600 years. ( Source: Gogoi, Chou Pushpa., 1994, *Tai Sanskriti, Purbanchal Tai Sahitya Sabha*, Eastern Tai Literary Publication, Dhemaji, Assam, India.; Gait, S.E., 1984. *A History of Assam, 3<sup>rd</sup> edition (Reprinted)* Delhi, Cine Tarika Publication. And, Gohain, Paim Thee., 2009. *Tai Pkake Samaj Aru Sanskriti*, Guwahati, Assam, Directorate of Assam Institute of Research for Tribal's and Schedule Castes, Jawaharnagar)

**Fig: 20.** Map of South East Asia showing the concentration of Tai's, and the ringed areas on the map was made on the basis of Literature review.

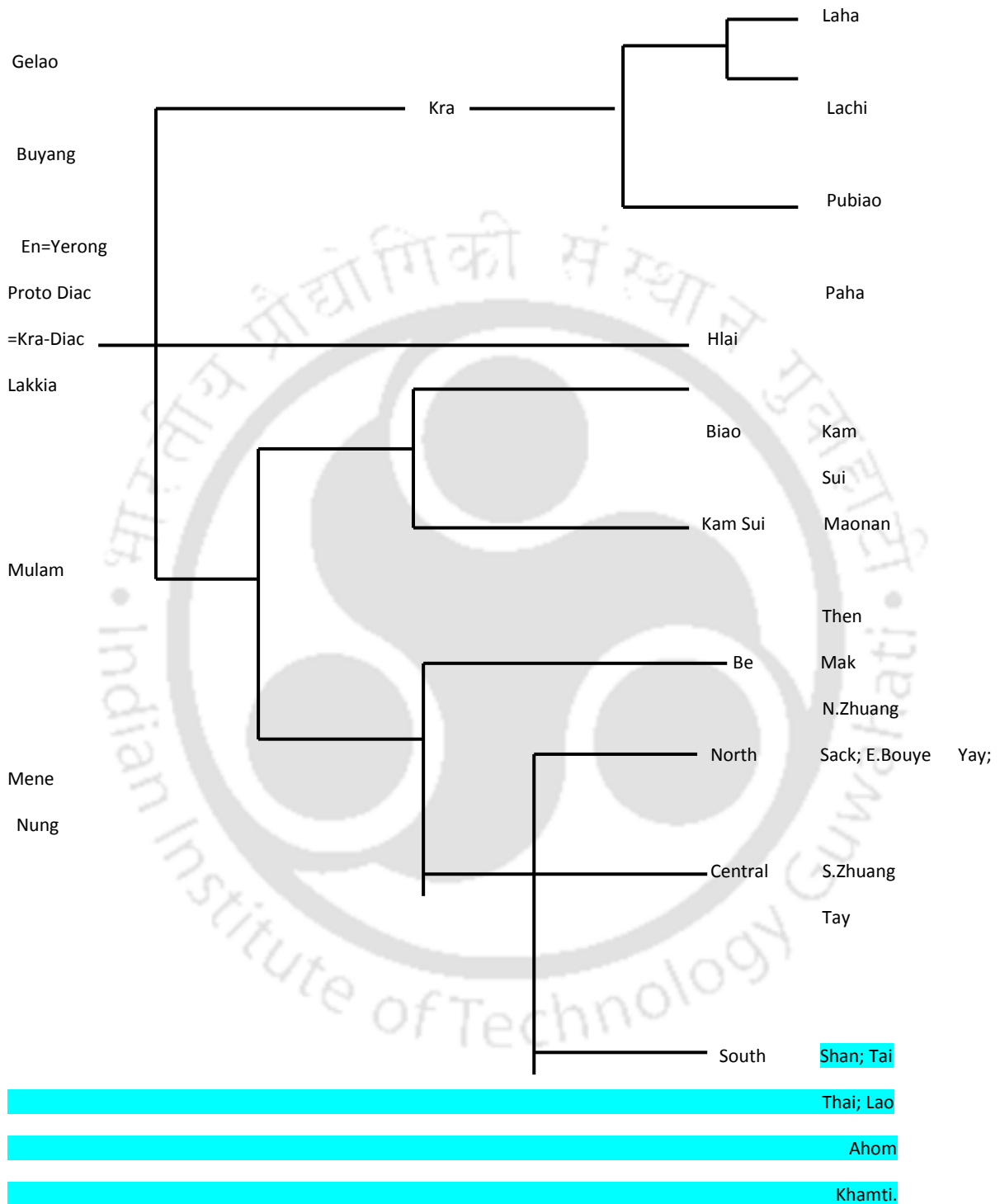


#### **2.4.2 The Language Phyla of the Tai's. (A connection between Diac and Austronesian languages).**

Often an Argument for a link with Daic and Austronesian is sought to be established. Although a tentative conclusion is drawn regarding their origin, yet it is for sure that they are a divergent stock, following the Daic or Tai-kadai (also Kra-Dai and Zhuang-Dong) languages covering a substantial region of East and South East Asia. Thai, their best known representative dominates Thailand, but the language family generally has been considered to have originated from South China, where they are most diverse. (*The Prehistory of the Daic (Tai-Kadai) speaking peoples and the hypothesis of an Austronesian connection*, Blench, Roger, Kay William Educational Foundation, Cambridge, U.K., July 12<sup>th</sup> 2009).



Table: 6 Internal classification of Daic language phyla. (Source: Blench, Roger. July 2009. *The Prehistory of the Daic (Tai-Kadai) speaking peoples and the hypothesis of an Austronesian connection.*)



Hypothesis first advanced by Benedict (1942, 1975), which broadly claimed that Austronesian and Daic were related. Benedict (1990) later expanded his view to include Japanese, a direction in which few have followed. A problem for many authors was that Daic and Austronesian appear to be so very different on the surface; Daic is highly tonal with very short words, Austronesian is non-tonal and tends to have CVCV stems plus affixes. Hence the tendency was to treat Daic as isolated or to link it with Sino-Tibetan, which appears much more similar in terms of morphology.

As shown in the table, the Tais, Ahoms, Shyams and the Khamtis too, were the people migrating southward, in search of settlement, entering through the Patkai hills. Although ancient literature tries to substantiate their migration with mythological references, yet despite its importance, little is known about their prehistory, homeland and causes of expansion. While proposed Archeological correlation deals only with the most recent phases, the earlier literatures dealt with crypto-racial speculations.

A connection between Daic and Austronesian languages has long been established, but only recently linguists have begun to seriously consider the argument that Daic is actually a branch of Austronesian. This also implies that the Austronesian speakers landed on the mainland and settled there at the same period of their movement out of Taiwan, towards divergent directions. The possible confirmation is obviously linked by material culture and iconography. Roger Bench's paper examines the linguistic, ethnography, archeological and iconographic evidence in support of this hypothesis.

The main body of Tai migrants entering Assam with Sukapha could have been the diverse minority ethnic group, speaking the same language and having similar traits of cultural background- which today is a lost phylum. After considerable time and assimilation with local dialect and culture, - pervasive bilingualism was responsible for linguistic and cultural restructuring.

A second wave of evolution, whose immediate origins are unknown was responsible for the rapid expansion of Tai branches some 2000 years ago, leading to the characteristic pattern today of extremely homogeneous language of the southern Daic zone.

### **2.4.3 Importance of the Tai-Phake and Tai-Khamiyang communities.**

The **Phake** or the **Phikials** are the biggest section of Tai population. They belong to the Tai-speaking tribal group living in Dibrugarh District and Tinsukia district of Assam, principally along the areas of Buri Dihing river, near Makum, as well as adjacent parts of Lohit and Changlang districts in Arunachal Pradesh. As of 1990, their population stood at 5,000, which consists of less than 250 families.

According to Piamthee Gohain, renowned social worker for the Tai Phake community, and a resident of Nampak village, this figure has been reduced to 2000 in the year 2009-2010. Princess Sirindhorn of Thailand visited the Namphake village, and was able to communicate with very good mutual intelligibility despite centuries of distance. Hyperlinks and Piam thee Gohain's version establishes that they migrated to this north-eastern part of India from the Howkong Valley of Myanmar in 1775 A.D.

Even after the passage of more than 230 years, after their migration, the Tai's have retained their customs and tradition intact, continuing indigenous food habits, colorful dresses, folk songs and dances. They claim that they are still adhered to each and every social practices and festivals wholeheartedly. The same version was seconded by Pansoi Tung Tang, resident of Tipam phake who is presently an active nature lover working for the conservation of their culture.

### **2.4.4 The Tai-Phake Villages in Assam.**

The following are the Tai-Phake villages as identified in Assam followed by the existent districts.

- Namphake village, Naharkatia: District.-Dibrugarh
- Tipamphake village, Naharkatia: District.-Dibrugarh
- Borphake village, Margherita: District.- Tinsukia
- Manmou village, Margherita: District.- Tinsukia
- Nonglai village, Margherita: District.- Tinsukia
- Longphake village, Margherita: District.- Tinsukia
- Mounglang village, Ledo: District.- Tinsukia.
- Ninggam village, Koomchai, Tinimail: District. - Tinsukia.
- Feneng village, Jagun: District. - Tinsukia.

#### **2.4.5 The Tai-Khamiyang Villages in Assam.**

The **Khamiyangs** as popularly known as the Noras are a section of the great Tai race. According to E. A. Gait; they had their independent principality in Mung Kong right up to the end of 18<sup>th</sup> century. Mung means a country and Kong means a drum which is commonly called the dhakdhol. Therefore Mung Kong in one word means the country of the drums. They too, like the Phakes had descended from the Howkong valley Myanmar/Burma. The Noras are regarded by the Ahoms as close kinsmen. According to the fabulous legend and accounts of Khunlai and Khunlung, the latter is credited to have occupied western portion of the country, i.e. tract around Mungkong and Hawkong Valley. None the less they were a comparatively civilized stock and predominantly as Buddhist, had been employed as astronomers and writers. It is assumed that some Noras came with Swargadeo Sukapha and merged with the Ahoms, while others came in later.

History bears testimony that in 1524, Swargadeo Chuhungmung married the daughter of Nara Raja and in return, equally honored their chieftain with an Ahom damsel. Such matrimonial alliances continued and at present the Noras or the Khamiyangs as distinctive tribes are found in Deasangpani and Cholakather village of Sibsagar District and near Titabor in Jorhat District. The Temple or Vihar is built in a central location of the village and all actively cooperate and participate in their customary festivals. All religious activities are similar to the Phakials. The meaning of Khamiyang is that 'Kham' means gold and 'yang' means find place. According to Farida Ahmed Das and M. Sikdar, Anthropologists, Dibrugarh University, the total population was 990 in 2000, while it was 1,150 in 2010 and expected to reach 1340 by 2020.

Both the Phakes and the Khamiyangs construct their houses on raised platforms 4 -5 feet above ground. (Chang Ghars). Every household possesses a granary below and the rest of the space is used by the women for weaving and dyeing activities.

## 2.5 Demographic and statistical description of the community.

The Khamiyangs are also popularly called the Shyam people in this country and often have alternative names like Nora, Nara and Sham. The Tai-Phake's do not have alternative names, but as at present both as ethnic groups are endangered and on the verge of extinction in future.

**Table: 7** Shows the details of Tai Khamiyang.

<b>Details of the Tai-Khamiyangs</b>	
<b>Khamiyangs</b>	
<b>Peoples name in country</b>	<b>Khamiyangs</b>
<b>Peoples name in General</b>	<b>Khamiyangs</b>
<b>Alternative peoples name</b>	<b>Khamjang, Nara, Nora, Shyam, Sham.</b>
<b>Population in Assam</b>	<b>990 in yr. 2000 in 1150 in 2010 Expected 1340 in 2020</b>
<b>Population in all countries</b>	<b>1700</b>
<b>Ethnic Tribe</b>	<b>Yes</b>
<b>Affinity Block</b>	<b>Tibetan-Himalayan (Mongoloid) peoples</b>
<b>Primary language</b>	<b>Assamese around 700 speakers Thai pali</b>
<b>Religion</b>	<b>Theravada Buddhism</b>
<b>Place of settlement in Assam</b>	<b>Disangpani, Cholapather in Sibsagar Dist. Titabor, Jorhat Dist.</b>

**Table: 8 Shows the details of- Tai Phake.**

<b>Details of the Tai-Phake</b>	
<b>Phake</b>	
<b>Peoples name in country</b>	<b>Phake</b>
<b>Peoples name in General</b>	<b>Phake</b>
<b>Alternative peoples name</b>	<b>Phalial</b>
<b>Population in Assam</b>	<b>5000 in yr 1990 2000 in 2009-2010</b>
<b>Population in all countries</b>	<b>Not known</b>
<b>Ethnic Tribe</b>	<b>Yes</b>
<b>Affinity Block</b>	<b>Tibetan-Himalayan (Mongoloid) peoples</b>
<b>Primary language</b>	<b>Assamese around 700 speakers Thai pali</b>
<b>Religion</b>	<b>Theravada Buddhism</b>
<b>Place of settlement in Assam</b>	<b>Dibrugarh Dist., Tinsukia Dist., Lohit &amp; Changlang Dist., A.P.</b>

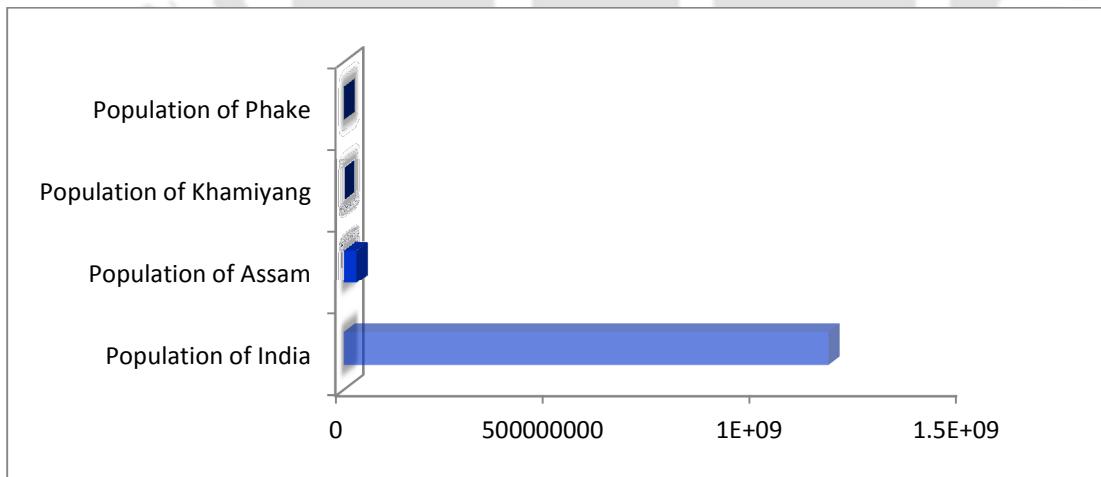
**Table: 9**

**Comparative Chart showing Tai-Khamiyang and Tai-Phake Population.**

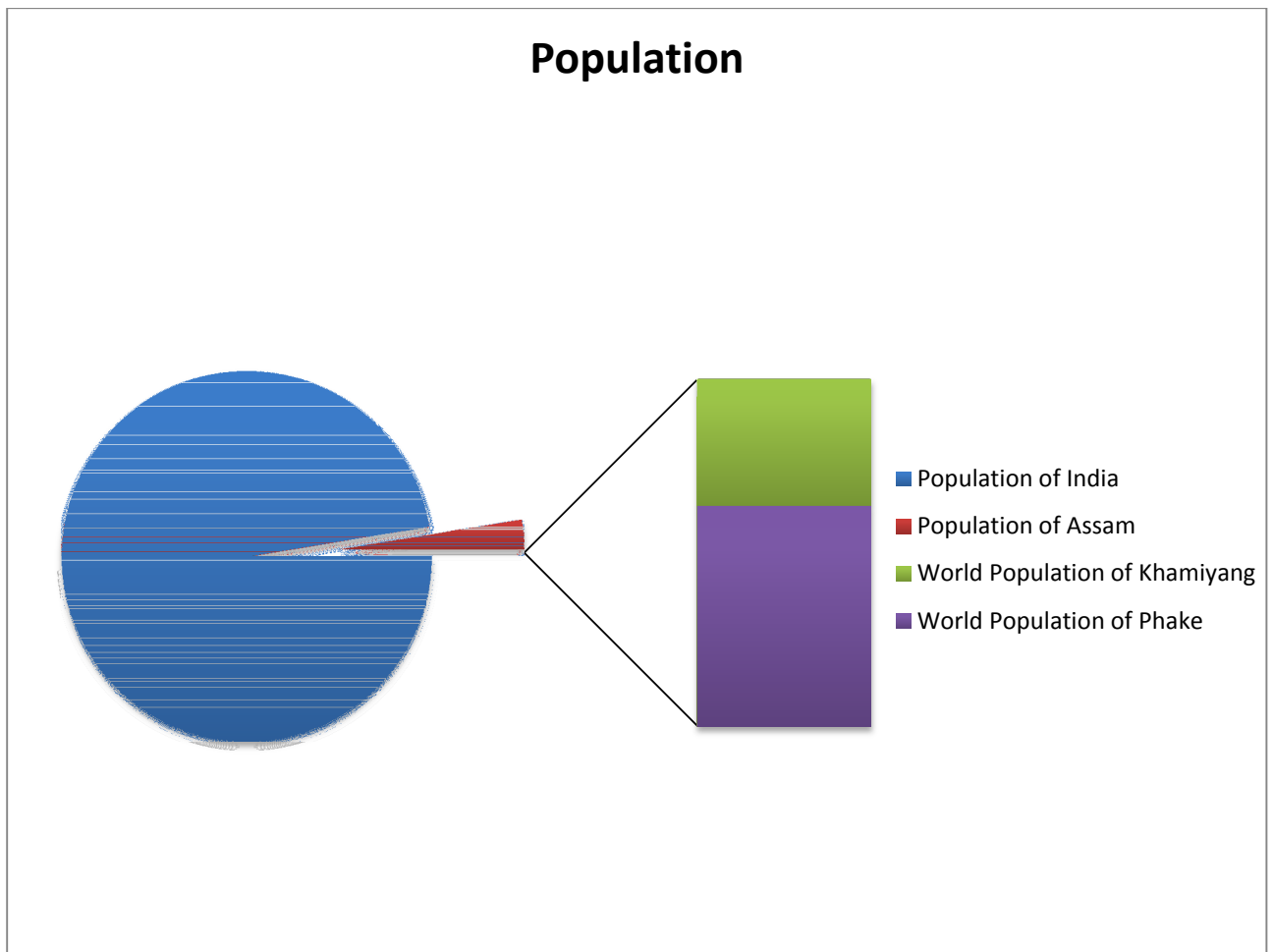
Name	population	source
India	1,170,938,000	<a href="http://www.worldbank.org/">http://www.worldbank.org/</a> [2010]
Assam	31,169,272	<a href="http://online.assam.gov.in/web/population-census/">http://online.assam.gov.in/web/population-census/</a> [2010]
Tai Khamiyang	1150	Das, F.A, & Sikdar, M, Opportunity for natural selection among some selected population groups of Northeast India, Indian J Hum Genet (2010), 16:61-6.
Tai Phake	2000	<a href="mailto:E-mail-hapkhaek11@gmail.com">E-mail-hapkhaek11@gmail.com</a> , <a href="mailto:piamthee@gmail.com">piamthee@gmail.com</a> ; url: <a href="http://www.wix.com/tpetctipam/tpetc">http://www.wix.com/tpetctipam/tpetc</a> ).

**Figure: 21**

**Bar Diagram correlating the pie chart of India, Assam, and Ethnic group.**



**Fig: 22.** Pie Chart with Bar Diagram showing expansion of the ethnic groups



From the above charts we can see that the total population of the ethnic groups is almost negligible compared to the overall population of the state and the country as a whole. Looking at the bar diagram and the pie charts we can successfully negotiate that the population of the ethnic groups Tai – Khamiyang and tai phake as at present are critically low in India. Their population is drastically on the decline and therefore all aspects related to their cultural heritage in India and Assam, inclusive of the rich textile Design and the variety of fundamentals associated with ancient design factors of a highly rich legacy carried through the miles of migratory tract are on the verge of Extinction.

## 2.6 Conclusion:

Textile and fabric has been a very important criterion for the development and also identifying the different civilizations and cultures of the world, and the Tai's of Assam are no exception. The Tai's are an extended group of people from south east Asia, belonging to the Diac (Tai-kadai) speaking people. Their sub clans in South of Asia are the Thai, Lao, Shan-Tai, Ahom, Khanti, Phake, Shyam and Aiton. Living basically in upper Assam, their population figure is fast declining. As a result , their traditional and culture by way of costumes, fabrics, food habits, language, philosophy and lifestyle should therefore be highlighted to the global platform and retained for future survival.



### CHAPTER 3

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Study of the findings in context to the body of work: Present situation of textile of the Tai-Phake and Tai-Khamiyang and in relation to existing Socio-ethno culture.

### **3.0 Introduction.**

The root of the design elements of the Tai-culture existent in Assam has already been discussed in earlier chapters and can therefore be accessed and examined as to how they have been a part of the cultural milieu of parts covered by China, Northern Burma, Assam, Thailand Laos and Taiwan. The sub-clans of the Tai's, like the Ahoms, Shyams, the Khamtis, Phake's and the Aiton's, were the people migrating southward, in search of settlement, entering through the Patkai hills. Ancient Tai literature have also substantiated their migration with mythological references, and little may be known about their prehistory, homeland and how and why they expanded further west reaching to the plains and hills of Assam, yet it is an acclaimed with certainty that they are the people who are a part and parcel of the consequential Culture milieu of this region of North east. While proposed Archeological correlation deals only with the most recent phases, the earlier literatures dealt with crypto-racial speculations.

Nonetheless the body of expanse of variables and information collected during field work has provides ample scope for establishing the hypothesis to the study.

The Tai's of Assam and North East, and the Thai's of South East Asia, shares several principal elements relating to textile, its yarn, pattern, motif, dye and weaving technique, which further strengthens the bond between them and one can specifically related t one to the other.

#### **3.1 Initiative of the State and Central Government towards asustainable textile Industry and its desired achievement.**

The vision of an enterprising Assamese Textile sector has been the focus of the Assam State Government. The local NGO's avail of Central Government and State Government schemes. The Department of Sericulture, State Institute of Rural Development (SIRD), and the Department of Handloom is making positive efforts to create awareness for the conservation of this Industry.

The most noteworthy of State Government schemes is the "Integrated Pilot Project for the weavers of Sualkuchi & adjoining areas' at the initiative of the Kamrup District Administration, Govt. of Assam. (Source: [www.kamrup.nic.in/sualkuchifr.htm](http://www.kamrup.nic.in/sualkuchifr.htm).) This

project in collaboration with National Institute of Fashion Technology (NIFT), Kolkata; and with grants from the North Eastern Council and the Department of Planning, Govt. of Assam, has been initiating this project. As per the M.O.U. signed with the NIFT Kolkata, they were responsible for providing advisory and technical assistance in design innovations relating to technology, skill up gradation, product diversification and training of 600 persons in the last three years. Another appreciative fact was establishment of the ISO certification and being registered under Societies Registration Act XXI of 1860, as an Institute, the 'Sualkuchi Institute of Fashion Technology' (SIFT). Source: <http://w.w.w.kamrup.nic.in/sualkuchifr.htm>. *Integrated Pilot Project for the weavers of Sualkuchi & adjoining areas*'.

The area of focus in this state as well as the Institute was primarily .....

- ❖ Garment construction
- ❖ Handloom Fabric Development.
- ❖ Computer Aided Designing in handloom fabrics.

Another Institute run by the State Government is the "Assam Textile Institute" incorporating curriculum based on Textile Technology, Fashion Technology and Garment Technology.

The contemporary Textile and Fiber Art (TAFE) (Source: <http://w.w.w.tafalist.com> and [http://www.en.wikipedia.org/wiki/Fiber\\_art](http://www.en.wikipedia.org/wiki/Fiber_art)) actually makes any discussion on modern global ideas of conversion of traditional textile cultures and techniques into contemporary art seem ineffectual, if it is not highlighted. TAFE is a business community of entrepreneurs rooted in textile and fiber art. It is the most modern concept of art where the products unify both old and new traditions with a historical and modern importance. It also gives a shared platform to traditional as well as modern contemporary artists and artisans to show their traditional textile design and art that moves, has a magic and is aesthetically appealing.

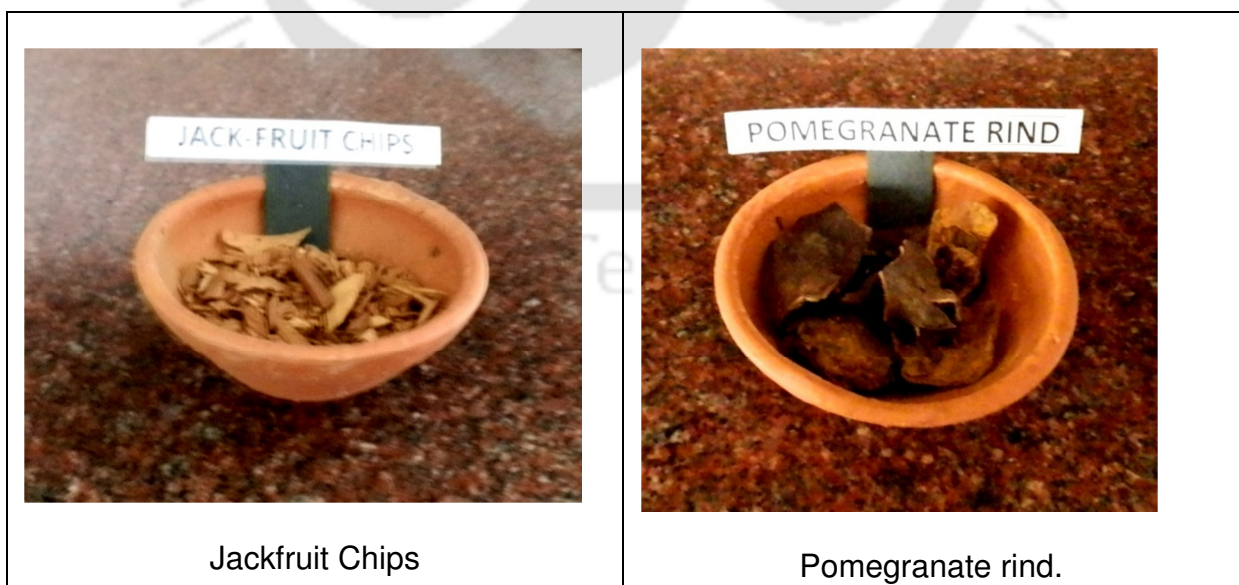
The term fiber art came into use by curators and art historians to describe the work of the artisans, weavers and artist-craftsman soon after World War II. Those years saw a sharp increase in the design and production of art fabric. As we learnt to recognize craft artist better during the 1950's, also in the other mediums like clay

fabric etc, a few artists and weavers got together and started the movement of binding fibers into non-functional works of art. Since it is Design based, often these could also be converted into functional items of day to day use. Since 1980's fiber work has become more and more conceptual once it was influenced by postmodernist perception, often confronting cultural issues with gender feminism.(Source: [http://w.w.w en.wikipedia.org/wiki/Fiber\\_art](http://w.w.w en.wikipedia.org/wiki/Fiber_art)).

Back home, although the handloom development community is working for sustenance and awareness of the Ethnic textile fabrics, yet perhaps till date there is no record of entrepreneurs being enlisted with TAFE. A majority of their members have social and environmental agendas at the core of their business

The Assam Textile Institute experiments with few natural dyes along with chemical dyes, the SIFT is solely concentrating on the extraction of natural dyes as a part of the skill up-gradation programmers'. Natural Dying ingredients are available and extracted from the likes of – Neem, Segun, Henna and tea leaves, Marigold flower petals, Polash flowers, Terminalia citrine fruit (Silikha), Jackfruit Bark chips, Pomegranate peel, onion peel, Lacquer, Katachu (Khoir) and the like to name a few.

**Fig: 23 .Common ingredients used for natural dye and the picture photographed at SIFT, Sualkuchi.**



### **3.2 Statistical Analysis.**

The statistical analyses of the data were decided according to the objective of the present study. Although PO (Participant observation) was made by self in the field studies, yet a lot of the analysis was dependent on the coding of notes, data's, analytic chronological events, personnel interviews, its charts, samples in archives and museums and photographs, video tapes and recordings.(Already discussed in earlier chapters)

The percentages were calculated in accordance to the answers given, and a solution to the various questions relevant to the objective of the study was thus accessed.. A total of 50 (Fifty) persons combining both of the ethnic group ( Tai Phake and Tai-Khamiyang) as well as experts and empanelled designers of the Office of the Government textile sector was interviewed and accordingly analyzed. Since the population of the concerned ethnic group is so small, the approach to interview a larger number was a constrained possibility.

Along with the variables , the age of the respondents, their families, income, their occupation, how many of the women are full time weavers, how are they assisted by the male members of the family, psychological set up of their mind set, state of health etc. and other related factors were also recorded. Finally an out cropping of events was done and only those which were specifically related to the study were retained for the study. Narratives were constructed upon open ended interviews, which constitute the working hypothesis. To refresh ourselves, the hypothesis assumes that the Textile Designs and products of Assam, which are distinctive in themselves engulfs such designs, patterns, motif, and color that had been exchanged and assimilated among the local Assamese communities. Most patterns are particularly adopted from the Tais, whose sub-group, like the Tais-Phake and Tai-Khamiyang excel in traditional woven Textile.

#### **3.2.1 Gender and age of the respondents.**

The respondent met during the field study was a mixed group comprising of both the male and the female. Since the study required collection of knowledge about Tai-Phake and Tai-Khamiyang cultural background along with the findings about their textile, discussions with both genders, from their community and the experts was

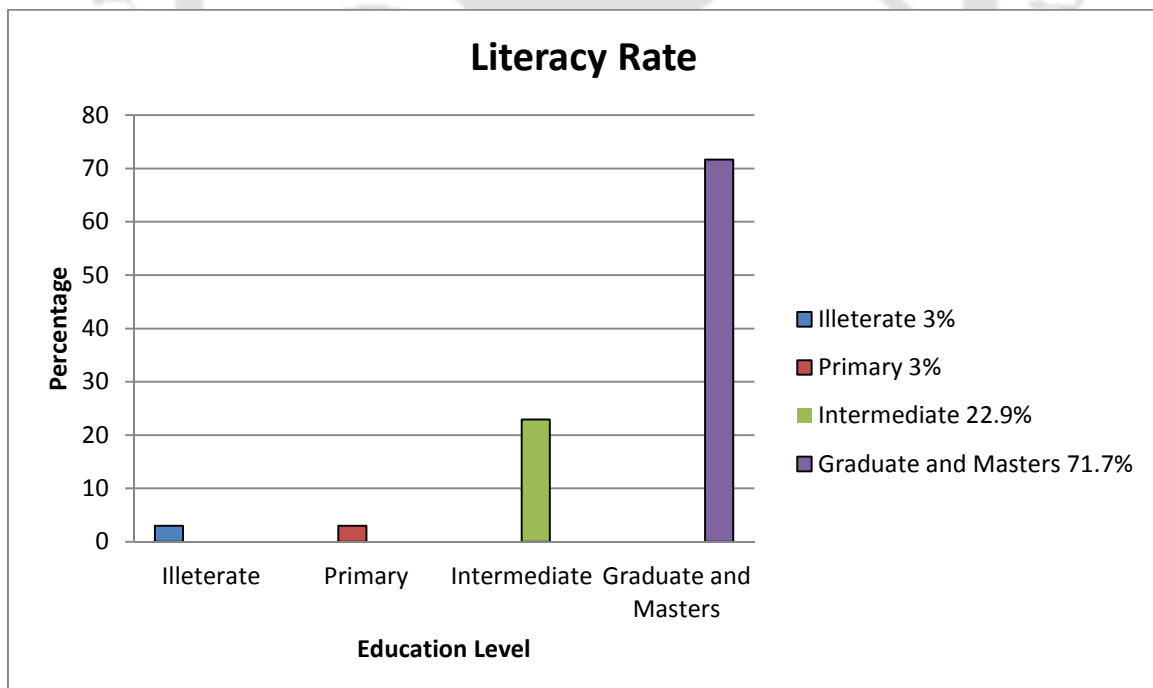
made. Nonetheless if the weavers are to be taken into account, 60% of the respondents in this study were women, while the rest of the 40% were male respondents (comprising both of Ethnic personnel and the Experts). This has also been clearly shown in Fig: 16 (Chapter-1)

The respondents consisted of both male and female gender. Table: 8 (Below) shows the literacy percentage of the persons met during the course of the study.

### 3.2.2 Literacy status of the respondents

The literacy level among the Tai community referred in the study is very high and as such their knowledge and skill is eminent in their every works of life. Perhaps this is also why some Tai scholars (e.g. like Chou Pushpa Gogoi and Paim Thee Gohain) are committed to the preservation and conservation of their culture.

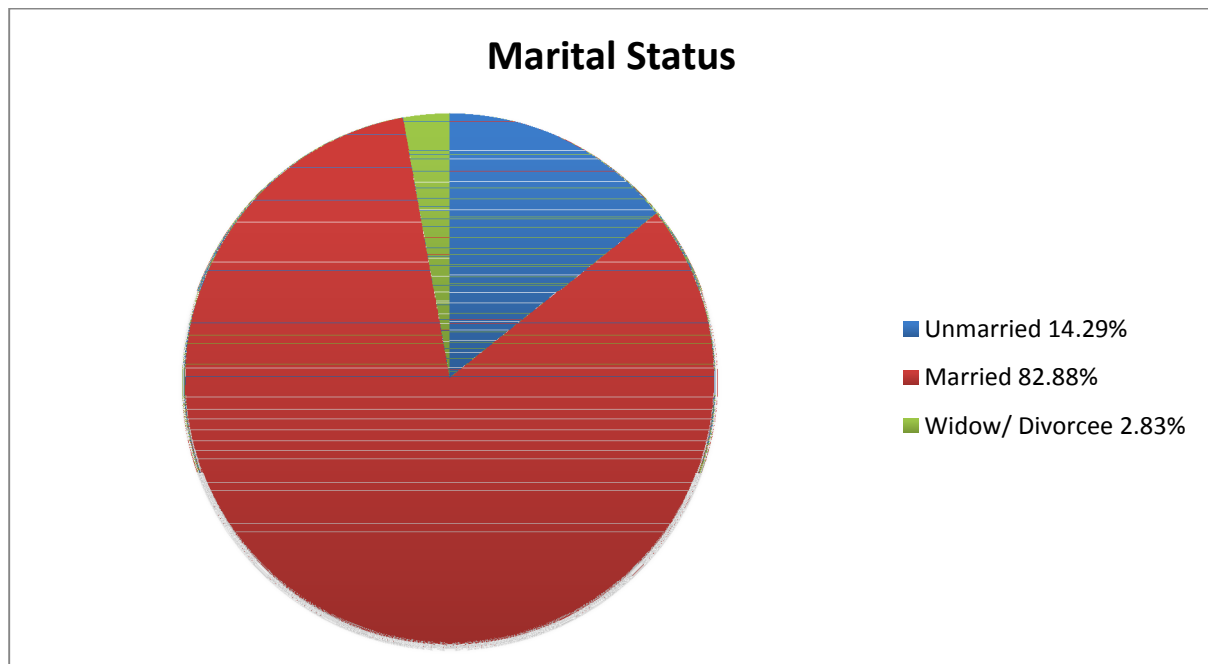
Fig:24 Bar chart showing the literacy rate.



### 3.2.3. Marital Status of the respondents.

From the available data's of the respondents, it was found that widow and divorcee are few while maximum percentage of them are married, marrying at a preferably standard age.

**Fig:25 Pie chart showing the marital status of respondents.**

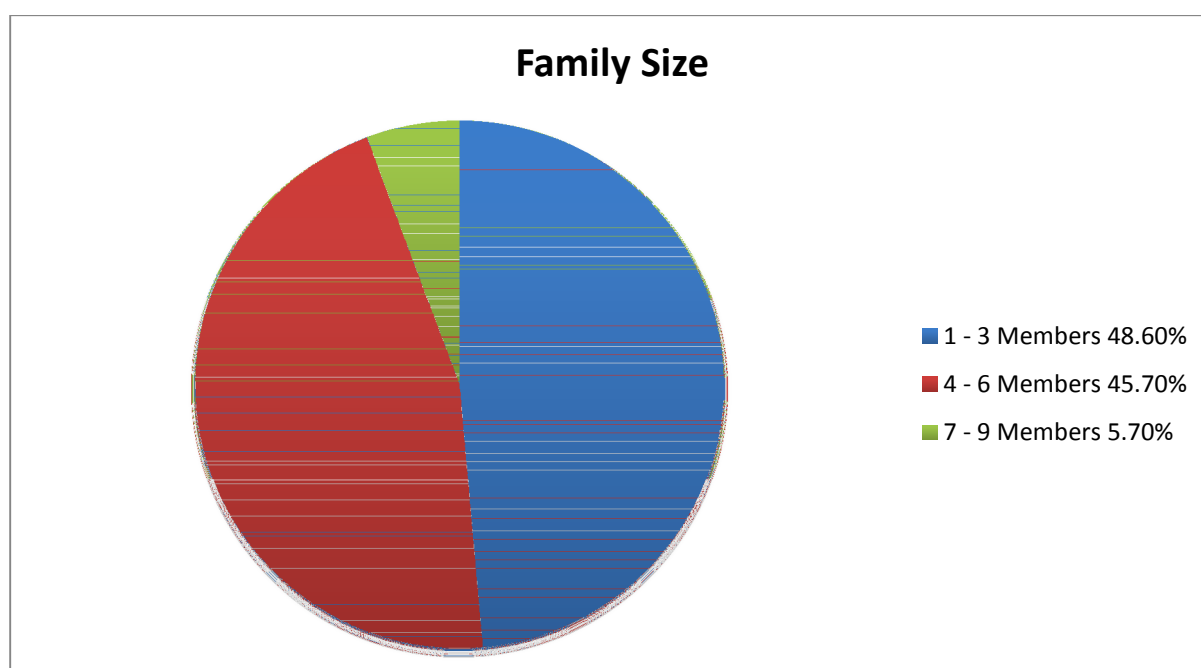


### 3.2.4. Size of family of the respondents.

The available information shows that although the major weaving activity is conducted by the women folk, yet to a large extent the Tai men are also very cooperative and help out in the setting up of the loom, and bringing in raw material from the markets.

The size of the families is small as compared to other, local communities of the Brahmaputra valley. As a result, these ethnic communities are also in a position to educate their children well, and provide for a comfortable living. The maximum number in a family being six, but mostly they have three to four members. Once married the person concerned starts living on his own with his family. Generally one son lives with their elderly parents.

**Fig: 26 Pie chart showing the size of families of respondents.**



### **3.2.5 Design related ratings and statistical analysis.**

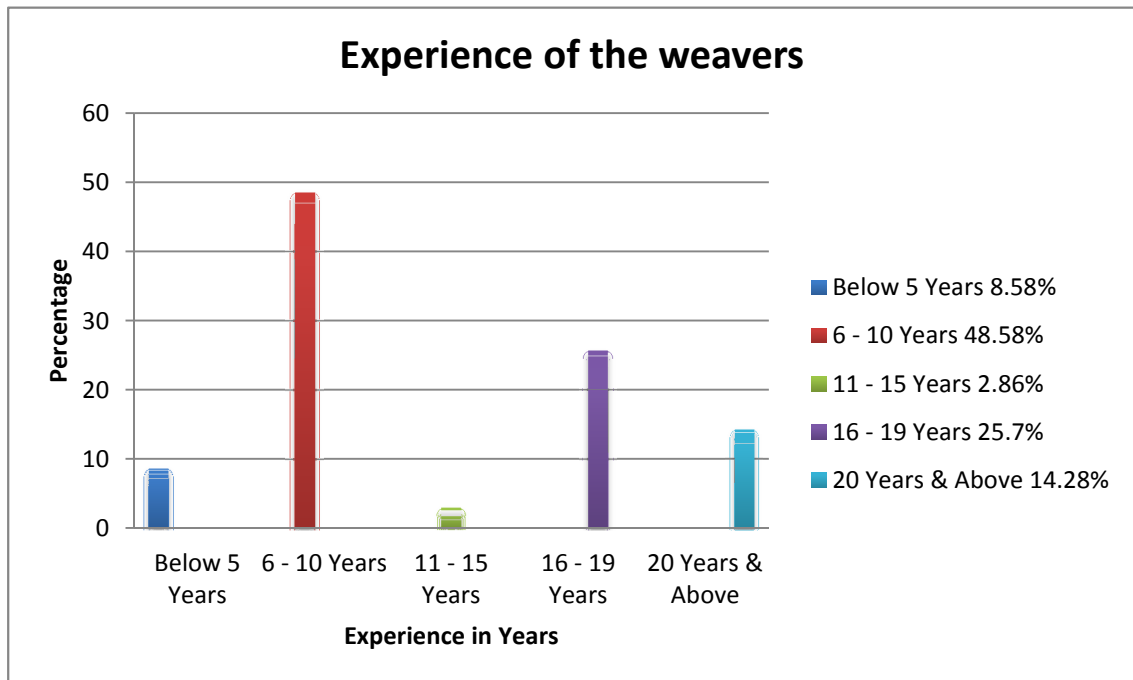
Rating of the design related factors was a challenge worth exploring. More so because just like how a pattern, design is hypothetical, its ratings were also equally subjective and non-concrete, and to arrive at a concrete and theoretical abstractive end result was obscure. Yet the best of attitude, modern contemporary ideas furbished with a positive thought of conserving ones heritage and tradition put forward admirable views that have allowed accomplishing the end result that's worthwhile and appreciative.

The statistical ratings of knowledge and experience of weaving, knowhow about vegetable dye, coupled with preference of patterns, motif and colors have helped in resolving assumed answers.

### **3.2.6 Experience in weaving of the respondents.**

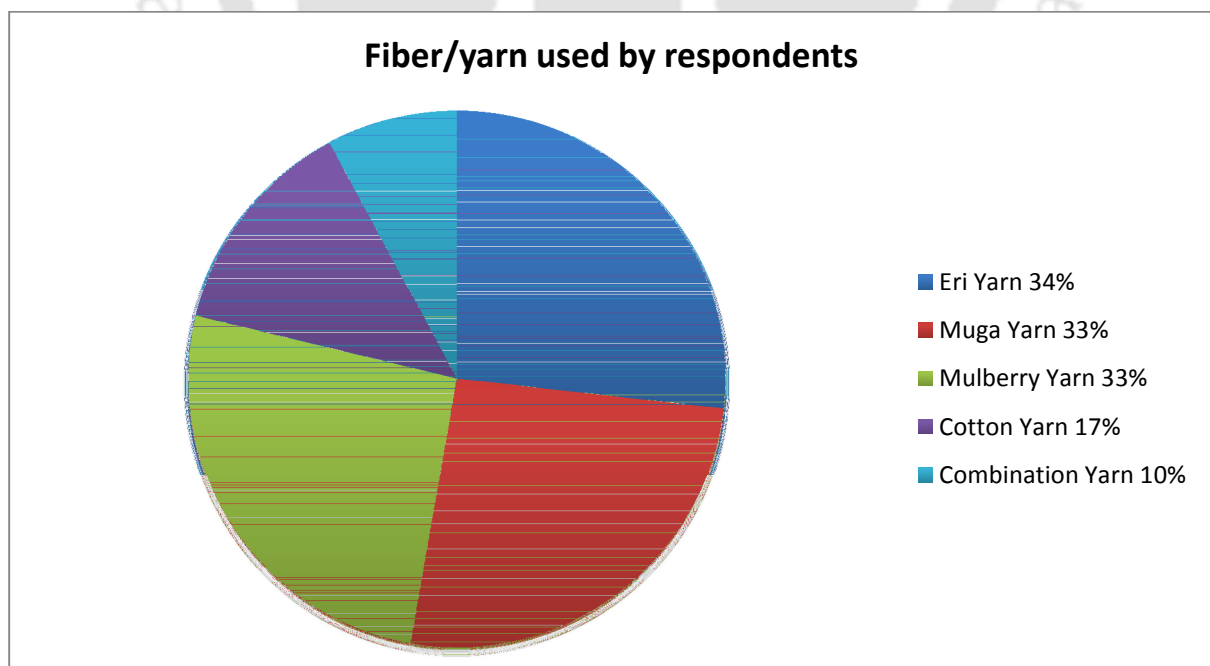
Although it is mandatory for every girl in the family to know the art of weaving which is handed over to them by the elders in the family, she starts her formal training from an average age of 15. By the time a women is married with a settled family, she already possesses an average experience of 15 or more years.

**Fig:27 Pie chart showing the percentage of the experience in weaving of respondents.**



### 3.2.7 Preference of natural yarn and fiber by the respondents.

**Fig: 28 Pie chart showing the percentage of preference of yarn among the respondents**



As the above pie chart it shows that Eri yarn is in demand as at present. Although the ethnic study group mostly uses the Muga, Mulberry and Cotton yarn in order of their preference, yet the upcoming designers show a preference for the 'Eri' yarn, which is fast catching up with a global market too.

(Source:<http://www.telegraphindia.com/1130102/jsp/northeast/story>).

**Fig: 29 Shows the samples of Eri yarn which is naturally dyed and available in selected stores for the specific consumer class.**



The dyed colors as shown above are derived from- Indigo, Polash Flower, Onionpeal, rusted iron fillings, Terminalia citrine fruit and Jack fruit Bark chips.

### 3.3 Other important particulars of the respondents.

The occupation of the respondents and the ethnic group is worth mentioning, Due to high literacy rate, most of the ethnic persons work for public and private sectors. Nearly 4% are in the teaching profession, while also keeping their linguistic research works active, is especially noticeable in the Vihars. The monks are dedicated to keep their Palli language alive and randomly share their views and philosophical ideas with the village people or else anyone who wishes to learn about the Buddhist Dharma. Needless to say this occupational pattern also establishes that the Tai's have a comfortable middle class lifestyle.

Furthermore from the assessments made from the interviews, it may be established that nearly 74% of the ladies are versed with the art of weaving and Yarn processing and 14.3 % are not versed while a sparse amount of percentage (8/5%) decided not to make any comments. The art of weaving and Yarn Processing, starting with sericulture as well as the art of natural yarn dye is generally learnt since early adolescence from the elders in the family. While 83% has voted for learning this art at home from elders, only 5.7% (those in the urban areas and associated with Textile design are induced to learn it in conducted workshops) .

The most encouraging view was that nearly 97.2% of the respondents **were in favor of conversion of their fabrics into contemporary products and items of daily use**. This trend is also showing up in the demand for ethnic fabrics for fashion accessories and home furnishings.

### 3.4 Sample and variable collection.

During Field survey, evidence of a fair amount of Tai-Phake and Tai-Khamiyang Textile samples was collected, by way of video documentation, digital photography and as and where the locals allowed purchasing of the costumes. Visit to major Museums like the Tai-Museum Sibsagar and Assam State Museum, Guwahati, the Tribal Museum of the Directorate of Tribal Research Centre, Guwahati, Assam and the collection of 'Purbajyoti Sangrahalaya ' of traditional textiles of Assam at Srimanta Sankaradeva Kalashetra, Panjabari, Guwahati, provided the opportunity to cover, photograph and study the ancient clothes and costumes of the Tais and Ahoms. Visit to the Government conducted Handloom fairs, and celebrations (today

a popular event on the advent of any regional festivities) also helped to collect photos of samples as used both by the Tai's and by the other ethnic communities of Assam.

The various garments of the Tais woven on the Back-strap loom and the Heddle loom (Also of the Tai –Khamiyang and tai- Phake) consist of the following costumes:

1. Chin (Mekhela or lower garment).
2. Nangwat (Wrapper for married woman around the breast and waist)  
Common name: 'Methoni'.
3. Nangwat Pujung (Special wrapper made of Muga silk and worn by a lady at the time of wedding).
4. Fahu (A headdress or turban worn by elderly men and women).
5. Fa Lung (A lungi or lower garment for men).
6. Fa-chait. ( Muffler)
7. Saikap. (Belt)
8. Fa Fok (A long stole worn by unmarried girls).
9. Pha Phoi ( A white stole worn by married and elderly women)
10. Thung (Bag).
11. Nam- (The ceremonial flag specially used for the decoration of the temple).
12. Riha.

### **3.5 Risk factor of extinction of Tai Textile.**

The field study also brought to light another persistent problem faced by the ethnic weaver's class- that of the Yarn problem. Although originally the weavers section domestically processed the yarn in each household, yet today with the change in scenario of the Yarn industry and fabric market, the weavers have to procure the yarn from the local business men, who generally supply them the yarn in return of half the measure of woven textile in kilograms, this procedure popularly being called the, 'Adhiya Suta' in Assam. These businessmen often ignored the priceless

value of these rich heritages of self-processed yarns, and gradually influenced the ethnic weavers into buying their market produce. This system has not only brought about a psychological setback to the ethnic weavers, but also degraded the quality of produced textile due to cheap quality yarn provided. Moreover the easily available synthetic yarn made their lifestyle lazy and induced within them the wish to avail things easily. Surprisingly the Tai Phake and the Shayam people devoted time for processing ethnic yarn and silk fabric.

The Small Scale Industry of Silk production, too have been facing grave dangers. Earlier most of the “Som” or ‘*Antheraea Assamma*’ trees were grown in the Tea gardens, because it served two purposes. While on one hand they reared the Silk worms, on the other hand they also provided shade to the tea shrubs. Gradually the Tea Industry was placed in a priority and the random use of pesticides for proper lush growth of the leaves, hampered sericulture and became the main reason for low silk productivity of the silk cocoons.

Assam and North east India, since the British rule and till date, has been reaping the benefit of Tea and petroleum Industry with their professional forecast and enterprising turnout of revenues. On the other hand, although they appreciated the sophistication of varied Textiles of ethno communities while conducting anthropological studies, yet no serious entrepreneurial encouragement was forwarded in this end. Perhaps this was also a reason why the locals never realized the priceless value of their multifaceted costumes.

Through the ages, the weavers too started looking for alternative professions and the production of their ethnic textiles was restricted to the limited household used materials. Moreover the traditional costumes also gradually came to be used only for specific occasions, at other times preferring other Indian dressed for convenience.

### **3.6 Observation.**

There was a group of young people to assist in field study, yet viewed from the point of a PO, the field study was doubly satisfactory as it occasionally allowed quiet moments to watch the ethnic persons engrossed in their daily life and festivities of the 'Poi Sanken' – a weeklong celebration of festival surrounding the Vihars and offering of special prayers to Lord Buddha. Since it's a spring festival and believed to refurbishes the gods and one's inner self, Tai people ceremoniously give bath to the Buddha idols, and also pour water on to the priests unstitched garment, a gesture of bathing them, in return of blessings showered upon them. The rituals are fascinating, but watching and observing the ethnic persons at close up, their ways of interaction with each other, especially with the elders and children, and most of all jest and funfair amongst young boys and girls, occasionally playing roles of brother, sister and lovers in their social situation, was in itself like the unfolding of dramatic events- which can surely bring in a transformation of age and temperament of the spectators.

Observation related to textile and the core study was also equally captivating. Prominent among them was the age old system of natural dye of the yarn as well as the rearing of the silk worms.

It is very interesting to observe that most of the evidences of Indian Art and design have been studied and documented by foreign scholars. Inferences drawn by them are in the way they perceived. Perhaps this is obvious of colonial inquisitiveness on Indian heritage. Indians took interest at a later stage, and gradually awareness has come to know our rich heritage of art and culture. Studying our artifacts and culture has become relevant to design in Indian context (Vyas, 2000; NID, 1990-2000) in the present time.

The earliest style of Indian Art can perhaps best be seen at the surviving mural paintings at Ajanta and Ellura in Maharashtra, India. The subject matter of the works covers various episodes of the life and incarnation of Lord Buddha, as also told by the Jataka tales. Although the use of powerful calligraphic lines are its prominent stylistic characteristic of these paintings, yet the figures gets its actual meaning from a selection of colors and specified palette, which is dominated by burnt sienna (earth color containing ferric oxide), golden yellow, blue and green. (Craven.C.Roy, 1976).

In Indian tradition, color influences life, and are used as symbols (Mookerjee, 1998). Any ritual practiced, uses the red (vermillion) color that symbolizes shakti or the generative principle, and green is the symbol of fertility (Mookerjee, 1998) The three driving forces of human characteristics is (1) Sattva, the cohesive or unifying force. (2) Rajas, the creative energy, and (3) Tamas, the opposing mass or inertia has been expressed with specified color coding. The colors representing the three forces are specific in the Svetasvatara Upanishad IV and V, as white, for the cohesive force sattva, red for rajas and black for tamas. Sattva, Rajas and Tamas is also traditionally represented by the colors red, green, yellow (Mookerjee, 1998). These three colors also are used randomly in idol making and the, "Durga idol" of west Bengal also incorporates these colors. Psychologically these colors are favored because they are the basic colors identifies with prominent colors of nature while also being the most contrasted colors. These colors randomly finds place in all fabrics and costumes of the Plain and Hill people of North East India, perhaps not because it has a religious and customary use but more so because these are the colors one can naturally associate with nature and natural environment around us.

One of the outstanding observations achieved out of this study was the extraction of the Dyeing procedure of natural fabric that had been common to most of the South East Asian countries. The Tais of Assam excelling in this art and produced unusual and vibrant dye colors developed from the locally available fauna and minerals. Their innovations of the mordant techniques too are unique.

### **3.6.1 Vegetable Natural dye of the Tais of Assam:**

It may be noted that only those colors that could be naturally procured, was favored for use in dyeing of their costumes. These colors could be easily processed from wild trees, leaves, roots, barks, seeds and stems in the most ethnic and domesticated way.

*Strobilanthes cusia* is the botanical name for the plant that is commonly and widely used for coloring and dyeing of yarns by the Tais of Assam, particularly the Tai Phake and the Tai-Khamiyang. The color extracted is generally Black, blackish blue,

indigo and violet, depending upon the intensity of the mixture as well as the duration of soaking time of the fabric.

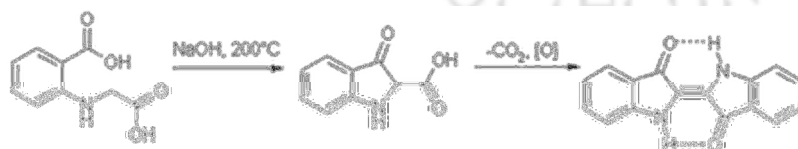
From time immemorial, (approximately 250 years) the Tais have not only been religiously following their traditional way of life, but have also kept the different aspects of their culture alive. One such unique custom related to textile and Handloom of this particular community is the innovative method of natural fabric dye. They have been extracting color from natural vegetal sources and plants and the favorite colors of the Khamiyang and the Phake is Black, Blue, Purple, Red, Yellow, Chrome and Green.

In the last five, six decades, chemical dyes have taken over the natural dyeing system. But these clans of Tai are committed to their conventional tradition of natural dye, and they not only collect the ingredients from the wild but have also learnt to have their personal cultivation, the most commonly grown plant being the *Strobilanthes cusia* in their backyards, which they locally called the 'Rom' or 'hom' plant. Often this plant is called the Assam Indigo.

The common name are-Assam indigo, Chinese Rain Bell, Pink Strobilanthes, Vein Leaf Acanthus etc.. In Manipur it is known as 'Khuma' and in Assam as Rum or Raspat. The chemical formula of indigo is  $C_{16}H_{10}N_2O_2$ .

Often the preparation of chemical indigo dye is practiced in college laboratory classes.

.Heumann's original synthesis of indigo is as noted below. (Source: [http://en.wikipedia.org/wiki/File:Indigo.Baeyer-Drewson\\_Synthesis.png](http://en.wikipedia.org/wiki/File:Indigo.Baeyer-Drewson_Synthesis.png)).



The benzene rings in indigo can be modified to give a variety of related dyestuffs.

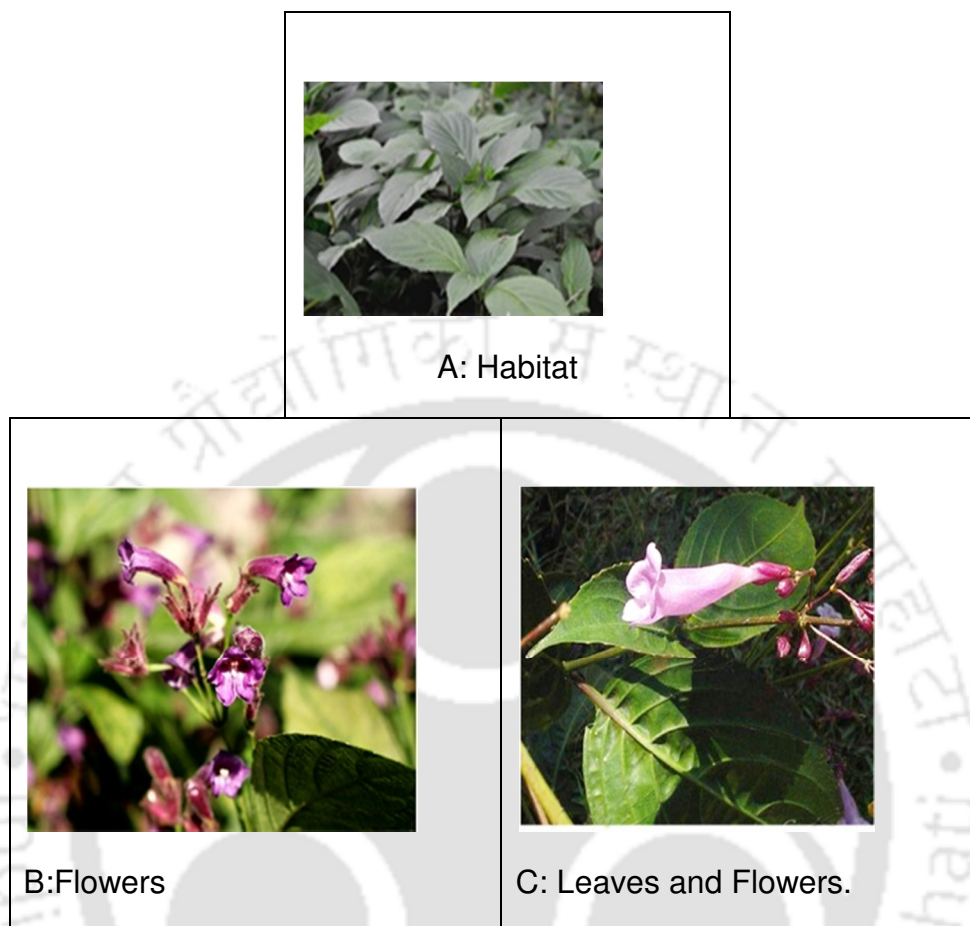
The Chemical analysis of Indigo blue is as follows:

Background: Indigo is a vat dye, meaning that the colorant itself (that is, pure indigo) is not soluble in water and therefore cannot be used directly to color fabric. This is because a dye must penetrate the fibers of a material in order to produce an effective color; they cannot be simply applied to the surface like paint. So to use indigo to dye fabrics, it must be converted to a compound that readily dissolves in water. In traditional dyeing procedures, the reaction to produce the soluble form of the dye took place in open vats, hence the term, vat dye. The soluble form of indigo, known as leuco-indigo, is a yellowish-green material. When fabric is immersed in a solution of leuco-indigo, the molecules of this compound penetrate the fibers but are not “bound” or fixed to them in any way; they would wash out easily if rinsed immediately. But if the treated fabric is allowed to stand in the open air while still wet, the leuco-indigo reacts with oxygen to form the deep blue indigo precipitate. These particles of indigo are then trapped in the fibers and, since they don’t dissolve in water, are not easily washed out. They can be gradually removed mechanically, however, and this gives blue jeans the familiar faded appearance after several washings.

Assam Indigo is a beautiful blooming shrub, growing up to 5-6 ft tall, abundantly found in NE India. It is a relatively fast growing plant with soft weeping stems and many hanging bell shaped magenta flowers. Leaves are ovate in shape and are often drooping. In fact, *flaccidifolius* means drooping leaves. Assam Indigo starts to flower in the middle of the winter and should re-bloom again in the spring. It is also used as a garden plant. Trimming is recommended a few times a year, especially after flowers to encourage branching and more flowers.

The leaves of *Strobilanthes cusia* have been used in traditional fabric dyeing. Blue is the most typical color produced by this plant. *Strobilanthes cusia* is also used in Malaysia for dyeing.

**Fig. 30 Shows the Plant and flower of ‘Rom’ *Strobilanthes Cusia* and its Classification**



**Scientific Classification**

Kingdom	Plantae.
Unranked	Angiosperms.
Unranked	Eudicots.
Order	Lamiales.
Family	Acanthaceae. (Barleria family)
Genus	Strobilanthes.
Species	Cusia.
Height	Overall spread.
Synonyms	Syrobilanthes flacidifolius.

Since the last couple of decade’s modernization and chemical color technology has taken over the means of dyeing of fabrics and the Tai community in spite of their persistent commitment to tradition, has often fallen prey to easy methods. Though

substantially on the decline, yet it is still practiced by most of the communities. The main ingredients for natural dye, besides, *Strobilanthes Cusia*, are- Tree Barks, Fruits, powdered seeds and leaves, out of which color is extracted. This procedure naturally establishes that the Tais have been maintaining a close relation with nature while also inhibiting animistic values.

Another observation was the use of the Eri, Muga and Mulberry yarn. It might apparently seem that these two yarns are part and parcel of Assamese culture. But one seldom ponders to think as to how this yarn and the culture of silk came to be practiced in this part of the land of North east and Assam. It has been understood from references ([http://en.wikipedia.org/wiki/History\\_of\\_Silk](http://en.wikipedia.org/wiki/History_of_Silk)) that the history of silk goes back to 27<sup>th</sup> cent. B.C. First it was confined to China, until the opening of the 'Silk Rout' in the later part of the 1<sup>st</sup> millennium B.C. The monopoly of the industry continued for a thousand years, until some eggs were smuggled out of the country. It is therefore clear enough that the same also reached the Brahmaputra valley by courtesy of the Tai's who were the descendant's from the region of South Western parts of China. (This has already been discussed in details in Chapter-2 (2.4: Background of the Tai's).

The essential observation is that, though Sualkuchi silk industry of Assam, is concentrated with mulberry traditional garment production and caters basically to the need of domestic market, yet the upcoming trends in designer fabric and yarn is concerned more with the creative processing of Eri and Muga yarn. Here the rough by-products, after extraction of the silken yarn is further seen progressed into a yarn that is rough and has a uneven texture that is most aesthetic and suitable to fashion garments in accordance to the global demand at this point of time. (Kindly note that fashion projection and statements keep changing from time to time). Moreover it adheres satisfactorily to the different colors achieved with natural vegetal dye.

### **3.7 Results.**

The Textile history of Assam has established that almost every household, till only a few decades ago, both in urban and rural Assam had a loom installed to meet the daily requirements of the family. Spending time at the loom was not only a domestic chore but also a leisure activity, where the women folk cherished the enactment of

converting their feelings and dreams into woven patterns. This is why the act of weaving is often referred to as weaving dreams onto the cloth. Mahatma Gandhiji on his visit to Assam rightly acclaimed that the women of Assam weave their dreams in to the woven fabrics. Not to mention that the looms also assisted in the domestic economy, and was an added source of sustenance to many families.

The common cotton cloth was popularly used for Two piece Mekhla Chaddar, Borkapur, khania kapur, was universally used as a body wrap, while the same woven cloth was also sewed to make Churia, dhuti in olden days in Assam.

The 'Gamocha'- *ga-mo-sa* originally meaning to dry oneself after bath, and purposefully meant to be a towel, also had multiple uses. This is also where the present focal study comes in handy. The use of a white cloth around the neck of Buddhist scholars was a Buddhist Hinayan custom, symbolizing the wisdom and knowledge of its bearer. In tune with the same inherent concept, later Assamese and the Vaishnavite culture propagators adopted it and used to wear a long white cloth around their necks, or thrown across their shoulders for establishing one's status of prestige in the social hierarchy, and also as an icon of religious knowledge.

During the days of the Ahom rulers, similar kind of a cloth was tied around the waist (as a Sash) and was called the 'Tongali'. The Tongalis used by men while working in fields was a support to the backbone while performing forward bending jobs, while the same decorated (Phulam) gamosa, presented by a loved one, was used as waist sash during Bihu festivities by the youths.

Natural textile dyes for an eco-friendly environment is the tag line for many hand woven and dyed fabrics industries today.. But its sources are not as easy to trace. Nonetheless one can trace similitude with ancient cultures and also highlight connectivity between the study groups and their belief. These facts and belief may be pin pointed as follows:

- The use of plant derived dyes to blacken and color teeth is a tradition reportedly as old as 2500 years and common in Taiwan and Yunnan, as stated by Chinese sources. The plant used for the purpose was the fevervine, *Paederiascandens*. (Source of Botanical name: Roger Blench).

- This procedure of dyeing cloth from nature establishes the fact that the Khamiyangs and Phakes always encouraged a union between society, life and nature.
- This innate belief of animism and philosophy of Taoism is also reflected while the balance of life and nature finds a perfect setting.

Design, pattern, trends and concepts of dress code have changed through the ages. Although it was a custom for elderly respectable men to use simple bordered wraps or 'salengs', yet contrast colored border 'gamosa' is today used for socializing, and no hard and fast rule to its ornamentation is followed. Rather large flowered (Borphulia) 'gamosa' are widely in use. Mention may also be made to the shoulder wrap used by Muslim Sufi men, a tradition brought from Arab countries: the most befitting example being the great 'Azan peer', the legendary Sufi saint of Assam, who surpassingly wore such a wrap. Similarly the length of Dhoti's were also functional- short ones used for working in wet swampy land, whereas long ones to be worn with Panjabi, and as formal ware. The cloth varying from cotton to Pat Muga silks dhoti in ancient Assam was a symbol of hierarchical status in the feudal system.

The use of varied colors in the costumes of the Tai-Phake is most striking feature since color and colored stripes in clothes had specific symbolisms in context to the age group of the wearer, specifically so used by the women folk of different ages.

Since the prime resultant factor of the study was to uncover the truth of the technology behind the dyeing of fabrics in a natural organic process, the methods were unearthed through persistent perusal, specially the elderly members of the family. The finding about the extraction of some colors popular with the Tai-phake and the tai-Khamiyang are noted below.

The different colors achieved for natural dye is as follows:

Black Color: The ingredients required for the preparation and dyeing of this color is,

- 'Rum' leaves or *Strobilanthes Cusia*,
- A kind of rice cake prepared for making of local alcohol, Cooked rice, and,
- Stem of a wild creeper locally called the *Tum Kaw*.

The rum or 'Hom' leaves are immersed in a vessel of water and allowed to ferment completely. It is then whisked thoroughly with a wooden ladle (locally called the 'moi') till it froths. After the froth collected above is removed, rice cakes for local alcohol, cooked rice and Tum creeper stems are finely pounded together and mixed with the fermented leaf mixture. Alongside an Alkaline solution is prepared by immersing ash in water for a couple of hours and then drained to collect the alkali, which is again mixed to the above dye blend. This is the final solution or the color mixture to which the yarn or fabric to be dyed is immersed, sometimes even for more than a week. The more the immersing time, the more will be the intensity of the indigo blue, and mostly turns the fabric into a rich blackish blue color. Once the desired color is achieved, it is let out to dry. Muga yarns are also dyed in a similar manner to achieve colors from blue to Bluish black.

Green Color: The ingredients required for the preparation and dyeing of this color is-

- A. 'Rom' leaves.
- B. Powdered Era Pat seed or *Ricinus Communis*.
- C. Alcohol making rice cakes.
- D. Cooked rice.
- E. Ash and Alkaline water.
- F. Bark of a sour fruit tree. (Tepor Tenga, or *Garcinia Mangostana*).local name- 'mu-la'
- G. Wild leaf (locally called *Mout*).

A vessel is filled with water and cooked rice; rum leaves are added and put aside for seven days. After it completely ferments, the same process of frothing, by way of whisking with a wooden ladle is followed. This also makes the mixture thick and creamy. Era seed powder, Alcohol making rice cakes, and cooked rice is pounded to a Paste and mixed with the ash extracted alkaline water. Both the mixtures are then put together and left to rest for a few days, till the main color mixture sediments and settles at the vessel bottom. The clear water above is removed and the yarn of Muga or cotton is boiled in the colorant. The yarn is then let out to dry.

A solution is prepared by pounding Tepor tenga or *Garcinia Mangostana* bark and mout leaves and then mixed with water. The yarn is again immersed and boiled in this solution, and left to cool and stay in it for a few days. It is next hung out to dry. The end result is that the Muga or cotton yarn turns into a rich dark green color.

Cobalt Blue color: Ingredients- Tepor, tenga (*Garcinia Mangostana*) Bark.

The bark of the tree is pounded to a paste and mixed with water. The yarn to be dyed is immersed in this blend and then brought to a boil. After boiling it is allowed to rest for four days after which it is immersed in the alkaline water extracted from ash. The dried and hung out yarn has a nicely colored blue color.

Dark Yellow color: The ingredients required for the preparation and dyeing of this color is-

- A. Tepor Tenga *Garcinia Mangostana* Bark - local name-'mu-la'.
- B. Wild leaves –mout
- C. Cooked rice.
- D. Ash and Alkali solution.

Tepor tenga Bark, Cooked rice, and mout leaves are pounded together to a paste and mixed with water in a large vessel. The yarn to be dyed is immersed in this solution and brought to a boil. After it cools down it is left to rest for two days and then hung out to dry. This gives a dark yellow color to the yarn. Subsequently it is again immersed in the alkali solution extracted from ash, and then let out to dry once Again. One may note that the alkaline solution acts as the mordant and fixes the color.

Dark Purple color: This is another rich color used by the Tai's , specially the tai Phake in their costumes. The ingredients required for the preparation and dyeing of this color is-

- A. 'Rum' leaves or *Strobilanthes Cusia*.

The leaves are allowed to ferment in water. After it is completely decomposed, the mixture is sieved and all waste and large particles are removed. The yarn is then boiled in this mixture for some time, but not for long. This gives a dark purple color. It

is next immersed in the alkali solution (mordant) extracted from ash, and then let out to dry.

Although some of the Tai people have now taken to chemical dyes, yet these ages old technology is still prevalent and ardently needs to be preserved.

### **3.8 The natural, organic dyeing activity- women specific.**

The North east India is powered with women workforce. The proceedings of the textile industry in Assam are primarily the occupation of the women. So also is the skill of the natural, organic dyeing activity. But it is often encouraging to note that besides the collection of *Strobilanthes Cusia*, also grown in their yards, other ingredients required for the purpose, and that which has to be gathered from the wild. As per field study and version of the respondents, a majority 92% of the people dye their cloth. Most of them have accepted the fact that the ingredients for dyeing are collected from the wild and forests, while the 'Rom' plant is cultivated specially for the purpose of extracting Indigo, green and purple color. These are collected by the men, occasionally helped by the women. The cooperation and participation of the men in the ethnic community is commendable.

### **3.9 Final achievement of the fabrics of the Tai-Phake and Tai-Khamiyang.**


The Tai-Phake textiles are simply unique in themselves, incorporating delicate weaves of checks, in vibrant basic and secondary colors, and carrying a luster that often has a highlighted sheen to it, due to the choice of silken yarn. Maximum color projections are placed in the warp. It is evident that by varying the colors of the warps, longitudinal stripes are produced and the varying colors of the weft allow horizontal stripes to be produced. But the Tai-Phake textiles have varying colors in both the warp and weft, thus creating checks. This kind of Tabby weave is most commonly found on the gent's lower garment or the lungi called 'Fa- lung'. Often they have twill binding on the body and extra floats near junctions on the border. The knotted fringes on

extreme ends of the Fa-fuk', 'Chaddar' and 'Nangwat'( All long wraps for the upper body of women) adds elegance to the cloth.

- The Fa Fok, or Pha phoi is the white colored body wrap generally having an intricate border which in the days of Royal rule of the Ahoms was originally ornamented in golden thread but later using mugs or gold colored yarn to achieve similar results. The Fa Fok is in plain weave, where the designs have been instituted as continuous weft patterns.
- The Chin is woven in bands of Tabby weave; each band having a specific color, which is symbolical of the age group of the Phake women. The khamiyangs ladies like Aitons and Khamti women prefer to wear black Chin that is elaborately ornamented with flowers in bright colors, and woven with extra floats. This often resembles the Tapestry weave which is most common to Tai-Khamiyang, Tai-Phake ladies lower garment and is also found in their bags and place mats. Similar technique, pattern, and weave on basically black background are also found in the textile cloth produced by the Tai-Khamtis and the Tai-Aiton's. It is the continuous weft patterns and the tapestry weave is reflected in Royal Ahom, Assamese and local ethnic textiles of the North East.
- Natural dyed yarn enhances the weave, luster and shine of the 'muga 'and 'Paat', mulberry yarns.

Collected samples have been shown in Table-

**Figure: 31** A view of the backyard cultivation of the 'Rom' plant in Upper Assam.

	<p>'Rom' or the 'Hom" Plant <i>Strobilanthes Cusia</i></p>	<p>Generally used for colors like -</p> <ul style="list-style-type: none"> <li>• Black</li> <li>• Blue</li> <li>• violet</li> </ul>
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**Figure: 32 Different colored silk yarns achieved from natural dye and its uses.**

	<p>'Muga ' yarn dyed Magenta color .</p>	<p>Used specially for Bridal costume/ Chin</p>
	<p>'Muga ' yarn dyed Dark yellow color, achieved with <i>Garcinia</i> <i>Mangostana</i> Bark and wild leaves.</p>	<p>Used specially for Bridal costume/ Chin</p>
	<p>'Muga ' yarn dyed in bright Blue color: achieved with Tepor, tenga and <i>Garcinia</i> <i>Mangostana</i> Bark.</p>	<p>Used specially for Bridal costume/ Chin</p>
	<p>'Muga ' yarn dyed Green color Achieved with Rum leaves and <i>Ricinus Communis</i>. Seed.</p>	<p>Used specially for Bridal costume/ Chin</p>

It can be assumed that there is a strong bond between the textile design and patterns of the Tai Khamiyang and the Ahoms textile and fabrics. The Ahom as royal people in rule made repeated use of Muga and Mulberry silks, while the Eriyarn was a common man's yarn ( having a thermal quality) and giving the desired warmth in winter. Their preferred patterns were the floral, rhombus, thin stripes near the border and occasionally use of triangles to enhance their chaddar and Mekhla borders. The Phake people used checks, variety of stripes of different dimensions and breadth where loti form and flowered patterns seldom found a place. On the other hand

,the localexistent inhabitants of Assam and other ethnic clans of the Brahmaputra valley displayed a flexible trend of amalgamated design and patterns adopted from each other, while also having similitude of patterns with the Ahom and the Tai Khamiyangs.

### **3.10 Empirical assessment of variables and testing of the Hypothesis.**

More than 80 (eighty) variables and samples were collected from both Public/Government and private sectors (different ethnic villages), as well as from few stores dealing with ethnic fabrics. These are reflected in the Charts annexed as well as the Tables shown dealing with The design are conventional belonging to different period of time , which is why it has been easy to access the changes through time and also establish designs presently in use.

Vegetable Dye was an indigenous technique known only to the ethnic Tai communities. The other local inhabitants of Assam were dependent on market dyed threads which they often procured for ornamentation and embellishment of their textiles. The adaptations of the Aryan culture were also responsible for such amalgamations. The Tais seldom like to discuss about this technique of dyeing and which had to be forced out of a few elderly ladies.

The Surveyed samples and their color chart will speak for itself. They constituted of the ..... LANGWAT or upper garment, PHAI BAI also upper garment, SAIRANG /CHINKET or the waist band, CHIN lower garment with large flowers, CHIN with broad bands of different colors, Plain CHIN of Dyed Blackish Blue, Chequered CHIN with Muga bands, NANGWAT or upper garment , CHADDAR , SAIKAP or waist band etc. all worn by females.

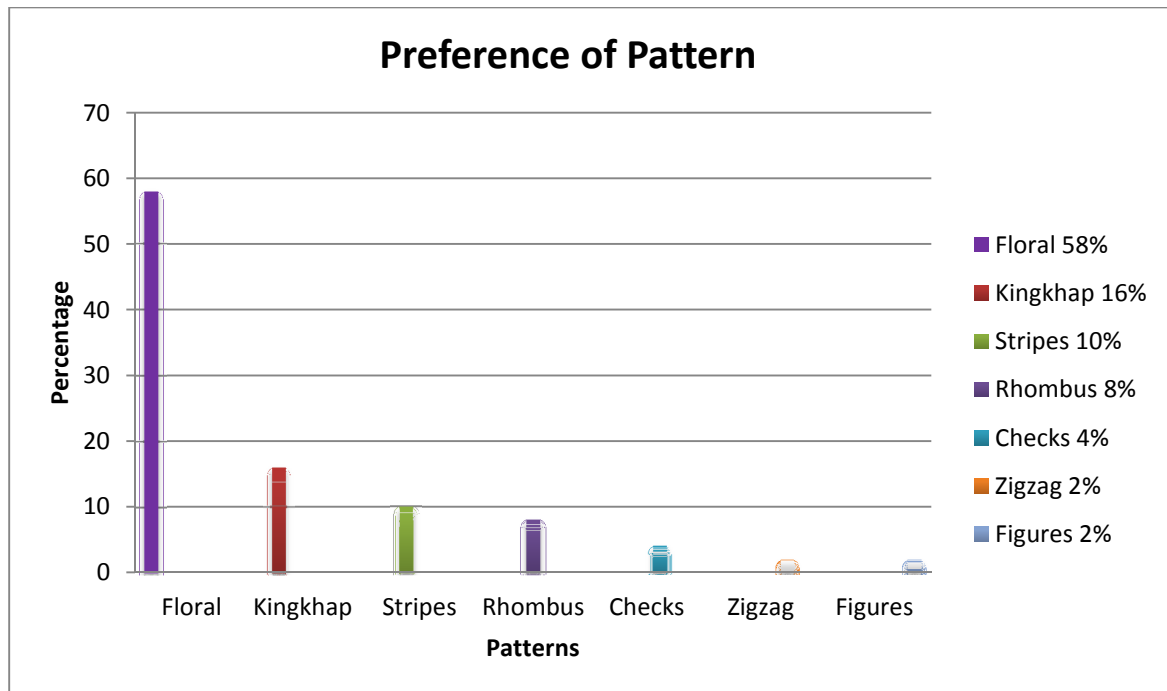
FA-CHAIT or stole/muffler, FA-LUNG or lower garment, BUKKA/LUNGI or lower garment... is all worn by the male members. All these attires commonly belong to the different Tai communities. The Tai-Ahoms mostly were influenced by Aryan culture and wore the Mekhla, Chaddar and married women wore the RIHA. The Riha was common to all groups. Originally there was no system of women wearing the blouse. Phake, Turung and Aiton women, especially the elderly wore the headdress or the

turban while visiting the temples/ Vihars and wrapped a long stole over the left shoulder, and carried a colorful woven bag.

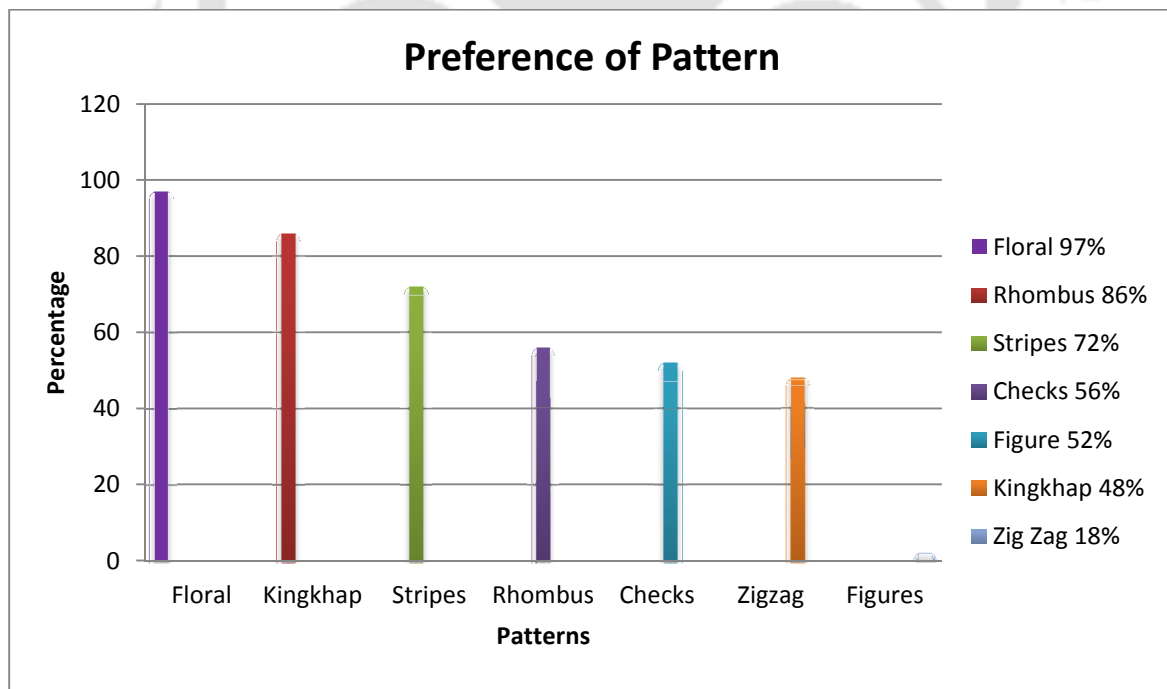
### **3.10.1 Visual findings and evaluation of the designs in relation to motif, pattern, form and colour.**

In accordance to the preference and choice of the respondents a set of tables was structured. A total of eleven patterns was picked out from the visuals of samples available and shown to them, which they rated in accordance to their preference and personal choice. Further on the basis of the ratings by the personnel interviewed during field study one was able to arrive at a solution with regards to their preference in the design patterns, particularly of the ethnic weavers. The majority had kept the patterns like Floral, Kingkhap, Stripes, Rhombus, Checks, Zig zag and Figures in the topmost rating, and the selected patterns remained their choice. Once an average gradation of the first five positions was taken into account, with minor changes in their choice of pattern sequence, it further established that the choices of pattern as evident in their woven fabric and traditional costumes of these ethnic groups of Tai Phake and Tai Khamiyang was also very much in preference.

**Fig:33 and 34. Chart showing the Top Preference of Pattern of the fifty numbers of personnel interviewed during field study.**



The secondary chart prepared on an average gradation of the first five positions with sequential changes has been shown below.



### 3.11.0 Evaluation of the designs in relation to color.

The design element in relation to color is of special importance, because perhaps it also leads us to understand the identity too.

While talking about identity it raises many queries. Why an art work or a piece of design item says it belongs to a particular theme, purpose, area, group of an age, made by a person etc. ; how it is understood , what elements are encoded in designed objects that the common user is able to decode the same and perceive the whole object with a meaning. In this process many external positive and negative factors also influence the smooth flow of message transmission and communication.

The message encoding skill is subjective to the users decoding easiness along with external factors. Therefore it can be said that the design elements and their presentation together hold the effectiveness of a design. Color and form are the abstract expressions of a person or group of peoples state of mind that can be transferred to others for temporary or stored to be referred afterwards. (Barua, Utpal., 2006. *A study on Design Elements in Craft practices and Artifacts of Northeast India*. Ph.D. Thesis).

Color and design and its symbolical meanings are very important to the textile variations of north east India. Just as certain kinds of clothes and accessories is often associated with one's social position as well as the achievements in the field of hospitality and war, so also does it relate to position of a person in the given family. Often the Tai Phake women who are elderly and have children settled on their own, do not wear bright colors like bright green, purple and bright yellow. These colors are reserved for young girls and the bride to be and their 'Chin' are woven with bands and stripes in these specified colors. The 'Chin' of elderly women are mostly found in broad bands of yellow ochre, sap green, brown and black. This is evident in the sampled variables as well as the color ratings given during field study. The checks of the 'Fa Lung' are also smaller and bigger in accordance to wearer of different age groups.

There has been some borrowings of motif and pattern from the neighboring areas for the Tai-Khamiyang and other hill clans of the Tai's, and may apparently seem complex, but universally accepted by them and the elaborate process of

spinning, dyeing, and weaving remains true to the fact that Assam has always been the land of weaving dreamers, who wove their dreams into the fabric. The designs for the Khamiyangs are basically of the geometric patterns, varying from formal arrangement of lines and bands, but not as broad as Tai-Phake ones. The bands and temple borders bound the elaborate patterns of rhombus (Locally called the diamond and lozenge shaped). Mostly these rhombus areas are filled with petaled flowers, which sometimes also find internal repetitions as 'Butis'. The most satisfying and effective composition is the rhythm of frequent repetition.

The Tai-Phake's prefer the Loin loom while the Tai-Khamiyangs prefer the Heddle loom.

### **3.11.1 'Kingkhap': Evolving as a form for modern contemporary Assamese Fabric.**

Kingkhap Design as popularly known in the state of Assam is a very ancient and traditional pattern that is believed to be a royal motif of the Ahoms. The Kingkhap traditional Tai motif has undergone several stages of change and has evolved into a modified pattern as and what it looks like today, which is the modern amalgamated form often used for ceremonial and bridal costumes.. Although the ancient motif was a conglomeration of different fanciful animals (Already discussed) yet with time these animals have been minimized. The half cut oval form evolves into the shape of ornamental and decorative pear, which is inset with elaborate flowers or combined with figures of lions.

We have today accepted the fact that Assam silk has made a name for itself globally, yet we also find different kinds of silks being produced in the Indian sub-continent from ancient times. Just as we have different species of wild silk, so also do we find variety of silk cloth types in India. The most popular and widely acclaimed being the Brocades. Silk brocades can be texturally classified into two groups- Kinkhwab and Pot-thans.

Kinkhwab (Brocades) was originally an elegant and heavy silk fabric with floral and figured patterns, known mostly for its woven studs called the Butis, and the jals woven with silk as the warp and Tilla as the weft- which was first produced in China and Japan. Tillas in ancient time was the combination of silver and copper (wire), also at times coated with a veneer of gold, and was commonly called the

Kasab. Other names for Kinkhwab was kimkhabs, kamkhwabs, Zar-baft, zartari etc. It is very interesting to learn that 'Kam' meant little or scarcely, while 'Khwab' means a dream. In spite of the name, these brocades were heavily woven fabrics of several layers of warp threads and elaborate all-over patterns of extra weft. All was a combination of gold and silver threads. In context to Assam, we can also justify that the fabric name 'Kingkhap' could also have been adopted by the Thai or Tai's from this special kind of Silk Brocades, and made it popular with the Ahom Royal court in Assam. Later Assamese people and other existing local communities too adopted it from the Ahoms. We are not to disregard the fact that Brocaded Kinkhwab originated in China and the Tai's were the descendants of the Shan group of people in Northern China.

A Comparison, similitude and conversion can be observed from the variables as accessed from a few of the available evolved designs and patterns as shown below.

### Kingkhap Design

Traditional Tai Design.



Source: 'Tai Museum' Sibsagar

Royal Ahom Motif



Source: Assam State Museum

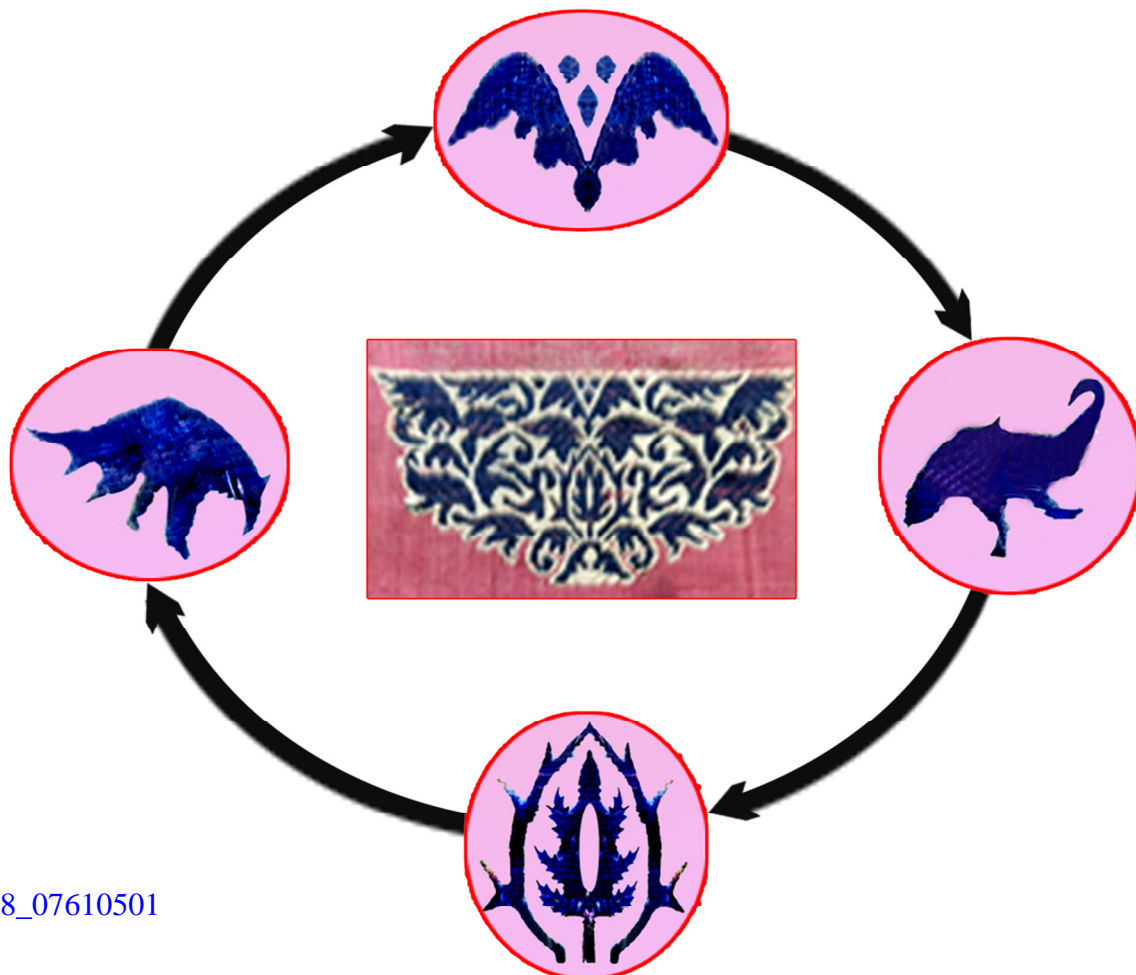
Modern amalgamated adaptation



Source: SIFT, Sualkuchi, Assam.

### Extraction of Motifs.

The Kingkhap is an ancient textile pattern ( also discussed earlier ) was brought into Assam from the South East Asian countries and presently the oldest one of its kind, housed at the 'Tai museum' Sibsagar. The motif below around three hundred and fifty years is a thick tabby weaves. The pattern is woven in continuous supplementary weft. It is interesting to note that the motif is a conglomeration of several central Asian patterns. From the pattern, have been extracted images /forms that are partly recognizable and at times may also seem to be semi-abstract images. The cognitive resemblance to some individuals may be of animal like forms resembling Dolphin, Fishes, dragon or Jurassic creatures. On the other hand one may perhaps associate a flying creature and the middle form is a floral motif or cereal, like a paddy stalk used purely for decoration or as a vegetal 'form ' symbolizing prosperity and fertility. Around this special flower, all other forms are decoratively arranged. None the less all elements are projected as beings of great strength- and identifying each with supernatural powers in coherence with the bearerof the cloth.



### 3.11.2 'Riha' border pattern and how it has evolved through the ages in form for modern contemporary usage.

Tai Ahom Royal Motif

Khamiyang Motif



Source: 'Tai Museum' Sibsagar.

Source: Rohan Pothar, Sibsagar Dist.

In the above fabric on the left, is the visual of an old 'Riha' from the collection of the Tai Museum, Sibsagar while on the right is a contemporary Riha the photograph of which has been collected at Rohan Pothar, Sibsagar District. The Riha is the initial upper body wrapper, worn beneath the Chaddar (which is the secondary Upper wrapper) for women and generally used by elderly ladies. It is a customary garment in use even today. The design is generally ornamented on the border. From the visuals it is evident that although the texture of fabric has undergone a change, yet the basic pattern and organizational schema of the pattern is similar to a large extent. The basic difference is the variability in thickness of yarn and its processing. The ancient fabric has been woven in colored Eri (Endi) yarn, while the latter one is a version of weave done with by produced mulberry yarn (popularly called the 'Noni paat' in Assam). The weave too has evolved into an expertise, which is again a part of the technological up gradation. Present Khamiyang motif, weave and pattern are an example of pure refinement, and had imbibed within it the 'Kesh' motif in the border that has been widely adopted by the Miris and Misings. The Tai Royal patterns bear an aesthetic appeal, and are predominantly designs in stripes and repeated segments.

### 3.11.3 The incorporation of Ceremonial stole designs and its evolution.

The Pha Phoi or the ceremonial stole cum- upper body wrapper, to be used by ladies during festivals and while visiting Vihars for prayer or social occasions of the community is a serene, sophisticated and dignified costume in itself. Not much has changed through the ages, except the choice and thickness of yarn and weaving technology. Tassels and fringes on the end warp threads are a part of the delicate finish practices earlier as well as today and are locally called the 'Dohibota' which was a pastime activity of most of the senior ladies in the family.

The 'Fa Fuk' is a similar fabric which is also a sign of purity and sublime divinity, woven in white cotton and used as a stole for unmarried girls. The border motif and patterns, especially for the royal class was originally ornamented with gold thread, while the Shyam and Phake women use Muga for enameling the supplementary weft designs. Today Muga thread is also substituted with gold colored thread.

Royal Tai Ahom motif



Shyam/Khamiyang Motif





Source: 'Tai Museum' Sibsagar.

Source: Rohan Pothar, Sibsagar Dist.


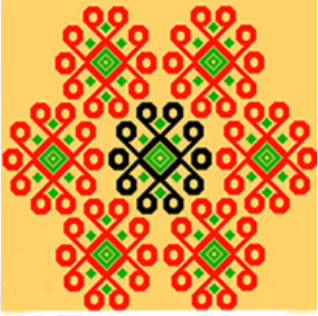
The 'Fa Fuk' as a sign of purity and sublime divinity, is woven in white cotton and used as a stole for unmarried girls. They are sometimes also worn by women while visiting the Vihars for prayer. The royal border motif was originally designed with gold thread, while today Shyam stoles use gold colored thread for enameling the supplementary weft designs.

### 3.11.4 Identified similitude between Tai patterns and modern Mekhla fabric patterns.

	
<p><b>A Khamti Bag:</b>Source: Silonojan</p> <ul style="list-style-type: none"> <li>• The square lozenges or rhombus is used as a repetitive motif.</li> <li>• The designs are woven in supplementary wefts.</li> <li>• The border has multiple motifs like frets, stripes and herringbone all arranged as compact bands.</li> </ul>	<p><b>Mekhla pattern:</b> Source: Sualkuchi</p> <ul style="list-style-type: none"> <li>• The square lozenges or rhombus is used as a repetitive motif.</li> <li>• The background has supplementary and floated weft checks: all integrated together.</li> </ul>



The 'Rhombus' is a common design between both the Tai's and the local Assamese communities. It is a prominent pattern between both the hill people as well as the local Assamese communities of the Brahmaputra valley. Although certain motif was adapted for its simplicity as well as for the easy weaving possibilities, yet these kinds of complex patterns also do exist.

### 3.11.5 Computer aided designs and its popularity and acceptance in present silk fabric Industry of Assam.

	
Traditional Sualkuchi Design	Computer aided design





The above traditional motif from Sualkuchi is a motif adopted from the available pattern archive for contemporary weavers. This pattern is an adaptation from the Rabha motif of the 'Fan' which is modified to resemble a ten petaled flower. Each fan is inverted towards each other and the lines of the fan intersect at measured points making the middle portion that is the inner ovule or the core into a small rhombus. This kind of geometrical shapes makes it most easy to weave, and mostly the woven pattern is converted into a graph.

### 3.11.6 Comparison between the patterns of Thai Textile and the Khamti Textile.

 <p style="text-align: center;">Source: Silonijan</p>	 <p style="text-align: center;">Source: Thailand</p>
<p style="text-align: center;"><b>Khamti textile Design /Pattern</b> similitude's</p> <ul style="list-style-type: none"> <li>• The Basic form and shape resembles a triangle or temple.</li> <li>• In addition to it curve and wavy lines alternate upright as pendent triangles.</li> </ul>	<p style="text-align: center;"><b>Thai Textile Design/Pattern</b> similitude's</p> <ul style="list-style-type: none"> <li>• The Basic form and shape resembles a triangle or temple.</li> <li>• In addition to it curve and wavy lines alternate upright as pendent triangles.</li> </ul>

The above motif/ patterns basically represent a temple and are shaped like a triangle. The variable on the left is from 'Silonijan' in Golaghat District and can generally be located on the 'Chin' of the Tai-Khamti ladies. The image on the right represents a design on the wrapper of ladies from Thailand. There is a lot of similarities between both the variables, particularly the basic Triangle, Temple structure. Another similitude rests with the 'Flame' like motif which is predominantly a Central Asian stylistic element, also found in the 'Halo' of the Sui Dynasty Buddha's, from China.

### 3.11.7 Extracted Motifs of the Thai Textile and the Khamti Textile.

			
<p>The overall shape is of the triangle popularly called the temple design in India.</p>	<p>The addition of flames, which is the integral essence of any Central Asian Design, is incorporated and thereby identified as is also highlighted with wavy lines of the flame.</p>	<p>Similar kind of basic triangular shape is identified in Thai textile design.</p>	<p>It is also highlighted with wavy lines of the flame that is characteristic of Central Asian Design.</p>

The Central Asian 'form' and 'design' influence finds place also in early Chinese Buddhist Art. It evolves as a salient feature right from the Sui Dynasty Buddha's (as shown below in the illustration of the middle compartment). Persian miniature art too shows similar 'Halo', that are shaped like flames. The table below shows example of such developments (Source: The Art of East Asia Fahr-Becker, Gabriele, Edited, 1999. Konemann, Italy.)

		
<p>Persian miniature painting.</p>	<p>The 'Sui' dynasty Buddha.</p>	<p>Later minimized version of the Chinese Buddha.</p>

### 3.12.0 Case study of the Kingkhap design and examination of the evolution

Over the hundreds of years, the Kingkhap motif has undergone several stages of changes incorporating fanciful and romanticized version in accordance to the preference of the ruling class using those fabrics with the specified patterns. It may be noted that this was originally a motif used by those who were in power and aristocracy. Below are some of the stages of development of this pattern which is evident from the photos collected from Museums and old Sualkuchi Archive.








The above are the extracted five stages of the **Kingkhap** motif which has undergone different stages in its evolution into the present kinds of pattern. Perhaps

the earliest pattern revolved around myths and popular tales. None the less, the figures clustered together are expressed in stylized versions. The consecutive graded patterns are more towards a 'floral' design and therefore could be encoded as direct reading. The stylized flower in the bottom middle portion changes in shapes and size, even in relation to its proportion to the entire given form of pattern. As found in the Ahom version, the Sualkuchi version has a heavy brocaded effect, and is woven with metal wires. But the more recent designs (if we are to follow the direction of the arrows in the illustrations), we find that contemporary motifs are woven with muga or gold colored yarn and are much more sparsely ornamental and therefore is lighter and simple than earlier fabrics. The CAD ( computer aided designs) too, appears to be a design that is simple, light, appreciative and easy to handle and wear.

### 3.13.0 Extracted motifs of Modern Contemporary Patterns from the traditional patterns.

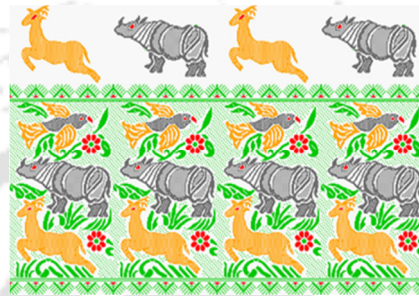
*Kingkhap:* In field study, one of the average preferred patterns was the Kingkhap. Therefore the extraction of motif from this pattern can be observed and analyzed. This pattern has fanciful forms among which common encoded ones are of the bird, fishes, dragons, flame or pearshaped paddystalk that often also resembles a 'Khorai', (which is a religious and ceremonial offering stand, whose top cover is shaped like a flame). It is noteworthy to mention that in spite of changes of form from time to time, the basic shape has not altered. Rather additional presentation of stylized paddy stalk, flower 'butis' and lions have found a place. The illustrations of the extracted motifs below can be identified as follows:

				
Single stalked and eight petal flower.	Multi petal flower like cross sectional cut.	Decorative paddy stalk. Shaped like a pear or flame.	A modified lion.	Decorative/cross section of flower and stamen.

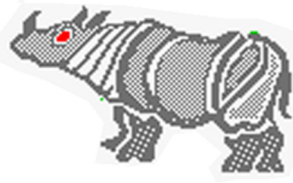



### 3.14.0 Motifs created for tourists and modern consumer demand

At present there are some innovative patterns that are being created to meet the demands of tourists. The designs incorporate such motifs like 'Kaziranga' which represents modern day scenario through motifs and patterns of animals inspired from the wild life Sanctuary 'Kaziranga, which is of a great attraction worldwide for tourists.

Kaziranga Design: A contemporary variation



The extracted motifs shown below in the visuals are in reference to these innovative patterns, created from available flora and fauna.

			
A Rhino.	A Deer.	A loti form plant and flower	A Bird.

## Chapter-4

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Testing, justification and ideation of Design Development in Textile of Tai-Phake and Khamiyang.

#### **4.0 Testing of the hypothesis.**

Testing of the hypothesis was affordable and the findings mostly correlated with it. Negative and null hypothesis appeared in a couple of specific instances like the use of dyes for cotton, which was only popular with the Tai-Phake people. Silk was favored by the Tais, but what the hypothesis could not assume was the popularity of the 'Eri' yarn as the widely acclaimed 'Ahimsa Yarn'.

#### **4.1 Similitude in elements between local Assamese ethnic groups and the Tai's.**

The initiative of the Central Government, State Government and the various N.G.O's have been encouraging the weaver class to increase their production. They are presently focusing on garment construction, handloom fabric development and the modern means of recording these designs with computer software's, for the overall up gradation of fabric development. Accordingly innovations are also coming up from the various textiles and weaving Institutes.

#### **4.2.0 Scope for contemporary use of motifs in modern everyday use.**

The different designers associated with textile Industry are trying to ideate and innovate textile design motifs for the upcoming consumer market. They have incorporated patterns from the different local people , existing in Assam from time immemorial like the Bodos, Tiwas, Dimasa's , Miri's, Mising's, and Rabha's – the groups who have popularly been exhibiting their textile fabrics and also earning appreciation for the same. Therefore the adaptation of their patterns is most common. Most of the designers are also concentrating on the texture and fall of the fabric, as well as preferring a natural dye to it, because these are being accepted in the global market. This kind of fabric is also in demand at the fashion houses abroad. (Discussed earlier).

**Figure: 35 Different kinds of admixture textile used for home décor and furnishings.**



**Figure: 36 Different kinds of admixture textile used for home décor and furnishings and product form.**



Note Book cover of Assamese textile



Purse made out of Woven fabrics



Purse made out of Woven fabrics



Purse made out of Woven fabrics



Batwa and Purse diversified from woven Muga fabric



A Hand Bag diversified from woven textile.

#### **4.2.1 Justification for the scope of design development of Tai textile.**

##### **And Design development strategies for future contemporary**

##### **Development.**

As evident from the earlier discussions and visual illustrations, as shown, the admixture textile designs are being already used by designers and locals for both their commercial and household needs in product forms. The unique aesthetic designs and patterns on the products is a mixture of ethnicity, cultural heritage, and identity of the region of Assam. The Tai- textiles has an adequate scope to compete with all the existing synthetic decors in the market, having the possibility to cater to all other sorts of public demands. The quality of the product forms are solely dependent on the implementation of correct procedures and methodologies that need to be contributed and researched from time to time. This is a continuous process which will require constant support from both the private and public enterprises, engaged in the development of the textile designs.








#### **4.3 Prospect of acceptability by consumers.**

With the emergence of modernization and a global change in consumer behavior the demands for ethnic textures and fabrics is constantly on the rise. The current trend in all product forms shows a gradual increase in preference for fabrics which are not only user friendly, but also suitable for all kinds of climatic conditions and most importantly aesthetically appealing and bio degradable. As mentioned earlier , these Tai textiles uses natural dyes which can be its unique selling proposition , as the world today is more keen in supporting any form of eco-friendly environment.

**Fig: 37 The Assamese costume accessories (Jewelry) design and ‘Japi’, a headgear converted into fabric design.**







Extracted motifs from the pattern:

			
<p>‘Dhulbiri’ or Drum shaped pendant</p>	<p>‘Jun Biri’ or quarter moon shaped pendant.</p>	<p>‘Keru’ A kind of decorative earrings.</p>	<p>Floral earring with droplets.</p>
			
<p>Floral studs.</p>	<p>‘Japi’ or the decorative hats identifying Assam.</p>		<p>Ornamental and minimized representation of paddy stalks</p>






Local Ethnic 'Bodo' aarnaai (stole) design, and patterns extracted from it.



			
<p>Stylized and minimized representation of Temple structure or Paddy stalks.</p>	<p>A stylized and simplified 'Stork' with turned neck.</p>	<p>Eight petal flower.</p>	<p>Multi petal flower.</p>

A design stylized to show the unified correlation between man and nature. This pattern is commonly called the 'Miri' design, and incorporates a decorative tree, flowers and two birds on either side of the tree.





				
<p>The flowering tree , a symbol of abundance, and prosperity.</p>	<p>A Rhombus shaped flower</p>	<p>An extended part of the tree trunk, this motif metaphorically resembles the eyes and third eye of the Devi Shakti.</p>	<p>Represented as a tree top or half of a rhombus, this motif has multiple connotations. It also resembles a Temple structure.</p>	<p>Just as the tree may prove to be an organic power, so also the bird is a symbol of omnipresent life around.</p>
<p>Also imbibes an 'Animistic' belief.</p>	<p>Perhaps the rhombus was a simple geometrical shape easy to be woven</p>			<p>Such forms mostly relate to some form of 'Animistic' belief.</p>

**Fig: 38 Comparison between the ethnic patterns of Tai-Khamti and ethnic Thai textile bag.**

	
<p>A Khamti lady carrying the traditional woven bag</p>	<p>A traditional Thai woven Bag.</p>
<ul style="list-style-type: none"> <li>• Both bags are woven on the back-strap loom.</li> <li>• Both bags are decorated with tassels or fringes.</li> <li>• Both bags have intricate patterns in bands that are in supplementary wefts or supplementary –warp floats.</li> <li>• Both bags have a strong inclination for the basic color-Red.</li> <li>• Additional attachment of metal trinkets is unique character of the Khamti bag.</li> </ul>	

**Fig 49:A Tai-Khamiyang Sash (Belt) and a belt from Thailand woven on the 'Loin Loom'.**

	
<p>A Tai-Khamiyang Sash/ Belt called the 'Saikap'.</p>	<p>A traditional Thai Strap or belt.</p>
<p>Generally these kinds of bands are woven by the process of tablet weaving. But the above belts are woven on warps stretched long and narrow on the same heddle looms. Diverse ranges of complex and intricate warp faced patterns are achieved in this process and both the Tai's and the Thai's follow this technique.</p>	

#### **4.4 Discussion and Conclusion.**

While addressing the Textiles of the Tai-Khamiyang and the Tai-Phakes, it is undoubtedly an acceptable fact that their costumes and textile fabrics have retained a unique character and needs to be appreciated universally.

Highlighted points of Phake and Khamiyang textile are:

- Plain or Tabby weave.
- There is Twill binding in specific junction.

- Satin weave in some places which is also at times loosely bound.
- The weft thread passes over the warp thread and under four or more, again over one and so on. The face shows vertically the warp and reverses are all wefts.
- Silk gives a good finish.
- Warp is mostly of cotton- both for strength and economy.
- Most garments of the Tais (for both the Tai –Khamiyang and Tai- Phake) are woven on the Back-strap loom and the heddle loom.

*Review of detailed classification of Tai-Phake and Tai-Khamiyang costumes.*

- Mekhela
- Chaddar.
- Riha.
- Fa-Chait( A kind of muffler)
- Sai-kap ( Sash or belt)
- Chin (Mekhela)
- Nangwat (Wrapper around the upper body and worn by married women)
- Nangwat Pojung ( wrap around made of Muga silk and worn by brides at the time of wedding)
- Fahu( Kind of headdress worn by elderly men and women like a turban)
- Fa (or the wraparound worn by men).
- Fa'fok (A kind of Chequered wrap around the hip above the Chin) and generally used by spinster/ unmarried girls).
- Thung (Bag)
- 'Nam' (A colorful flag used during religious festival and hung in the Buddhist Vihars).

- The objective of the study was to locate the ethereal textile elements of the Tai-Phake and the Tai –Khamiyang fabrics and this was achieved with the collections of samples, its documentation and making it circulated among concerned designer groups. Once the materials collected in this study is exposed through a common platform, rich Textile heritage of these ethnic tribes will be established in the domestic sector as well in a national level. The designers and the Government sections, motivated to highlight this unique culture can also come forward to do their best in providing the requisite infrastructure, opportunities and platform to the ethnic weavers. So, naturally the objective also is fulfilled.
- One understands that these ethnic communities are on the verge of being extinct. Once this study establish the importance of these ethno-cultural heritage and that it needs to take up urgent steps for conservation, different sections of our society along with the Government will be motivated to work for the conservation, preservation and survival of the Tai's which is also one of the motive of this study. Rather the ethnic community themselves will be inspired to work and preserve their culture along with the ethno heritage textile industry, ornate with dyeing technology and weaving mechanism. Thus another basic aim will be fulfilled.
- The visual data's can provide for a base to most interested scholars to make future studies in other related areas and in the long run it is the ethno-community who will be benefitted. All materials related to their heritage and identity will be preserved and this is also how the study's objective will be fulfilled.
- The study reveals that semiotics, sign relation and visual messages were very important to the Tai's. These patterns could also be encoded for a visual understanding, relating them to their lineage of myths, romanticized vision, power and rule, while maintaining connectivity with the other Thai's of South East Asia, an important objective to be fulfilled.
- The method of natural fabric dye of the Tai-Phake and the Tai-Khamiyangs (also on the verge of extinction), was unearthed through this study and today one can successfully establish it for a eco-friendly and green globe, so that all

materials are bio-degradable and will cause no hazards to human health and the environment.. This finding will definitely be a future aspiration fulfilling the objective of all concerned.

- The study examined ways and means to give appropriate opportunities and support to the upcoming designer generation, who are aspiring to work for textile design applications in the development of the fabric and apparel textile Industry as well as other allied product diversifications. Consumer research possibilities in this regard will also give a proper means and prospect for sustenance to the ethno textile sector, highlighting the Tai-Phake's and the Tai-Khamiyangs fabrics. This is also how the objectives set will be fulfilled. The link of the Tai's of Assam with the linguistic phyla of Diac and the Austronesians has already found a relation to Thailand and South East Asia, which the Tai people are strongly committed to preserve.
- Last but not the least, the most important hypothesis that there has been a constant inter mixing of designs patterns of the Tia's of Assam and the other local ethno groups of Assam has been established with the designs and patterns of each of these communities being shared among each other. This is why most of the patterns look alike, except with minor differences, and color schema too are same , except for the striped 'Chin' of the Phakes, who specifically have been isolating this pattern and weave for the Tai-Phake's to wear in festivals and at the time of weddings.

#### **4.5 Suggestions and Recommendations.**

1. Spreading awareness among the ethno communities for conservation and preservation of their ethnic heritage textiles. In this regard, the pivotal role has to be played by the Government bodies and active non government organization who can motivate them to understand the value and significance of their unique fabrics.
2. Once such awareness is spread, the government also has the responsibility to engage the local communities by providing adequate infrastructure, sanitation, yarn cultivation and health maintenance camps, which will result in developing the textile sector.

3. Since the contribution of these rural textile industries will contribute both to the local and state economy, higher emphasis should be made on imparting skill upgradation by conducting frequent workshops and camps on how to increase and sustain their production level.
4. One of the major challenges faced by this industry, as mentioned earlier is the involvement of third parties (middle man), which has a negative influence on the growth of the ethnic fabrics, as they supply cheap quality yarns. As a result, the standard and quality of their produce degenerates. This can be overcome by managing the self-help groups to produce their required yarn in accordance to their traditional way of spinning and processing.
5. The holistic approach to the entire Assamese textile industry, requires proper production without having an access to the design patterns which are not repeated and monotonous, as after a point of time each design becomes too common and unfavorable to the target consumers. This situation can be dealt with archives which will not only stock different patterns and motifs but also have a proper cataloguing along with details of the ethnic groups, villages, donor's names, colour patterns, weaving technique etc., so as to make it easily available to the designers, employed by the textile industry. Eventually this has close connection with the assumptions of the above study, since each and every community pattern is amalgamated for a better market.
6. Both Heddle and the Loin looms are used by our ethnic communities. Modern mechanism and latest technology have brought in the jacquard, but women need to be motivated to use the loin loom more frequently for maintenance of a proper posture and physical fitness, as the loin is ergonomically compatible to the human form, especially women who do repeated front bending chores at home and the reverse stretch ease out their cramps and fatigues.
7. The textile and tea industry is both inter dependent, as the silk worms which are used to produce the yarn, fed on the Mulberry and Som trees also provide shades to the tea shrubs. With a prospect to increase yield, the tea shrubs use pesticides which are used which in turn have an adverse effect on the silk caterpillars too, which have led to the collapse of this interdependent industry. Because of the high demand of tea in the global market, the silk production has declined. So it is highly recommended to use organic manure, avoid pesticides and chemical

fertilizers for all kind of yarn production , which will surely boost the wild silk industry.



**Table: 13 showing the Preference of colors of the interviewed persons in field study.**

- The fifty members interviewed consist of ethnic group (Tai-phake and Tai-Khamiyang), experts and empanelled designers.

Gradation of preference	Black	White	Red	Yellow Ochre	Indigo Blue	Green	Purple	Pink	Sepia	Cobalt Blue	Brown	Orange	Maroon	Beige	Gray	Sap green	Cream	Snuff	Brick red
1	25	10	04	03	06	01	02	X	X	02	02	X	X	X	X	X	X	X	01
2	07	13	03	03	06	08	08	03	X	01	X	X	X	02	X	X	01	X	X
3	04	05	10	04	05	07	05	06	04	01	01	01	01	X	X	X	X	01	X
4	02	03	02	14	08	15	03	02	03	02	01	01	01	X	X	X	X	X	X
5	02	02	09	08	07	05	03	03	X	X	X	01	X	X	X	01	X	X	X
6	02	05	05	07	04	06	06	05	01	01	02	01	X	X	X	X	X	X	X
7	05	04	04	02	03	03	05	02	01	X	X	01	01	X	X	X	X	X	X
8	02	05	05	02	02	02	03	03	X	01	X	X	X	X	X	X	X	X	X
9	01	01	02	01	01	01	02	01	X	X	X	X	01	01	X	X	X	X	X
10	X	X	X	X	X	X	x	X	X	X	X	X	X	X	01	X	X	X	X
Total	50	48	44	44	42	38	37	25	09	08	06	05	04	04	02	02	02	02	02
Percentage (apx)	100	96	88	88	84	76	74	50	18	16	12	10	8	8	4	4	4	4	4

**Note:** The above color preference table was constructed on the basis of the color ratings given by the personnel interviewed during field study. A total of nineteen colors was picked out from the visuals of samples available and shown to them, which they rated in accordance to their preference and gradation of the colors.

It was observed that out of fifty interviewers, the majority showed preference for the Black color, as their primary choice of color, followed by white, red, yellow ochre, indigo blue, green, purple, pink, sepia, cobalt blue, brown, orange, maroon, beige, grey, sap green, cream, snuff and brick red in descending order. These colors are also visible and prominent in the woven costumes and fabrics of the ethnic group of Tai-Phake and Tai-Khamiyang, while the latter introduced colors are personal preference of designers and artists.

**Table:14 Priority preference of Pattern of interviewed people during field study.**

SL	Floral	Kingkhap	Stripes	Rhombus	Checks	Temple	ZigZag	Spiral	Square	Figure	Hexagonal	Personnel
1	29	08	05	04	02	Nil	01	Nil	Nil	01	Nil	50
2	05	11	07	14	06	02	02	Nil	02	01	Nil	50
3	05	nil	10	11	06	01	10	03	03	01	Nil	50
	03	01	08	07	07	02	06	06	07	03	Nil	50
5	06	04	06	07	07	04	04	06	03	03	Nil	50
6	01	03	07	06	03	09	07	02	03	08	01	50
7	Nil	02	04	01	02	05	11	04	06	14	01	50
8	01	04	02	Nil	01	05	06	09	09	09	04	50
9	Nil	07	01	Nil	01	14	02	10	10	05	Nil	50
10	Nil	09	Nil	Nil	03	06	01	10	07	05	09	50
11	Nil	01	Nil	Nil	12	02	Nil	Nil	Nil	Nil	35	50
	50	50	50	50	50	50	50	50	50	50	50	

**Note:** The above pattern preference table was constructed on the basis of the ratings given by the personnel interviewed during field study. A total of eleven patterns was picked out from the visuals of samples available and shown to them, which they rated in accordance to their preference and personal choice. Though majority has kept the patterns like Floral, Kingkhap, Stripes, Rhombus, Checks, Zig zag and Figures in the topmost rating, yet further observation shows that, the referred patterns remain their choice even if an average gradation of the first five positions is taken into account, with minor changes in their choice of pattern sequence. These choices of pattern are very much evident in their woven fabric and traditional costumes

**Table: 15 Descriptions of Persons met during field study.**

SL	Name of Village /town/ Museum	Duration of stay/ Date	Number of visits	Name of Persons met	Sex	Age	Language	Occupation
1	Assam State Museum, Ghy	12.8.2009	Two	Jiten Shyam	M	55	Assamese Tai English	Govt. Service Assistant Curator
2	Tai Museum Sibsagar	28.8.2009	One	J.K.Gogoi	M	49	Assamese	Govt. Service Officer-in-Charge.
3	Dhemaji Assam	4.1.2010 & 25.5.2012	One	Chou Pushpa Gogoi	M	65	Assamese Tai English	Retd. Lecturer , Dhemaji College, / Scholar of Tai
4	Golaghat, Assam	6.4.2010	One	Bonti Rani Gogoi	F	55	Assamese English	Principal, H.B. College, Golaghat
5	New Shyam Village, Kosukhaiti, Titabor, Jorhat	6.4.2010	One	GunaKanta Shyam	M	70	Assamese Tai Palli	Village Head-Man Agriculture
6	New Shyam Village, Kosukhaiti, Titabor, Jorhat	6.4.2010	One	PurnaKanta Shyam	M	40	Assamese Tai	Agriculture
7	New Shyam Village, Kosukhaiti, Titabor,	6.4.2010	One	Naren Shyam	M	42	Assamese Tai	Agriculture
8	New Shyam Village, Kosukhaiti, Titabor, Jorhat	6.4.2010	One	Pobitra Shyam	M	48	Assamese Tai	Agriculture
9	New Shyam Village, Kosukhaiti, Titabor, Jorhat	6.4.2010	One	BenudharChowlek Shyam	M	58	Assamese Tai	Agriculture

SL	Name of Village /town/ Museum	Duration of stay/ Date	Number of visits	Name of Persons met	Sex	Age	Language	Occupation
10	New Shyam Village, Kosukhaiti, Titabor, Jorhat.	6.4.2010	One	Mitali Shyam	F	32	Assamese Tai	House wife Weaver
11	New Shyam Village, Kosukhaiti, Titabor,	6.4.2010	One	Kamala Shyam	F	34	Assamese Tai	House wife Weaver
12	New Shyam Village, Kosukhaiti, Titabor, Jorhat	6.4.2010	One	Neeru Shyam	F	28	Assamese Tai	House wife Weaver
13	Tribal Museum, Directorate of Tribal RC.	8.8.2010 14.12.2010 5.4.2012	Three	Mrs.NazninAnum	F	52	Assamese English	Govt. Service Curator
14	Directorate of Tribal RC.	8.8.2010 5.4.2012	Two	Mrs.Farzana Begum	F	42	Assamese English	Research Officer Govt.Service.
15	Directorate of Tribal RC Jawahar Nagar	14.6.2011 5.4.2012	Two	Samir Choudhury	M	57	Assamese English	Ethno Research Photographer
16	Borpothar Dist: Golaghat	6.4.2010	One	Dibyo Shyam	M	46	Assamese Tai English	Pvt. Sector Service
17	Rohan Pathar Dist: Sibsagar	7.4.2010	One	Bhogeswari Shyam	F	88	Assamese Tai	Housewife Weaver
18	Rohan Pathar Dist: Sibsagar	7.4.2010	One	Rekha Shyam	F	27	Assamese Tai	Housewife Weave

SL	Name of Village /town/ Museum	Duration of stay/ Date	Number of visits	Name of Persons met	Sex	Age	Language	Occupation
19	Rohan Pathar Dist: Sibsagar	7.4.2010	One	Debodip Shyam	M	28	Assamese Tai English	B.Tech Govt. Service
20	NamPhake Naharkatia, Dist: Dibrugarh	8.4.2010	One	Ngipethon Gohain	M	60	Assamese Tai English	Govt. Service
21	NamPhake Naharkatia, Dist: Dibrugarh	8.4.2010 15.4.2012	Two	Piam Thee Gohain	M	49	Assamese Tai English	Social Worker Tai Phake Expert Literature& A.I.R. Comparer Station Dibrugarh
22	Dibrugarh	14.4.2012	One	Hiren Bura Gohain	M	60	Assamese English	A.I.R. Dibrugar Station Music Copmposer
23	Tipam Phake, Naharkatia, Dist: Dibrugarh	15.4.2012	One	Pansoi Tung Tang	M	27	Assamese Tai	N.G.O & Naturalist
24	Tipam Phake, Naharkatia, Dist: Dibrugarh	15.4.2012	One	OklonThoumoung	F	49	Assamese Tai	School Teacher, Namrup Petrochemicals
25	Tipam Phake, Naharkatia, Dist: Dibrugarh	15.4.2012	One	Nitin Gohain (Guna Sir)	M	72	Assamese Tai Palli	Principal, Tipam Phake Palli School
26	Tipam Phake, Naharkatia, Dist: Dibrugarh	15.4.2012	One	Piya Mow	F	26	Assamese Tai	Weaver


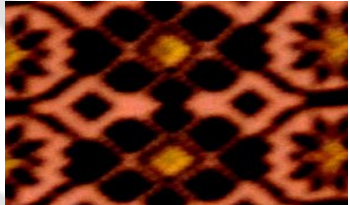



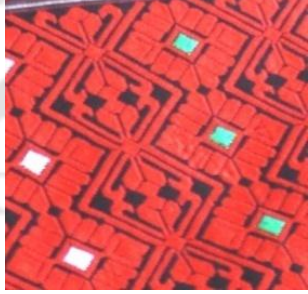
SL	Name of Village /town/ Museum	Duration of stay/ Date	Number of visits	Name of Persons met	Sex	Age	Language	Occupation
27	Tipam Phake, Naharkatia, Dist: Dibrugarh	15.4.2012	One	Cham Keng Gohain	M	60	Assamese Tai	Teacher, Tipam School.
28	O/o Development Commissioner for Handlooms, Khanapara, Ghy.	9.5.2012 & 21.5.2012	Two	Ramesh Banikya	M	60	Assamese English	Govt. Service Dy. Director (OIC)
29	O/o Development Commissioner for Handlooms, Khanapara	9.5.2012 & 21.5.2012	Two	SulochonaBarthakur	F	50	Assamese English	Govt. Service Designer( WSC)
30	O/o Development Commissioner for Handicrafts, House fed Complex, Ghy.	6.5.2010 14.3.2012 12.6.2012	several	Mr. Dwakhar	M	58	Assamese English	Govt. Service Director, D.C. Handicrafts, NER, Govt. of India
31	Dibrugarh	14.4.2012	One	Gitimollika Gogoi	F	46	Assamese English	Lecturer, City College, Department Anthropology, Dibrugarh, Assam
32	Basistha,Guwahati, Assam		Several occasion	Dilip Tamuly	M	56	Assamese English	Lecturer, Govt. College of Art & Crafts, Assam
33	Sualkuchi, Kamrup District, Assam.	13.5.2012	Several Occasions.	NiponGoswami	M	32	Assamese English	Designer at SIFT, Sualkuchi, Assam.

SL	Name of Village /town/ Museum	Duration of stay/ Date	Number of visits	Name of Persons met	Sex	Age	Language	Occupation
34	Housefed, Guwahati	20.6.2012	Several Occasions	JagadishSarmah	M	43	Assamese English	Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India
35	Housefed, Guwahati	20.6.2012	Several Occasions	Ranjit Gogoi	M	49	Assamese English	Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India
36	Housefed, Guwahati	22.6.2012	Several Occasions	Upasana Bora	F	32	Assamese English	Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India
37	Jorhat, Assam	12.8.2009	Several Occasions	Meghali Barua.	F	52	Assamese English	Teacher, Bal Bharati School, Jorhat, Assam.
38	Dibrugarh, Assam.	15.4.2012	Several Occasions	SangeetaChamuah	F	33	Assamese English	Eminent singer and Lecturer, GCAC Guwahati







SL	Name of Village /town/ Museum	Duration of stay/ Date	Number of visits	Name of Persons met	Sex	Age	Language	Occupation
39	Dibrugarh, Assam	15.4.2012	One	ReenaChamuah	F	56	Assamese English	Housewife and social worker, Dibrugarh.
40	Guwahati, Kamrup	18.11.2013	One	Seema Gogoi	F	52	Assamese English	Housewife and social worker, Tinsukia
41	Guwahati, Kamrup	20.6.2012	Several Occasions	MeenaxshiBorgohain.	F	35	Assamese English	Artist., Guwahati
42	Guwahati, Kamrup	20.6.2012	Several Occasions	DadulChaliha	M	45	Assamese English	Artist & Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India
43	Houseful, Guwahati.	20.6.2012	Several Occasions	ManashiBuragohain	F	35	Assamese English	Artist & Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India
44	Housefed, Guwahati.	20.6.2012	Several Occasions	Pushpa Boro	F	32	Assamese English	Artist & Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India

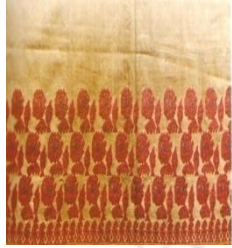





SL	Name of Village /town/ Museum	Duration of stay/ Date	Number of visits	Name of Persons met	Sex	Age	Language	Occupation
45	O/o Development Commissioner for Handicrafts, House fed Complex, Ghy.	6.4.2010	Several	Surya Deori	M	45	Assamese English	Govt. Service, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India
46	Basistha,Guwahati, Assam	20.4.2012	Several occasion	Ratul Gogoi	M	45	Assamese English	Lecturer, Govt. College of Art & Crafts, Assam
47		22.6.2012	Several Occasions	IndraniDeka	F	32	Assamese English	Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India
48	Kamrup, Guwahati	22.8.2013	one	RanjitRabha	M	35	Assamese English	Artist, Guwahati.
49				LohitRajbonshi	M	37	Assamese English	Artist, Guwahati.
50	Housefed, Guwahati	20.6.2012	Several Occasions	BijayDeori	M	34	Assamese English	Empanelled Designer, O/o Dev. Commissioner, Handicraft, NER, Ministry of Textile, Govt. of India


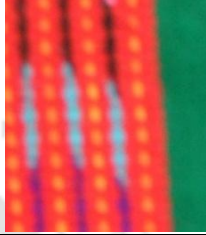




**Table: 16** Representation of specific samples in accordance of motif/patterns and dominance of color (Khamiyang and Shyam Textile).





Name of sample	Selected samples	Source and Place	Colors used in order.	Motif and patterns used	Remark
Chaddar		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Orange Black yellow		1.Plain weave with continuous supplementary weft pattern
Chaddar		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Black Yellow		1.Plain weave with continuous supplementary weft pattern
Mekhela		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Black Red Cerulean Blue White Maroon		1.Plain weave with continuous supplementary Weft pattern.  2.Individual flowers in Discontinuous weft floats.







Name of sample	Selected samples	Source and Place	Colors used in order.	Motif and patterns used	Remark
Temple/Vihar Hangings		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Red Yellow Lt. Green Blue Dark green Pink Maroon Black White		<ul style="list-style-type: none"> <li>• Plain weave,</li> <li>• Twill binding in specific Junctions</li> </ul>
Temple/Vihar Hangings		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Red Blue Orange Green Yellow White Brown		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Denting with sticks</li> <li>• Tassels.</li> </ul>
Shawl		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Red Black Green		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Twill binding in specific Junctions</li> </ul>







Name of sample	Selected samples	Source and Place	Colors used in order.	Motif and patterns used	Remark
Fa Lung		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Green Purple White Red Black		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weaves</li> </ul> <p>Twill binding in specific Junctions.</p>
Mekhela		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Black Orange Yellow		Plain weave with continuous supplementary weft pattern.
Chaddar		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Purple Black White		<p>Plain weave with discontinuous supplementary weft pattern.</p> <p>Contrasted thin stripes in weft from selvage to selvage.</p>






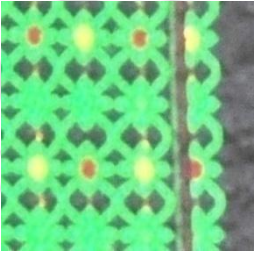
Name of sample	Selected samples	Source and Place	Colors used in order.	Motif and patterns used	Remark
Mekhla		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Muga Red Black		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern.</li> </ul>
Chaddar		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	White Red Green Yellow Pink Blue		<ul style="list-style-type: none"> <li>• Stripes from selvage to selvage</li> <li>• continuous supplementary weft in thick yarn creating check pattern.</li> </ul>
Chaddar		New Shyam Village KosuKhaiti, Titabor, Dist. Jorhat	Muga Red Black White Blue yellow		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• continuous and discontinuous supplementary Weft pattern.</li> <li>• Individual flowers in weft floats.</li> <li>• Satin weave.</li> </ul>







Name of sample	Selected samples	Source and Place	Colors used in order.	Motif and patterns used	Remark
Riha		Borpothar, Dist. Golaghat	Green Red Black Blue Purple White Yellow Pink		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• continuous and discontinuous supplementary Weft pattern</li> </ul>
Mekhela		Borpothar, Dist. Golaghat	Indigo Blue Pink Green Light blue		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Discontinuous Weft inlay.</li> </ul>
Saikap or Sash/belt		Borpothar, Dist. Golaghat	Red Black Yellow Pink Blue Green Maroon White		<ul style="list-style-type: none"> <li>• Vertical stripes with warp details.</li> <li>• Continuous supplementary weft and the wool passes through the selvages to hang loose like tassels.</li> </ul>







Name of sample	Selected samples	Source and Place	Colors used in order.	Motif and patterns used	Remark
Chaddar		Borpothar, Dist. Golaghat	White Golden		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• continuous and discontinuous supplementary Weft pattern.</li> <li>• Flowers in floats.</li> </ul>
Fa lung		Borpothar, Dist. Golaghat	Green Blue Red Black White		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Twill binding in specific Junctions.</li> </ul>
Bag/ Thung		Borpothar, Dist. Golaghat	Orange Green White Yellow Black		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Discontinuous Weft inlay.</li> </ul>

Name of sample	Selected samples	Source and Place	Colors used in order.	Motif and patterns used	Remark
Bag/ Thung		Borpothar, Dist. Golaghat	Bright Blue Red Light Blue Dark Pink Light Pink Green Maroon		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically Individual flowers in weft inlay</li> </ul>
Bag/ Thung		Rohan Pathar Dist:Sibsagar	Purple Black White Pink Green Blue Yellow Orange		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically Individual flowers in weft inlay</li> </ul>
Bag/ Thung		Rohan Pathar Dist:Sibsagar	Black Green Pink Red White Yellow		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically Individual Flowers in weft inlay .</li> </ul>




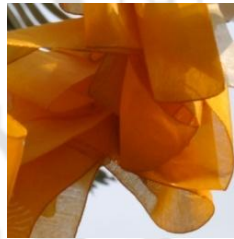


Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Riha		Rohan Pathar Dist:Sibsagar	Red Black Orange Green Pink Yellow		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• continuous and discontinuous supplementary Weft pattern.</li> <li>• Individual flowers in weft floats.</li> <li>• Satin weave.</li> <li>• Knotted Fringes</li> </ul>
Chaddar		Rohan Pathar Dist:Sibsagar	Red Yellow Black Green		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Satin weave</li> <li>• continuous supplementary Weft pattern.</li> </ul>
Riha		Rohan Pathar Dist:Sibsagar	Maroon Dark Blue Light Blue Pink Yellow White Black		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Satin weave</li> <li>• continuous supplementary Weft pattern</li> <li>• Knotted Fringes.</li> </ul>







Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Saikap or Sash/belt		Rohan Pathar Dist:Sibsagar	Red Black Green Yellow Blue White Pink		<ul style="list-style-type: none"> <li>• Vertical stripes with warp details.</li> <li>• Continuous supplementary weft bands in wool.</li> </ul>
Fa-Chait/ Mufler		Rohan Pathar Dist:Sibsagar	Blue Red White Yellow Black Green Red Yellow Maroon		<ul style="list-style-type: none"> <li>• Maximum color projection placed in Warp.</li> <li>• Plain weave Executed in double heddle loom.</li> </ul>
Mekhela		Rohan Pathar Dist:Sibsagar	Blue Black White Green Pink Yellow		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> <li>• Discontinuous supplementary Butis</li> </ul>





Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Fa lung		Rohan Pathar Dist:Sibsagar	Blue White Green Black Red Orange Yellow		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Twill binding in specific Junctions</li> </ul>
Fa lung		Rohan Pathar Dist:Sibsagar	Black Purple Red		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Twill binding in specific Junctions.</li> </ul>
Mekhela		Rohan Pathar Dist:Sibsagar	Green Pink Yellow White		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in inlay.</li> </ul>







Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Mekhela		Rohan Pathar Dist:Sibsagar	Muga Yarn/Gold Red. Blue Green		<ul style="list-style-type: none"> <li>• Plain weave.</li> <li>• Satin weave</li> <li>• continuous supplementary Weft pattern.</li> </ul>
Mekhela		Rohan Pathar Dist:Sibsagar	White Mulberry Muga thread Red Green.		<ul style="list-style-type: none"> <li>• Plain weave.</li> <li>• Satin weave</li> <li>• continuous supplementary Weft pattern.</li> </ul>
Chaddar		Rohan Pathar Dist:Sibsagar	White mulberry Gold Colored thread Red.		<ul style="list-style-type: none"> <li>• Plain weave.</li> <li>• Satin weave</li> <li>• continuous supplementary Weft pattern.</li> </ul>

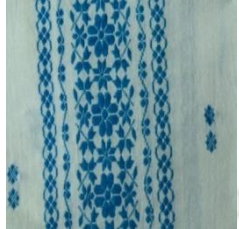



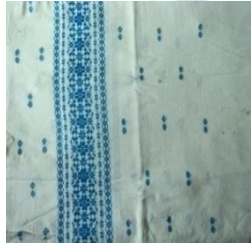
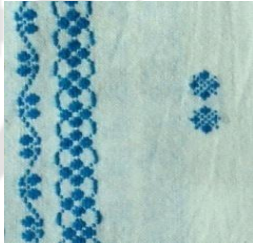
**Table: 17**Representation of specific samples in accordance of motif/pattern and dominance of color (Tai-Phake Textile).







Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Temple/ Vihar Hangings		Namphake Naharkotia, Dist:Dibrugar	Red Yellow Green Blue White Gold		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Denting with sticks</li> <li>• Tassels.</li> </ul>
Ceremonial flower hanging		Namphake Naharkotia, Dist:Dibrugar	Yellow White		<ul style="list-style-type: none"> <li>• Ribbon work</li> </ul>
Ceremonial hanging		Namphake Naharkotia, Dist:Dibrugar	Blue Red Pink White Yellow Black		<ul style="list-style-type: none"> <li>• Wool entwined On sticks.</li> </ul>







Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Fa lung		Namphake Naharkotia, Dist:Dibrugar	Green White Pink Blue Black		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Twill binding in specific Junctions.</li> </ul>
Nangwat		Namphake Naharkotia, Dist:Dibrugar	Pink Blue Yellow White		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Dyed Muga Yarn</li> <li>• Knotted fringes.</li> </ul>
Nangwat		Namphake Naharkotia, Dist:Dibrugar	Green Purple White Black Yellow		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Extra Floats near Junctions on boarder.</li> <li>• Knotted Fringes</li> </ul>

Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Nangwat		Namphake Naharkotia, Dist:Dibrugar	Purple Green Pink Black White Yellow		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Extra Floats near Junctions on boarder.</li> <li>• Knotted Fringes</li> </ul>
Fa lung		Namphake Naharkotia, Dist:Dibrugar	Blue Green Black Pink White		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Twill binding in specific Junctions.</li> </ul>
Chin & Nangwat		Namphake Naharkotia, Dist:Dibrugar	Yellow Blue Purple Pink Green White Black		<ul style="list-style-type: none"> <li>• Maximum colour projection placed in Warp.</li> <li>• Plain weave</li> <li>• Extra Floats near Junctions on boarder.</li> <li>• Knotted Fringes</li> </ul>




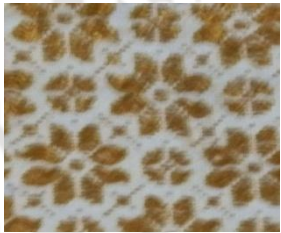


Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Chin		Namphake Naharkotia, Dist:Dibrugar	Yellow Blue Black Pink Green Yellow White Red		<ul style="list-style-type: none"> <li>• Major colour projection placed in Warp.</li> <li>• Plain weave Bands in Weft</li> </ul>
Chin		Namphake Naharkotia, Dist:Dibrugar	Purple White/Silver Black Green Blue		<ul style="list-style-type: none"> <li>• Major colour projection placed in Warp.</li> <li>• Plain weave Bands in Weft.</li> <li>• Dyed Silk</li> </ul>
Chin		Namphake Naharkotia, Dist:Dibrugar	Green Pink Black Blue White		<ul style="list-style-type: none"> <li>• Major colour projection placed in Warp.</li> <li>• Plain weave Bands in Weft.</li> <li>• Dyed Silk.</li> </ul>







Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Pha-Phoi		Namphake Naharkotia, Dist:Dibrugar	White Blue		<ul style="list-style-type: none"> <li>Plain weave with continuous supplementary weft pattern</li> </ul>
Ceremonial Hangings 'Nam'		Tipam Phake Naharkotia, Dist:Dibrugar	Red White Orange Blue Yellow		<ul style="list-style-type: none"> <li>Fabric Print</li> </ul>
Pha-Phoi Female Upper wrap.		Namphake Naharkotia, Dist:Dibrugar	White Blue		<ul style="list-style-type: none"> <li>Plain weave with continuous supplementary weft pattern</li> </ul>

Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Unstitch Bags		Tipam Phake Naharkotia, Dist:Dibrugar	Black Green Pink Orange Yellow White		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically. Individual flowers in weft inlay</li> </ul>
Unstitch Bags		Tipam Phake Naharkotia, Dist:Dibrugar	Black Green Red Pink White Yellow		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically. Individual flowers in weft inlay</li> </ul>
Bag or Thung.		Namphake Naharkotia, Dist:Dibrugar	Blue Green Yellow Pink Red		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically. Individual flowers in weft inlay</li> </ul>


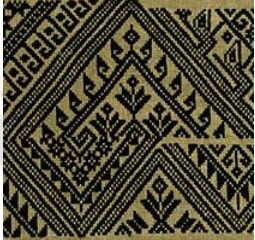




Name of Fabric	Samples	Place and Source	Color dominance and the visual rating	Motif and patterns	Remark
Bag or Thung.		Tipam Phake Naharkotia, Dist:Dibrugar	Pink Black Red Green		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Chin		Namphake Naharkotia, Dist:Dibrugar	Black Pink White Red Blue Yellow		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically. Individual flowers in weft inlay</li> </ul>
Chin		Namphake Naharkotia, Dist:Dibrugar	Black Green White Pink Purple Red.		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically. Individual flowers in weft inlay</li> </ul>

**Table: 18 Representation of specific samples in accordance of motif/pattern and dominance of color of Tai-Ahom**




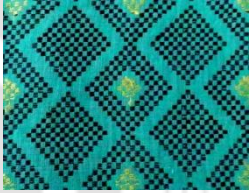


Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Kingkhap		Tai Museum, Sibsagar.	Red Indigo		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Chaddar		Collected at a ethnic meet at Guwahati	White Muga Thread		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Mekhla		Tai Museum, Sibsagar.	Muga Base with Red.		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>







Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Alter Place mat		Tai Museum, Sibsagar.	Muga Red Green Black		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Chaddar		Tai Museum, Sibsagar.	Eri yarn Muga Yarn		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Chaddar		Tai Museum, Sibsagar.	White cotton Golden thread		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>

**Table : 19Representation of specific samples in accordance of motif/pattern and dominance of color.( Thailand)**



Name of sample	Selected samples	Source and Place.	Colors used in order.	Motif and patterns used	Remark
Thai Skirt		Internet <a href="https://www.google.co.in/search?q=Images+of+Thai+textil">https://www.google.co.in/search?q=Images+of+Thai+textil</a>	Silk Black		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Thai Skirt		Internet <a href="https://www.google.co.in/search?q=Images+of+Thai+textil">https://www.google.co.in/search?q=Images+of+Thai+textil</a>	Silk White Red Black.		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Thai Skirt		Internet <a href="https://www.google.co.in/search?q=Images+of+Thai+textil">https://www.google.co.in/search?q=Images+of+Thai+textil</a>	Indigo Yellow silken yarn White Red.		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>

**Table : 20Representation of specific samples from the local ethnic, Assamese textile.**

Name of Fabric	Samples	Place and Source	Color dominance and the visual rating	Motif and patterns	Remark
Bodo Arnaai		Jagaran, Textile outlet Guwahati-1	Blue White Yellow		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Assamese mekhla		Self	Green Black Yellow		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Bodo Arnaai		Jagaran, Textile outlet Guwahati-1			<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>

Name of Fabric	Samples	Place and Source	Color dominance and the visual rating	Motif and patterns	Remark
Upper body Wrapper		Handloom Textile Expo at Guwahati	White Red Green Yellow		<ul style="list-style-type: none"> <li>• Plain weave with continuous supplementary weft pattern</li> </ul>
Chin		Handloom Textile Expo at Guwahati	Florescent Blue Pink Green		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically. Individual flowers in weft inlay</li> </ul>
Cushion Cover		Handloom Textile Expo at Guwahati	Red Yellow White Green		<ul style="list-style-type: none"> <li>• Plain weave</li> <li>• Continuous supplementary Weft pattern in bands which run vertically. Individual flowers in weft inlay</li> </ul>

**Table: 18. Chart showing possible contemporary design conversion keeping the ethno design values intact.**

	
Tai-Khamiyang design ( Shyam	Converted Contemporary Saree Design (Source WSC, Guwahati)

**Table: 19 Chart showing conversion into contemporary design that has varied consumer décor and home furnishing possibility.**

	
<p>Tai-Khamiyang (Shyam), Tai-Phake and North East Hill community textile patterns.</p>	<p>Conversion of these patterns in to home Décor fabric ( Which may have multiple usage).</p>

**Table: 20 The Ethnic people (Tai Khamiyang and Tai Phake) adorned in their traditional costumes.**



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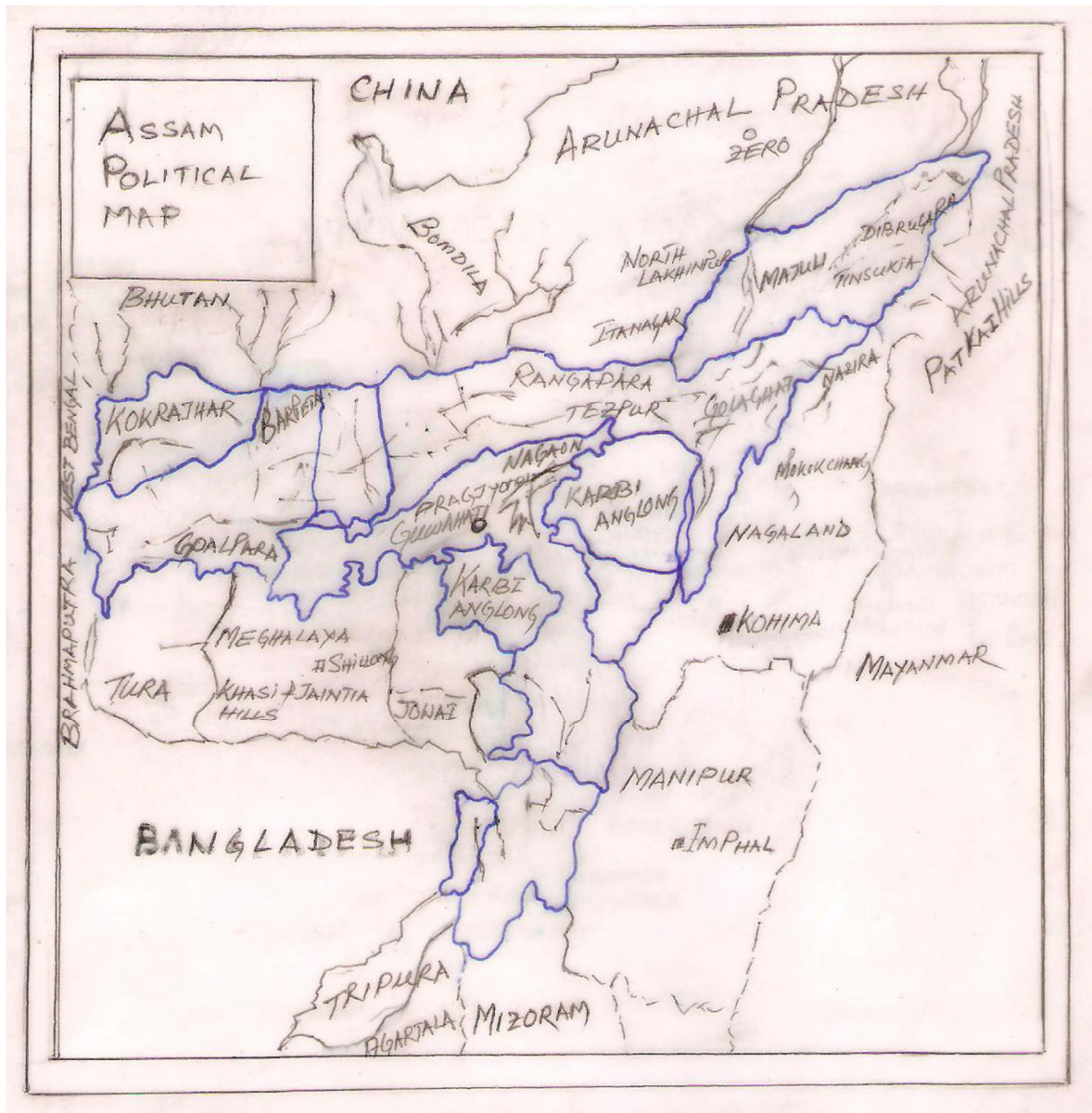
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# Appendix-1

Political Map of early Assam during the Ahom Rule.



## Appendix-2

### Questionnaire for field study.

Name of the Respondent:

Name of the Ethnic village:

Name of the Ethnic Community:

Name of the District (In Assam):

Details of respondents;

A.Occupation:

B. Age:

C. Education.

Illiterate	Primary School
Intermediate	Graduate & Masters.

D. Marital status

Unmarried	Married	Widow/Divorcee
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E. Size of Family.

Small (1-3)	Medium (4-6)	Large 7 and above.
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F. Experience of weavers in years.

Below 5	6-10	11-15
16-19	20 and above	

G. Gender of respondent.

Male	Female
------	--------

Are you comfortable with your traditional loom?

yes	No
-----	----

Are you in favor of adapting new technological process?

Yes	No
-----	----

Do you follow your ethnic traditional pattern?

Yes	No
-----	----

What colors do you prefer- Rate them in accordance to your preference

Black	White	Red	Yellow ochre	Indigo Blue	Green	Purple
Pink	Sepia	Cobalt Blue	Brown	Orange	Maroon	Beige
Grey	Sap Green	Cream	Snuff	Brick Red		

What Patterns do you prefer- Rate them in accordance to your preference

Kingkhap	Temple	Floral	Stripes	Rhombus
Zigzag	Spiral	Square	Hexagonal	Figures

What costumes/ accessories do you prefer- Rate them in accordance to your preference

- Chaddar
- Mekhla
- Shawl
- Riha.
- Temple hanging
- Ceremonial Hangings
- Fa-Lung/ Lungi
- Fa-chait/Muffler
- Saikap/belt.
- Thung/Bag
- Nangwat.
- Chin.
- Fa Phoi

Are you in favor of innovating and conversion of your fabrics into other house hold goods?

Yes	No
-----	----

Do you believe in a market for your products outside your community?

Yes	No
-----	----

Will you work for this industry as a means to sustain your family?

Yes	No
-----	----

Are you a member of SHG (Self Help Group)?

Yes	No
-----	----

Do you practice/adopt ethnic patterns of other traditional groups of Assam?

Yes	No
-----	----

Where do you collect your raw material from?

Market	Self Processed yarn	Both
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Do you know the art of yarn processing?

Yes	No
-----	----

If yes, how have you learnt it?

From elders in family	At training centers	At workshops
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What kind of Self processed yarn do you use?

Eri	Muga	Mulberry	Cotton	Combination
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How do you maintain and keep record of the designs and motif.

On Graph	From samples	C.A.D.
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### Details of Natural Dye and Vegetable dye.

Do you dye your yarn before you weave?

Yes	No
-----	----

Is your vegetable dyeing ingredient easily available?

Yes	No
-----	----

Where do you collect these ingredients from?

Market	Forest	Own garden
--------	--------	------------

How have you learnt this process of dyeing?

On individual effort	From Elders in family.
----------------------	------------------------

Who helps in the collection of these ingredients?

Self	Male members of Family	Both
------	------------------------	------

Do you have knowledge of chemical Dye?

Yes	No
-----	----

What do you prefer most?

Chemical Dye	Traditional vegetable Dye
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If Chemical Dye, then why?

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If Traditional vegetable dye then why?

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Is weaving a full time activity or part-time.

Part-time	Full-Time
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Is your produce/ fabrics brought by merchants...Yes.....No.....

If yes, Do you get the actual price due and as its worth....Yes.....No.....

Duration of work hours.

Below 2 hours	2-4 hours	4-8 hours	8 hours & above
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What time of the day do you prefer to work most?

Morning	Afternoon	Evening	Any time of day
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**Health Conditions.**

While performing the weaving job, do you have physical trouble and back pain?

Yes	No	Occasionally
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What is your normal health condition?

Good	Bad
------	-----

According to your knowledge what is the average upper age limit of your elders.

Above 60	Above70	Above 80
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What are your food habits?

Vegetarian.....Nonvegetarian.....

Preferred way of cooking.

Spicy	Non-spicy	Boiled	Smoked
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### Appendix-3

#### Publications and papers presented

1. The transition of Assamese design elements within the perspective of identity-a Peace initiative

Jabeen Ghosh Dastidar (Rahman)(A) and Dr. Utpal Barua.(B)

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#### **Abstract:**

The Tai-Ahom Community in Assam has been recognized as a distinctive ethno-group with a lot of specialized traits of socio-political, religious, cultural, ethical, and economical extravaganza. But this community seems to be overshadowed by the passage of time. The North east India today is a turmoil area, where each citizen lives in a state of insecurity and strives to live peacefully. The thoughts and issues on peace are most pertaining, particularly to combat the issue of alienation. We must not forget the past where the amalgamated lot lived in peace sometimes accepting issues with no constrains, while at other times being staunch to ones innate customs, and still being interdependent on each other. Yes! That has been our Culture, and so is our Identity. The Tai-Ahom too projected such a culture may perhaps be studied for analyzing how far they had been able to put a mark on the identity of the profane ordinary day to day life of the people of Assam and at large the people of the north eastern part of India. The practical applicatory sector of Textiles in Upper Assam can be a strong tool to combat disparity and create an attractive economy for the upcoming youth.

#### **Transition of Design:**

Design just like any other cultural practices is an ever changing phenomenon, where the co-existent communities are continually transforming, adapting while sustaining their own heritage. The folk ethno-community is an ever sustaining area and can

also accommodate all changes while maintaining its root character which gives it its own distinctive identity. The availability of multifaceted Heritage elements within a variety of Hand crafted items and textiles have made Assam the hub or a melting pot of varied ethno cultures.

The strategic geographical position of the north eastern states of India have made it an amalgamation of composite cultures, altogether resulting into a rich cultural heritage , where the amalgamated communities had the facility to transit their idiom of design through conscious, unconscious adaptability.

The aim of the presentation of this paper is to look into the variety of Traditional Assamese design elements, its sources and how far have they been able to transit through the ages, while consciously or unconsciously recording their mark of Identity in the present existent designs in use. The designs under analysis will primarily be the Floral and foliage loti- form motifs that have retained their persistent identity through the ages.

Art is an individual experience and hence not susceptible to future course of action. But the design motivations can perhaps be defined and justified for which the study of the Design elements for the future product development has become a necessity for the north east India. Herein one must not overrule the fact that Traditional art, now designated as ethnic designs has ample scope for the study of interactive design in a scenario of Socio-Cultural backdrop, and within a framework of luxury of negation.

The paper looks into the possibilities of a new design exploration- Visual communication and seeswhether these design elements can be explored for ideas of memorable images and messages which can be read without texts- i.e. weather they have the power to inform, educate and perhaps selective form of images may be chosen to serve the purpose of Visual decipherence.

Jabeen Rahman Ghoshdastidar

Dr. Utpal Barua.

## **An Approach to understanding Indian Artistic Expressions through time and Geo-Physical space.**

Jabeen Ghosh Dastidar (Rahman)(A) and Dr. Utpal Barua.(B)

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(B) Department of Design, IT, Guwahati, Phone: 9435110869; e-mail- [utpalb@iitg.ernet.in](mailto:utpalb@iitg.ernet.in).

### **Abstract:**

This paper incorporates the highlighted features of Indian Artistic expressions, which starts with the Bronze Age and reflects the history of technology- of Metallurgy to start with. Comparison with the Near East and ancient Sumer throws light on the various trade links and how these artifacts could relate the connectivity between them. Gradually the chronology of the different periods of time with the examples cited from the various archeological heritage sites of India, gives a true picture of Indian heritage sites. The architectonic sculptures are further elaborated to understand the metaphysical concept behind such sculptures, especially those found in the Gupta and post Gupta period, at the Rock cut hills of western India. Special impetus is given to the medieval era controversial sculptures of central India, Eastern India and the western Indian.

Rasa and the symbolisms and similitude's with nature, and how they have been incorporated in accordance to the established aesthetic principles of Indian Art make the paper an apprehensive reading.

Sd-

Jabeen Rahman Ghoshdastidar

Sd/-

Dr. Utpal Barua.

**The role of Art and Crafts in Education: Paper presented at National Seminar organized by IGNOU in April-2009.**

Jabeen Ghosh Dastidar (Rahman)(A) and Dr. Utpal Barua.(B)

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**Abstract:**

Art in Education is an expanding field of research and therefore this paper highlights the following- like, learning with and through Art and artistic experience. It also explores how to transfer learning through art to other disciplines. For this, the discovering and understanding of human behavior, thinking potential and learning, especially through the close observation of works of art and design in our day to day utility items, and various forms of involvement in all expressions becomes the core idea of anal

- Arts integrated learning is a way to teach artistic skill in conjunction with academic material, their approach to education values, the process and experimental learning as much as creation of art objects or performance oriented learning.
- Children in themselves are creative, all one has to do is harness their potential to the maximum. One has to pick up and make them progress in their respective fields.
- Natural instinct of doodling needs to be encouraged.

Often Art is fundamentally an organic and measurable phenomenon. Just like breathing, it has rhythmic elements, like speech, expressive elements. Art is deeply involved in the actual process of perception, thought and bodily action. It is also related to conception and then finally finds place in one's expression. Without such human mechanism, civilizations would loosen its balance and also topple over into social and spiritual chaos.

The various components and properties of art like form, color and line are discussed to make one explicit, and how it has an impact in the imaginations of the creative realm of the child is a matter of observation and encouragement, by the elders grooming the child.

Often a work of art is a natural phenomenon, yet the artist today focuses his transformation of feelings, emotive aspects and his sense of taste through a set form of uniform scientific precision. Empathy is not only what the spectator projects into the work of design and Art, but his own emotions, feelings also become the mode of aesthetic perception.

Visual art education encompasses all the visual and performing arts- and is generally instructed by a qualified instructor. Above all art helps and teaches one to savor an aesthetic experience and learn through it.

Sd-

Jabeen Rahman Ghoshdastidar

Sd/-

Dr. Utpal Barua.

## Appendix-4

List of other Papers and Publications Based on Thesis material.

1. Ghosh Dastidar (Rahman), Jabeen. and Barua, Utpal ., Handloom Design Development and the need for training of conducive entrepreneurship: Paper presented at Suwalkuchi, Guwahati, organized by ARTFED, in Feb 2010.
2. Ghosh Dastidar (Rahman), Jabeen and Barua, Utpal. History and transition of design- An overview. Paper presented at Shillong, Meghalaya for Development Commissioner Handicraft, North East Region, Ministry of textile, Government of India. March- 2009.
3. Ghosh Dastidar (Rahman), Jabeen. and Barua, Utpal., The Indigenous Art of North East India and the importance of contemporary designs for handicraft: Presented at National level seminar at Assam, University, Silchar, and an extract later published in 'The Sharma Arts & Crafts House (SACH) Khongman Zone3-East Imphal, Manipur In year 2013.
4. Ghosh Dastidar (Rahman), Jabeen. and Barua, Utpal., Design Development for value added editions, AHVY Seminar, O/o Development Commissioner, Handicraft , North East Region, Ministry of textile, Government of India. February 2010.

## Native Tounge

1

**Ahom** – The Royal Tai’s established in Assam in the early medieval period

**Aiton** - One of the sub clan of the Tai’s in Assam.

**aarnaai** - stole

**Bel Pothar** - village of upper Assam

**Bihu** – Seasonal festival of Assam

**Borkapur** – long stole for men.

**Borphulia** – Long stole with large flowered motifs woven on it for use of men

**Buridihing** – Tributary of river Brahmaputra

**Batwa** - a type of purse

**Bukka** – A Thai Lungi

**Chang ghar** – stilt houses

**Chin** – long wraps for the lower body for Women (Tai’s)

**Churia** – long sleeved tunic worn by men.

**Chaddar** – long cloth wraps for the upper body

**Dhuti** - long wraps for the lower body For men

**Dhulbiri** - A Drum shaped pendent

3

**Muga** – a product silk worm *Antheraea – Assamensis* -silk thread golden in colour

**Nangwat** - long wraps for the upper body

**Nangwat Pojung** - wrap around made of Muga silk and worn by brides at the time of wedding

**Nam** – ceremonial flag used to decorate Vihars

**Odhni** – a diaphanous covering for head and upper body for women

**Phulam** – flower motifs

**Pat** - silkworm *Bombyx texta* produces this white/off white colour silk thread

**Riha** - a part of three piece Assames traditional Garment-

**Saleng** –Mulberry silk stole used by men in occasions

**Sangrahalaya** - museum

**Saikap** – a type of ethnic belt

**Tongali** - . tied around the waist (as a Sash) and was called theTongalis used by men while working in fields was a support to the backbone while performing forward bending jobs.

**Tepor- tenga** - (*Clusiaceae*) .the fruit of this plant Is acidic in nature & imparts colour Dye.

**Thung** – a type of ethnic bag

**Tonga** - a light horse drawn carriage

**Tongali** – wrap resembling a belt for men

<p><b>2</b></p> <p><b>Eri</b> - silk is made by <a href="#">Samia cynthia ricin</a> and the thread is soft and warm in nature &amp; is ideal for making quilts &amp; shawls – also called Endi or Errandi</p> <p><b>Fa- lung Or lungi</b> – lower body wraps for men</p> <p><b>Fahu</b> - Kind of headdress worn by elderly men and women like a turban</p> <p><b>Fa</b> - or the wrap around worn by men</p> <p><b>Fa'fok</b> - A kind of chequered wrap around the hip above the Chin) and generally used by spinster / unmarried girls).</p> <p><b>FaFuk'</b> - is a similar fabric which is also a sign of purity and sublime divinity, woven in white cotton and used as a stole for Unmarried girls. Also known as <b>Pha-phoi</b></p> <p><b>Gamosa</b> – Cloth used for wiping ('ga' means body &amp; mosa' means to wipe') presented to loved one's. also was used as waist wrap.</p> <p><b>Jun Biri</b> - A quarter-moon shaped pendent</p> <p><b>Kamarupa</b> – Ancient name of Assam</p> <p><b>Kāch-nilā</b> - shade of blue</p> <p><b>Kārkhānā</b> – factory.</p> <p><b>Keru</b> - A kind of decorative earrings</p> <p><b>Kathi- diya</b> – a stage of sericulture process</p> <p><b>Lohit</b> – Local name for Brahmaputra</p> <p><b>Misravarna</b> – mixture of colours.</p> <p><b>Methoni</b> – cloth wrap for the upper body</p> <p><b>Mekhela</b> - long wraps for the lower body for Women (Tai's)</p>	<p><b>4</b></p> <p><b>Zaminder</b> –landholders of demarcated vast areas</p> <p><b>Vrindavan</b> - place associated with lord Krishna ,holy place for the Hindus</p> <p><b>Vrindavani –vastra</b> – a woven tapestry illustrating Episodes of Lord Krishna</p>
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